Universiteit van Pretoria Jaarboek 2018

Fakulteit Natuur- en Landbouwetenskappe

Fakulteitsregulasies en -inligting

Die regulasies ten opsigte van grade wat hier verskyn, is onderhewig aan verandering en kan na die publikasie van hierdie inligting gewysig word.

Die Algemene Regulasies (G-regulasies) en Algemene Reëls is op alle fakulteite van die Universiteit van Pretoria van toepassing. Dit word vereis dat elke student volkome vertroud met hierdie regulasies, sowel as all fakulteitspesifieke en programspesifieke regulasiese en inligting, sal wees. Onkunde betreffende hierdie regulasies sal nie as 'n verskoning by oortreding daarvan aangebied kan word nie.

Vir verdere inligting oor nagraadse studies, raadpleeg asseblief die Engelse weergawe aangesien daardie inligting slegs in Engels beskikbaar is.

1. Eksamens

Sien ook Algemene Regulasies en Reëls

1.1 Eksamentoelatings- en slaagvereistes

a. Om in ’n module te slaag moet ’n student ’n finale punt van minstens 50% behaal.
b. Hoofstroommodules: ’n Minimum semesterpunt van 30% word vereis vir toelating tot die eksamen in ’n eerstesemestermodule op 100-vlak. ’n Minimum semester-/jaarpunt van 40% word vereis vir toelating tot die eksamen in alle ander modules.
c. BSc-vierjaarmodules: Alle student wat vir die eerste twee semesters van die verlengde BSc (Vierjaarprogram) geregistreer is, is daarop geregtig om die eksamen in daardie modules af te lê. Vir die derdesemestermodules word ’n minimum semesterpunt van 30% vir toelating tot die eksamen vereis.
d. Klasbywoning is verpligtend vir alle studente in alle modules vir die volle duur van die program. ’n Student kan toelating tot die eksamen, of bevordering tot ’n volgende studiejaar geweier word indien hy/sy nie aan die bywoningsvereistes voldoen nie.
e. In sekere modules, bv modules met ’n praktiese komponent, mag ’n departement addisionele vereistes stipuleer vir toelating tot die eksamen. Hierdie vereistes moet in die studiegids van die betrokke module gestipuleer word. ’n Student mag deur die betrokke departementshoof toelating tot die eksamen in ’n module geweier word indien die student nie aan hierdie vereistes voldoen nie.
f. In uitsonderlike gevalle, indien dit toepaslik geag word, mag die Dekaan van die Fakulteit ’n student verskoon om alle, of gedeeltes, van die aktiwiteite in ’n module by te woon.

Let wel: Die vereistes vir toelating tot die eksamen word in die studiehandleiding van elke module gepubliseer en die department moet die student met die aanvang van die module inlig oor al die vereistes waaraan voldoen moet word.

1.2 Subminima in eksamenvraestelle

’n Subminimum van 40% word in die eksamen in elke module vereis. Jaar- of semesterpunte vir ’n module word verkry deur deurlopende assessering van ’n student se prestasie gedurende die module. ’n Student moet die praktiese gedeelte van 'n module (indien van toepassing) bevredigend voltooi. Die metode wat gebruik word om die jaar- of semesterpunt te bepaal, word in die studiegids van die module uiteengesit.

1.3 Eksamens

Die eksamens vir eerstesemestermodules en eerste- en tweedekwartaalmodules, vind in Mei/Junie plaas, terwyl alle ander eksamens (tweedesemestermodules, derde- en vierdekwartaalmodules en jaarmodules) in Oktober/November plaasvind.

Die finale punt vir ’n module word saamgestel uit die jaar- of semesterpunte en die eksamenpunt, met die voorbehoud dat 'n module slegs geslaag kan word indien 'n subminimum van 40% in die eksamen behaal word en dat die praktiese komponent (indien van toepassing) van die module bevredigend voltooi is. Om in ’n module te slaag moet ’n student minstens ’n finale punt van 50% behaal. Die jaar- of semesterpunt moet in die bestek van 40%-60% en die eksamenpunt in die bestek van 40%-60% van die finale punt wees. Uitsonderings op hierdie reël kan deur die Dekaan goedgekeur word. Die formule wat gebruik word om die finale punt te bepaal, word in die studiegids van die module uiteengesit.

1.4 Aanvullende eksaminering

Die eksaminatore kan ’n student na aflegging van die eksamen en voor bekendmaking van die eksamenuitslae oproep om ’n aanvullende eksamen oor bepaalde aspekte van die werk van ’n module af te lê om te bepaal of:

- ’n kandidaat wat nie aan die slaagvereiste vir die module voldoen het nie, moontlik kan slaag; en
- ’n kandidaat wat nie aan die lof vereistes voldoen het nie, wel sy finale punt kan verbeter.

Dit is dus moontlik dat daar in ’n bepaalde module geen aanvullende eksamens toegestaan word nie, moontlik na gelang van die waarde wat ’n dosent aan deurlopende evaluering heg.

Indien aanvullende eksamens wel in ’n module toegeken word, moet die riglyne op grond waarvan ’n aanvullende eksamen oorweeg sal word, in die studiegids van die module gepubliseer word.

1.5 Hernasien van eksamenantwoordstelle (sien ook die G. Regulasies)

Departemente gee na eksaminering terugvoering aan studente oor die raamwerk wat eksaminatore tydens eksaminering gebruik. Die wyse waarop hierdie terugvoering geskied, word deur die departementshoof bepaal. Studente kan na insae en binne 14 kalenderdae na die aanvang van lesings in die volgende semester aansoek doen om die hernasien van ’n antwoordstel. Na betaling van die voorgeskrewe gelde, sal die antwoordstel hernagesien word deur ’n eksaminator wat deur die betrokke departementshoof aangewys is.

1.6 Hereksamens

(a) Hereksamens in eerstesemestermodules vind na afloop van die Mei-/Junie-eksamen plaas en dié in tweedesemestermodules en jaarmodules na afloop van die Oktober-/Novembereksamen.

(b) Om in die hereksamen te slaag, moet ’n student minstens 50% behaal.

(c) Die hoogste finale persentasie wat in ’n hereksamen aan ’n student toegeken kan word, is 50%.

(d) Spesiale hereksamens word nie gereël vir studente wat nie die eksamen kon aflê op die geskeduleerde datum en tyd vir hereksamens nie. (Verwys ook na die G. Regulasies.)

2. Spesiale eksamens in die Fakulteit Natuur- en Landbouwetenskappe

’n Student wat ’n maksimum van twee modules benodig en nie meer as 36 krediete uitstaande het om aan die vereistes vir die graad te voldoen, kan deur die Dekaan, op aanbeveling van die betrokke departementshoof(de), toegelaat word tot spesiale eksamens in modules waarin hy of sy gedruip het om sodoende aan die graadvereistes te voldoen.

Studente wat ’n finale punt van minder as 40% in enigeen van die betrokke modules behaal het, of wat reeds voorheen tot so ’n spesiale eksamen toegelaat is, kom nie in aanmerking nie.

3. Akademiese bevorderingsvereistes

Algemeen

Alle studente wie se akademiese vordering nie aanvaarbaar is nie se studies kan opgeskort word.

- ’n Student wat uitgesluit is van verdere studies in terme van die voorwaardes van bogenoemde regulasies, sal skriftelik in kennies gestel word deur die Dekaan of Toelatingskomitee aan die einde van die relevante semester.
- ’n Student wat uitgesluit is van verdere studies mag skriftelik aansoek doen by die Toelatingskomitee of die Fakulteit Natuur- en Landbouwetenskappe vir hertoelating.
- Indien die student hertoegelaat word deur die Toelatingskomitee, sal streng voor-waardes gestel word waaraan die student moet voldoen om voort te mag gaan met sy/haar studies.
- Indien die student nie deur die Toelatingskomitee hertoegelaat word vir verdere studies nie, sal hy/sy skriftelik in kennis gestel word.
- Studente wat nie deur die Toelatingskomitee hertoegelaat word nie, het die reg om by Senior Appèlkomitee te appelleer.
- Enige besluit wat deur die Senior Appèlkomitee geneem word, is finaal.

4. Erkenning van uitnemende prestasie

Kriteria vir voldoening

Daar moet aan die volgende kriteria voldoen word om vir erkenning in aanmerking te kom:

(a) Die Dekaan se Merietelys

’n Student kom hiervoor in aanmerking indien hy/sy al die registreerde modules soos deur ’n program voorgeskryf, die eerste keer en in elke jaarvlak (minimum 140 krediete per jaar/88 krediete vir die eerste jaar van die BSc (Vierjaarprogram) met ’n geweegde gemiddelde van 75% slaag.

(b) Ander presteerders

’n Student sal vir hierdie toekenning oorweeg word indien hy/sy al die registreerde modules soos deur ’n program voorgeskryf, die eerste keer en in elke jaarvlak (minimum 140 krediete per jaar/88 krediete vir die eerste jaar van die BSc (Vierjaarprogram) met ’n geweegde gemiddelde van 65% slaag.

5. Vereistes vir spesifieke modules

’n Kandidaat wat:

a. in die Graad 12-eksamen Wiskunde met minstens 60% geslaag het, verkry toelating tot die modules GLY 155, 161 en 162 in Geologie;
b. in die Graad 12-eksamen in Wiskunde met minstens 50% geslaag het, word tot WTW 134, WTW 115, WTW 146, WTW 152 en WTW 165 toegelaat, en met minstens 60% tot WTW 114 en WTW 158 in Wiskunde en WST 111 in Wiskundige Statistiek toegelaat (Vir die graadprogram in Aktuariële en Finansiële Wiskunde word 80% in Wiskunde vereis);
c. in die Graad 12-eksamen minstens 50% in Wiskunde en in Fisiese Wetenskappe behaal het, word tot Molekulêre en Selbiologie asook ’n module in die vakke Dierkunde en Entomologie, Genetika, Mikrobiologie of Plantkunde toegelaat;
d. in die Graad 12-eksamens minstens 50% in Wiskunde in behaal het, of minstens 50% in Statistiek 113, 123 behaal het word tot BME 120 toegelaat;
e. in die Graad 12-eksamen in Wiskunde en Fisiese Wetenskappe met minstens 50% geslaag het, word tot die volgende modules in Chemie, naamlik CMY 117, 127 en 151 en die volgende modules in Fisika, naamlik PHY 131 en 60% vir PHY 114 en PHY 124,
f. in die Graad 12-eksamen in Wiskunde minstens 4 (50-59%) behaal het en WTW 133 en WTW 143 geslaag het, word tot Informatika 153, 154, 163 en 164 toegelaat;

g. in die Graad 12-eksamen in Wiskunde minstens 60% behaal het, word toegelaat vir STK 110. Kandidate wat nie vir STK 110 kwalifiseer nie, moet vir STK 113 en STK 123 inskryf.
h. Die modules Wiskundige Statistiek (WST) en Statistiek (STK), behalwe vir STK 281, mag nie gelyktydig in ’n program geneem word nie.

Let wel:

a. *“in die Graad 12-eksamen”* verwys na die NSS-eindeksamen.
b. ’n Student wat ’n module volg wat deur ’n ander fakulteit aangebied word, moet hom of haar vergewis van en voldoen aan die toelatingsvereistes van die betrokke module, subminima in vraestelle, hereksamentydperke, ens.

6. Akademiese-inligtingbestuur (AIM 101/AIM 102 of AIM 111 en AIM 121)

Nuwe eerstejaarstudente is verplig om Akademiese-inligtingbestuurmodules te neem. Sien leergange vir meer besonderhede.

Voorgraadse Grade

BConSc Gasvryheidsbestuur (02130109)

Minimum duur van studie	4 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes								
Prestasievlak								
Afrikaans of Engels				**Wiskunde**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	4	3	D	D	28

Bevordering tot volgende studiejaar

'n Student wat nie al die modules van ’n betrokke studiejaar geslaag het nie, moet eers vir die ontbrekende modules registreer. Met goedkeuring van die departementshoof mag modules van die volgende studiejaar vooruit geneem word, mits daar geen roosterbotsings is nie, aan al die vereistes en voorvereistes voldoen is en nie meer as ’n toegelate aantal krediete per semester geneem word nie. By berekening van die toelaatbare aantal krediete, geld die krediete van die semester waarvan daar modules herhaal moet word, as riglyn.

a. 'n Student registreer as ’n tweedejaarstudent wanneer minstens 80% van die eerste jaar se modulekrediete geslaag is.
b. 'n Student registreer as derdejaarstudent wanneer minstens 85% van die voorafgaande jare se modulekrediete geslaag is.
c. 'n Student registreer as ’n vierdejaarstudent wanneer minstens 95% van die voorafgaande jare se modulekrediete geslaag is.

Praktiese/kliniese/internskapinligting

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Slaag met lof

Die graad word met lof toegeken aan ’n student wat in die ondergenoemde modules ’n geweegde gemiddelde van minstens 75% behaal het:
’n Kombinasie van modules gelykstaande aan ses semestermodules:

- Toerismebestuur 310
- Voedselnavorsingsprojek 480
- Grootskaalse voedselproduksie en restaurantbestuur 322
- Resepontwikkeling en -standaardisering 413
- Fyn kookkuns 414, 424
- Voedseldiensbestuur 420

Kurrikulum: Jaar 1

Minimum krediete: 128

Minimum krediete:

Fundamenteel = 12

Kern = 116 Krediete

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Studente wat nie kwalifiseer vir STK110 nie, moet vir STK113 en STK123 registreer

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Bemarkingsbestuur 120 (BEM 120) - Krediete: 10.00
Ekonomie 110 (EKN 110) - Krediete: 10.00
Ekonomie 120 (EKN 120) - Krediete: 10.00
Finansiële rekeningkunde 111 (FRK 111) - Krediete: 10.00
Finansiële rekeningkunde 121 (FRK 121) - Krediete: 12.00
Finansiële rekeningkunde 122 (FRK 122) - Krediete: 12.00
Fisiologie 110 (FSG 110) - Krediete: 6.00
Fisiologie 120 (FSG 120) - Krediete: 6.00
Ontwerpbeginsels 111 (OBG 111) - Krediete: 7.00
Ondernemingbestuur 114 (OBS 114) - Krediete: 10.00
Ondernemingsbestuur 124 (OBS 124) - Krediete: 10.00
Statistiek 110 (STK 110) - Krediete: 13.00
Basiese voedsel voorbereiding 111 (VDS 111) - Krediete: 6.00
Basiese voedselbereiding 121 (VDS 121) - Krediete: 6.00

Kurrikulum: Jaar 2

Minimum krediete: 128

Minimum krediete:

Kern = 128

Kernmodules

Arbeidsverhoudinge 320 (ABV 320) - Krediete: 20.00
Verbruikersgedrag 212 (BEM 212) - Krediete: 16.00
Besigheidsreg 210 (BER 210) - Krediete: 16.00
Ondernemingsbestuur 210 (OBS 210) - Krediete: 16.00
Ondernemingsbestuur 220 (OBS 220) - Krediete: 16.00
Verbruikersfasilitering 222 (VBF 222) - Krediete: 8.00
Voedselprodukte en -bereiding 210 (VDS 210) - Krediete: 18.00
Voedselprodukte en -bereiding 221 (VDS 221) - Krediete: 18.00

Kurrikulum: Jaar 3

Minimum krediete: 143

Minimum krediete:

Kern = 143

Kernmodules

Bemarkingsnavorsing 314 (BEM 314) - Krediete: 20.00
Estetika: Produk, verbruiker en omgewing 320 (EST 320) - Krediete: 8.00
Toerisme en gasvryheidsbestuur 311 (TBE 311) - Krediete: 20.00
Voedseldiensbestuur 321 (VDB 321) - Krediete: 18.00
Voeding 311 (VDG 311) - Krediete: 17.00
Voeding tydens lewenssiklus 321 (VDG 321) - Krediete: 17.00
Grootskaalse voedselproduksie en restaurantbestuur 322 (VDS 322) - Krediete: 31.00
Voedselveiligheid en higiëne 354 (VDS 354) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 130

Minimum krediete:

Kern = 130

Addisionele inligting:

OPI 400: (Praktykopleiding in die industrie): Studente moet gedurende die 4 jaar van studie, gedurende vakansietye, oor naweke en nauurs, ’n totaal van 480 ure praktyk-opleiding in die industrie doen om praktiese en bedryfsvaardighede te ontwikkel,deel te neem aan gemeenskapsontwikkeling en diensleer te verskaf. Dit is gelykstaande aan 3 weke x 40 uur (120 uur) per jaar vir die eerste tot derdejaar en 6 weke x 40 in die vierdejaar om die geleentheidsbestuur ure in te sluit, volgens die vereistes soos bepaal deur die departementshoof. Hierdie opleiding moet suksesvol voltooi wees tesame met bewyslewering van ’n volledige portefeulje alvorens die graad toegeken sal word.

Let wel: Verskeie praktiese en industrie-interaksie aktiwiteite ondersteun die teoretiese komponent van TBE 220, 310 asook VDS 322, VDS 414 & VDS 424 en vind plaas na-ure om praktiese en industrievaardighede te ontwikkel.

Kernmodules

Praktykopleiding in die industrie 400 (OPI 400) - Krediete: 5.00
Navorsingsprojek 400 (VBR 400) - Krediete: 30.00
Voedseldiensbestuur 420 (VDB 420) - Krediete: 21.00

Resepontwikkeling en standaardisering 413 (VDS 413) - Krediete: 30.00
Fyn kookkuns 414 (VDS 414) - Krediete: 22.00
Fyn kookkuns 424 (VDS 424) - Krediete: 22.00

BConSc Kledingkleinhandelbestuur (02130110)

Minimum duur van studie	4 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

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Minimum vereistes								
Prestasievlak								
Afrikaans of Engels				**Wiskunde**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	4	3	D	D	28

Bevordering tot volgende studiejaar

'n Student wat nie al die modules van ’n betrokke studiejaar geslaag het nie, moet eers vir die ontbrekende modules registreer. Met goedkeuring van die departementshoof mag modules van die volgende studiejaar vooruit geneem word, mits daar geen roosterbotsings is nie, aan al die vereistes en voorvereistes voldoen is en nie meer as ’n toegelate aantal krediete per semester geneem word nie. By berekening van die toelaatbare aantal krediete, geld die krediete van die semester waarvan daar modules herhaal moet word, as riglyn.

a. 'n Student registreer as ’n tweedejaarstudent wanneer minstens 80% van die eerste jaar se modulekrediete geslaag is.
b. 'n Student registreer as derdejaarstudent wanneer minstens 85% van die voorafgaande jare se modulekrediete geslaag is.
c. 'n Student registreer as ’n vierdejaarstudent wanneer minstens 95% van die voorafgaande jare se modulekrediete geslaag is.

Slaag met lof

Die graad word met lof toegeken aan ’n student wat in die ondergenoemde modules ’n geweegde gemiddelde van minstens 75% behaal het:
’n Kombinasie van modules gelykstaande aan ses semestermodules:

1. Bemarkingsnavorsing 314, Strategiese bemarking 321

2. Kledingkleinhandelbestuur 410 en Kledinghandelswarebestuur 420
3. Kledingklereproduksie 321, Produkontwikkeling 411
4. Projek: Kledingtekstielprojek 402
5. Nuwe ontwikkelings, volhoubaarheid en tekstiele in gebruik 411
6. Tekstielkunde: Bemarking en verbruikersaspekte 421

Kurrikulum: Jaar 1

Minimum krediete: 131

Minimum krediete:

Fundamenteel = 12

Kern = 119

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Studente wat nie kwalifiseer vir STK 110 nie, moet vir STK 113 en STK123 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Bemarkingsbestuur 120 (BEM 120) - Krediete: 10.00
Ekonomie 110 (EKN 110) - Krediete: 10.00
Ekonomie 120 (EKN 120) - Krediete: 10.00
Estetika 121 (EST 121) - Krediete: 9.00
Finansiële rekeningkunde 111 (FRK 111) - Krediete: 10.00
Finansiële rekeningkunde 122 (FRK 122) - Krediete: 12.00
Klereproduksie: Stiktegnieke 110 (KLR 110) - Krediete: 9.00
Klereproduksie: Prosesse 120 (KLR 120) - Krediete: 9.00
Ontwerpbeginsels 111 (OBG 111) - Krediete: 7.00
Ondernemingbestuur 114 (OBS 114) - Krediete: 10.00
Ondernemingsbestuur 124 (OBS 124) - Krediete: 10.00
Statistiek 110 (STK 110) - Krediete: 13.00

Kurrikulum: Jaar 2

Minimum krediete: 137

Minimum krediete:

Kern = 137

Kernmodules

Verbruikersgedrag 212 (BEM 212) - Krediete: 16.00

Geïntegreerde handelsnaamkommunikasie 224 (BEM 224) - Krediete: 16.00
Informatika 282 (INF 282) - Krediete: 3.00
Klere- en modegeskiedenis 210 (KLD 210) - Krediete: 12.00
Modevooruitskouing 222 (KLD 222) - Krediete: 12.00
Platpatroonontwerp 211 (KLR 211) - Krediete: 12.00
Patroongebruik en goeie pas 221 (KLR 221) - Krediete: 10.00
Ondernemingsbestuur 210 (OBS 210) - Krediete: 16.00
Ondernemingsbestuur 220 (OBS 220) - Krediete: 16.00
Tekstiele: bruikbaarheid, vesels en garings 212 (TKS 212) - Krediete: 14.00
Tekstiele: Struktuur en afwerking 222 (TKS 222) - Krediete: 10.00

Kurrikulum: Jaar 3

Minimum krediete: 120

Minimum krediete:

Kern = 120

Kernmodules

Bemarkingsnavorsing 314 (BEM 314) - Krediete: 20.00
Bemarkingsbestuur 321 (BEM 321) - Krediete: 20.00
Besigheidsreg 210 (BER 210) - Krediete: 16.00
Besigheidsreg 220 (BER 220) - Krediete: 16.00
Estetika: Produk, verbruiker en omgewing 320 (EST 320) - Krediete: 8.00
Sosiale en kulturele aspekte van kleding 311 (KLD 311) - Krediete: 15.00
Klereproduksie 321 (KLR 321) - Krediete: 17.00
Verbruikersfasilitering 222 (VBF 222) - Krediete: 8.00

Kurrikulum: Finale jaar

Minimum krediete: 125

Minimum krediete:

Kern = 122

Addisionele inligting:

KTP 403: Praktykopleiding in die industrie: Studente moet gedurende die 4 jaar van studie, gedurende vakansietye, oor naweke en na-uurs, ’n totaal van 480 uur praktyk-opleiding in die industrie doen om praktiese en bedryfsvaardighede te ontwikkel, deel te neem aan gemeenskapsprojekte/ontwikkeling en diensleergeleenthede te benut . Dit is gelykstaande aan 3 weke x 40 uur (120 uur) per jaar, volgens die vereistes soos bepaal deur die departementshoof.

Hierdie opleiding moet suksevol voltooi wees tesame met bewyslewering van ’n volledige portefeulje alvorens die graad toegeken sal word.

Kernmodules

Kleding kleinhandelbestuur 410 (KLD 410) - Krediete: 20.00
Kleding handelswarebestuur 420 (KLD 420) - Krediete: 20.00

Produkontwikkeling 411 (KLR 411) - Krediete: 19.00
Praktykopleiding in die industrie 403 (KTP 403) - Krediete: 5.00
Nuwe ontwikkelings en tekstiele in gebruik 411 (TKS 411) - Krediete: 13.00
Tekstiele: bemarking en vebruikersaspekte 421 (TKS 421) - Krediete: 15.00
Navorsingsprojek 400 (VBR 400) - Krediete: 30.00

BConSc Voedselkleinhandelbestuur (02130108)

Minimum duur van studie	4 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.?

Minimum vereistes								
Prestasievlak								
Afrikaans of Engels				**Wiskunde**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	4	3	D	D	28

Bevordering tot volgende studiejaar

'n Student wat nie al die modules van ’n betrokke studiejaar geslaag het nie, moet eers vir die ontbrekende modules registreer. Met goedkeuring van die departementshoof mag modules van die volgende studiejaar vooruit geneem word, mits daar geen roosterbotsings is nie, aan al die vereistes en voorvereistes voldoen is en nie meer as ’n toegelate aantal krediete per semester geneem word nie. By berekening van die toelaatbare aantal krediete, geld die krediete van die semester waarvan daar modules herhaal moet word, as riglyn.

a. 'n Student registreer as ’n tweedejaarstudent wanneer minstens 80% van die eerste jaar se modulekrediete geslaag is.
b. 'n Student registreer as derdejaarstudent wanneer minstens 85% van die voorafgaande jare se modulekrediete geslaag is.
c. 'n Student registreer as ’n vierdejaarstudent wanneer minstens 95% van die voorafgaande jare se modulekrediete geslaag is.

Slaag met lof

Die graad word met lof toegeken aan ’n student wat in die ondergenoemde modules ’n geweegde gemiddelde van minstens 75% behaal het:
’n Kombinasie van modules gelykstaande aan ses semestermodules:

- Bemarkingsnavorsing 314, Strategiese bemarking 321

- Voedseldiensbestuur 420
- Verbruikersvoedselnavorsing 310
- Voedselveiligheid en -higiëne 354
- Resepontwikkeling en -standaardisering 413
- Verbruikersaspekte van voedsel 417
- Voedselhandelswarevoorstelling 427
- Voedselnavorsingsprojek 480

Kurrikulum: Jaar 1

Minimum krediete: 128

Minimum krediete:

Fundamenteel = 12

Kern = 138

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Studente wat nie kwalifiseer vir STK110 nie, moet vir STK113 en STK123 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Bemarkingsbestuur 120 (BEM 120) - Krediete: 10.00
Ekonomie 110 (EKN 110) - Krediete: 10.00
Finansiële rekeningkunde 111 (FRK 111) - Krediete: 10.00
Finansiële rekeningkunde 122 (FRK 122) - Krediete: 12.00
Fisiologie 110 (FSG 110) - Krediete: 6.00
Fisiologie 120 (FSG 120) - Krediete: 6.00
Ontwerpbeginsels 111 (OBG 111) - Krediete: 7.00
Ondernemingbestuur 114 (OBS 114) - Krediete: 10.00
Ondernemingsbestuur 124 (OBS 124) - Krediete: 10.00
Statistiek 110 (STK 110) - Krediete: 13.00
Basiese voedsel voorbereiding 111 (VDS 111) - Krediete: 6.00
Basiese voedselbereiding 121 (VDS 121) - Krediete: 6.00

Kurrikulum: Jaar 2

Minimum krediete: 127

Minimum krediete:

Kern = 127

Kernmodules

Verbruikersgedrag 212 (BEM 212) - Krediete: 16.00
Geïntegreerde handelsnaamkommunikasie 224 (BEM 224) - Krediete: 16.00
Besigheidsreg 210 (BER 210) - Krediete: 16.00
Besigheidsreg 220 (BER 220) - Krediete: 16.00
Informatika 282 (INF 282) - Krediete: 3.00
Ondernemingsbestuur 210 (OBS 210) - Krediete: 16.00
Verbruikersfasilitering 222 (VBF 222) - Krediete: 8.00
Voedselprodukte en -bereiding 210 (VDS 210) - Krediete: 18.00
Voedselprodukte en -bereiding 221 (VDS 221) - Krediete: 18.00

Kurrikulum: Jaar 3

Minimum krediete: 135

Minimum krediete:

Kern = 135

Kernmodules

Arbeidsverhoudinge 320 (ABV 320) - Krediete: 20.00
Bemarkingsnavorsing 314 (BEM 314) - Krediete: 20.00
Bemarkingsbestuur 321 (BEM 321) - Krediete: 20.00
Estetika: Produk, verbruiker en omgewing 320 (EST 320) - Krediete: 8.00
Voeding 311 (VDG 311) - Krediete: 17.00
Voeding tydens lewenssiklus 321 (VDG 321) - Krediete: 17.00
Verbruikersvoedselnavorsing 310 (VDS 310) - Krediete: 21.00
Voedselveiligheid en higiëne 354 (VDS 354) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 131

Minimum krediete:

Kern = 131

Addisionele inligting:

OPI 400: (Praktykopleiding in die industrie): Studente moet gedurende die vier (4) jaar van studie, gedurende vakansietye, oor naweke en nauurs, ’n totaal van 480 ure praktyk-opleiding in die industrie doen om praktiese en bedryfsvaardighede te ontwikkel, deel te neem aan gemeenskapsontwikkeling en diensleer te verskaf Dit is gelykstaande aan 3 weke x 40 uur (120 uur) per jaar, volgens die vereistes soos bepaal deur die departementshoof. Hierdie opleiding moet suksesvol voltooi wees tesame met bewyslewering van ’n volledige portefeulje alvorens die graad toegeken sal word.

Let wel: Hierdie praktiese en industrie-aktiwiteite ondersteun die teoretiese komponente van VDS 417 & VDS 427, VDS 413 en FST 412 en vind naure plaas ten einde praktiese en industrievaardighede te ontwikkel.

Kernmodules

Sintuiglike evaluering 412 (FST 412) - Krediete: 10.00

Praktykopleiding in die industrie 400 (OPI 400) - Krediete: 5.00
Navorsingsprojek 400 (VBR 400) - Krediete: 30.00
Voedseldiensbestuur 420 (VDB 420) - Krediete: 21.00
Resepontwikkeling en standaardisering 413 (VDS 413) - Krediete: 30.00
Verbruikersaspekte van voedsel 417 (VDS 417) - Krediete: 15.00
Voedselhandelswarevoorstelling 427 (VDS 427) - Krediete: 17.00

BSc Aktuariële en Finansiële Wiskunde (02133395)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.
- Toelating vanaf die BSc – Verlengde program na die BSc (Aktuariële en Finansiële Wiskunde)-program sal slegs oorweeg word indien die studente al hul eerstejaarmodules slaag met ‘n gemiddelde persentasie van ten minste 60%, en ook ‘n minimum persentasie van 60% behaal vir WTW143 en WTW153.

Minimum vereistes								
Prestasievlak								
Afrikaans of Engels				**Wiskunde**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	7	1	A	A	34

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Aktuariële en Finansiële Wiskunde)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Wiskundige Wetenskappe:

Minimum vereistes									
Prestasievlak									
	Afrikaans of Engels				**Wiskunde**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Wiskundige Wetenskappe	4	3	D	D	5	3	C	C	26

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 150

Minimum krediete:

Fundamenteel = 12

Kern = 138

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules
Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules
Imperatiewe programmering 132 (COS 132) - Krediete: 16.00
Ekonomie 113 (EKN 113) - Krediete: 15.00
Ekonomie 123 (EKN 123) - Krediete: 15.00
Finansiële bestuur 112 (FBS 112) - Krediete: 10.00
Finansiële bestuur 122 (FBS 122) - Krediete: 10.00
Wiskundige statistiek 111 (WST 111) - Krediete: 16.00
Wiskundige statistiek 121 (WST 121) - Krediete: 16.00
Calculus 114 (WTW 114) - Krediete: 16.00
Numeriese analise 123 (WTW 123) - Krediete: 8.00
Wiskunde 124 (WTW 124) - Krediete: 16.00

Kurrikulum: Jaar 2
Minimum krediete: 146

Minimum krediete:

Kern = 134

Keuse = 12

Addisionele inligting:

Keuse krediete kan gekies word tussen IAS 282 of WTW 221

Kernmodules
Aktuariële wiskunde 211 (IAS 211) - Krediete: 12.00
Aktuariële wiskunde 221 (IAS 221) - Krediete: 12.00
Informatika 214 (INF 214) - Krediete: 14.00
Wiskundige statistiek 211 (WST 211) - Krediete: 24.00
Wiskundige statistiek 221 (WST 221) - Krediete: 24.00
Lineêre algebra 211 (WTW 211) - Krediete: 12.00
Calculus 218 (WTW 218) - Krediete: 12.00
Analise 220 (WTW 220) - Krediete: 12.00
Differensiaalvergelykings 264 (WTW 264) - Krediete: 12.00

Keusemodules
Finansiële wiskunde 282 (IAS 282) - Krediete: 12.00
Lineêre algebra 221 (WTW 221) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 162

Minimum krediete:

Kern = 126

Keuse = 36

Addisionele inligting:

Keusemodules moet gekies word uit: IAS 353, IAS 361, IAS 382, STK 353, WTW 320, WTW 382, WTW 383, WTW 386.

Kernmodules

Meerveranderlike analise 311 (WST 311) - Krediete: 18.00
Stogastiese prosesse 312 (WST 312) - Krediete: 18.00
Tydreeksanalise 321 (WST 321) - Krediete: 18.00
Aktuariële statistiek 322 (WST 322) - Krediete: 18.00
Analise 310 (WTW 310) - Krediete: 18.00
Finansiële ingenieurswese 354 (WTW 354) - Krediete: 18.00
Finansiële ingenieurswese 364 (WTW 364) - Krediete: 18.00

Keusemodules

Gebeurlikhede 353 (IAS 353) - Krediete: 18.00
Versekerings- en aktuariële toepassings 361 (IAS 361) - Krediete: 18.00
Aktuariële modellering 382 (IAS 382) - Krediete: 20.00
Die wetenskap van data-ontleding 353 (STK 353) - Krediete: 25.00
Komplekse analise 320 (WTW 320) - Krediete: 18.00
Dinamiese stelsels 382 (WTW 382) - Krediete: 18.00
Numeriese analise 383 (WTW 383) - Krediete: 18.00
Parsiële differensiaalvergelykings 386 (WTW 386) - Krediete: 18.00

BSc Biochemie (02133398)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes
Prestasievlak

Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Biochemie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

T

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-

/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete
Fundamentele modules = 12 krediete
Kernmodules = 128 krediete

Nota: Studente wat nie vir AIM 102 kwalifiseer nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete
Core modules = 120 credits
Elective modules = 24 credits

Inligting rakende dubbelhoofvakke
Die volgende kernmodules is verpligtend: BCM 251, 252, 261, GTS 251, 261.
Studente wat Biochemie as 'n dubbelhoofvak kombineer met die volgende velde moet vir keusemodules soos volg registreer:

- **Chemie:** BCM 262, CMY 282, 283, 284 en 285; plus twee keusemodules.
- **Genetika:** BCM 262, CMY 282, 283, 284 en 285, MBY 251 en 261.
- **Mensfisiologie:** BCM 262, FLG 211, 212, 221 en 222, MBY 251 en 261.

- **Mikrobiologie:** BCM 262, CMY 282, 283 en 284, MBY 251 en 261, PLG 262.
- **Plantkunde:** BCM 262, BOT 251 en 252, CMY 282, 283, 284 en 285.
- **Dierkunde:** BOT 251 en 261, GLY 163, MBY 251 en 261, ZEN 251 en 261**.**

Kernmodules
Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Fisiese chemie 282 (CMY 282) - Krediete: 12.00
Analitiese chemie 283 (CMY 283) - Krediete: 12.00
Organiese chemie 284 (CMY 284) - Krediete: 12.00
Anorganiese chemie 285 (CMY 285) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00

Keusemodules
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Inleidende en neurofisiologie 211 (FLG 211) - Krediete: 12.00
Sirkulatoriese fisiologie 212 (FLG 212) - Krediete: 12.00
Long- en nierfisiologie, suurbasis-ewewig en temperatuur 221 (FLG 221) - Krediete: 12.00
Vertering, endokrinologie en voortplantingstelsels 222 (FLG 222) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00
Beginsels van plantpatologie 262 (PLG 262) - Krediete: 12.00

Kurrikulum: Finale jaar
Minimum krediete: 144

Minimum krediete
Kernmodule = 72 krediete
Keusemodules = 72 krediete

Inligting rakende dubbelhoofvakke
Alle kernmodules is verpligtend.
Studente wat Biochemie as 'n dubbelhoofvak kombineer met die volgende velde moet vir keusemodules soos volg registreer:

- **Chemie:** Al vier gelyste CMY modules.
- **Genetika:** Al vier gelyste GTS modules.
- **Mensfisiologie:** Al vier gelyste FLG modules.
- **Mikrobiologie:** Al vier gelyste MBY modules.
- **Plantkunde:** Al vier gelyste BOT modules.
- **Dierkunde:** Al vier gelyste ZEN modules.

Kernmodules
Macromolekules van die lewe: struktuurfunksie en bioinformatika 356 (BCM 356) - Krediete: 18.00
Biokatalisering en integrasie van metabolisme 357 (BCM 357) - Krediete: 18.00

Selstruktuur en -funksie 367 (BCM 367) - Krediete: 18.00
Molekulêre grondslag van siekte 368 (BCM 368) - Krediete: 18.00

Keusemodules
Plantekofisiologie 356 (BOT 356) - Krediete: 18.00
Plantekologie 358 (BOT 358) - Krediete: 18.00
Fitomedisyne 365 (BOT 365) - Krediete: 18.00
Plantdiversiteit 366 (BOT 366) - Krediete: 18.00
Plantgenetika en gewasbiotegnologie 361 (BTC 361) - Krediete: 18.00
Fisiese chemie 382 (CMY 382) - Krediete: 18.00
Analitiese chemie 383 (CMY 383) - Krediete: 18.00
Organiese chemie 384 (CMY 384) - Krediete: 18.00
Anorganiese chemie 385 (CMY 385) - Krediete: 18.00
Hoër neurologiese funksies 327 (FLG 327) - Krediete: 18.00
Sellulêre en ontwikkelingsfisiologie 330 (FLG 330) - Krediete: 18.00
Toegepaste en patofisiologie 332 (FLG 332) - Krediete: 18.00
Eukariote geenbeheer en -ontwikkeling 351 (GTS 351) - Krediete: 18.00
Genoom-evolusie en filogenetika 354 (GTS 354) - Krediete: 18.00
Populasie en evolusionêre genetika 367 (GTS 367) - Krediete: 18.00
Genetika in mensgesondheid 368 (GTS 368) - Krediete: 18.00
Virologie 351 (MBY 351) - Krediete: 18.00
Bakteriese genetika 355 (MBY 355) - Krediete: 18.00
Genetiese manipulasie van mikrobes 364 (MBY 364) - Krediete: 18.00
Mikrobe-interaksies 365 (MBY 365) - Krediete: 18.00

BSc Biologiese Wetenskappe (02133397)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.
- Hierdie is ‘n generiese eerstejaarsprogram in Biologiese Wetenskappe. Studente wat onseker is oor watter spesialiseringsgraadprogram om te kies, kan vir hierdie program aansoek doen. Studente wat wil aansoek doen om toelating tot een van die MBChB- of BChD-plekke wat in die tweede semester beskikbaar word, mag in die eerste semester registreer vir BSc (Biologiese Wetenskappe) en mag vir die modules Wêreldbeelde (FIL155), Mense en hul Omgewing (MGW112) en Mediese Terminologie (MTL180) in die plek van Wiskunde (WTW134) registreer, op voorwaarde dat hierdie studente, indien hulle nie gekeur word nie en met een van die Biologiese Wetenskappe-programme wil voortgaan, Wiskunde (WTW134) in die tweede semester van die eerste jaar moet voltooi.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Biologiese Wetenskappe)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot

hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

BSc Biotegnologie (02133403)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van

Pretoria is.

- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Biotegnologie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

Studente mag vir AIM 111 en AIM 121 in plaas van AIM 101 inskryf (dieselfde inhoud oor twee semesters versprei).

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50%

oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete:

Kern = 108

Keuse = 36

Addisionele inligting:

Keusemodules mag gekies word uit BCM 262, BME 210, DAF 200, FST 250, GGY 283, GKD 250, MBY 262, PLG 251, PLG 262, PPK 251 of [ZEN 251 en ZEN 261] of ander module/s onderhewig aan departementele goedkeuring.

Let wel:

- Studente wat daarin belangstel om **Biochemie** op nagraadse vlak te neem, moet BCM 262 neem.
- Studente wat daarin belangstel om **Mikrobiologie** op nagraadse vlak te neem, moet PLG 262 neem.

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00

Keusemodules

Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Biometrie 210 (BME 210) - Krediete: 24.00
Diereanatomie en -fisiologie 200 (DAF 200) - Krediete: 32.00
Inleiding tot voedselwetenskap en -tegnologie 250 (FST 250) - Krediete: 12.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Voedselmikrobiologie 262 (MBY 262) - Krediete: 12.00
Inleidende gewasbeskerming 251 (PLG 251) - Krediete: 12.00
Beginsels van plantpatologie 262 (PLG 262) - Krediete: 12.00
Volhoubare gewasproduksie en agroklimatologie 251 (PPK 251) - Krediete: 15.00
Invertebraatbiologie 251 (ZEN 251) - Krediete: 12.00
Afrika-vertebrate 261 (ZEN 261) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 54

Keuse = 90

Addisionele inligting:

Kontak die Departement Genetika vir inligting rakende keusemodules in die derde jaar.

Kernmodules

Macromolekules van die lewe: struktuurfunksie en bioinformatika 356 (BCM 356) - Krediete: 18.00
Eukariote geenbeheer en -ontwikkeling 351 (GTS 351) - Krediete: 18.00
Genetiese manipulasie van mikrobes 364 (MBY 364) - Krediete: 18.00

Keusemodules

Biokatalisering en integrasie van metabolisme 357 (BCM 357) - Krediete: 18.00
Selstruktuur en -funksie 367 (BCM 367) - Krediete: 18.00
Molekulêre grondslag van siekte 368 (BCM 368) - Krediete: 18.00
Plantekofisiologie 356 (BOT 356) - Krediete: 18.00
Plantekologie 358 (BOT 358) - Krediete: 18.00
Fitomedisyne 365 (BOT 365) - Krediete: 18.00
Plantdiversiteit 366 (BOT 366) - Krediete: 18.00
Plantgenetika en gewasbiotegnologie 361 (BTC 361) - Krediete: 18.00
Genoom-evolusie en filogenetika 354 (GTS 354) - Krediete: 18.00
Populasie en evolusionêre genetika 367 (GTS 367) - Krediete: 18.00
Genetika in mensgesondheid 368 (GTS 368) - Krediete: 18.00
Virologie 351 (MBY 351) - Krediete: 18.00
Bakteriese genetika 355 (MBY 355) - Krediete: 18.00
Mikrobe-interaksies 365 (MBY 365) - Krediete: 18.00
Algemene plantpatologie 351 (PLG 351) - Krediete: 18.00
Bestrydingkunde 363 (PLG 363) - Krediete: 18.00

BSc Chemie (02133173)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	32

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Chemie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Fisiese Wetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Fisiese Wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	26

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 96

Keuse = 32

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Eerste kursus in fisika 114 (PHY 114) - Krediete: 16.00
Eerste kursus in fisika 124 (PHY 124) - Krediete: 16.00
Calculus 114 (WTW 114) - Krediete: 16.00
Wiskunde 124 (WTW 124) - Krediete: 16.00

Keusemodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Aspekte van menslike geografie 156 (GGY 156) - Krediete: 8.00
Suider-Afrikaanse geomorfologie 166 (GGY 166) - Krediete: 8.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Atmosferiese struktuur en prosesse 155 (WKD 155) - Krediete: 16.00
Klimaat en weer van Suider-Afrika 164 (WKD 164) - Krediete: 8.00
Diskrete strukture 115 (WTW 115) - Krediete: 8.00
Dinamiese prosesse 162 (WTW 162) - Krediete: 8.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete:

Kern = 48

Keuse = 96

Addisionele inligting:

Keusemodules in die tweede studiejaar kan gekies word uit modules in die volgende departemente: Geografie, Geoinformatika en Meteorologie, Geologie, Dierkunde en Entomologie, Fisika, Plantkunde, Rekenaarwetenskap, Wiskunde en Toegepaste Wiskunde.

Kernmodules

Fisiese chemie 282 (CMY 282) - Krediete: 12.00
Analitiese chemie 283 (CMY 283) - Krediete: 12.00
Organiese chemie 284 (CMY 284) - Krediete: 12.00
Anorganiese chemie 285 (CMY 285) - Krediete: 12.00

Keusemodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Inleidende en neurofisiologie 211 (FLG 211) - Krediete: 12.00
Sirkulatoriese fisiologie 212 (FLG 212) - Krediete: 12.00
Long- en nierfisiologie, suurbasis-ewewig en temperatuur 221 (FLG 221) - Krediete: 12.00
Vertering, endokrinologie en voortplantingstelsels 222 (FLG 222) - Krediete: 12.00
Stedelike struktuur, omgewing en samelewing 266 (GGY 266) - Krediete: 24.00
Geografiese data-analise 220 (GIS 220) - Krediete: 14.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00
Lineêre algebra 211 (WTW 211) - Krediete: 12.00
Calculus 218 (WTW 218) - Krediete: 12.00
Analise 220 (WTW 220) - Krediete: 12.00
Lineêre algebra 221 (WTW 221) - Krediete: 12.00
Vektoranalise 248 (WTW 248) - Krediete: 12.00
Diskrete strukture 285 (WTW 285) - Krediete: 12.00
Differensiaalvergelykings 286 (WTW 286) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 72

Keuse = 72

Kernmodules

Fisiese chemie 382 (CMY 382) - Krediete: 18.00

Analitiese chemie 383 (CMY 383) - Krediete: 18.00
Organiese chemie 384 (CMY 384) - Krediete: 18.00
Anorganiese chemie 385 (CMY 385) - Krediete: 18.00

Keusemodules

Macromolekules van die lewe: struktuurfunksie en bioinformatika 356 (BCM 356) - Krediete: 18.00
Biokatalisering en integrasie van metabolisme 357 (BCM 357) - Krediete: 18.00
Selstruktuur en -funksie 367 (BCM 367) - Krediete: 18.00
Molekulêre grondslag van siekte 368 (BCM 368) - Krediete: 18.00
Volhoubare ontwikkeling 356 (GGY 356) - Krediete: 18.00
Toegepaste geomorfologie 363 (GGY 363) - Krediete: 12.00
Ontwikkelingsraamwerke 366 (GGY 366) - Krediete: 18.00
Geografiese inligtingstelsels 310 (GIS 310) - Krediete: 22.00
Ruimtelike analise 320 (GIS 320) - Krediete: 22.00
Numeriese analise 383 (WTW 383) - Krediete: 18.00
Meetkunde 389 (WTW 389) - Krediete: 18.00

BSc Dierkunde (02133399)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Dierkunde)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 138

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 148

Minimum krediete:

Kern = 136

Keuse = 12

Addisionele inligting:

- Studente wat daarin belangstel om Dierkunde in dubbelhoofvak met Biochemie of Genetika te kombineer moet BCM 261 as 'n keuse module te neem
- Studente wat daarin belangstel om Dierkunde as 'n dubbelhoofvak met Biochemie te kombineer moet ook BOT 261 of MBY 261 met BCM 262 vervang.

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Aardgeskiedenis 163 (GLY 163) - Krediete: 16.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00
Invertebraatbiologie 251 (ZEN 251) - Krediete: 12.00

Afrika-vertebrate 261 (ZEN 261) - Krediete: 12.00

Keusemodules

Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Voedselmikrobiologie 262 (MBY 262) - Krediete: 12.00
Inleidende gewasbeskerming 251 (PLG 251) - Krediete: 12.00
Beginsels van plantpatologie 262 (PLG 262) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 144

Addisionele inligting:

Enkelhoofvak

Student moet al agt modules gelys in die vaste kurrikulum vir die finale jaar neem

Dubbelhoofvak

- **Dierkunde en Biochemie kombinasie:** Studente moet [ZEN 352 + ZEN 354] en [ZEN 361 + ZEN 363] tot 'n totale waarde van 72 krediete neem en moet [BCM 356 + BCM 357] en [BCM 367 en BCM 368] neem.
- **Dierkunde en Ginetika kombinasie:** Studente moet [ZEN 352 + ZEN 354] en [ZEN 361 + ZEN 363] tot 'n totale waarde van 72 krediete neem en moet [GTS 351 + GTS 354] en [GTS 367 en GTS 368 of BTC 361] tot 'n totale waarde van 72 krediete neem.
- **Dierkunde en Plantkunde kombinasie:** Studente moet [ZEN 352 + ZEN 354] en [ZEN 362 + ZEN 364] tot 'n totale waarde van 72 krediete neem en moet ook [BOT 356 en BOT 358] en [BOT 366 en BOT 365 of BTC 361] tot 'n totale krediet waarde van 72 neem.

Kernmodules

Bevolkingsekologie 351 (ZEN 351) - Krediete: 18.00
Soogdierkunde 352 (ZEN 352) - Krediete: 18.00
Gemeenskapsekologie 353 (ZEN 353) - Krediete: 18.00
Evolusionêre fisiologie 354 (ZEN 354) - Krediete: 18.00
Fisiologiese prosesse 361 (ZEN 361) - Krediete: 18.00
Evolusie en filogenie 362 (ZEN 362) - Krediete: 18.00
Gedragsekologie 363 (ZEN 363) - Krediete: 18.00
Bewaringsekologie 364 (ZEN 364) - Krediete: 18.00

BSc Ekologie (02133400)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde

van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Ekologie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud

oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 138

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 146

Minimum krediete:

Kern = 136

Keuse = 10

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Aardgeskiedenis 163 (GLY 163) - Krediete: 16.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00
Invertebraatbiologie 251 (ZEN 251) - Krediete: 12.00
Afrika-vertebrate 261 (ZEN 261) - Krediete: 12.00

Keusemodules

Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Inleidende gewasbeskerming 251 (PLG 251) - Krediete: 12.00
Beginsels van plantpatologie 262 (PLG 262) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 144

Kernmodules

Plantekofisiologie 356 (BOT 356) - Krediete: 18.00
Plantekologie 358 (BOT 358) - Krediete: 18.00
Plantdiversiteit 366 (BOT 366) - Krediete: 18.00
Bevolkingsekologie 351 (ZEN 351) - Krediete: 18.00
Gemeenskapsekologie 353 (ZEN 353) - Krediete: 18.00
Fisiologiese prosesse 361 (ZEN 361) - Krediete: 18.00
Evolusie en filogenie 362 (ZEN 362) - Krediete: 18.00
Bewaringsekologie 364 (ZEN 364) - Krediete: 18.00

BSc Entomologie (02133401)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Entomologie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die

Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 138

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00

Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 148

Minimum krediete:

Kern = 136

Keuse = 12

Addisionele inligting:

- **?**Studente wat daarin belangstel om Entomologie as 'n dubbelhoofvak met Biochemie of Genetika te kombineer moet, BCM 261 as 'n keuse vak neem
- **?**Studente wat daarin belangstel om Entomologie as 'n dubbelhoofvak met Biochemie te kombineer moet ook BOT 261 of MBY 261 met BCM 262 vervang

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Aardgeskiedenis 163 (GLY 163) - Krediete: 16.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00
Invertebraatbiologie 251 (ZEN 251) - Krediete: 12.00
Afrika-vertebrate 261 (ZEN 261) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 144

Addisionele inligting:

Enkelhoofvak opsie

Opsie om ZEN 361 met ZEN 363 te vervang. Daarbenewens moet studente al sewe modules in die vaste kurrikulum vir die finale jaar neem.

Dubbelhoofvak opsie

- **Entomologie en Biochemie kombinasie:** Studente moet [ZEN 354 + ZEN 355] en [ZEN 361 + ZEN 365] neem tot 'n totale waarde van 72 krediete en moet [BCM 356 en BCM 357] en [BCM 367 en BCM 368] neem
- **Entomologie en Genetika kombinasie:** Studente moet [ZEN 354 + ZEN 355] en [ZEN 361 + ZEN 365] neem tot 'n totale waarde van 72 krediete en moet [GTS 351 en GTS 354] en [GTS 367 en of BTC 361 of GTS 368] neem tot 'n waarde van 72 krediete.
- **Entomologie en Plantwetenskappe kombinasie:** Studente moet [ZEN 354 + ZEN 355] en [ZEN 362 + ZEN

365] neem tot 'n totale waarde van 72 krediete, en moet [BOT 356 en BOT 358] en [BOT 366 en of BOT 365 of BTC 361] neem tot 'n waarde van 72 krediete.

Kernmodules

Bevolkingsekologie 351 (ZEN 351) - Krediete: 18.00
Gemeenskapsekologie 353 (ZEN 353) - Krediete: 18.00
Evolusionêre fisiologie 354 (ZEN 354) - Krediete: 18.00
Insekdiversiteit 355 (ZEN 355) - Krediete: 18.00
Fisiologiese prosesse 361 (ZEN 361) - Krediete: 18.00
Evolusie en filogenie 362 (ZEN 362) - Krediete: 18.00
Bewaringsekologie 364 (ZEN 364) - Krediete: 18.00
Toegepaste entomologie 365 (ZEN 365) - Krediete: 18.00

BSc Fisika (02133203)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente.
- Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	32

Kandidate wat nie aan bogenoemde minimum toelatingsvereistes voldoen nie omdat hulle ‘n NSS/IEB-prestasievlak van 4 behaal het in een van die voorgeskrewe voorvereiste vakke moet die NBT aflê en mag dan oorweeg word vir toelating tot die BSc of die BSc (Verlengdeprogram) op grond van die uitslae van die NBT.

BSc - Verlengde program vir Fisiese Wetenskappe

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc - Verlengde proegram vir Fisiese Wetenskap	4	3	D	D	4	3	D	D	4	3	D	D	26

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 64

Keuse = 64

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

CMY117,127 word aanbeveel. Keusemodules kan gekies word uit bv Wiskunde, Weer-kunde, Geologie, Geografie, IT, Wiskundige Statistiek, Rekenaarwetenskap, Biochemie, Dierkunde ens.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Eerste kursus in fisika 114 (PHY 114) - Krediete: 16.00
Eerste kursus in fisika 124 (PHY 124) - Krediete: 16.00
Calculus 114 (WTW 114) - Krediete: 16.00
Wiskunde 124 (WTW 124) - Krediete: 16.00

Keusemodules

Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Verkenning van die heelal 154 (SCI 154) - Krediete: 16.00
Diskrete strukture 115 (WTW 115) - Krediete: 8.00
Numeriese analise 123 (WTW 123) - Krediete: 8.00
Wiskundige modellering 152 (WTW 152) - Krediete: 8.00
Dinamiese prosesse 162 (WTW 162) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete:

Kern = 96

Keuse = 48

Addisionele inligting:

Keusemodules kan uit bv Wiskunde, Weerkunde, Geologie, Geografie, IT en Wiskundige Statistiek ens. gekies word. Studente wat in verdere studie in die sterrekunde belangstel, word aangeraai om PHY 210 Sterrekunde vir fisici as keusemodule te oorweeg.

Kernmodules

Golwe, termodinamika en moderne fisika 255 (PHY 255) - Krediete: 24.00
Algemene fisika 263 (PHY 263) - Krediete: 24.00

Lineêre algebra 211 (WTW 211) - Krediete: 12.00
Calculus 218 (WTW 218) - Krediete: 12.00
Analise 220 (WTW 220) - Krediete: 12.00
Vektoranalise 248 (WTW 248) - Krediete: 12.00

Keusemodules
Fisiese chemie 282 (CMY 282) - Krediete: 12.00
Analitiese chemie 283 (CMY 283) - Krediete: 12.00
Organiese chemie 284 (CMY 284) - Krediete: 12.00
Anorganiese chemie 285 (CMY 285) - Krediete: 12.00
Prosesgeomorfologie 252 (GGY 252) - Krediete: 12.00
Geomorfologie van die bou-omgewing 265 (GGY 265) - Krediete: 12.00
Stedelike struktuur, omgewing en samelewing 266 (GGY 266) - Krediete: 24.00
Geografiese data-analise 220 (GIS 220) - Krediete: 14.00
Fisiese weerkunde 261 (WKD 261) - Krediete: 12.00
Inleiding tot dinamiese weerkunde 263 (WKD 263) - Krediete: 12.00
Lineêre algebra 221 (WTW 221) - Krediete: 12.00
Differensiaalvergelykings 256 (WTW 256) - Krediete: 8.00
Diskrete strukture 285 (WTW 285) - Krediete: 12.00
Differensiaalvergelykings 286 (WTW 286) - Krediete: 12.00

Kurrikulum: Finale jaar
Minimum krediete: 144

Minimum krediete:

Kern = 72

Keuse = 72

Addisionele inligting:

PHY 353 en/of PHY 363 kan as keusemodules gekies word. Studente wat in verdere studie in die sterrekunde of hoë-energiefisika belangstel, word aangeraai om PHY 300 Waarnemingsterrekunde en PHY 310 Deeltjie- en astrodeeltjiefisika as keusemodules te oorweeg.

Kernmodules
Elektronika, elektromagnetisme en kwantummeganika 356 (PHY 356) - Krediete: 36.00
Statistiese meganika, vastetoestantfisika en modellering 364 (PHY 364) - Krediete: 36.00

Keusemodules
Fisiese chemie 382 (CMY 382) - Krediete: 18.00
Analitiese chemie 383 (CMY 383) - Krediete: 18.00
Organiese chemie 384 (CMY 384) - Krediete: 18.00
Anorganiese chemie 385 (CMY 385) - Krediete: 18.00
Mens-omgewing-interaksies 301 (ENV 301) - Krediete: 18.00
Volhoubare ontwikkeling 356 (GGY 356) - Krediete: 18.00
Ontwikkelingsraamwerke 366 (GGY 366) - Krediete: 18.00
Waarnemingsterrekunde 300 (PHY 300) - Krediete: 36.00
Deeltjie- en astrodeeltjiefisika 310 (PHY 310) - Krediete: 18.00
Fisikaprojek 353 (PHY 353) - Krediete: 12.00

Fisikaprojek 363 (PHY 363) - Krediete: 12.00
Atmosferiese vortisiteit en divergensie 352 (WKD 352) - Krediete: 18.00
Kwasi-geostofiese analise 361 (WKD 361) - Krediete: 18.00
Grondbeginsels van weervoorspelling 366 (WKD 366) - Krediete: 36.00
Analise 310 (WTW 310) - Krediete: 18.00
Komplekse analise 320 (WTW 320) - Krediete: 18.00
Dinamiese stelsels 382 (WTW 382) - Krediete: 18.00
Numeriese analise 383 (WTW 383) - Krediete: 18.00
Parsiële differensiaalvergelykings 386 (WTW 386) - Krediete: 18.00
Kontinuummeganika 387 (WTW 387) - Krediete: 18.00
Meetkunde 389 (WTW 389) - Krediete: 18.00

BSc Genetika (02133402)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Genetika)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules
Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules
Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2
Minimum krediete: 144

Minimum krediete:

Kern = 132

Keuse = 12

Addisionele inligting:

- Keusemodules in die tweede studiejaar mag gekies word uit: BCM 262, GGY 283, PLG 262, MBY 262.
- Studente wat daarin belangstel om Genetika met Mikrobiologie as ’n dubbelhoofvak te kombineer, moet MBY 262 neem.
- Studente wat daarin belangstel om Genetika met Biochemie as ’n dubbelhoofvak te kombineer, moet BCM 262 neem en mag [BOT 251 + BOT 261] en [ZEN 251 + ZEN 261] met [CMY 282 + CMY 284 + CMY 283 + CMY 285] vervang.

Kernmodules
Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00
Invertebraatbiologie 251 (ZEN 251) - Krediete: 12.00
Afrika-vertebrate 261 (ZEN 261) - Krediete: 12.00

Keusemodules

Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Fisiese chemie 282 (CMY 282) - Krediete: 12.00
Analitiese chemie 283 (CMY 283) - Krediete: 12.00
Organiese chemie 284 (CMY 284) - Krediete: 12.00
Anorganiese chemie 285 (CMY 285) - Krediete: 12.00
Voedselmikrobiologie 262 (MBY 262) - Krediete: 12.00
Beginsels van plantpatologie 262 (PLG 262) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 90

Keuse = 54

Addisionele inligting:

Keusemodules mag gekies word uit enige kombinasie van BCM 356, BCM 357, BCM 367, BCM 368, BOT 356, BOT 358, BOT 365, MBY 351, MBY 355, MBY 364, MBY 365, PLG 351, PLG 363, ZEN 361, ZEN 363.

- **Genetika in kombinasie met Biochemie:** Studente moet BTC 361 met Biochemie modules vervang en moet [BCM 356 + BCM 357] en [BCM 367 + BCM 368] tot ’n totale waarde van 72 krediete neem.
- **Genetika in kombinasie met Mikrobiologie:** Studente moet of GTS 368 of BTC 361 met Mikrobiologie-modules vervang en moet [MBY 351 + MBY 355] en [MBY 364 + MBY 365] tot ’n totale waarde van 72 krediete neem.
- **Genetika in kombinasie met Plantkunde:** Studente moet [BOT 356 + BOT 358] en [BOT 365] tot ’n totale waarde van 54 krediete neem. Studente mag ook kies om GTS 368 met BOT 366 te vervang.
- **Genetika in kombinasie met Dierkunde:** Studente moet BTC 361 of GTS 368 met Dierkunde-modules vervang en moet [enige 2 modules van ZEN 351 of ZEN 352 of ZEN 353 of ZEN 354] en [ZEN 361 + ZEN 363] tot ’n totale waarde van 72 krediete neem.
- **Genetika in kombinasie met Entomologie:** Studente moet BTC 361 of GTS 368 met Dierkunde-modules vervang en moet [ZEN 355 of ZEN 351 of ZEN 353 of ZEN 354] en [ZEN 361 + ZEN 365] tot ’n totale waarde van 72 krediete neem.

Kernmodules

Plantgenetika en gewasbiotegnologie 361 (BTC 361) - Krediete: 18.00
Eukariote geenbeheer en -ontwikkeling 351 (GTS 351) - Krediete: 18.00
Genoom-evolusie en filogenetika 354 (GTS 354) - Krediete: 18.00
Populasie en evolusionêre genetika 367 (GTS 367) - Krediete: 18.00
Genetika in mensgesondheid 368 (GTS 368) - Krediete: 18.00

Keusemodules

Macromolekules van die lewe: struktuurfunksie en bioinformatika 356 (BCM 356) - Krediete: 18.00
Biokatalisering en integrasie van metabolisme 357 (BCM 357) - Krediete: 18.00
Selstruktuur en -funksie 367 (BCM 367) - Krediete: 18.00
Molekulêre grondslag van siekte 368 (BCM 368) - Krediete: 18.00
Plantekofisiologie 356 (BOT 356) - Krediete: 18.00

Plantekologie 358 (BOT 358) - Krediete: 18.00
Fitomedisyne 365 (BOT 365) - Krediete: 18.00
Plantdiversiteit 366 (BOT 366) - Krediete: 18.00
Virologie 351 (MBY 351) - Krediete: 18.00
Bakteriese genetika 355 (MBY 355) - Krediete: 18.00
Genetiese manipulasie van mikrobes 364 (MBY 364) - Krediete: 18.00
Mikrobe-interaksies 365 (MBY 365) - Krediete: 18.00
Algemene plantpatologie 351 (PLG 351) - Krediete: 18.00
Bestrydingkunde 363 (PLG 363) - Krediete: 18.00
Bevolkingsekologie 351 (ZEN 351) - Krediete: 18.00
Soogdierkunde 352 (ZEN 352) - Krediete: 18.00
Gemeenskapsekologie 353 (ZEN 353) - Krediete: 18.00
Evolusionêre fisiologie 354 (ZEN 354) - Krediete: 18.00
Insekdiversiteit 355 (ZEN 355) - Krediete: 18.00
Fisiologiese prosesse 361 (ZEN 361) - Krediete: 18.00
Gedragsekologie 363 (ZEN 363) - Krediete: 18.00
Toegepaste entomologie 365 (ZEN 365) - Krediete: 18.00

BSc Geografie (02133394)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	32

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Geografie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Fisiese Wetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	

BSc – Verlengde program vir die Fisiese Wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	26

Ander programspesifieke inligting

Keusemodules word as volg gekies:

Eerste jaar – 68 krediete

Tweede jaar – 84 krediete

Derde jaar – 24 krediete

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 60

Keuse = 68

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Studente kan WTW 114 in plaas van WTW 134 neem, mits hulle aan die voorvereiste voldoen.

BSc (Geografie)-studente en BSc (Omgewingswetenskappe)-studente mag registreer vir WKD 155. Studente word nie toegelaat om krediete te verdien vir beide WKD 155 en WKD 164 nie.

Keusemodules kan gekies word uit modules in die volgende departemente:

Geografie, Geoinformatika en Meteorologie, Geologie, Plantproduksie en Grondkunde, Chemie, Plantkunde, Fisika, Dierkunde en Entomologie, Wiskunde en Toegepaste Wiskunde, Rekenaarwetenskap, Argeologie, Antropologie, Ekonomie, Geskiedenis, Sielkunde, Sosiologie, Politieke Wetenskappe.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Inleiding tot omgewingswetenskappe 101 (ENV 101) - Krediete: 8.00
Aspekte van menslike geografie 156 (GGY 156) - Krediete: 8.00
Suider-Afrikaanse geomorfologie 166 (GGY 166) - Krediete: 8.00
Kartografie 110 (GMC 110) - Krediete: 10.00
Klimaat en weer van Suider-Afrika 164 (WKD 164) - Krediete: 8.00
Wiskunde 134 (WTW 134) - Krediete: 16.00

Keusemodules

Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleiding tot geologie 155 (GLY 155) - Krediete: 16.00
Aardgeskiedenis 163 (GLY 163) - Krediete: 16.00
Informatika 154 (INF 154) - Krediete: 10.00
Informatika 164 (INF 164) - Krediete: 10.00

Informatika 171 (INF 171) - Krediete: 20.00
Eerste kursus in fisika 114 (PHY 114) - Krediete: 16.00
Eerste kursus in fisika 124 (PHY 124) - Krediete: 16.00
Verkenning van die heelal 154 (SCI 154) - Krediete: 16.00
Atmosferiese struktuur en prosesse 155 (WKD 155) - Krediete: 16.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete:

Kern = 84

Keuse = 60

Kernmodules

Prosesgeomorfologie 252 (GGY 252) - Krediete: 12.00
Stedelike struktuur, omgewing en samelewing 266 (GGY 266) - Krediete: 24.00
Inleidende geografiese inligtingstelsels 283 (GGY 283) - Krediete: 14.00
Geografiese data-analise 220 (GIS 220) - Krediete: 14.00

Keusemodules

Fisiese chemie 282 (CMY 282) - Krediete: 12.00
Analitiese chemie 283 (CMY 283) - Krediete: 12.00
Organiese chemie 284 (CMY 284) - Krediete: 12.00
Anorganiese chemie 285 (CMY 285) - Krediete: 12.00
Inleiding tot geografiese inligtingstelsels 221 (GIS 221) - Krediete: 12.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Afstandswaarneming 220 (GMA 220) - Krediete: 14.00
Informatika 214 (INF 214) - Krediete: 14.00
Informatika 225 (INF 225) - Krediete: 14.00
Informatika 261 (INF 261) - Krediete: 7.00
Opmeetkunde 220 (SUR 220) - Krediete: 14.00
Fisiese weerkunde 261 (WKD 261) - Krediete: 12.00
Inleiding tot dinamiese weerkunde 263 (WKD 263) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 120

Keuse = 24

Kernmodules

Mens-omgewing-interaksies 301 (ENV 301) - Krediete: 18.00
Volhoubare ontwikkeling 356 (GGY 356) - Krediete: 18.00
Omgewingsgeomorfologie 361 (GGY 361) - Krediete: 18.00

Ontwikkelingsraamwerke 366 (GGY 366) - Krediete: 18.00
Geografiese inligtingstelsels 310 (GIS 310) - Krediete: 22.00
Ruimtelike analise 320 (GIS 320) - Krediete: 22.00

Keusemodules
Grondchemie 320 (GKD 320) - Krediete: 14.00
Grondklassifikasie en kartering 350 (GKD 350) - Krediete: 14.00
Afstandwaarneming 320 (GMA 320) - Krediete: 22.00
Geometriese en ruimte geodesie 310 (GMC 310) - Krediete: 22.00
Geoinformatikaprojek 320 (GMT 320) - Krediete: 22.00

BSc Geoinformatika (02133393)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	32

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Geoinformatika)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Fisiese Wetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Fisiese Wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	26

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 156

Minimum krediete:

Fundamenteel = 12

Kern = 144

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Studente wat nie kwalifiseer vir STK 110 nie, moet vir STK 113, 123 registreer.

Studente wat wiskunde tot op 200-vlak wil neem, moet die kombinasie van WTW 114 en WTW 124 neem in die plek van WTW 134, WTW 146 en WTW 148 mits hul die aan die voorvereistes voldoen.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Inleiding tot omgewingswetenskappe 101 (ENV 101) - Krediete: 8.00
Aspekte van menslike geografie 156 (GGY 156) - Krediete: 8.00
Suider-Afrikaanse geomorfologie 166 (GGY 166) - Krediete: 8.00
Kartografie 110 (GMC 110) - Krediete: 10.00
Informatika 112 (INF 112) - Krediete: 10.00
Informatika 154 (INF 154) - Krediete: 10.00
Informatika 164 (INF 164) - Krediete: 10.00
Informatika 171 (INF 171) - Krediete: 20.00
Ondernemingbestuur 114 (OBS 114) - Krediete: 10.00
Ondernemingsbestuur 124 (OBS 124) - Krediete: 10.00
Klimaat en weer van Suider-Afrika 164 (WKD 164) - Krediete: 8.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Lineêre algebra 146 (WTW 146) - Krediete: 8.00
Calculus 148 (WTW 148) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 155

Minimum krediete:

Kern = 143

Keuse = 12

.

Kernmodules

Besigheidsreg 210 (BER 210) - Krediete: 16.00
Inleidende geografiese inligtingstelsels 283 (GGY 283) - Krediete: 14.00
Geografiese data-analise 220 (GIS 220) - Krediete: 14.00
Afstandswaarneming 220 (GMA 220) - Krediete: 14.00
Informatika 214 (INF 214) - Krediete: 14.00

Informatika 225 (INF 225) - Krediete: 14.00
Informatika 261 (INF 261) - Krediete: 7.00
Statistiek 110 (STK 110) - Krediete: 13.00
Statistiek 120 (STK 120) - Krediete: 13.00
Opmeetkunde 220 (SUR 220) - Krediete: 14.00

Keusemodules

Besigheidsreg 220 (BER 220) - Krediete: 16.00
Prosesgeomorfologie 252 (GGY 252) - Krediete: 12.00
Stedelike struktuur, omgewing en samelewing 266 (GGY 266) - Krediete: 24.00
Informatika 264 (INF 264) - Krediete: 8.00
Informatika 272 (INF 272) - Krediete: 14.00
Fisiese weerkunde 261 (WKD 261) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 146

Minimum krediete:

Kern = 132

Keuse = 14

Kernmodules

Geografiese inligtingstelsels 310 (GIS 310) - Krediete: 22.00
Geoinformatika 311 (GIS 311) - Krediete: 22.00
Ruimtelike analise 320 (GIS 320) - Krediete: 22.00
Afstandwaarneming 320 (GMA 320) - Krediete: 22.00
Geometriese en ruimte geodesie 310 (GMC 310) - Krediete: 22.00
Geoinformatikaprojek 320 (GMT 320) - Krediete: 22.00

Keusemodules

Mens-omgewing-interaksies 301 (ENV 301) - Krediete: 18.00
Volhoubare ontwikkeling 356 (GGY 356) - Krediete: 18.00
Ontwikkelingsraamwerke 366 (GGY 366) - Krediete: 18.00

BSc Geologie (02133023)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).

- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

?

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	32

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Geologie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Fisiese Wetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Fisiese Wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	26

Ander programspesifieke inligting

Graadprogramme in die Departement Geologie: Studente sal vroegtydig van verpligte werkskampe en/of ekskursies, wat in vakansies mag plaasvind, verwittig word. Die bywoning van uitstappies vir eerstejaarstudente is verpligtend, terwyl langer ekskursies verpligtend is vir senior studente.

Keusemodule kan gekies word uit modules in die volgende departemente:

Geografie, Geoinformatika en Meteorologie, Plantproduksie en Grondkunde, Chemie, Wiskunde en Toegepaste Wiskunde, Fisika en Rekenaarwetenskap.

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word.

Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Studente wat tweede jaar Wiskunde of Toegepaste Wiskunde modules wil neem om die Meganiese modules te komplimenteer, moet WTW 114 en WTW 124 vervang met WTW 158 en WTW 164

Student wat PHY 124 kies sal kan voortgaan met 'n tweede hoofvak in Chemie, Wiskunde, Grondkunde op Fisika. Student wat SWK 122 kies mag voortgaan met 'n tweede hoofvak in Ingenieursgeologie, Wiskunde, Chemie, Grondkunde of Meganies.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00

Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleiding tot geologie 155 (GLY 155) - Krediete: 16.00
Aardgeskiedenis 163 (GLY 163) - Krediete: 16.00
Eerste kursus in fisika 114 (PHY 114) - Krediete: 16.00
Eerste kursus in fisika 124 (PHY 124) - Krediete: 16.00
Meganika 122 (SWK 122) - Krediete: 16.00
Calculus 158 (WTW 158) - Krediete: 16.00
Wiskunde 164 (WTW 164) - Krediete: 16.00

Kurrikulum: Jaar 2

Minimum krediete: 150

Minimum krediete:

Kern = 54

Keuse = 96

Addisionele inligting:

Studente moet 2 groepe modules (gewoonlik 2X48 krediete = 96 krediete) kies uit die volgende lys afhangend van die tweede hoofvak keuse:

Chemie: CMY 282, CMY 283, CMY 284, CMY 285 (48 krediete)

Wiskunde: WTW 211, WTW 218, WTW 220, WTW 221 (48 krediete)

Toegepaste Wiskunde: WTW 211, WTW 218, WTW 248, WTW 286 (48 krediete)

Fisika: PHY 263, PHY 255 (48 krediete) en WTW 211, WTW 218, WTW 220, WTW 248 (48 krediete)

Ingenieursgeologie/Grondkunde/Meganies: GKD 250, SWK 210, GIS 221 (40 krediete)

GIS/Geomorfologie: GGY 252, GIS 220, GMA 220 (40 krediete)

Kernmodules
Sedimentologie 253 (GLY 253) - Krediete: 12.00
Fundamentele en toegepaste mineralogie 255 (GLY 255) - Krediete: 12.00
Stollingspetrologie 261 (GLY 261) - Krediete: 12.00
Metamorfe petrologie 262 (GLY 262) - Krediete: 12.00
Geological field mapping 266 (GLY 266) - Krediete: 6.00

Keusemodules
Fisiese chemie 282 (CMY 282) - Krediete: 12.00
Analitiese chemie 283 (CMY 283) - Krediete: 12.00
Organiese chemie 284 (CMY 284) - Krediete: 12.00
Anorganiese chemie 285 (CMY 285) - Krediete: 12.00
Prosesgeomorfologie 252 (GGY 252) - Krediete: 12.00
Stedelike struktuur, omgewing en samelewing 266 (GGY 266) - Krediete: 24.00
Geografiese data-analise 220 (GIS 220) - Krediete: 14.00

Inleiding tot geografiese inligtingstelsels 221 (GIS 221) - Krediete: 12.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Afstandswaarneming 220 (GMA 220) - Krediete: 14.00
Golwe, termodinamika en moderne fisika 255 (PHY 255) - Krediete: 24.00
Algemene fisika 263 (PHY 263) - Krediete: 24.00
Sterkteleer 210 (SWK 210) - Krediete: 16.00
Lineêre algebra 211 (WTW 211) - Krediete: 12.00
Calculus 218 (WTW 218) - Krediete: 12.00
Analise 220 (WTW 220) - Krediete: 12.00
Lineêre algebra 221 (WTW 221) - Krediete: 12.00
Vektoranalise 248 (WTW 248) - Krediete: 12.00
Differensiaalvergelykings 286 (WTW 286) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 78

Keuse = 66

Addisionele inligting:

Studente moet een groep modules (ten minste 66 krediete elk) uit die volgende lys kies, op voorwaarde dat die toepaslike tweedejaarsmodules geneem was:

Chemie: CMY 382, CMY 383, CMY 384, CMY 385 (72 krediete)

Wiskunde: WTW 310, WTW 320, WTW 381, WTW 389 (72 krediete)

Toegepaste Wiskunde: WTW 382, WTW 383, WTW 386, WTW 387 (72 krediete)

Fisika: PHY 364, PHY 356 (72 krediete)

Astrofisika: PHY 300, GMS 320, GIS 320 (82 krediete) - Neem kennis dat hierdie opsie nie aanvaarding to Fisika honeurs toelaat nie

Ingenieursgeologie/Grondkunde/Meganies: GKD 350, SGM 311, GLY 363, GLY 364 (66 krediete)

GIS/Geomorfologie: GIS 310, GIS 320, GMA 320 (72 krediete)

Kernmodules

Strukruele geologie 365 (GLY 365) - Krediete: 18.00
Grondwater 366 (GLY 366) - Krediete: 18.00
Ekonomiese geologie 367 (GLY 367) - Krediete: 36.00
Advanced Geological field mapping 368 (GLY 368) - Krediete: 6.00

Keusemodules

Fisiese chemie 382 (CMY 382) - Krediete: 18.00
Analitiese chemie 383 (CMY 383) - Krediete: 18.00
Organiese chemie 384 (CMY 384) - Krediete: 18.00
Anorganiese chemie 385 (CMY 385) - Krediete: 18.00
Geografiese inligtingstelsels 310 (GIS 310) - Krediete: 22.00
Ruimtelike analise 320 (GIS 320) - Krediete: 22.00
Grondklassifikasie en kartering 350 (GKD 350) - Krediete: 14.00
Ingenieursgeologie 363 (GLY 363) - Krediete: 18.00
Rotsmeganika 364 (GLY 364) - Krediete: 18.00
Afstandwaarneming 320 (GMA 320) - Krediete: 22.00
Grondwaterverhouding en besproeiing 350 (PGW 350) - Krediete: 14.00
Waarnemingsterrekunde 300 (PHY 300) - Krediete: 36.00
Elektronika, elektromagnetisme en kwantummeganika 356 (PHY 356) - Krediete: 36.00
Statistiese meganika, vastetoestantfisika en modellering 364 (PHY 364) - Krediete: 36.00
Grondmeganika 311 (SGM 311) - Krediete: 16.00
Analise 310 (WTW 310) - Krediete: 18.00
Komplekse analise 320 (WTW 320) - Krediete: 18.00
Algebra 381 (WTW 381) - Krediete: 18.00
Dinamiese stelsels 382 (WTW 382) - Krediete: 18.00
Numeriese analise 383 (WTW 383) - Krediete: 18.00
Parsiële differensiaalvergelykings 386 (WTW 386) - Krediete: 18.00
Kontinuummeganika 387 (WTW 387) - Krediete: 18.00
Meetkunde 389 (WTW 389) - Krediete: 18.00

BSc Ingenieurs- en Omgewingsgeologie (02133043)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	32

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Omgewings- en Ingenieursgeologie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc

– Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Fisiese Wetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Fisiese Wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	26

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Studente wat tweede jaar Wiskunde of Toegepaste Wiskunde modules wil neem om die Meganiese modules te komplimenteer, moet WTW 114 en WTW 124 vervang met WTW 158 en WTW 164

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleiding tot geologie 155 (GLY 155) - Krediete: 16.00
Aardgeskiedenis 163 (GLY 163) - Krediete: 16.00
Eerste kursus in fisika 114 (PHY 114) - Krediete: 16.00
Meganika 122 (SWK 122) - Krediete: 16.00
Calculus 158 (WTW 158) - Krediete: 16.00
Wiskunde 164 (WTW 164) - Krediete: 16.00

Kurrikulum: Jaar 2

Minimum krediete: 142

Minimum krediete:

Kern = 94

Keuse = 48

Addisionele inligting:

A totaal van 48 keuse krediete moet van die volgende modules gekies word-

Chemie: CMY 282, CMY 283, CMY 284, CMY 285 (48 krediete)

Wiskunde: WTW 211, WTW 218, WTW 220, WTW 221 (48 krediete)

Toegepaste Wiskunde: WTW 211, WTW 218, WTW 248, WTW 286 (48 krediete)

GIS/Geomorfologie: GGY 252, GIS 220, GGY 266 (48 krediete)

Kernmodules

Inleiding tot geografiese inligtingstelsels 221 (GIS 221) - Krediete: 12.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Sedimentologie 253 (GLY 253) - Krediete: 12.00
Fundamentele en toegepaste mineralogie 255 (GLY 255) - Krediete: 12.00
Stollingspetrologie 261 (GLY 261) - Krediete: 12.00
Metamorfe petrologie 262 (GLY 262) - Krediete: 12.00
Geological field mapping 266 (GLY 266) - Krediete: 6.00
Sterkteleer 210 (SWK 210) - Krediete: 16.00

Keusemodules

Fisiese chemie 282 (CMY 282) - Krediete: 12.00
Analitiese chemie 283 (CMY 283) - Krediete: 12.00
Organiese chemie 284 (CMY 284) - Krediete: 12.00
Anorganiese chemie 285 (CMY 285) - Krediete: 12.00
Prosesgeomorfologie 252 (GGY 252) - Krediete: 12.00
Geomorfologie van die bou-omgewing 265 (GGY 265) - Krediete: 12.00
Stedelike struktuur, omgewing en samelewing 266 (GGY 266) - Krediete: 24.00
Geografiese data-analise 220 (GIS 220) - Krediete: 14.00
Lineêre algebra 211 (WTW 211) - Krediete: 12.00
Calculus 218 (WTW 218) - Krediete: 12.00
Analise 220 (WTW 220) - Krediete: 12.00
Lineêre algebra 221 (WTW 221) - Krediete: 12.00
Vektoranalise 248 (WTW 248) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 138

Minimum krediete:

Kern = 122

Keuse = 16

Addisionele inligting:

GLY 367 (24 krediete) of SGM 323 (16 krediete) moet in die tweede semester geneem word

Kernmodules

Grondchemie 320 (GKD 320) - Krediete: 14.00
Grondklassifikasie en kartering 350 (GKD 350) - Krediete: 14.00
Ingenieursgeologie 363 (GLY 363) - Krediete: 18.00
Rotsmeganika 364 (GLY 364) - Krediete: 18.00
Strukruele geologie 365 (GLY 365) - Krediete: 18.00
Grondwater 366 (GLY 366) - Krediete: 18.00
Advanced Geological field mapping 368 (GLY 368) - Krediete: 6.00
Grondmeganika 311 (SGM 311) - Krediete: 16.00

Keusemodules

Ekonomiese geologie 367 (GLY 367) - Krediete: 36.00
Geotegniese ingenieurswese 323 (SGM 323) - Krediete: 16.00

BSc Kulinêre Wetenskap (02133320)

Minimum duur van studie	4 jaar

Toelatingsvereistes

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Kulinêre Wetenskap)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die Verlengde Program neem 'n jaar langer om te voltooi.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die

Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

Die graad word met lof toegeken aan ’n student wat in die ondergenoemde modules ’n geweegde gemiddelde van minstens 75% behaal het:

Resepontwikkeling en -standaardisering 413

Verbruikersaspekte van voedsel 417

Voedselnavorsingsprojek 480

Voedseldiensbestuur 420

Voedselwetenskap en -tegnologie 413

Kurrikulum: Jaar 1

Minimum krediete: 134

Minimum krediete:

Fundamenteel = 12 Krediete

Kern = 122 Krediete

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00

Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Bemarkingsbestuur 120 (BEM 120) - Krediete: 10.00
Biometrie 120 (BME 120) - Krediete: 16.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Fisiologie 110 (FSG 110) - Krediete: 6.00
Fisiologie 120 (FSG 120) - Krediete: 6.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Basiese voedsel voorbereiding 111 (VDS 111) - Krediete: 6.00
Basiese voedselbereiding 121 (VDS 121) - Krediete: 6.00
Wiskunde 134 (WTW 134) - Krediete: 16.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete:

Kern = 144 Krediete

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Verbruikersgedrag 212 (BEM 212) - Krediete: 16.00
Beginsels van voedselprosessering en -preservering 260 (FST 260) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Voedselmikrobiologie 262 (MBY 262) - Krediete: 12.00
Verbruikersfasilitering 222 (VBF 222) - Krediete: 8.00
Voedselprodukte en -bereiding 210 (VDS 210) - Krediete: 18.00
Voedselprodukte en -bereiding 221 (VDS 221) - Krediete: 18.00

Kurrikulum: Jaar 3

Minimum krediete: 140

Minimum krediete:

Kern = 140 Krediete

Kernmodules

Voedselchemie (1) 351 (FST 351) - Krediete: 18.00
Voedselchemie (2) 352 (FST 352) - Krediete: 18.00
Voedseldiensbestuur 321 (VDB 321) - Krediete: 18.00

Voeding 311 (VDG 311) - Krediete: 17.00
Voeding tydens lewenssiklus 321 (VDG 321) - Krediete: 17.00
Verbruikersvoedselnavorsing 310 (VDS 310) - Krediete: 21.00
Grootskaalse voedselproduksie en restaurantbestuur 322 (VDS 322) - Krediete: 31.00

Kurrikulum: Finale jaar

Minimum krediete: 178

Minimum krediete:

Kern = 178 Krediete

Addisionele inligting:

OPI 400: (Praktykopleiding in die industrie): Studente moet gedurende die vier (4) jaar van studie, gedurende vakansietye, oor naweke en nauurs, ’n totaal van 480 ure praktykopleiding in die industrie doen om praktiese en bedryfsvaardighede te ontwikkel, deel te neem aan gemeenskapsontwikkeling en diensleer te verskaf. Dit is gelykstaande aan 3 weke x 40 uur (120 uur) per jaar, volgens die vereistes soos bepaal deur die departementshoof. Hierdie opleiding moet suksesvol voltooi wees tesame met bewys-lewering van ’n volledige portefeulje alvorens die graad toegeken sal word. Let wel: Hierdie praktiese en industrie-aktiwiteite ondersteun die teoretiese komponente van VDS 414, VDS 424, VDS 413 en FST 413 en vind naure plaas ten einde praktiese en industrievaardighede te ontwikkel.

Kernmodules

Sintuiglike evaluering 412 (FST 412) - Krediete: 10.00
Praktykopleiding in die industrie 400 (OPI 400) - Krediete: 5.00
Navorsingsprojek 400 (VBR 400) - Krediete: 30.00
Voedseldiensbestuur 420 (VDB 420) - Krediete: 21.00
Resepontwikkeling en standaardisering 413 (VDS 413) - Krediete: 30.00
Fyn kookkuns 414 (VDS 414) - Krediete: 22.00
Fyn kookkuns 424 (VDS 424) - Krediete: 22.00

BSc Mediese Wetenskappe (02133407)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes
Prestasievlak

Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Mediese Wetenskappe)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n

Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 142

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Studente wat nie al die eerstejaar-eerstesemestermodules in BSc (Mediese Wetenskappe) geslaag het nie, sal nie toegelaat word om in die tweede semester met BSc in Mediese Wetenskappe voort te gaan nie. Sodanige studente moet deregistreer en vir ’n ander BSc-program, bv BSc in Biologiese Wetenskappe (of ’n totale ander graadprogram) herregistreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Inleiding: Menslike anatomie en embriologie 121 (ANA 121) - Krediete: 4.00
Menslike osteologie 122 (ANA 122) - Krediete: 4.00
Basiese menslike histologie 126 (ANA 126) - Krediete: 4.00
Biometrie 120 (BME 120) - Krediete: 16.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Wetenskap en wêreldbeskouing 155 (FIL 155) - Krediete: 6.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete:

Kern = 96

Keuse = 48

Addisionele inligting:

Keuse krediete:

FLG-opsie: (48 krediete) GTS opsie: (48 krediete): FAR opsie dieselfde as FLG opsie

ANA +FLG opsie: Eerste semester FLG 211 (12) en FLG 212 (12) tweede semester FLG 221 (12) en FLG 222 (12)

ANA + GTS-opsie: Eerste semester GTS 251 (12) en MBY 251 (12), tweede semester GTS 261 (12) en MBY 261 (12)

ANA + FLG/FAR-opsie slegs in finale jaar: Dieselfde as FLG-opsie

Kernmodules

Menslike sel- en ontwikkelingsbiologie 214 (ANA 214) - Krediete: 12.00
Paleoantropologie 215 (ANA 215) - Krediete: 12.00
Menslike histologie 226 (ANA 226) - Krediete: 12.00
Menslike anatomie Deel 1 247 (ANA 247) - Krediete: 12.00
Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00

Keusemodules

Inleidende en neurofisiologie 211 (FLG 211) - Krediete: 12.00
Sirkulatoriese fisiologie 212 (FLG 212) - Krediete: 12.00
Long- en nierfisiologie, suurbasis-ewewig en temperatuur 221 (FLG 221) - Krediete: 12.00
Vertering, endokrinologie en voortplantingstelsels 222 (FLG 222) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 72

Keuse = 72

Addisionele inligting:

Keuse krediete:

FLG-opsie: (72 krediete) GTS opsie: (72 krediete): FLG/FAR opsie (72 krediete)

ANA + FLG-opsie: Eerste semester FLG 330 (18) en FLG 327 (18), tweede semester FLG 331 (18) en FLG 332 (18)

ANA + GTS-opsie: Eerste semester GTS 351 (18) en GTS 354 (18), tweede semester GTS 367 (18) en GTS 368 (18)

ANA + FLG-/FAR-opsie: Eerste semester FLG 330 (18) en FAR 381(18) tweede semester FLG 331 (18) of FLG 332 (18) en FAR 382 (18)

Keusemodules word as volg gekies:

Tweede jaar – FLG-opsie: 48 krediete, GTS-opsie: 48 krediete, FAR-opsie: dieselfde as FLG-opsie

Derde jaar – FLG-opsie: 72 krediete, GTS-opsie: 72 krediete, FLG/FAR-opsie: 72 krediete

Kernmodules
Forensiese antropologie 315 (ANA 315) - Krediete: 18.00
Sel- en weefseltegnieke 316 (ANA 316) - Krediete: 18.00
Menslike sel- en ontwikkelingsbiologie 324 (ANA 324) - Krediete: 18.00
Menslike anatomie Deel 2 347 (ANA 347) - Krediete: 18.00

Keusemodules
Farmakologie 381 (FAR 381) - Krediete: 18.00
Farmakologie 382 (FAR 382) - Krediete: 18.00
Hoër neurologiese funksies 327 (FLG 327) - Krediete: 18.00
Sellulêre en ontwikkelingsfisiologie 330 (FLG 330) - Krediete: 18.00
Toegepaste en patofisiologie 332 (FLG 332) - Krediete: 18.00
Eukariote geenbeheer en -ontwikkeling 351 (GTS 351) - Krediete: 18.00
Genoom-evolusie en filogenetika 354 (GTS 354) - Krediete: 18.00
Populasie en evolusionêre genetika 367 (GTS 367) - Krediete: 18.00
Genetika in mensgesondheid 368 (GTS 368) - Krediete: 18.00

BSc Mensfisiologie (02133408)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Mensfisiologie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud

oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete:

Kern = 120

Keuse = 24

Addisionele inligting:

?Keusemodules in die tweede studiejaar kan uit Chemie 283 en 284 (in konsultasie met die Departementshoof), Mikrobiologie, Plantkunde of Dierkunde gekies word.

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Inleidende en neurofisiologie 211 (FLG 211) - Krediete: 12.00
Sirkulatoriese fisiologie 212 (FLG 212) - Krediete: 12.00
Long- en nierfisiologie, suurbasis-ewewig en temperatuur 221 (FLG 221) - Krediete: 12.00
Vertering, endokrinologie en voortplantingstelsels 222 (FLG 222) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00

Keusemodules

Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Fisiese chemie 282 (CMY 282) - Krediete: 12.00
Analitiese chemie 283 (CMY 283) - Krediete: 12.00
Organiese chemie 284 (CMY 284) - Krediete: 12.00
Anorganiese chemie 285 (CMY 285) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00
Invertebraatbiologie 251 (ZEN 251) - Krediete: 12.00
Afrika-vertebrate 261 (ZEN 261) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 72

Keuse = 72

Addisionele inligting:

Keusemodules in die derde studiejaar kan uit Biochemie, Chemie (in konsultasie met die Departementshoof), Genetika, Mikrobiologie, Plantkunde, Dierkunde; of die kombinasie van Farmakologie en Genetika/Biochemie gekies word.

*NOTA: Slegs studente wat daarin belangstel om nagraadse studie in beroepsgesond-heid en -veiligheid te

onderneem, moet FLG 322 Industriële fisiologie (18 krediete) neem. Die balans van hul keusekrediete moet vanuit die onderstaande opsies gekies word:

Keusemodules kan vanuit die 300-vlak modules in Biochemie of Genetika of ’n kombinasie tussen Farmakologie en Genetika/Biochemie gekies word.

Keusemodules mag ook vanuit die 300-vlak modules in Chemie (in oorleg met die Departementshoof), Mikrobiologie, Plantkunde of Dierkunde gekies word indien die nodige voorvereiste modules op 200-vlak voltooi is.

Kernmodules

Hoër neurologiese funksies 327 (FLG 327) - Krediete: 18.00
Sellulêre en ontwikkelingsfisiologie 330 (FLG 330) - Krediete: 18.00
Oefenings- en voedingswetenskap 331 (FLG 331) - Krediete: 18.00
Toegepaste en patofisiologie 332 (FLG 332) - Krediete: 18.00

Keusemodules

Macromolekules van die lewe: struktuurfunksie en bioinformatika 356 (BCM 356) - Krediete: 18.00
Biokatalisering en integrasie van metabolisme 357 (BCM 357) - Krediete: 18.00
Selstruktuur en -funksie 367 (BCM 367) - Krediete: 18.00
Molekulêre grondslag van siekte 368 (BCM 368) - Krediete: 18.00
Plantgenetika en gewasbiotegnologie 361 (BTC 361) - Krediete: 18.00
Fisiese chemie 382 (CMY 382) - Krediete: 18.00
Analitiese chemie 383 (CMY 383) - Krediete: 18.00
Organiese chemie 384 (CMY 384) - Krediete: 18.00
Anorganiese chemie 385 (CMY 385) - Krediete: 18.00
Farmakologie 381 (FAR 381) - Krediete: 18.00
Farmakologie 382 (FAR 382) - Krediete: 18.00
Industriële fisiologie 322 (FLG 322) - Krediete: 18.00
Eukariote geenbeheer en -ontwikkeling 351 (GTS 351) - Krediete: 18.00
Genoom-evolusie en filogenetika 354 (GTS 354) - Krediete: 18.00
Populasie en evolusionêre genetika 367 (GTS 367) - Krediete: 18.00
Genetika in mensgesondheid 368 (GTS 368) - Krediete: 18.00
Virologie 351 (MBY 351) - Krediete: 18.00
Bakteriese genetika 355 (MBY 355) - Krediete: 18.00
Genetiese manipulasie van mikrobes 364 (MBY 364) - Krediete: 18.00
Mikrobe-interaksies 365 (MBY 365) - Krediete: 18.00

BSc Mensfisiologie, Genetika en Sielkunde (02133396)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde

van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.

- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Mensfisiologie, Genetika en Sielkunde)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud

oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Hierdie inligting is slegs in Engels beskikbaar.

Minimum credits:
Fundamental = 12
Core = 128

Additional information:
Students who do not qualify for AIM 102 must register for AIM 111 and AIM 121.
Students intending to apply for the 65 MBChB, or the 5 BChD places that become available in the second semester, may only enrol for FIL 155(6), MGW 112(6) and MTL 180(12) with the understanding that:

- they obtained an APS of at least 34 and passed grade 12 Mathematics with at least 70%; and
- they may defer doing WTW 134 in the first semester, however, should they not be selected and want to continue with a BSc programme, WTW 165 must be taken in the second semester of the first year.

Please note: ANA modules can only be taken by BSc (Medical Science) students.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00

Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Sielkunde 110 (SLK 110) - Krediete: 12.00
Sielkunde 120 (SLK 120) - Krediete: 12.00
Wiskunde 134 (WTW 134) - Krediete: 16.00

Kurrikulum: Jaar 2

Minimum krediete: 148

Hierdie inligting is slegs in Engels beskikbaar.

Minimum credits:
Core = 148

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Inleidende en neurofisiologie 211 (FLG 211) - Krediete: 12.00
Sirkulatoriese fisiologie 212 (FLG 212) - Krediete: 12.00
Long- en nierfisiologie, suurbasis-ewewig en temperatuur 221 (FLG 221) - Krediete: 12.00
Vertering, endokrinologie en voortplantingstelsels 222 (FLG 222) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Sielkunde 210 (SLK 210) - Krediete: 20.00
Sielkunde 220 (SLK 220) - Krediete: 20.00

Kurrikulum: Finale jaar

Minimum krediete: 138

Hierdie inligting is slegs in Engels beskikbaar.

Minimum credits:
Core = 138

Additional information:
Students who intend applying for the BSocSciHons (Psychology) programme must complete SLK 320.
Students intend to applying for BScHons (Genetics) must complete the module GTS 367 in their third year.

Please note that these modules are no longer listed as electives, as they have to be enrolled for non-degree purposes

Kernmodules

Hoër neurologiese funksies 327 (FLG 327) - Krediete: 18.00
Oefenings- en voedingswetenskap 331 (FLG 331) - Krediete: 18.00
Toegepaste en patofisiologie 332 (FLG 332) - Krediete: 18.00
Eukariote geenbeheer en -ontwikkeling 351 (GTS 351) - Krediete: 18.00
Genoom-evolusie en filogenetika 354 (GTS 354) - Krediete: 18.00
Genetika in mensgesondheid 368 (GTS 368) - Krediete: 18.00
Sielkunde 310 (SLK 310) - Krediete: 30.00

BSc Mensgenetika (02133409)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Mensgenetika)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per

semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00

Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete:

Kern = 144

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Inleidende en neurofisiologie 211 (FLG 211) - Krediete: 12.00
Sirkulatoriese fisiologie 212 (FLG 212) - Krediete: 12.00
Long- en nierfisiologie, suurbasis-ewewig en temperatuur 221 (FLG 221) - Krediete: 12.00
Vertering, endokrinologie en voortplantingstelsels 222 (FLG 222) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 72

Keuse = 72

Addisionele inligting:

Enkelhoofvak:

Keusemodules mag gekies word uit enige kombinasie van BCM 356, BCM 357, BCM 367, BCM 368, BOT 356, BTC 361, FAR 381, FAR 382, MBY 351, MBY 355, MBY 364 en MBY 365.

Dubbelhoofvak:

Genetika en **Fisiologie**-kombinasie: Studente moet [FLG 330 + FLG 327 + FLG 331 + FLG 332] neem tot ’n totale waarde van 72 krediete.

Kernmodules

Eukariote geenbeheer en -ontwikkeling 351 (GTS 351) - Krediete: 18.00
Genoom-evolusie en filogenetika 354 (GTS 354) - Krediete: 18.00
Populasie en evolusionêre genetika 367 (GTS 367) - Krediete: 18.00
Genetika in mensgesondheid 368 (GTS 368) - Krediete: 18.00

Keusemodules

Macromolekules van die lewe: struktuurfunksie en bioinformatika 356 (BCM 356) - Krediete: 18.00

Biokatalisering en integrasie van metabolisme 357 (BCM 357) - Krediete: 18.00
Selstruktuur en -funksie 367 (BCM 367) - Krediete: 18.00
Molekulêre grondslag van siekte 368 (BCM 368) - Krediete: 18.00
Fitomedisyne 365 (BOT 365) - Krediete: 18.00
Plantgenetika en gewasbiotegnologie 361 (BTC 361) - Krediete: 18.00
Farmakologie 381 (FAR 381) - Krediete: 18.00
Farmakologie 382 (FAR 382) - Krediete: 18.00
Hoër neurologiese funksies 327 (FLG 327) - Krediete: 18.00
Sellulêre en ontwikkelingsfisiologie 330 (FLG 330) - Krediete: 18.00
Toegepaste en patofisiologie 332 (FLG 332) - Krediete: 18.00
Virologie 351 (MBY 351) - Krediete: 18.00
Bakteriese genetika 355 (MBY 355) - Krediete: 18.00
Genetiese manipulasie van mikrobes 364 (MBY 364) - Krediete: 18.00
Mikrobe-interaksies 365 (MBY 365) - Krediete: 18.00

BSc Meteorologie (02133313)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	32

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Meteorologie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Fisiese Wetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	

BSc – Verlengde program vir die Fisiese Wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	26

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 88

Keuse = 40

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Keusemodules vir eerste- tot derdejaar kan gekies word uit modules in die volgende departemente: Geografie, Geoinformatika en Meteorologie, Geologie, Plantproduksie en Grondkunde, Chemie, Plantkunde, Wiskunde en Toegepaste Wiskunde, Fisika, Rekenaarwetenskap.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Eerste kursus in fisika 114 (PHY 114) - Krediete: 16.00
Eerste kursus in fisika 124 (PHY 124) - Krediete: 16.00
Atmosferiese struktuur en prosesse 155 (WKD 155) - Krediete: 16.00
Calculus 114 (WTW 114) - Krediete: 16.00
Numeriese analise 123 (WTW 123) - Krediete: 8.00
Wiskunde 124 (WTW 124) - Krediete: 16.00

Keusemodules

Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleiding tot omgewingswetenskappe 101 (ENV 101) - Krediete: 8.00
Aspekte van menslike geografie 156 (GGY 156) - Krediete: 8.00
Suider-Afrikaanse geomorfologie 166 (GGY 166) - Krediete: 8.00
Inleiding tot geologie 155 (GLY 155) - Krediete: 16.00
Aardgeskiedenis 163 (GLY 163) - Krediete: 16.00
Kartografie 110 (GMC 110) - Krediete: 10.00
Verkenning van die heelal 154 (SCI 154) - Krediete: 16.00
Meganika 122 (SWK 122) - Krediete: 16.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete:

Kern = 88

Keuse = 56

Addisionele inligting:

Keusemodules vir eerste- tot derdejaar kan gekies word uit modules in die volgende departemente: Geografie, Geoinformatika en Meteorologie, Geologie, Plantproduksie en Grondkunde, Chemie, Plantkunde, Wiskunde en Toegepaste Wiskunde, Fisika, Rekenaarwetenskap.

Kernmodules

Geografiese data-analise 220 (GIS 220) - Krediete: 14.00
Afstandswaarneming 220 (GMA 220) - Krediete: 14.00
Programmering in meteorologie 254 (WKD 254) - Krediete: 12.00
Fisiese weerkunde 261 (WKD 261) - Krediete: 12.00
Inleiding tot dinamiese weerkunde 263 (WKD 263) - Krediete: 12.00
Calculus 218 (WTW 218) - Krediete: 12.00
Vektoranalise 248 (WTW 248) - Krediete: 12.00

Keusemodules

Prosesgeomorfologie 252 (GGY 252) - Krediete: 12.00
Stedelike struktuur, omgewing en samelewing 266 (GGY 266) - Krediete: 24.00
Inleidende geografiese inligtingstelsels 283 (GGY 283) - Krediete: 14.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Afstandswaarneming 220 (GMA 220) - Krediete: 14.00
Lineêre algebra 211 (WTW 211) - Krediete: 12.00
Analise 220 (WTW 220) - Krediete: 12.00
Differensiaalvergelykings 286 (WTW 286) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 120

Minimum krediete:

Kern = 90

Keuse = 30

Addisionele inligting:

Keusemodules vir eerste- tot derdejaar kan gekies word uit modules in die volgende departemente: Geografie, Geoinformatika en Meteorologie, Geologie, Plantproduksie en Grondkunde, Chemie, Plantkunde, Wiskunde en Toegepaste Wiskunde, Fisika, Rekenaarwetenskap.

Kernmodules

Mens-omgewing-interaksies 301 (ENV 301) - Krediete: 18.00
Atmosferiese vortisiteit en divergensie 352 (WKD 352) - Krediete: 18.00
Kwasi-geostofiese analise 361 (WKD 361) - Krediete: 18.00
Grondbeginsels van weervoorspelling 366 (WKD 366) - Krediete: 36.00

Keusemodules

Volhoubare ontwikkeling 356 (GGY 356) - Krediete: 18.00
Ontwikkelingsraamwerke 366 (GGY 366) - Krediete: 18.00
Geografiese inligtingstelsels 310 (GIS 310) - Krediete: 22.00
Ruimtelike analise 320 (GIS 320) - Krediete: 22.00
Grondchemie 320 (GKD 320) - Krediete: 14.00

Afstandwaarneming 320 (GMA 320) - Krediete: 22.00
Geometriese en ruimte geodesie 310 (GMC 310) - Krediete: 22.00
Beginsels van veldbestuur 310 (WDE 310) - Krediete: 12.00

BSc Mikrobiologie (02133404)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Mikrobiologie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

BCM 356 en BCM 357, BOT 356, BOT 358, GTS 351 , GTS 354, PLG 351 of ZEN 355.

Twee keusemodules kan gekies word uit BCM 367 en BCM 368, BOT 365, BTC 361, FST 362, GTS 367 of ZEN 365.

Studente kan net modules neem indien hulle aan al die voorvereistes voldoen.

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules
Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules
Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2
Minimum krediete: 144

Minimum krediete:

Kern = 144

Addisionele inligting:

?**Toegepaste Mikrobiologie-opsie:** ZEN 251 kan met FST 250 vervang word

Studente mag ZEN 261 en/of BOT 261 met MBY 262, FST 260 of BCM 262 vervang.

Mediese Mikrobiologie-opsie: Studente moet ZEN 251 en BOT 251 vervang met FLG 211 en FLG 212. Studente moet ZEN 261 en BOT 261 vervang met FLG 221 en FLG 222.

Mikrobiologie en Biochemie-kombinasie: Studente moet ZEN 251 en BOT 251 vervang met CMY 282 EN CMY 284 Studente moet ZEN 261 en BOT 261 vervang met CMY 283 EN BCM 262.

Mikrobiologie en-Genetika-opsie: Studente mag ZEN 261 met PLG 262 vervang

Mikrobiologie en Plantwetenskappe-opsie: Studente mag ZEN 261 met PLG 262 vervang

Kernmodules
Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00

Voedselmikrobiologie 262 (MBY 262) - Krediete: 12.00
Invertebraatbiologie 251 (ZEN 251) - Krediete: 12.00
Afrika-vertebrate 261 (ZEN 261) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 72

Keuse = 72

Addisionele inligting:

?**Toegepaste Mikrobiologie-opsie:** Studente mag keuse modules kies van BCM 356, BCM 357, BOT 356, BOT 358, GTS 351, GTS 354, PLG 351, ZEN 355, BCM 367, BCM 368, BOT 365, BTC 361, FST 362, GTS 367 of ZEN 365

Studente kan net modules neem indien hulle aan al die voorvereistes voldoen.

Mediese Mikrobiologie-opsie: Studente mag keuse modules kies van BCM 356, BCM 357, BCM 367, BCM 368, GTS 351, GTS 354, GTS 367 of GTS 368

Mikrobiologie en Biochemie-kombinasie: Studente moet BCM 356, BCM 357, BCM 367, BCM 368 neem

Mikrobiologie en-Genetika-opsie: Studente moet GTS 351 en GTS 354, GTS 367 en GTS 368 of BTC 361 neem

Mikrobiologie en Plantwetenskappe-opsie: Student moet BOT 356, BOT 358, BOT 365 en BTC 362 neem

Kernmodules

Virologie 351 (MBY 351) - Krediete: 18.00
Bakteriese genetika 355 (MBY 355) - Krediete: 18.00
Genetiese manipulasie van mikrobes 364 (MBY 364) - Krediete: 18.00
Mikrobe-interaksies 365 (MBY 365) - Krediete: 18.00

Keusemodules

Macromolekules van die lewe: struktuurfunksie en bioinformatika 356 (BCM 356) - Krediete: 18.00
Biokatalisering en integrasie van metabolisme 357 (BCM 357) - Krediete: 18.00
Selstruktuur en -funksie 367 (BCM 367) - Krediete: 18.00
Molekulêre grondslag van siekte 368 (BCM 368) - Krediete: 18.00
Plantekofisiologie 356 (BOT 356) - Krediete: 18.00
Plantekologie 358 (BOT 358) - Krediete: 18.00
Fitomedisyne 365 (BOT 365) - Krediete: 18.00
Plantgenetika en gewasbiotegnologie 361 (BTC 361) - Krediete: 18.00
Gevorderde diere- en plantvoedselmikrobiologie 362 (FST 362) - Krediete: 18.00
Eukariote geenbeheer en -ontwikkeling 351 (GTS 351) - Krediete: 18.00
Genoom-evolusie en filogenetika 354 (GTS 354) - Krediete: 18.00
Populasie en evolusionêre genetika 367 (GTS 367) - Krediete: 18.00
Genetika in mensgesondheid 368 (GTS 368) - Krediete: 18.00
Algemene plantpatologie 351 (PLG 351) - Krediete: 18.00
Insekdiversiteit 355 (ZEN 355) - Krediete: 18.00
Toegepaste entomologie 365 (ZEN 365) - Krediete: 18.00

BSc Omgewingswetenskappe (02133362)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	32

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Omgewingswetenskappe)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Fisiese Wetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Fisiese Wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	26

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per

semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Hierdie inligting is slegs in Engels beskikbaar.

Minimum credits:

Fundamental = 12

Core = 128

Additional information:

Students who do not qualify for AIM 102 must register for AIM 111 and AIM 121.

Students can take WTW 114 instead of WTW 134 if they meet the entry requirement.

BSc (Geography) and BSc (Environmental Sciences) students may register for WKD 155. Students are not allowed to earn credits for both WKD 155 and WKD 164.

Students who have a particular interest in geoinformatics will have to take GMC 110 additionally in the first year. In the second year, GGY 283 should be taken instead of GIS 221, and in the third year, GIS 310 and GIS 320 should be selected from the list of electives.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00

Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules
Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleiding tot omgewingswetenskappe 101 (ENV 101) - Krediete: 8.00
Aspekte van menslike geografie 156 (GGY 156) - Krediete: 8.00
Suider-Afrikaanse geomorfologie 166 (GGY 166) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Klimaat en weer van Suider-Afrika 164 (WKD 164) - Krediete: 8.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2
Minimum krediete: 144

Hierdie inligting is slegs in Engels beskikbaar.

Minimum credits:

Core = 82

Elective = 60

Additional information:

Electives can be chosen from the following departments: Geography, Geoinformatics and Meteorology, Geology, Plant Production and Soil Science, Physics, Chemistry, Plant Science , Mathematics and Applied Mathematics, Zoology and Entomology, Anthropology and Archaeology and Computer Science.

Kernmodules
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Prosesgeomorfologie 252 (GGY 252) - Krediete: 12.00
Inleiding tot geografiese inligtingstelsels 221 (GIS 221) - Krediete: 12.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Invertebraatbiologie 251 (ZEN 251) - Krediete: 12.00
Afrika-vertebrate 261 (ZEN 261) - Krediete: 12.00

Keusemodules
Stedelike struktuur, omgewing en samelewing 266 (GGY 266) - Krediete: 24.00
Geografiese data-analise 220 (GIS 220) - Krediete: 14.00
Afstandswaarneming 220 (GMA 220) - Krediete: 14.00
Volhoubare gewasproduksie en agroklimatologie 251 (PPK 251) - Krediete: 15.00
Fisiese weerkunde 261 (WKD 261) - Krediete: 12.00

Kurrikulum: Finale jaar
Minimum krediete: 144

Hierdie inligting is slegs in Engels beskikbaar.

Minimum credits:

Core = 36

Elective = 108

Kernmodules

Mens-omgewing-interaksies 301 (ENV 301) - Krediete: 18.00
Omgewingsgeomorfologie 361 (GGY 361) - Krediete: 18.00

Keusemodules

Plantekologie 358 (BOT 358) - Krediete: 18.00
Volhoubare ontwikkeling 356 (GGY 356) - Krediete: 18.00
Ontwikkelingsraamwerke 366 (GGY 366) - Krediete: 18.00
Geografiese inligtingstelsels 310 (GIS 310) - Krediete: 22.00
Ruimtelike analise 320 (GIS 320) - Krediete: 22.00
Grondklassifikasie en kartering 350 (GKD 350) - Krediete: 14.00
Afstandwaarneming 320 (GMA 320) - Krediete: 22.00
Bevolkingsekologie 351 (ZEN 351) - Krediete: 18.00
Gemeenskapsekologie 353 (ZEN 353) - Krediete: 18.00
Gedragsekologie 363 (ZEN 363) - Krediete: 18.00
Bewaringsekologie 364 (ZEN 364) - Krediete: 18.00

BSc Plantkunde (02133405)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

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Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Plantkunde)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 144

Minimum krediete:

Kern = 136

Keuse = 8

Addisionele inligting:

Studente wat spesialiseer in plantekologie/taksonomie: Vervang BCM 252 met GKD 250 en neem ’n keusemodule van ten minste 8 krediete op 200-vlak uit [GIS 220 of GIS 221] of ’n ander module in oorleg met die Hoof van die Departement.

Studente wat NIE spesialiseer in plantekologie/taksonomie nie: Vervang GLY 161 en GLY 162 met PLG 262 en ’n addisionele keusemodule uit [BCM 261 of BCM 262 of MBY 262, of ’n ander 12- krediet module op 200-vlak in oorleg met die Hoof van die Departement].

Spesialisering in Plantpatologie: Vervang ZEN 261 met PLG 262.

Studente wat belangstel om **Plantkunde** met **Biochemie** as ’n dubbelhoofvak te kombineer, moet [MBY 251 en ZEN 251] vervang met [CMY282 en CMY 284] en [GLY 163, MBY 261 en ZEN 261] vervang met [BCM 261, BCM 262, CMY283 en CMY 285 vir ’n totaal van 48 krediete].

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Aardgeskiedenis 163 (GLY 163) - Krediete: 16.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00
Invertebraatbiologie 251 (ZEN 251) - Krediete: 12.00
Afrika-vertebrate 261 (ZEN 261) - Krediete: 12.00

Keusemodules

Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Voedselmikrobiologie 262 (MBY 262) - Krediete: 12.00
Beginsels van plantpatologie 262 (PLG 262) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 90

Keuse = 54

Addisionele inligting:

Spesialisering in Plantekologie: Studente neem geskikte keusemodules in die eerste semester en ZEN 364 (18 krediete) in die tweede semester..

Spesialisering in Plantpatologie: In die eerste semester, kies PLG 351 asook een van [ZEN 355 of MBY 355]. In die tweede semester, neem PLG 363 en vervang [BOT 365 of BOT 366] met ZEN 365.

Dubbelhoofvak – Plantkunde en Biochemie: Vervang BTC 361 om sodoende BCM 356, BCM 357, BCM 367 en BCM 368 te neem.

Dubbelhoofvak – Plantkunde en Genetika: Neem GTS 351, GTS 354 en GTS 367. Studente mag ook kies om BOT 366 met GTS 368 te vervang.

Dubbelhoofvak – Plantkunde en Mikrobiologie: Vervang BOT 366 om sodoende MBY 351, MBY 355, MBY 364 en MBY 365 te neem.

Kernmodules

Macromolekules van die lewe: struktuurfunksie en bioinformatika 356 (BCM 356) - Krediete: 18.00
Plantekofisiologie 356 (BOT 356) - Krediete: 18.00
Plantekologie 358 (BOT 358) - Krediete: 18.00
Fitomedisyne 365 (BOT 365) - Krediete: 18.00
Plantdiversiteit 366 (BOT 366) - Krediete: 18.00
Plantgenetika en gewasbiotegnologie 361 (BTC 361) - Krediete: 18.00

Genetika in mensgesondheid 368 (GTS 368) - Krediete: 18.00
Virologie 351 (MBY 351) - Krediete: 18.00
Bestrydingkunde 363 (PLG 363) - Krediete: 18.00
Toegepaste entomologie 365 (ZEN 365) - Krediete: 18.00

Keusemodules
Biokatalisering en integrasie van metabolisme 357 (BCM 357) - Krediete: 18.00
Selstruktuur en -funksie 367 (BCM 367) - Krediete: 18.00
Molekulêre grondslag van siekte 368 (BCM 368) - Krediete: 18.00
Eukariote geenbeheer en -ontwikkeling 351 (GTS 351) - Krediete: 18.00
Genoom-evolusie en filogenetika 354 (GTS 354) - Krediete: 18.00
Populasie en evolusionêre genetika 367 (GTS 367) - Krediete: 18.00
Bakteriese genetika 355 (MBY 355) - Krediete: 18.00
Genetiese manipulasie van mikrobes 364 (MBY 364) - Krediete: 18.00
Mikrobe-interaksies 365 (MBY 365) - Krediete: 18.00
Algemene plantpatologie 351 (PLG 351) - Krediete: 18.00
Bevolkingsekologie 351 (ZEN 351) - Krediete: 18.00
Soogdierkunde 352 (ZEN 352) - Krediete: 18.00
Gemeenskapsekologie 353 (ZEN 353) - Krediete: 18.00
Evolusionêre fisiologie 354 (ZEN 354) - Krediete: 18.00
Insekdiversiteit 355 (ZEN 355) - Krediete: 18.00
Bewaringsekologie 364 (ZEN 364) - Krediete: 18.00

BSc Toegepaste Wiskunde (02133253)

Minimum duur van studie	3 jaar
Kontak	Prof R Anguelov roumen.anguelov@up.ac.za +27 (0)124202520

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.?

Minimum vereistes								
Prestasievlak								
Afrikaans of Engels				**Wiskunde**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	6	2	B	B	32

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Togepaste Wiskunde)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Wiskundige Wetenskappe:

Minimum vereistes									
Prestasievlak									
	Afrikaans of Engels				**Wiskunde**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Wiskundige Wetenskappe	4	3	D	D	5	3	C	C	26

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n

studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 138

Minimum krediete:

Fundamenteel = 12 krediete

Kern = 96 krediete

Keuse = 32 krediete

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Keusemodules: ’n Minimum van 54 keusekrediete op 100- tot 300-vlak kan gekies word uit enige WTW- en WST-modules. Die oorblywende keusekrediete op 100- tot 300-vlak kan gekies word uit enige ander modules uit die lys van modules van hierdie fakulteit.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Wiskundige statistiek 111 (WST 111) - Krediete: 16.00
Wiskundige statistiek 121 (WST 121) - Krediete: 16.00
Calculus 114 (WTW 114) - Krediete: 16.00
Diskrete strukture 115 (WTW 115) - Krediete: 8.00
Numeriese analise 123 (WTW 123) - Krediete: 8.00
Wiskunde 124 (WTW 124) - Krediete: 16.00
Wiskundige modellering 152 (WTW 152) - Krediete: 8.00
Dinamiese prosesse 162 (WTW 162) - Krediete: 8.00

Keusemodules

Ekonomie 113 (EKN 113) - Krediete: 15.00
Ekonomie 123 (EKN 123) - Krediete: 15.00
Finansiële bestuur 110 (FBS 110) - Krediete: 10.00
Finansiële bestuur 112 (FBS 112) - Krediete: 10.00
Finansiële bestuur 120 (FBS 120) - Krediete: 10.00
Finansiële bestuur 122 (FBS 122) - Krediete: 10.00

Kurrikulum: Jaar 2

Minimum krediete: 132

Minimum krediete:

Kern = 84 krediete

Keuse = 60 krediete

Addisionele inligting:

Keusemodules: ’n Minimum van 54 keusekrediete op 100- tot 300-vlak kan gekies word uit enige WTW- en WST-modules. Die oorblywende keusekrediete op 100- tot 300-vlak kan gekies word uit enige ander modules uit die lys van modules van hierdie fakulteit.

Kernmodules

Lineêre algebra 211 (WTW 211) - Krediete: 12.00
Calculus 218 (WTW 218) - Krediete: 12.00
Analise 220 (WTW 220) - Krediete: 12.00
Lineêre algebra 221 (WTW 221) - Krediete: 12.00
Vektoranalise 248 (WTW 248) - Krediete: 12.00
Diskrete strukture 285 (WTW 285) - Krediete: 12.00
Differensiaalvergelykings 286 (WTW 286) - Krediete: 12.00

Keusemodules

Ekonomie 214 (EKN 214) - Krediete: 16.00
Ekonomie 224 (EKN 224) - Krediete: 16.00
Ekonomie 234 (EKN 234) - Krediete: 16.00
Ekonomie 244 (EKN 244) - Krediete: 16.00
Aktuariële wiskunde 211 (IAS 211) - Krediete: 12.00
Aktuariële wiskunde 221 (IAS 221) - Krediete: 12.00
Finansiële wiskunde 282 (IAS 282) - Krediete: 12.00
Informatika 214 (INF 214) - Krediete: 14.00
Wiskundige statistiek 211 (WST 211) - Krediete: 24.00
Wiskundige statistiek 221 (WST 221) - Krediete: 24.00
Differensiaalvergelykings 264 (WTW 264) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 90 krediete

Keuse = 54 krediete

Addisionele inligting:

Keusemodules: ’n Minimum van 54 keusekrediete op 100- tot 300-vlak kan gekies word uit enige WTW- en WST-modules. Die oorblywende keusekrediete op 100- tot 300-vlak kan gekies word uit enige ander modules uit die lys van modules van hierdie fakulteit.

Kernmodules
Analise 310 (WTW 310) - Krediete: 18.00
Dinamiese stelsels 382 (WTW 382) - Krediete: 18.00
Numeriese analise 383 (WTW 383) - Krediete: 18.00
Parsiële differensiaalvergelykings 386 (WTW 386) - Krediete: 18.00
Kontinuummeganika 387 (WTW 387) - Krediete: 18.00

Keusemodules
Ekonomie 310 (EKN 310) - Krediete: 20.00
Ekonomie 314 (EKN 314) - Krediete: 20.00
Ekonomie 320 (EKN 320) - Krediete: 20.00
Ekonomie 325 (EKN 325) - Krediete: 20.00
Versekerings- en aktuariële toepassings 361 (IAS 361) - Krediete: 18.00
Aktuariële modellering 382 (IAS 382) - Krediete: 20.00
Meerveranderlike analise 311 (WST 311) - Krediete: 18.00
Stogastiese prosesse 312 (WST 312) - Krediete: 18.00
Tydreeksanalise 321 (WST 321) - Krediete: 18.00
Aktuariële statistiek 322 (WST 322) - Krediete: 18.00
Komplekse analise 320 (WTW 320) - Krediete: 18.00
Finansiële ingenieurswese 354 (WTW 354) - Krediete: 18.00
Finansiële ingenieurswese 364 (WTW 364) - Krediete: 18.00
Algebra 381 (WTW 381) - Krediete: 18.00
Meetkunde 389 (WTW 389) - Krediete: 18.00

BSc Verlengde program - Biologiese en Landbouwetenskappe (02130014)

Minimum duur van studie	4 jaar

Toelatingsvereistes

Kandidate wat nie aan die minimum toelatingsvereistes van die programme in die Departement Biologiese Wetenskappe voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program vir die Biologiese en Landbouwetenskappe. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

?**BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:**

Minimum vereistes vir 2017													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbouwetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Addisionele vereistes

a. Studente wat toegelaat word tot een van die BSc-Verlengde programme, registreer vir ’n spesifieke Vierjaarprogram. Drie verlengde programme word aangebied:

- BSc (Vierjaarprogram) – Wiskundige Wetenskappe
- BSc (Vierjaarprogram) – Biologiese en Landbouwetenskappe
- BSc (Vierjaarprogram) – Fisiese Wetenskappe

b. Hierdie programme word gevolg deur studente wat as gevolg van besondere omstandighede by ’n verlengde studieprogram baat sal vind.
c. Studente wat nie aan die normale toelatingsvereistes vir ’n driejaar BSc-graad in die Fakulteit Natuur-en Landbouwetenskappe voldoen nie, kan nogtans toelating verkry deur in een van die BSc-vierjaarprogramme geplaas te word. In algemene terme beteken die BSc (Vierjaarprogram) dat die eerste studiejaar in Wiskunde, Fisika, Biologie en Chemie verleng word en twee jaar duur. Na suksesvolle voltooiing van die BSc (Vierjaarprogram), skakel studente by die tweede jaar van een van die normale BSc-programme in tot voltooiing van die graad. Die moontlikheid om na een of twee jaar in die Vierjaarprogram na ’n ander fakulteit soos Ingenieurswese, Bou-omgewing en Inligtingtegnologie, Veeartsenykunde of Gesondheidswetenskappe oor te skakel bestaan vir verdienstelike gevalle, onderhewig aan keuring en die bepaalde voorwaardes wat die ander fakulteite mag stel.
d. Studente wat een van die Vierjaarprogramme wil volg, moet ’n Institusionele Vaardigheidstoets aflê en word deur ’n keurkomitee vir toelating oorweeg. Besonderhede is by die Kliëntedienssentrum beskikbaar.
e. Aansoeke om toelating tot die BSc (Vierjaarprogram) word jaarliks voor 30 September ingedien. Besonderhede is by die Studenteadministrasie: Fakulteit Natuur- en Landbouwetenskappe beskikbaar.
f. Reëls en regulasies van toepassing op die normale studieprogramme is mutatis mutandis van toepassing op die BSc (Vierjaarprogram), met die uitsonderings soos aangedui in die regulasies van die BSc (Vierjaarprogram). Onder andere moet studente in die Vierjaarprogramme oor ’n Nasionale Senior Sertifikaat met toelating vir graaddoeleindes beskik.
g. Aansoeke vir die Vierjaarprogramme word jaarliks deur ’n toelatingskomitee oorweeg. Studente wat aanvaar word vir studie in die Vierjaarprogramme word individueel, betreffende vakkeuses, deur die toelatingskomitee geplaas volgens hulle voornemende studierigting. Studente mag nie sonder toestemming van die Voorsitter van die toelatingskomitee hierdie plasing verander nie.

Ander programspesifieke inligting

Die Dekaan kan, op aanbeveling van die programbestuurder, afwykings in die studieprogram goedkeur. Let wel: Waar keusemodules nie spesifiek aangedui word nie, kan enige van die modules wat in die alfabetiese lys van modules voorkom, gekies word. Die onus rus op die studente om voor registrasie seker te maak dat hulle aan die voorvereistes van die modules voldoen Voorvereistes word in die alfabeties modulelys gelys.

Bevordering tot volgende studiejaar

Akademiese bevorderingsvereistes

Dit word van studente wat vir die eerste jaar van die BSc (Vierjaarprogram) registreer is, verwag om alle voorgeskrewe modules van die eerste jaar van die program te slaag.
Dit word van studente wat vir die BSc (Vierjaarprogram) toegelaat is, verwag om 'n volledige ooreenstemmende BSc eerste jaar binne twee jaar van registrasie te voltooi.
Studente wat nie vordering tydens die eerste semester van die eerste jaar toon nie, sal na die toelatingskomitee

van die Fakulteit verwys word.

Kurrikulum: Jaar 1

Minimum krediete: 88

Minimum krediete:

Fundamenteel = 24

Kern = 64

Addisionele inligting:

NB: Studente mag slegs een maal vir 'n verlengde program module registreer

Fundamentele modules

Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Taal-, lewens- en studievaardigheid 133 (LST 133) - Krediete: 8.00
Taal-, lewens- en studievaardigheid 143 (LST 143) - Krediete: 8.00
Akademiese oriëntasie 120 (UPO 120) - Krediete: 0.00

Kernmodules

Chemie 133 (CMY 133) - Krediete: 8.00
Chemie 143 (CMY 143) - Krediete: 8.00
Molekulêre en selbiologie 133 (MLB 133) - Krediete: 8.00
Molekulêre en selbiologie 143 (MLB 143) - Krediete: 8.00
Fisika 133 (PHY 133) - Krediete: 8.00
Fisika 144 (PHY 144) - Krediete: 8.00
Precalculus 133 (WTW 133) - Krediete: 8.00
Wiskunde 144 (WTW 144) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 32

Minimum krediete:

Kern = 32

Addisionele inligting:

NB: Studente mag slegs een maal vir 'n verlengde program module registreer

Met verwysing na die res van die derdesemestermodules (tweede jaar, eerste semester) en die tweede semester, moet voorgeskrewe modules uit die normale BSc-program van jou keuse geselekteer word.

Ekwivalente modules:

Chemie verlengde modules: CMY 133, CMY 143 en CMY 154: Gelykstaande aan BSc module CMY 117

Molekulêre en selbiologie verlengde modules: MLB 133, MLB 143 en MLB 153: Gelykstaande aan BSc module MLB 111

Fisiese verlengde modules: PHY 133, PHY 143 en PHY 154: Gelystaande aan BSc module PHY 131

Wiskundige verlengde modules: WTW 133, WTW 143 en WTW 154: Gelykstaande aan BSc module WTW 134

Kernmodules
Chemie 154 (CMY 154) - Krediete: 8.00
Molekulêre en selbiologie 153 (MLB 153) - Krediete: 8.00
Fisika 154 (PHY 154) - Krediete: 8.00
Wiskunde 154 (WTW 154) - Krediete: 8.00

Keusemodules
Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Wetenskap en wêreldbeskouing 155 (FIL 155) - Krediete: 6.00
Finansiële rekeningkunde 111 (FRK 111) - Krediete: 10.00
Finansiële rekeningkunde 121 (FRK 121) - Krediete: 12.00
Fisiologie 110 (FSG 110) - Krediete: 6.00
Fisiologie 120 (FSG 120) - Krediete: 6.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Sielkunde 110 (SLK 110) - Krediete: 12.00
Sielkunde 120 (SLK 120) - Krediete: 12.00
Basiese voedselbereiding 121 (VDS 121) - Krediete: 6.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

BSc Verlengde program - Fisiese Wetenskappe (02130015)

Minimum duur van studie	4 jaar

Toelatingsvereistes

Kandidate wat nie aan die minimum toelatingsvereistes van die programme in die Departement Fisiese Wetenskappe voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program vir die Fisiese Wetenskappe. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Fisiese Wetenskappe:

Minimum vereistes vir 2017													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Fisiese Wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	26

Addisionele vereistes

a. Studente wat toegelaat word tot een van die BSc-Verlengde programme, registreer vir ’n spesifieke

Vierjaarprogram. Drie verlengde programme word aangebied:

- BSc (Vierjaarprogram) – Wiskundige Wetenskappe
- BSc (Vierjaarprogram) – Biologiese en Landbouwetenskappe
- BSc (Vierjaarprogram) – Fisiese Wetenskappe

b. Hierdie programme word gevolg deur studente wat as gevolg van besondere omstandighede by ’n verlengde studieprogram baat sal vind.
c. Studente wat nie aan die normale toelatingsvereistes vir ’n driejaar BSc-graad in die Fakulteit Natuur-en Landbouwetenskappe voldoen nie, kan nogtans toelating verkry deur in een van die BSc-vierjaarprogramme geplaas te word. In algemene terme beteken die BSc (Vierjaarprogram) dat die eerste studiejaar in Wiskunde, Fisika, Biologie en Chemie verleng word en twee jaar duur. Na suksesvolle voltooiing van die BSc (Vierjaarprogram), skakel studente by die tweede jaar van een van die normale BSc-programme in tot voltooiing van die graad. Die moontlikheid om na een of twee jaar in die Vierjaarprogram na ’n ander fakulteit soos Ingenieurswese, Bou-omgewing en Inligtingtegnologie, Veeartsenykunde of Gesondheidswetenskappe oor te skakel bestaan vir verdienstelike gevalle, onderhewig aan keuring en die bepaalde voorwaardes wat die ander fakulteite mag stel.
d. Studente wat een van die Vierjaarprogramme wil volg, moet ’n Institusionele Vaardigheidstoets aflê en word deur ’n keurkomitee vir toelating oorweeg. Besonderhede is by die Kliëntedienssentrum beskikbaar.
e. Aansoeke om toelating tot die BSc (Vierjaarprogram) word jaarliks voor 30 September ingedien. Besonderhede is by die Studenteadministrasie: Fakulteit Natuur- en Landbouwetenskappe beskikbaar.
f. Reëls en regulasies van toepassing op die normale studieprogramme is mutatis mutandis van toepassing op die BSc (Vierjaarprogram), met die uitsonderings soos aangedui in die regulasies van die BSc (Vierjaarprogram). Onder andere moet studente in die Vierjaarprogramme oor ’n Nasionale Senior Sertifikaat met toelating vir graaddoeleindes beskik.
g. Aansoeke vir die Vierjaarprogramme word jaarliks deur ’n toelatingskomitee oorweeg. Studente wat aanvaar word vir studie in die Vierjaarprogramme word individueel, betreffende vakkeuses, deur die toelatingskomitee geplaas volgens hulle voornemende studierigting. Studente mag nie sonder toestemming van die Voorsitter van die toelatingskomitee hierdie plasing verander nie.

Ander programspesifieke inligting

Die Dekaan kan, op aanbeveling van die programbestuurder, afwykings in die studieprogram goedkeur. Let wel: Waar keusemodules nie spesifiek aangedui word nie, kan enige van die modules wat in die alfabetiese lys van modules voorkom, gekies word. Die onus rus op die studente om voor registrasie seker te maak dat hulle aan die voorvereistes van die modules voldoen Voorvereistes word in die alfabeties modulelys gelys.

Bevordering tot volgende studiejaar

Akademiese bevorderingsvereistes

Dit word van studente wat vir die eerste jaar van die BSc (Vierjaarprogram) registreer is, verwag om alle voorgeskrewe modules van die eerste jaar van die program te slaag.
Dit word van studente wat vir die BSc (Vierjaarprogram) toegelaat is, verwag om 'n volledige ooreenstemmende BSc eerste jaar binne twee jaar van registrasie te voltooi.
Studente wat nie vordering tydens die eerste semester van die eerste jaar toon nie, sal na die toelatingskomitee van die Fakulteit verwys word.

Kurrikulum: Jaar 1

Minimum krediete: 88

Minimum krediete:

Fundamenteel = 24

Kern = 48

Keuse = 16

Addisionele inligting:

Studente registreer vir een van die volgende keuse kombinasies

- Eerste semester MLB 133 en WST 133, tweede semester MLB 143 en WST 143

NB: Studente mag slegs een maal vir 'n verlengde program module

Fundamentele modules

Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Taal-, lewens- en studievaardigheid 133 (LST 133) - Krediete: 8.00
Taal-, lewens- en studievaardigheid 143 (LST 143) - Krediete: 8.00
Akademiese oriëntasie 120 (UPO 120) - Krediete: 0.00

Kernmodules

Chemie 133 (CMY 133) - Krediete: 8.00
Chemie 143 (CMY 143) - Krediete: 8.00
Fisika 133 (PHY 133) - Krediete: 8.00
Fisika 143 (PHY 143) - Krediete: 8.00
Precalculus 133 (WTW 133) - Krediete: 8.00
Calculus 143 (WTW 143) - Krediete: 8.00

Keusemodules

Molekulêre en selbiologie 133 (MLB 133) - Krediete: 8.00
Molekulêre en selbiologie 143 (MLB 143) - Krediete: 8.00
Wiskundige statistiek 133 (WST 133) - Krediete: 8.00
Wiskundige statistiek 143 (WST 143) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 24

Minimum krediete:

Kern = 24

Keuse = Volgens BSc program van keuse

Addisionele inligting:

Moontlike derde semeste keuse modules: MLB 153, WST 153

NB: Studente mag slegs een maal vir 'n verlengde program module

Met verwysing na die res van die derdesemestermodules (tweede jaar, eerste semester) en die tweede semester,

moet voorgeskrewe modules uit die normale BSc-program van jou keuse geselekteer word.

Ekwivalente modules:

Chemie verlengde modules: CMY 133, CMY 143 en CMY 154: Gelystaande aan BSc module CMY 117

Molekulêre en selbiologie verlengde modules: MLB 133, MLB 143 en MLB 153: Gelykstaande aan BSc module MLB 111

Fisiese verlengde modules: PHY 133, PHY 143 en PHY 153: Gelykstaande aan BSc module PHY 114

Wiskundige verlengde modules: WTW 133, WTW 143 en WTW 153: Gelykstaande aan BSc module WTW 114

Wiskundige Statisiek verlengde modules: WST 133, WST 143 en WST 153: Gelykstaande aan BSc modules WST 111

Kernmodules
Chemie 154 (CMY 154) - Krediete: 8.00
Fisika 153 (PHY 153) - Krediete: 8.00
Calculus 153 (WTW 153) - Krediete: 8.00

Keusemodules
Biometrie 120 (BME 120) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleiding tot omgewingswetenskappe 101 (ENV 101) - Krediete: 8.00
Aspekte van menslike geografie 156 (GGY 156) - Krediete: 8.00
Suider-Afrikaanse geomorfologie 166 (GGY 166) - Krediete: 8.00
Inleiding tot geologie 155 (GLY 155) - Krediete: 16.00
Aardgeskiedenis 163 (GLY 163) - Krediete: 16.00
Kartografie 110 (GMC 110) - Krediete: 10.00
Informatika 112 (INF 112) - Krediete: 10.00
Informatika 154 (INF 154) - Krediete: 10.00
Informatika 164 (INF 164) - Krediete: 10.00
Informatika 171 (INF 171) - Krediete: 20.00
Molekulêre en selbiologie 153 (MLB 153) - Krediete: 8.00
Eerste kursus in fisika 124 (PHY 124) - Krediete: 16.00
Verkenning van die heelal 154 (SCI 154) - Krediete: 16.00
Atmosferiese struktuur en prosesse 155 (WKD 155) - Krediete: 16.00
Numeriese analise 123 (WTW 123) - Krediete: 8.00
Wiskundige modellering 152 (WTW 152) - Krediete: 8.00

BSc Verlengde program - Wiskundige Wetenskappe (02130016)

Minimum duur van studie	4 jaar

Toelatingsvereistes

Kandidate wat nie aan die minimum vereistes van die programme in die Departement Wiskundige Wetenskappe voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vir Wiskundige Wetenskappe vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Wiskundige Wetenskappe
Minimum vereistes
Prestasievlak

Engels Huistaal of Engels Eerste Addisionele Taal		**Wiskunde**		**TPT**
NSS/IEB	AS-Level	NSS/IEB	AS-Level	
4	D	5	C	**26**

Addisionele vereistes

a. Studente wat toegelaat word tot een van die BSc-Verlengde programme, registreer vir ’n spesifieke Vierjaarprogram. Drie verlengde programme word aangebied:

- BSc (Vierjaarprogram) – Wiskundige Wetenskappe
- BSc (Vierjaarprogram) – Biologiese en Landbouwetenskappe
- BSc (Vierjaarprogram) – Fisiese Wetenskappe

b. Hierdie programme word gevolg deur studente wat as gevolg van besondere omstandighede by ’n verlengde studieprogram baat sal vind.
c. Studente wat nie aan die normale toelatingsvereistes vir ’n driejaar BSc-graad in die Fakulteit Natuur-en Landbouwetenskappe voldoen nie, kan nogtans toelating verkry deur in een van die BSc-vierjaarprogramme geplaas te word. In algemene terme beteken die BSc (Vierjaarprogram) dat die eerste studiejaar in Wiskunde, Fisika, Biologie en Chemie verleng word en twee jaar duur. Na suksesvolle voltooiing van die BSc (Vierjaarprogram), skakel studente by die tweede jaar van een van die normale BSc-programme in tot voltooiing van die graad. Die moontlikheid om na een of twee jaar in die Vierjaarprogram na ’n ander fakulteit soos Ingenieurswese, Bou-omgewing en Inligtingtegnologie, Veeartsenykunde of Gesondheidswetenskappe oor te skakel bestaan vir verdienstelike gevalle, onderhewig aan keuring en die bepaalde voorwaardes wat die ander fakulteite mag stel.
d. Studente wat een van die Vierjaarprogramme wil volg, moet ’n Institusionele Vaardigheidstoets aflê en word deur ’n keurkomitee vir toelating oorweeg. Besonderhede is by die Kliëntedienssentrum beskikbaar.
e. Aansoeke om toelating tot die BSc (Vierjaarprogram) word jaarliks voor 30 September ingedien. Besonderhede is by die Studenteadministrasie: Fakulteit Natuur- en Landbouwetenskappe beskikbaar.
f. Reëls en regulasies van toepassing op die normale studieprogramme is mutatis mutandis van toepassing op die BSc (Vierjaarprogram), met die uitsonderings soos aangedui in die regulasies van die BSc (Vierjaarprogram). Onder andere moet studente in die Vierjaarprogramme oor ’n Nasionale Senior Sertifikaat met toelating vir graaddoeleindes beskik.
g. Aansoeke vir die Vierjaarprogramme word jaarliks deur ’n toelatingskomitee oorweeg. Studente wat aanvaar word vir studie in die Vierjaarprogramme word individueel, betreffende vakkeuses, deur die toelatingskomitee geplaas volgens hulle voornemende studierigting. Studente mag nie sonder toestemming van die Voorsitter van die toelatingskomitee hierdie plasing verander nie.

Ander programspesifieke inligting

Die Dekaan kan, op aanbeveling van die programbestuurder, afwykings in die studieprogram goedkeur. Let wel: Waar keusemodules nie spesifiek aangedui word nie, kan enige van die modules wat in die alfabetiese lys van modules voorkom, gekies word. Die onus rus op die studente om voor registrasie seker te maak dat hulle aan die voorvereistes van die modules voldoen Voorvereistes word in die

alfabeties modulelys gelys.

Bevordering tot volgende studiejaar

Akademiese bevorderingsvereistes
Dit word van studente wat vir die eerste jaar van die BSc (Vierjaarprogram) registreer is, verwag om alle voorgeskrewe modules van die eerste jaar van die program te slaag.
Dit word van studente wat vir die BSc (Vierjaarprogram) toegelaat is, verwag om 'n volledige ooreenstemmende BSc eerste jaar binne twee jaar van registrasie te voltooi.
Studente wat nie vordering tydens die eerste semester van die eerste jaar toon nie, sal na die toelatingskomitee van die Fakulteit verwys word.

Kurrikulum: Jaar 1

Minimum krediete: 88

Minimum krediete:

Fundamenteel = 24

Kern = 32

Keuse = 32

Addisionele inligting:

Studente registreer vir een van die volgende keuse kombinasies

- Eerste semesteR PHY 133 en CMY 133, tweede semester PHY 143 en CMY 143
- Eerste semester FRK 133 en OBS 133, tweede semester FRK 143 en OBS 143.

NB: Studente mag slegs een maal vir 'n verlengde program module

Fundamentele modules

Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Taal-, lewens- en studievaardigheid 133 (LST 133) - Krediete: 8.00
Taal-, lewens- en studievaardigheid 143 (LST 143) - Krediete: 8.00
Akademiese oriëntasie 120 (UPO 120) - Krediete: 0.00

Kernmodules

Wiskundige statistiek 133 (WST 133) - Krediete: 8.00
Wiskundige statistiek 143 (WST 143) - Krediete: 8.00
Precalculus 133 (WTW 133) - Krediete: 8.00
Calculus 143 (WTW 143) - Krediete: 8.00

Keusemodules

Chemie 133 (CMY 133) - Krediete: 8.00
Chemie 143 (CMY 143) - Krediete: 8.00
Finansiële rekeningkunde 133 (FRK 133) - Krediete: 8.00
Finansiële rekeningkunde 143 (FRK 143) - Krediete: 8.00
Ondernemingsbestuur 133 (OBS 133) - Krediete: 8.00
Ondernemingsbestuur 120 (OBS 143) - Krediete: 8.00
Fisika 133 (PHY 133) - Krediete: 8.00

Fisika 143 (PHY 143) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 28

Minimum krediete:

Kern = 16

Keuse = Volgens BSc program van keuse

Addisionele inligting:

Moontlike derde semeste keuse modules: CMY 154, PHY 153

NB: Studente mag slegs een maal vir 'n verlengde program module

Met verwysing na die res van die derdesemestermodules (tweede jaar, eerste semester) en die tweede semester, moet voorgeskrewe modules uit die normale BSc-program van jou keuse geselekteer word.

Ekwivalente modules:

Chemie verlengde modules: CMY 133, CMY 143 en CMY 154: Gelystaande aan BSc module CMY 117

Fisiese verlengde modules: PHY 133, PHY 143 en PHY 153: Gelystaande aan BSc module PHY 114

Wiskundige verlengde modules: WTW 133, WTW 143 en WTW 153: Gelykstaande aan BSc module WTW 134

Wiskundige Statisiek verlengde modules: WST 133, WST 143 en WST 153: Gelykstaande aan BSc modules WST 111

Kernmodules

Wiskundige statistiek 153 (WST 153) - Krediete: 8.00
Calculus 153 (WTW 153) - Krediete: 8.00

Keusemodules

Chemie 154 (CMY 154) - Krediete: 8.00
Programontwerp: Inleiding 110 (COS 110) - Krediete: 16.00
Ekonomie 113 (EKN 113) - Krediete: 15.00
Ekonomie 123 (EKN 123) - Krediete: 15.00
Finansiële bestuur 110 (FBS 110) - Krediete: 10.00
Finansiële bestuur 112 (FBS 112) - Krediete: 10.00
Finansiële bestuur 120 (FBS 120) - Krediete: 10.00
Finansiële bestuur 122 (FBS 122) - Krediete: 10.00
Fisika 153 (PHY 153) - Krediete: 8.00
Wiskundige statistiek 121 (WST 121) - Krediete: 16.00
Diskrete strukture 115 (WTW 115) - Krediete: 8.00
Numeriese analise 123 (WTW 123) - Krediete: 8.00
Wiskundige modellering 152 (WTW 152) - Krediete: 8.00
Dinamiese prosesse 162 (WTW 162) - Krediete: 8.00

BSc Voeding (02133322)

Minimum duur van studie	4 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.
- Studente sal by SARNAWP as natuurwetenskaplikes kan registreer en sal kan voortgaan met ‘n navorsingsgebaseerde MSc in Voeding.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Voeding)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die Verlengde Program neem 'n jaar langer om te voltooi.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir

die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 132

Minimum krediete:

Fundamenteel = 12

Kern = 120

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

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Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleiding tot voedsel, voeding en gesondheid 121 (FNH 121) - Krediete: 8.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00

Kurrikulum: Jaar 2

Minimum krediete: 147

Minimum krediete:

Kern = 147

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Inleidende en neurofisiologie 211 (FLG 211) - Krediete: 12.00
Sirkulatoriese fisiologie 212 (FLG 212) - Krediete: 12.00
Long- en nierfisiologie, suurbasis-ewewig en temperatuur 221 (FLG 221) - Krediete: 12.00
Vertering, endokrinologie en voortplantingstelsels 222 (FLG 222) - Krediete: 12.00
Mensvoeding 210 (HNT 210) - Krediete: 27.00
Mensvoeding 220 (HNT 220) - Krediete: 24.00

Kurrikulum: Jaar 3

Minimum krediete: 120

Minimum krediete:

Kern = 120

Kernmodules

Macromolekules van die lewe: struktuurfunksie en bioinformatika 356 (BCM 356) - Krediete: 18.00
Molekulêre grondslag van siekte 368 (BCM 368) - Krediete: 18.00
Voedsel- en voedingsekuriteit 320 (FNH 320) - Krediete: 8.00
Voedselchemie (1) 351 (FST 351) - Krediete: 18.00
Voedselchemie (2) 352 (FST 352) - Krediete: 18.00
Voedingstatusevaluaring 314 (NTA 314) - Krediete: 22.00
Voedselsamestelling en toegepaste voedingsprogramme 364 (VVW 364) - Krediete: 18.00

Kurrikulum: Finale jaar

Minimum krediete: 142

Minimum krediete:

Kern = 142

Kernmodules

Biometrie 210 (BME 210) - Krediete: 24.00
Navorsingsprojek 400 (FNH 400) - Krediete: 40.00
Gevorderde voedsel, voeding en gesondheid 420 (FNH 420) - Krediete: 20.00

Internasionale voeding 421 (FNH 421) - Krediete: 20.00
Navorsingsmetodiek en seminaar 400 (FST 400) - Krediete: 20.00
Gevorderde mensvoeding 411 (HNT 411) - Krediete: 18.00

BSc Voedselwetenskap (02133406)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Voedselwetenskap)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word.

Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 149

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Inleiding tot voedselwetenskap en -tegnologie 250 (FST 250) - Krediete: 12.00
Beginsels van voedselprosessering en -preservering 260 (FST 260) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00
Voedselmikrobiologie 262 (MBY 262) - Krediete: 12.00
Voeding 311 (VDG 311) - Krediete: 17.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum credits:

Core = 144

Kernmodules

Geïntegreerde voedselwetenskap 350 (FST 350) - Krediete: 18.00
Voedselchemie (1) 351 (FST 351) - Krediete: 18.00
Voedselchemie (2) 352 (FST 352) - Krediete: 18.00
Voedselingenieurswese 353 (FST 353) - Krediete: 18.00
Beginsels van die wetenskap en tegnologie van plantvoedsel 360 (FST 360) - Krediete: 18.00
Voedselwetenskap van dierlike produkte 361 (FST 361) - Krediete: 18.00
Gevorderde diere- en plantvoedselmikrobiologie 362 (FST 362) - Krediete: 18.00
Voedselsamestelling en toegepaste voedingsprogramme 364 (VVW 364) - Krediete: 18.00

BSc Wiskunde (02133263)

Minimum duur van studie	3 jaar
Kontak	Prof R Anguelov roumen.anguelov@up.ac.za +27 (0)124202520

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes								
Prestasievlak								
Afrikaans of Engels				Wiskunde				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	6	2	B	B	32

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Wiskunde)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Wiskundige Wetenskappe:

Minimum vereistes									
Prestasievlak									
	Afrikaans of Engels				Wiskunde				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Wiskundige Wetenskappe	4	3	D	D	5	3	C	C	26

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud

oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 138

Minimum krediete:

Fundamenteel = 12

Kern = 96

Keuse = 30

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

’n Minimum van 54 keusekrediete op 100- tot 300-vlak kan gekies word uit enige WTW- en WST-modules. Die res van die keusemodules op 100- tot 300-vlak kan gekies word uit enige ander modules wat in die lys van modules van die fakulteit voorkom.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Wiskundige statistiek 111 (WST 111) - Krediete: 16.00
Wiskundige statistiek 121 (WST 121) - Krediete: 16.00
Calculus 114 (WTW 114) - Krediete: 16.00
Diskrete strukture 115 (WTW 115) - Krediete: 8.00
Numeriese analise 123 (WTW 123) - Krediete: 8.00
Wiskunde 124 (WTW 124) - Krediete: 16.00
Wiskundige modellering 152 (WTW 152) - Krediete: 8.00

Dinamiese prosesse 162 (WTW 162) - Krediete: 8.00

Keusemodules

Imperatiewe programmering 132 (COS 132) - Krediete: 16.00
Ekonomie 113 (EKN 113) - Krediete: 15.00
Ekonomie 123 (EKN 123) - Krediete: 15.00
Finansiële bestuur 110 (FBS 110) - Krediete: 10.00
Finansiële bestuur 112 (FBS 112) - Krediete: 10.00
Finansiële bestuur 120 (FBS 120) - Krediete: 10.00
Finansiële bestuur 122 (FBS 122) - Krediete: 10.00

Kurrikulum: Jaar 2

Minimum krediete: 132

Minimum krediete:

Kern = 84

Keuse = 60

Addisionele inligting:

’n Minimum van 54 keusekrediete op 100- tot 300-vlak kan gekies word uit enige WTW- en WST-modules. Die res van die keusemodules op 100- tot 300-vlak kan gekies word uit enige ander modules wat in die lys van modules van die fakulteit voorkom.

Kernmodules

Lineêre algebra 211 (WTW 211) - Krediete: 12.00
Calculus 218 (WTW 218) - Krediete: 12.00
Analise 220 (WTW 220) - Krediete: 12.00
Lineêre algebra 221 (WTW 221) - Krediete: 12.00
Vektoranalise 248 (WTW 248) - Krediete: 12.00
Diskrete strukture 285 (WTW 285) - Krediete: 12.00
Differensiaalvergelykings 286 (WTW 286) - Krediete: 12.00

Keusemodules

Ekonomie 214 (EKN 214) - Krediete: 16.00
Ekonomie 224 (EKN 224) - Krediete: 16.00
Ekonomie 234 (EKN 234) - Krediete: 16.00
Ekonomie 244 (EKN 244) - Krediete: 16.00
Aktuariële wiskunde 211 (IAS 211) - Krediete: 12.00
Aktuariële wiskunde 221 (IAS 221) - Krediete: 12.00
Finansiële wiskunde 282 (IAS 282) - Krediete: 12.00
Informatika 214 (INF 214) - Krediete: 14.00
Wiskundige statistiek 211 (WST 211) - Krediete: 24.00
Wiskundige statistiek 221 (WST 221) - Krediete: 24.00
Differensiaalvergelykings 256 (WTW 256) - Krediete: 8.00
Calculus 258 (WTW 258) - Krediete: 8.00
Numeriese metodes 263 (WTW 263) - Krediete: 8.00

Kurrikulum: Finale jaar

Minimum krediete: 144

Minimum krediete:

Kern = 72

Keuse = 72

Addisionele inligting:

’n Minimum van 54 keusekrediete op 100- tot 300-vlak kan gekies word uit enige WTW- en WST-modules. Die res van die keusemodules op 100- tot 300-vlak kan gekies word uit enige ander modules wat in die lys van modules van die fakulteit voorkom.

Kernmodules

Analise 310 (WTW 310) - Krediete: 18.00
Komplekse analise 320 (WTW 320) - Krediete: 18.00
Algebra 381 (WTW 381) - Krediete: 18.00
Meetkunde 389 (WTW 389) - Krediete: 18.00

Keusemodules

Ekonomie 310 (EKN 310) - Krediete: 20.00
Ekonomie 314 (EKN 314) - Krediete: 20.00
Ekonomie 320 (EKN 320) - Krediete: 20.00
Ekonomie 325 (EKN 325) - Krediete: 20.00
Versekerings- en aktuariële toepassings 361 (IAS 361) - Krediete: 18.00
Aktuariële modellering 382 (IAS 382) - Krediete: 20.00
Meerveranderlike analise 311 (WST 311) - Krediete: 18.00
Stogastiese prosesse 312 (WST 312) - Krediete: 18.00
Tydreeksanalise 321 (WST 321) - Krediete: 18.00
Aktuariële statistiek 322 (WST 322) - Krediete: 18.00
Finansiële ingenieurswese 354 (WTW 354) - Krediete: 18.00
Finansiële ingenieurswese 364 (WTW 364) - Krediete: 18.00
Dinamiese stelsels 382 (WTW 382) - Krediete: 18.00
Numeriese analise 383 (WTW 383) - Krediete: 18.00
Parsiële differensiaalvergelykings 386 (WTW 386) - Krediete: 18.00
Kontinuummeganika 387 (WTW 387) - Krediete: 18.00

BSc Wiskundige Statistiek (02133274)

Minimum duur van studie	3 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).

- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.?

Minimum vereistes								
Prestasievlak								
Afrikaans of Engels				Wiskunde				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	6	2	B	B	32

Kandidate wat nie aan die minimum toelatingsvereistes van die BSc (Wiskundige Statistiek)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program vind plaas oor ‘n periode van vier jaar in plaas van die normale drie jaar.

BSc – Verlengde program vir die Wiskundige Wetenskappe:

Minimum vereistes									
Prestasievlak									
	Afrikaans of Engels				Wiskunde				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Wiskundige Wetenskappe	4	3	D	D	5	3	C	C	26

Ander programspesifieke inligting

'n Student moet al die minimum voorgeskrewe en keusemodules slaag soos uiteengesit aan die einde van elke jaar in ‘n program asook die totale aantal vereiste krediete behaal om te voldoen aan die betrokke graadprogramvereistes. Verwys asseblief na die kurrikulum soos uiteengesit. Ten minste 144 krediete moet op 300-/400-vlak wees, of andersins soos aangedui deur die kurrikulum. Die minimum modulekrediete wat nodig is om te voldoen aan graadvereistes word uiteengesit aan die einde van elke studieprogram. Met betrekking tot die BSc-programme soos aangedui sal ’n maksimum van 150 krediete op 100-vlak erken word.

’n Student mag in konsultasie met die Hoof van die Departement en in oorleg en met die toestemming van die Dekaan, voorgeskrewe modules volg of vervang met modules wat nie aangedui is in die BSc-driejaarstudieprogramme nie en wat die ekwivalent of die maksimum van 36 modulekrediete is. Dit is egter wel belangrik dat die totale aantal voorgeskrewe modulekrediete binne die loop van die graadprogram voltooi word. Die Dekaan mag in die verband, en op aanbeveling van die Departementshoof, afwykings goedkeur. Met betrekking tot die BSc-programme soos aangedui mag ’n student nie vir meer as 75 modulekrediete per semester op eerstejaarvlak registreer nie. ’n Student word slegs in oorleg met en met toestemming van die Dekaan toegelaat om te registreer vir 80 krediete in die eerste semester gedurende die eerste jaar indien die student ’n finale punt van nie minder nie as 70% vir Graad 12 Wiskunde en ’n TPT van 34 of meer behaal het vir

die NSS.

Studente wat alreeds in besit van ’n baccalaureusgraad is, kan nie erkenning kry vir modules waarvan die inhoud oorvleuel met modules van die graad wat reeds toegeken is nie. Verder sal krediete ook nie vir meer as 50% oorweeg word nie vir krediete geslaag tydens studie vir ’n vorige onvoltooide graad. Geen krediete op die finale jaar of op 300- en 400-vlak sal goedgekeur word nie.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die lesing-/eksamenrooster inpas.

Slaag met lof

'n Student slaag met lof indien hy of sy in een enkele akademiese jaar alle vereiste modules op 300-vlak of hoër slaag en 'n geweegde gemiddelde van minstens 75% in daardie modules behaal, met dien verstande dat 'n subminimum van 65% behaal word in die betrokke modules wat vereis word.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 64

Keuse = 64

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Dit word aanbeveel dat COS 132 deur al die studente as ‘n eerstejaar-keusemodule geneem word.

Addisionele keusemodules moet as volg gekies word:

Studente in die Wiskundige Statistiek wat hulle ook wil bekwaam in die Wiskundige bedryf, kies normaalweg: WTW 123 (8), 115 (8), 152 (8), 162 (8) and COS 110 (16)

Studente in die Wiskundige Statistiek wat hulle ook wil bekwaam in die Versekeringsbedryf en Ekonometrie-veld, kies normaalweg:

EKN 113, 123 (30), FBS 110, 120 (20) of FBS 112, 122 (20) en COS 110 (16)

Studente in die Wiskundige Statistiek met ander loopbaanvereistes, kies modules uit enige fakulteit volgens hulle eie spesifieke vereistes.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00

Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules
Wiskundige statistiek 111 (WST 111) - Krediete: 16.00
Wiskundige statistiek 121 (WST 121) - Krediete: 16.00
Calculus 114 (WTW 114) - Krediete: 16.00
Wiskunde 124 (WTW 124) - Krediete: 16.00

Keusemodules
Programontwerp: Inleiding 110 (COS 110) - Krediete: 16.00
Imperatiewe programmering 132 (COS 132) - Krediete: 16.00
Inleiding tot rekenaarwetenskap 151 (COS 151) - Krediete: 8.00
Ekonomie 113 (EKN 113) - Krediete: 15.00
Ekonomie 123 (EKN 123) - Krediete: 15.00
Finansiële bestuur 110 (FBS 110) - Krediete: 10.00
Finansiële bestuur 112 (FBS 112) - Krediete: 10.00
Finansiële bestuur 120 (FBS 120) - Krediete: 10.00
Finansiële bestuur 122 (FBS 122) - Krediete: 10.00
Diskrete strukture 115 (WTW 115) - Krediete: 8.00
Numeriese analise 123 (WTW 123) - Krediete: 8.00
Wiskundige modellering 152 (WTW 152) - Krediete: 8.00
Dinamiese prosesse 162 (WTW 162) - Krediete: 8.00

Kurrikulum: Jaar 2
Minimum krediete: 144

Minimum krediete:

Kern = 96

Keuse = 48

Addisionele inligting:

Studente in die Wiskundige Statistiek wat hulle ook wil bekwaam in die Wiskundige bedryf, kies normaalweg: WTW 264 (12) of 286 (12), of 285 (12).

Studente in die Wiskundige Statistiek wat hulle ook wil bekwaam in die Versekeringsbedryf kies normaalweg IAS 221 (12), IAS 282 (12). (Let op na die voorvereistes voorgeskryf deur die Departement van Aktuariële Wetenskappe).

Studente in die Wiskundige Statistiek wat hulle ook wil bekwaam in die Ekonometrie-veld, kies normaalweg: EKN 214 (16), 224 (16) en STK 281 (10)

Studente in die Wiskundige Statistiek met ander loopbaanvereistes, kies modules uit enige fakulteit volgens hulle eie spesifieke vereistes.

Kernmodules
Wiskundige statistiek 211 (WST 211) - Krediete: 24.00
Wiskundige statistiek 221 (WST 221) - Krediete: 24.00
Lineêre algebra 211 (WTW 211) - Krediete: 12.00
Calculus 218 (WTW 218) - Krediete: 12.00

Analise 220 (WTW 220) - Krediete: 12.00
Lineêre algebra 221 (WTW 221) - Krediete: 12.00

Keusemodules
Ekonomie 214 (EKN 214) - Krediete: 16.00
Ekonomie 224 (EKN 224) - Krediete: 16.00
Aktuariële wiskunde 211 (IAS 211) - Krediete: 12.00
Aktuariële wiskunde 221 (IAS 221) - Krediete: 12.00
Finansiële wiskunde 282 (IAS 282) - Krediete: 12.00
Informatika 214 (INF 214) - Krediete: 14.00
Differensiaalvergelykings 264 (WTW 264) - Krediete: 12.00
Diskrete strukture 285 (WTW 285) - Krediete: 12.00
Differensiaalvergelykings 286 (WTW 286) - Krediete: 12.00

Kurrikulum: Finale jaar
Minimum krediete: 144

Minimum krediete:

Kern = 97

Keuse = 47

Addisionele inligting:

Studente in die Wiskundige Statistiek wat hulle ook wil bekwaam in die Wiskundige bedryf, kies normaalweg vanuit: WTW 310 (18), 320 (18), 354 (18), 364 (18), 381 (18), 382 (18), 383 (18), 385 (18), 386 (18), 387 (18), 389 (18).

Studente in die Wiskundige Statistiek wat hulle ook wil bekwaam in die Versekerings-bedryf kies normaalweg IAS 382 (20).

Studente in die Wiskundige Statistiek wat hulle ook wil bekwaam in die Ekonometrie-veld, kies normaalweg: EKN 310, 320 en 314 (60).

Studente in die Wiskundige Statistiek met ander loopbaanvereistes, kies modules uit enige fakulteit volgens hulle eie spesifieke vereistes.

Kernmodules
Die wetenskap van data-ontleding 353 (STK 353) - Krediete: 25.00
Meerveranderlike analise 311 (WST 311) - Krediete: 18.00
Stogastiese prosesse 312 (WST 312) - Krediete: 18.00
Tydreeksanalise 321 (WST 321) - Krediete: 18.00
Aktuariële statistiek 322 (WST 322) - Krediete: 18.00

Keusemodules
Ekonomie 310 (EKN 310) - Krediete: 20.00
Ekonomie 314 (EKN 314) - Krediete: 20.00
Ekonomie 320 (EKN 320) - Krediete: 20.00
Aktuariële modellering 382 (IAS 382) - Krediete: 20.00
Analise 310 (WTW 310) - Krediete: 18.00

Komplekse analise 320 (WTW 320) - Krediete: 18.00
Finansiële ingenieurswese 354 (WTW 354) - Krediete: 18.00
Finansiële ingenieurswese 364 (WTW 364) - Krediete: 18.00
Algebra 381 (WTW 381) - Krediete: 18.00
Dinamiese stelsels 382 (WTW 382) - Krediete: 18.00
Numeriese analise 383 (WTW 383) - Krediete: 18.00
Parsiële differensiaalvergelykings 386 (WTW 386) - Krediete: 18.00
Kontinuummeganika 387 (WTW 387) - Krediete: 18.00
Meetkunde 389 (WTW 389) - Krediete: 18.00

BScAgric Landbou-ekonomie en Agribesigheidsbestuur (02133410)

Minimum duur van studie	4 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BScAgric (Landbou-ekonomie en Agribesigheidsbestuur)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program neem 'n jaar langer om te voltooi.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbou-wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

Samestelling van leergang

Keusemodules word geneem in oorleg met die departementshoof wat moet toesien dat dit by die vaste rooster inpas.

Die Dekaan kan in buitengewone gevalle, op aanbeveling van ’n departementshoof, toestemming verleen dat ’n ander module(s) as dié in die leergange genoem, aangebied of erken mag word.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die vaste rooster inpas.

Slaag met lof

Die BScAgric-graad word met lof toegeken indien die student 'n geweegde gemiddelde van minstens 75% in die modules van die hoofvakke in die derde en vierde jaar, en verder ’n geweegde gemiddelde van minstens 65% in die ander modules van die derde en vierde studiejaar behaal het.

Kurrikulum: Jaar 1

Minimum krediete: 122

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Finansiële rekeningkunde 111 (FRK 111) - Krediete: 10.00
Finansiële rekeningkunde 121 (FRK 121) - Krediete: 12.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 125

Minimum credits:

Core = 125

Kernmodules
Ekonomie 110 (EKN 110) - Krediete: 10.00
Ekonomie 120 (EKN 120) - Krediete: 10.00
Inleiding tot voedselwetenskap en -tegnologie 250 (FST 250) - Krediete: 12.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Inleiding tot landbou-ekonomie 210 (LEK 210) - Krediete: 12.00
Landbou-ekonomie 220 (LEK 220) - Krediete: 12.00
Volhoubare gewasproduksie en agroklimatologie 251 (PPK 251) - Krediete: 15.00
Statistiek 110 (STK 110) - Krediete: 13.00
Statistiek 120 (STK 120) - Krediete: 13.00
Veekunde 250 (VKU 250) - Krediete: 8.00
Veekundige ekologie 260 (VKU 260) - Krediete: 8.00

Kurrikulum: Jaar 3
Minimum krediete: 132

Minimum credits:

Core = 138

Kernmodules
Kommunikasie 421 (AGV 421) - Krediete: 16.00
Besigheidsreg 210 (BER 210) - Krediete: 16.00
Ekonomie 224 (EKN 224) - Krediete: 16.00
Ekonomie 244 (EKN 244) - Krediete: 16.00
Landbou-ekonomie 310 (LEK 310) - Krediete: 12.00
Landbou-ekonomie 320 (LEK 320) - Krediete: 16.00
Statistiek 210 (STK 210) - Krediete: 20.00
Statistiek 220 (STK 220) - Krediete: 20.00

Kurrikulum: Finale jaar
Minimum krediete: 141

Minimum credits:

Core = 141

Kernmodules
Landbou en landelike ontwikkelingstudies 480 (ARD 480) - Krediete: 32.00
Ekonomie 314 (EKN 314) - Krediete: 20.00
Landboumark- en prysanalise 410 (LEK 410) - Krediete: 20.00
Landbou-ekonomie 415 (LEK 415) - Krediete: 16.00
Landbou-ekonomie 421 (LEK 421) - Krediete: 20.00
Inleiding tot hulpbronekonomie 424 (LEK 424) - Krediete: 15.00

Keusemodules
Groentegewasse 410 (AGR 410) - Krediete: 15.00
Ekonomie 325 (EKN 325) - Krediete: 20.00
Statistiek 310 (STK 310) - Krediete: 25.00
Statistiek 320 (STK 320) - Krediete: 25.00

Die wetenskap van data-ontleding 353 (STK 353) - Krediete: 25.00
Beginsels van veldbestuur 310 (WDE 310) - Krediete: 12.00
Aangeplante weiding en voergewasse 320 (WDE 320) - Krediete: 12.00

BScAgric Plantpatologie (02133433)

Minimum duur van studie	4 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.?

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BScAgric (Plantpatologie)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program neem 'n jaar langer om te voltooi.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbou-wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

Keusemodules word as volg gekies:

Derde jaar – 12 krediete

Samestelling van leergang
Keusemodules word geneem in oorleg met die departementshoof wat moet toesien dat dit by die vaste rooster

inpas.

Die Dekaan kan in buitengewone gevalle, op aanbeveling van ’n departementshoof, toestemming verleen dat ’n ander module(s) as dié in die leergange genoem, aangebied of erken mag word.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die vaste rooster inpas.

Slaag met lof

Die BScAgric-graad word met lof toegeken indien die student 'n geweegde gemiddelde van minstens 75% in die modules van die hoofvakke in die derde en vierde jaar, en verder ’n geweegde gemiddelde van minstens 65% in die ander modules van die derde en vierde studiejaar behaal het.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 147

Minimum krediete:

Kern = 135

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Inleiding tot landbou-ekonomie 210 (LEK 210) - Krediete: 12.00
Landbou-ekonomie 220 (LEK 220) - Krediete: 12.00
Bakteriologie 251 (MBY 251) - Krediete: 12.00
Mikologie 261 (MBY 261) - Krediete: 12.00
Inleidende gewasbeskerming 251 (PLG 251) - Krediete: 12.00
Beginsels van plantpatologie 262 (PLG 262) - Krediete: 12.00
Volhoubare gewasproduksie en agroklimatologie 251 (PPK 251) - Krediete: 15.00

Kurrikulum: Jaar 3

Minimum krediete: 140

Minimum krediete:

Kern = 150

Kernmodules

Plantekofisiologie 356 (BOT 356) - Krediete: 18.00
Plantgenetika en gewasbiotegnologie 361 (BTC 361) - Krediete: 18.00
Beginsels en praktyke 351 (HSC 351) - Krediete: 14.00
Virologie 351 (MBY 351) - Krediete: 18.00
Genetiese manipulasie van mikrobes 364 (MBY 364) - Krediete: 18.00
Mikrobe-interaksies 365 (MBY 365) - Krediete: 18.00
Algemene plantpatologie 351 (PLG 351) - Krediete: 18.00
Bestrydingkunde 363 (PLG 363) - Krediete: 18.00

Kurrikulum: Finale jaar

Minimum krediete: 145

Minimum krediete:

Kern = 164

Kernmodules

Onkruidwetenskap 413 (OKW 413) - Krediete: 15.00

Seminaar 400 (PGW 400) - Krediete: 15.00
Proefontwerp en ontleding 421 (PGW 421) - Krediete: 15.00
Navorsingsprojek 462 (PLG 462) - Krediete: 28.00
Epidemiologie van plantsiektes 463 (PLG 463) - Krediete: 18.00
Gevorderde plantsiektebeheer 483 (PLG 483) - Krediete: 18.00
Huidige konsepte in plantpatologie 490 (PLG 490) - Krediete: 18.00
Toegepaste entomologie 365 (ZEN 365) - Krediete: 18.00

BScAgric Toegepaste Plant- en Grondwetenskappe (02133431)

Minimum duur van studie	4 jaar

Toelatingsvereistes

- Die volgende persone sal vir toelating oorweeg word: ‘n kandidaat wat oor ‘n sertifikaat beskik wat deur die Universiteit as gelykstaande aan die vereiste Graad 12-sertifikaat met toelating vir graaddoeleindes aanvaar word; ‘n kandidaat wat ‘n gegradueerde van ‘n ander tersiêre instelling is of die status van ‘n gegradueerde van so ‘n instelling geniet; en ‘n kandidaat wat ‘n gegradueerde van ‘n ander fakulteit van die Universiteit van Pretoria is.
- Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).
- Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes van die BScAgric (Toegepaste Plant- en Grondwetenskappe)-program hierbo voldoen nie, mag oorweeg word vir toelating tot die BSc – Verlengde program hieronder. Die BSc – Verlengde program neem 'n jaar langer om te voltooi.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				**Wiskunde**				**Fisiese Wetenskap**				**TPT**
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbou-wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

Samestelling van leergang

Keusemodules word geneem in oorleg met die departementshoof wat moet toesien dat dit by die vaste rooster inpas.

Die Dekaan kan in buitengewone gevalle, op aanbeveling van ’n departementshoof, toestemming verleen dat ’n ander module(s) as dié in die leergange genoem, aangebied of erken mag word.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die vaste rooster inpas.

Slaag met lof

Die BScAgric-graad word met lof toegeken indien die student 'n geweegde gemiddelde van minstens 75% in die modules van die hoofvakke in die derde en vierde jaar, en verder ’n geweegde gemiddelde van minstens 65% in die ander modules van die derde en vierde studiejaar behaal het.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 135

Minimum krediete:

Kern = 135

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Suid-Afrikaanse flora en plantegroei 251 (BOT 251) - Krediete: 12.00
Plantfisiologie en -biotegnologie 261 (BOT 261) - Krediete: 12.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Inleiding tot landbou-ekonomie 210 (LEK 210) - Krediete: 12.00
Landbou-ekonomie 220 (LEK 220) - Krediete: 12.00
Inleidende gewasbeskerming 251 (PLG 251) - Krediete: 12.00
Beginsels van plantpatologie 262 (PLG 262) - Krediete: 12.00
Volhoubare gewasproduksie en agroklimatologie 251 (PPK 251) - Krediete: 15.00

Kurrikulum: Jaar 3

Minimum krediete: 148

Minimum krediete:

Kern = 154

Kernmodules

Veldgewasse 361 (AGR 361) - Krediete: 14.00
Plantekofisiologie 356 (BOT 356) - Krediete: 18.00
Grondchemie 320 (GKD 320) - Krediete: 14.00
Grondklassifikasie en kartering 350 (GKD 350) - Krediete: 14.00
Beginsels en praktyke 351 (HSC 351) - Krediete: 14.00
Grondwaterverhouding en besproeiing 350 (PGW 350) - Krediete: 14.00
Bestrydingkunde 363 (PLG 363) - Krediete: 18.00
Beginsels van veldbestuur 310 (WDE 310) - Krediete: 12.00
Aangeplante weiding en voergewasse 320 (WDE 320) - Krediete: 12.00
Toegepaste entomologie 365 (ZEN 365) - Krediete: 18.00

Kurrikulum: Finale jaar

Minimum krediete: 150

Minimum krediete:

Kern = 166

Kernmodules

Groentegewasse 410 (AGR 410) - Krediete: 15.00
Gewasfisiologie 461 (APS 461) - Krediete: 15.00
Grondvrugbaarheid, grondmikrobiologie en plantvoeding 420 (GKD 420) - Krediete: 15.00
Vrugteboomgewasse 420 (HSC 420) - Krediete: 15.00

Siertuinbou 490 (HSC 490) - Krediete: 15.00
Omgewingsbiofisika 450 (LKM 450) - Krediete: 15.00
Onkruidwetenskap 413 (OKW 413) - Krediete: 15.00
Seminaar 400 (PGW 400) - Krediete: 15.00
Proefontwerp en ontleding 421 (PGW 421) - Krediete: 15.00
Omgewingshulpbronevaluasie en -bestuur 450 (WDE 450) - Krediete: 15.00

BScAgric Veekunde (02133411)

Minimum duur van studie	4 jaar

Toelatingsvereistes

• Ten einde te kan registreer moet NSS/IEB/Cambridge-kandidate voldoen aan die minimum vereistes vir graadstudie asook aan die minimum vereistes van die betrokke program.

• Lewensoriëntering word uitgesluit by die berekening van die Toelatingspuntteling (TPT).

• Graad 11-uitslae word gebruik vir die voorlopige toelating van voornemende studente. Finale toelating is gebaseer op Graad 12-uitslae.

Minimum vereistes												
Prestasievlak												
Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	30

Kandidate wat nie aan die minimum toelatingsvereistes voldoen nie kan oorweeg word vir toelating tot die BSc (Verlengde program) op grond van die uitslag van die NBT. Let asseblief daarop dat studente wat in die BSc (Verlengde program) geplaas word minstens vyf jaar sal neem om die BScAgric-program te voltooi.

BSc – Verlengde program vir die Biologiese en Landbouwetenskappe:

Minimum vereistes													
Prestasievlak													
	Afrikaans of Engels				Wiskunde				Fisiese Wetenskap				TPT
	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
BSc – Verlengde program vir die Biologiese en Landbou-wetenskappe	4	3	D	D	4	3	D	D	4	3	D	D	24

Ander programspesifieke inligting

Samestelling van leergang
Keusemodules word geneem in oorleg met die departementshoof wat moet toesien dat dit by die vaste rooster inpas.

Die Dekaan kan in buitengewone gevalle, op aanbeveling van ’n departementshoof, toestemming verleen dat ’n ander module(s) as dié in die leergange genoem, aangebied of erken mag word.

Bevordering tot volgende studiejaar

'n Student word tot die volgende studiejaar bevorder mits hy of sy 100 van die vereiste krediete wat in 'n studiejaar voorgeskryf word, slaag tensy die Dekaan op aanbeveling van die departementshoof anders besluit. 'n Student wat nie aan die vereistes vir bevordering tot die volgende studiejaar voldoen nie, behou krediete vir die modules waarin hy of sy geslaag het, en mag deur die Dekaan, op aanbeveling van die departementshoof, tot hoogstens 48 krediete van die modules van die volgende studiejaar toegelaat word, mits dit by die vaste rooster inpas.

Slaag met lof

Die BScAgric-graad word met lof toegeken indien die student 'n geweegde gemiddelde van minstens 75% in die modules van die hoofvakke in die derde en vierde jaar, en verder ’n geweegde gemiddelde van minstens 65% in die ander modules van die derde en vierde studiejaar behaal het.

Kurrikulum: Jaar 1

Minimum krediete: 140

Minimum krediete:

Fundamenteel = 12

Kern = 128

Addisionele inligting:

Studente wat nie kwalifiseer vir AIM 102 nie, moet vir AIM 111 en AIM 121 registreer.

Fundamentele modules

Akademiese inligtingsbestuur 102 (AIM 102) - Krediete: 6.00
Akademiese inligtingbestuur 111 (AIM 111) - Krediete: 4.00
Akademiese inligtingbestuur 121 (AIM 121) - Krediete: 4.00
Language and study skills 110 (LST 110) - Krediete: 6.00
Akademiese oriëntasie 102 (UPO 102) - Krediete: 0.00

Kernmodules

Biometrie 120 (BME 120) - Krediete: 16.00
Plantbiologie 161 (BOT 161) - Krediete: 8.00
Algemene chemie 117 (CMY 117) - Krediete: 16.00
Algemene chemie 127 (CMY 127) - Krediete: 16.00
Inleidende genetika 161 (GTS 161) - Krediete: 8.00
Inleiding tot mikrobiologie 161 (MBY 161) - Krediete: 8.00
Molekulêre en selbiologie 111 (MLB 111) - Krediete: 16.00
Fisika vir Biologiese studente 131 (PHY 131) - Krediete: 16.00
Wiskunde 134 (WTW 134) - Krediete: 16.00
Diereverskeidenheid 161 (ZEN 161) - Krediete: 8.00

Kurrikulum: Jaar 2

Minimum krediete: 147

Minimum krediete:

Kern = 156

Kernmodules

Inleiding tot proteïne en ensieme 251 (BCM 251) - Krediete: 12.00
Koolhidraatmetabolisme 252 (BCM 252) - Krediete: 12.00
Lipied-en Stikstofmetabolisme 261 (BCM 261) - Krediete: 12.00
Biochemiese beginsels van voeding en toksikologie 262 (BCM 262) - Krediete: 12.00
Diereanatomie en -fisiologie 200 (DAF 200) - Krediete: 32.00
Inleidende grondkunde 250 (GKD 250) - Krediete: 12.00
Molekulêre genetika 251 (GTS 251) - Krediete: 12.00
Genetiese diversiteit en evolusie 261 (GTS 261) - Krediete: 12.00
Volhoubare gewasproduksie en agroklimatologie 251 (PPK 251) - Krediete: 15.00
Veekunde 250 (VKU 250) - Krediete: 8.00
Veekundige ekologie 260 (VKU 260) - Krediete: 8.00

Kurrikulum: Jaar 3

Minimum krediete: 140

Minimum krediete:

Kern = 154

Kernmodules

Biometrie 210 (BME 210) - Krediete: 24.00
Dierefisiologie 311 (DFS 311) - Krediete: 10.00
Groeifisiologie 320 (DFS 320) - Krediete: 12.00
Inleiding tot landbou-ekonomie 210 (LEK 210) - Krediete: 12.00
Reproduksieleer 310 (RPL 310) - Krediete: 8.00
Reproduksieleer 320 (RPL 320) - Krediete: 10.00
Telingsleer 320 (TLR 320) - Krediete: 12.00
Voedingkunde 310 (VGE 310) - Krediete: 14.00
Voedingkunde 320 (VGE 320) - Krediete: 14.00
Beginsels van veldbestuur 310 (WDE 310) - Krediete: 12.00
Aangeplante weiding en voergewasse 320 (WDE 320) - Krediete: 12.00

Kurrikulum: Finale jaar

Minimum krediete: 133

Minimum krediete:

Kern = 148

Kernmodules

Grootveevoeding en -produksie 420 (GVK 420) - Krediete: 18.00
Kleinveevoeding en -produksie 420 (KVK 420) - Krediete: 18.00

Pluimveevoeding en -produksie 420 (PVK 420) - Krediete: 18.00
Telingsleer 411 (TLR 411) - Krediete: 12.00
Toegepaste telingsleer 420 (TLR 420) - Krediete: 12.00
Monogastriese voeding en produksie 411 (VGE 411) - Krediete: 16.00
Navorsingsmetodologie 400 (VKU 400) - Krediete: 16.00
Vleis- en suiwelkunde 420 (VSX 420) - Krediete: 8.00
Omgewingshulpbronevaluasie en -bestuur 450 (WDE 450) - Krediete: 15.00

Honneurs

BAgricHons Landelike Ontwikkeling (02241002)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This programme is coordinated in the Department of Agricultural Economics, Extension and Rural Development.

The aim of this programme is to enable graduates to participate in and lead rural development processes and policy initiatives. It provides a broad-based understanding of rural development, including project planning and analysis and strategic management.

Eksamens en slaagvereistes

In order to obtain the degree, the candidate must achieve a minimum of 50% in each of the prescribed modules.

Slaag met lof

An average of 75% in all the prescribed modules must be obtained in order to pass the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Kommunikasie vir volhoubare landelike ontwikkeling 713 (AGV 713) - Krediete: 15.00
Beginsels en benaderings vir landelike ontwikkeling en voorligting 715 (AGV 715) - Krediete: 15.00
Landelike ontwikkelingstudies 780 (ARD 780) - Krediete: 30.00
Navorsingsprojek 784 (ARD 784) - Krediete: 30.00
Landboubesigheidsbestuur 720 (LEK 720) - Krediete: 15.00
Landbou projek beplanning en evaluering 785 (LEK 785) - Krediete: 15.00

Keusemodules

Leierskap en groepsdinamika 712 (AGV 712) - Krediete: 20.00

BAgricHons Voorligting (02241000)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The aim of this degree programme is to produce graduates qualified to operate as professional extension or development agents. On completion of the degree the candidate will be able to design, develop and execute or manage scientifically sound situation-specific and community adapted extension or development programmes, conforming to the principles of participatory development with maximum community involvement and impact.

To enable them to do this they should:

- be aware and knowledgeable of the philosophies and the different concepts and approaches of development

and extension as well as its organisation and management;
- have an understanding of the principles of human behaviour with specific reference to decision making and behaviour change and the theories involved in understanding and facilitating change;
- be knowledgeable of the theory and practical implementation of community development, group dynamics and leadership for the formulation and execution of development plans;
- have an understanding of the principles of communication and be skilful in the identification and use of the most appropriate communication methods and combinations thereof;
- be knowledgeable and skilled in the development, execution and evaluation of situation-specific extension programmes;
- have the ability to conduct and report a research study under supervision, in a manner that is appropriate to the discipline of the field of study.

Ander programspesifieke inligting

A module in Agricultural economics or any other field of specialisation may be included as an elective module, in consultation with the head(s) of department(s).

Elective coursework that may be required will be decided upon by the head(s) of the particular department(s).

Additional required modules as prescribed for the specific fields of specialisation will be jointly determined by the head(s) of the particular department(s) in question.

Eksamens en slaagvereistes

In order to obtain the degree, the candidate must achieve a minimum of 50% in each of the prescribed modules.

Slaag met lof

An average of 75% in all the prescribed modules must be obtained in order to pass the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Leierskap en groepsdinamika 712 (AGV 712) - Krediete: 20.00
Kommunikasie vir volhoubare landelike ontwikkeling 713 (AGV 713) - Krediete: 15.00
Beginsels en benaderings vir landelike ontwikkeling en voorligting 715 (AGV 715) - Krediete: 15.00
Beplanning en bestuur van voorligtingsprogramme 726 (AGV 726) - Krediete: 20.00
Evaluering van voorligtingsprogramme 728 (AGV 728) - Krediete: 30.00
Bestuur van menslike- en organisatoriese gedragsverandering 729 (AGV 729) - Krediete: 20.00
Landelike ontwikkelingstudies 780 (ARD 780) - Krediete: 30.00

BScAgricHons Gewaskunde (02241004)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

The admission requirement is a BScAgric (Applied Plant and Soil Sciences) degree or equivalent qualification, or an appropriate BSc degree after consultation with the Head of Department. A South African equivalent aggregate mark of 60% is required for all the modules taken in the final year of undergraduate studies. Students are selected on merit.

Ander programspesifieke inligting

Electives can be chosen out of the modules listed or any other 700-module that is presented in the Faculty of Natural and Agricultural Sciences, chosen in consultation with the Head of Department of Plant and Soil Science.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Plantproduksie 701 (PGW 701) - Krediete: 30.00
Wetenskaplike kommunikasie 702 (PGW 702) - Krediete: 15.00
Navorsingsmetodiek 704 (PGW 704) - Krediete: 15.00

Keusemodules

Gewasproduksiestelsels (I): Veldgewasse 785 (AGR 785) - Krediete: 15.00
Gewasproduksiestelsels (II): Groentegewasse 786 (AGR 786) - Krediete: 15.00
Gewasfisiologie 761 (APS 761) - Krediete: 15.00
Plantvoeding, grondbiologie en grondvrugbaarheid 773 (GDK 773) - Krediete: 15.00
Fruit tree crops 780 (HSC 780) - Krediete: 30.00
Omgewingsbiofisika 750 (LKM 750) - Krediete: 15.00
Plantproduksie: Onkruiddoders en -beheer 712 (PPR 712) - Krediete: 15.00
Agrobosbou 713 (PPR 713) - Krediete: 15.00
Veldbestuur 781 (WDE 781) - Krediete: 15.00
Weidingkunde 782 (WDE 782) - Krediete: 15.00

BScHons Aktuariële Wetenskap (02240278)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

(i) A relevant bachelor's degree with Mathematical Statistics and Actuarial Science at 300 level.

(ii) An average of 60% for all modules at third-year level.

(iii) Exemption recommendations for at least five of the A100- and A200-level subjects of the Actuarial Society of South Africa.

(iv) IAS 361 Insurance and actuarial applications and IAS 353 Contingencies.

(v) Students from other accredited institutions must comply with the same requirements based on equivalent modules at their institutions. In addition, students from other accredited institutions might also be required to pass an entrance evaluation.

(vi) Student numbers are limited. Selection is based on performance in the prior degree, on condition that the minimum requirements are met as set out in (i) to (iv) above.

(vii) Historical performance during prior studies will also be considered in selecting students. Specific attention will be given to modules repeated and duration of study.

(viii) Any additional entrance requirements as specified by the head of department in consultation with the departmental postgraduate selection committee.

Ander programspesifieke inligting

To qualify for this degree, the candidate must successfully complete a total of at least 135 credits, made up from modules from the curriculum in collaboration with, and subject to, the approval of the Head of the Department of Insurance and Actuarial Science.

Bevordering tot volgende studiejaar

The progress of all honours candidates is monitored biannually by the head of department. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75%

in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Hierdie inligting is slegs in Engels beskikbaar.

Fundamental credits: 30
Core credits: 75
Elective credit: 30

Kernmodules

Actuarial risk management 712 (IAS 712) - Krediete: 50.00
Aktuariële kommunikasie 722 (IAS 722) - Krediete: 15.00
Navorsingsprojek 780 (NPN 780) - Krediete: 30.00

Keusemodules

Finansies en beleggings 700 (FNI 700) - Krediete: 40.00
Enterprise risk management 721 (IAS 721) - Krediete: 40.00
Lewensversekering 700 (LEW 700) - Krediete: 40.00

BScHons Biochemie (02240701)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

’n Toepaslike BSc-graad met ’n finale geweegde gemiddelde (GPA) van minstens 60%, en minstens 60% of meer in Biochemie op 300-vlak. Toelating hang verder af van die beskikbaarheid van studieleiers en/of navorsingsprojekte in die departement.

Ander programspesifieke inligting

- A pass mark is required for all the components of the honours programme and the average mark is calculated

proportionally to the credits.
- Additional modules can be prescribed to remedy shortcomings in a candidate's undergraduate training.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Tendense in biochemiese navorsing 771 (BCM 771) - Krediete: 15.00
Navorsingsprojek en -verslag 773 (BCM 773) - Krediete: 60.00
Navorsingsmetodes 774 (BCM 774) - Krediete: 30.00
Gevorderde biochemie 775 (BCM 775) - Krediete: 15.00
Molekulêre en selbiologie 721 (MLB 721) - Krediete: 15.00

BScHons Bioinformatika (02240702)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

Studente moet in besit van 'n baccalaureusgraad in bioinformatika, biologiese wetenskappe, rekenaarwetenskap, Informatika, wiskunde, wiskundige statistiek of rekenaaringenieurswese wees. Studente met 'n graad in óf fisika, wiskunde, wiskundige statistiek of elektroniese ingenieurswese sal vereis word om 'n spesiale nagraadse oorbruggingsjaar te doen voordat toelating tot die honneursgraad in Bioinformatika toegestaan kan word. Toegang is addisioneel afhanklik van die beskikbaarheid van studieleier/s en/of projekte in die departement.

Ander programspesifieke inligting

Students with degrees in biological sciences should choose BME 780 as an elective. Students from computer science and other related backgrounds should choose BIF 704. Other additional modules may be prescribed for

non-degree purposes to address shortcomings in a candidate's undergraduate training.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Bioinformatika teorie en toepassings 701 (BIF 701) - Krediete: 30.00
Tendense in bioinformatika en literatuurseminaar 702 (BIF 702) - Krediete: 15.00
Navorsingsprojek en -verslag 703 (BIF 703) - Krediete: 60.00
Molekulêre en selbiologie 721 (MLB 721) - Krediete: 15.00

Keusemodules

Inleiding tot molekulêre biologie vir bioinformatika 704 (BIF 704) - Krediete: 15.00
Biometrie 780 (BME 780) - Krediete: 15.00

BScHons Biotegnologie (02240393)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

BScHons (Biotechnology) is a unique interdepartmental programme aimed at enabling students to pursue their interest in molecular biotechnology through relevant research areas offered within fields of biochemistry, plant science, microbiology and plant pathology, plant production, as well as genetics. Students within this programme will be registered and will conduct their studies within the department of their choice. A student's choice of research programme will determine which of the respective departments will mentor their honours degree programme.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

BSc in Biotechnology or equivalent degree with GTS 351, BCM 356 and MBY 364; an average pass mark of 60%

or more at final-year level or permission by the head of department. Preference will be given to applicants with the highest final grade point averages for their preceding degree and qualifying applicants may be subjected to an entrance evaluation examination. Admission is furthermore contingent on the availability of supervisors and/or research projects within the participating departments.

Ander programspesifieke inligting

- The curriculum for the balance of the credits will be determined by the heads of the participating departments.
- Additional modules may be prescribed by the head of the department where deemed necessary. Honours students may also be required to complete a biometry or equivalent module, if they have not already done so during their undergraduate training.
- A pass mark is required for all the components of the honours study programme and the final mark is calculated proportionally to the credits of the respective prescribed modules.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Biotegnologie in die werkplek 701 (BTW 701) - Krediete: 15.00
Molekulêre en selbiologie 721 (MLB 721) - Krediete: 15.00

Keusemodules

Navorsingsprojek en -verslag 773 (BCM 773) - Krediete: 60.00
Navorsingsmetodes 774 (BCM 774) - Krediete: 30.00
Molekulere tegnieke 705 (BOT 705) - Krediete: 15.00
Navorsingsverslag 782 (BOT 782) - Krediete: 60.00
Navorsingsprojek 703 (GTK 703) - Krediete: 60.00
Navorsingsmetodes 705 (GTK 705) - Krediete: 30.00
Navorsingsmetodes 751 (MCP 751) - Krediete: 30.00
Navorsingsprojek en literatuurstudie 754 (MCP 754) - Krediete: 60.00

BScHons Chemie (02240123)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the

case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

'n Toepaslike BSc-graad met ten minste 60% vir Chemie aan 300-vlak.

Eksamens en slaagvereistes

A final mark of 50% for each module. To continue to a second semester, a minimum of 40% is required in each module in the first semester. The registration of students who do not meet this requirement will be terminated at the end of the first semester.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Analitiese chemie A 706 (CMY 706) - Krediete: 10.00
Analitiese chemie B 707 (CMY 707) - Krediete: 10.00
Organiese chemie A 708 (CMY 708) - Krediete: 10.00
Organiese chemie B 709 (CMY 709) - Krediete: 10.00
Anorganiese chemie A 714 (CMY 714) - Krediete: 10.00
Anorganiese chemie B 715 (CMY 715) - Krediete: 10.00
Fisiese chemie A 716 (CMY 716) - Krediete: 10.00
Fisiese chemie B 717 (CMY 717) - Krediete: 10.00
Organiese/anorganiese projek 718 (CMY 718) - Krediete: 20.00
Fisiese/analitiese projek 719 (CMY 719) - Krediete: 20.00
Gevorderde praktiese tegnieke 730 (CMY 730) - Krediete: 15.00

BScHons Dierkunde (02240703)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.

2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

In addition to the requirements of General Regulations G.1.3 and G.62, an appropriate bachelor's degree is a prerequisite: a candidate with an average of less than 65% in the major subjects in the final year of the bachelor’s degree will only be admitted with the approval of the Dean on the recommendation of the Head of Department. Additional conditions may be prescribed by the Head of Department.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Biometrie 780 (BME 780) - Krediete: 15.00
Navorsingsprojek 701 (ZEN 701) - Krediete: 68.00
Wetenskaplike Kommunikasie 713 (ZEN 713) - Krediete: 13.00

Keusemodules

Sistematiese evolusie en Bio-Geografie 703 (ZEN 703) - Krediete: 13.00
Ekologiese en ewolusionêre fisiologie 704 (ZEN 704) - Krediete: 13.00
Ekologie 705 (ZEN 705) - Krediete: 13.00
Geïntegreerde plaagbestuur in Afrika 707 (ZEN 707) - Krediete: 13.00
Soogdierekologie 710 (ZEN 710) - Krediete: 13.00
Gedragsekologie 712 (ZEN 712) - Krediete: 13.00
Insek-plant interaksies 782 (ZEN 782) - Krediete: 13.00
Wêreld klimaatsverandering en biodiversiteit 783 (ZEN 783) - Krediete: 13.00
Contemporary research techniques 784 (ZEN 784) - Krediete: 13.00

BScHons Entomologie (02240704)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the

case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.

2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

In addition to the requirements of General Regulations G.1.3 and G.62, an appropriate bachelor's degree is a prerequisite: a candidate with an average of less than 65% in the major subjects in the final year of the bachelor’s degree, will only be admitted with the approval of the Dean on the recommendation of the Head of Department. Additional conditions may be prescribed by the head of Department.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Biometrie 780 (BME 780) - Krediete: 15.00
Navorsingsprojek 701 (ZEN 701) - Krediete: 68.00
Wetenskaplike Kommunikasie 713 (ZEN 713) - Krediete: 13.00

Keusemodules

Sistematiese evolusie en Bio-Geografie 703 (ZEN 703) - Krediete: 13.00
Ekologiese en ewolusionêre fisiologie 704 (ZEN 704) - Krediete: 13.00
Ekologie 705 (ZEN 705) - Krediete: 13.00
Geïntegreerde plaagbestuur in Afrika 707 (ZEN 707) - Krediete: 13.00
Soogdierekologie 710 (ZEN 710) - Krediete: 13.00
Gedragsekologie 712 (ZEN 712) - Krediete: 13.00
Insek-plant interaksies 782 (ZEN 782) - Krediete: 13.00
Wêreld klimaatsverandering en biodiversiteit 783 (ZEN 783) - Krediete: 13.00
Contemporary research techniques 784 (ZEN 784) - Krediete: 13.00

BScHons Finansiële Ingenieurswese (02240277)

Minimum duur van studie	1 jaar

Programinligting

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

An appropriate BSc or bachelor's degree with a minimum of 60% for all modules on third-year level. In the selection procedure the candidates complete undergraduate academic record will be considered. In particular, it is required that the candidate has completed ~~C~~calculus, ~~D~~differential equations and ~~L~~linear algebra on second-year level each with a mark of at least 60% (UP modules WTW 218, WTW 264 / WTW 286 and WTW 211 / WTW 221).

Bevordering tot volgende studiejaar

Hierdie inligting is slegs in Engels beskikbaar.
The progress of all honours candidates is monitored biannually by the postgraduate coordinator/head of department. A candidate’s study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Hierdie inligting is slegs in Engels beskikbaar.

Core credits: 91
Elective credits: 44

The Postgraduate Coordinator has to approve the final programme composition for this programme.

1. Students who have included Statistics, Mathematical Statistics or Industrial Engineering in their undergraduate degree programme, will not be allowed to take BAN 780. Additional modules from the list of electives should be included in the programme composition.
2. Lectures for BAN 780 and ISE 780 are scheduled in “blocks” – consult the relevant departments at the Faculty of Engineering, Built Environment and Information Technology.
3. WTW 732 and WTW 762 will be presented weekly as well as some extra “block” lectures.
4. TRA 720 not allowed for students who have already passed the UP module WST 321 (or equivalent) at undergraduate level.

Kernmodules

Bedryfsanalise 780 (BAN 780) - Krediete: 16.00
Wiskundige modelle van finansiële ingenieurswese 732 (WTW 732) - Krediete: 15.00
Wiskundige optimering 750 (WTW 750) - Krediete: 15.00
Wiskundige modelle van finansiële ingenieurswese 762 (WTW 762) - Krediete: 15.00
Projek 792 (WTW 792) - Krediete: 30.00

Keusemodules

Stelselsdenke en -ingenieurswese 780 (ISE 780) - Krediete: 16.00
Lineêre modelle 710 (LMO 710) - Krediete: 15.00
Lineêre modelle 720 (LMO 720) - Krediete: 15.00
Meerveranderlike analise 710 (MVA 710) - Krediete: 15.00
Meerveranderlike analise 720 (MVA 720) - Krediete: 15.00
Tydreeksanalise 720 (TRA 720) - Krediete: 15.00
Moderne portefeuljeteorie 712 (WTW 712) - Krediete: 15.00
Numeriese analise 733 (WTW 733) - Krediete: 15.00
Main principles of analysis in application 735 (WTW 735) - Krediete: 15.00
Eindige-elementmetode 763 (WTW 763) - Krediete: 15.00

BScHons Fisika (02240232)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Students registered for the BScHons in Physics degree enrol for Physics 700. The programme comprises of 135 credits and consists of 220 lectures.It includes a research project of 35 credits comprising an individual research report that culminates in a seminar presentation. The programme may optionally include advanced experimental work. The curriculum is compiled in consultation with the Head of the Department of Physics, from whom details are available. With permission from the head of department a maximum of 30 credits may be taken from other postgraduate modules from other departments.

The modules listed below may be taken by students in other honours degree programmes. They must, however, first consult with the Head of the Department of Physics about the availability of a particular module in a particular year.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

BSc (of ekwivalente kwalifikasie) met 'n minimum van 60% in fisika op derdejaarsvlak OF met die toestemming van die Hoof van die Departement.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Fisika 700 (FSK 700) - Krediete: 135.00

BScHons Genetika (02240705)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The honours study programmes serve as the first level of postgraduate training and the aim is therefore to introduce students to the methods of research – from the reading of research papers, through to the conceptualisation, planning, execution and communication of a research project.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

An appropriate BSc degree with a final grade point average (GPA) of at least 60% and including at least four genetics modules at final-year level or permission by the Head of Department. Preference will be given to applicants with the highest final GPAs for their preceding degree and qualifying applicants may be subjected to an entrance evaluation examination. Admission is furthermore contingent on the availability of supervisors and/or research projects within the Department.

Ander programspesifieke inligting

- Additional modules may be prescribed by the head of the department where deemed necessary. Honours

students may also be required to complete a biometry or equivalent module, if they have not already done so during their undergraduate training.
- Suitably qualified candidates may also apply for the interdepartmental BScHons in Biotechnology (Code 02240392) with a registration in the Department of Genetics. For more information, please refer to the programme information for the BScHons in Biotechnology.

Eksamens en slaagvereistes

A pass mark is required for all the components of the honours study programme and the final honours mark is calculated proportionally to the credits of the respective prescribed modules.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Seminaar 702 (GTK 702) - Krediete: 15.00
Navorsingsprojek 703 (GTK 703) - Krediete: 60.00
Tendense in genetika 704 (GTK 704) - Krediete: 15.00
Navorsingsmetodes 705 (GTK 705) - Krediete: 30.00
Molekulêre en selbiologie 721 (MLB 721) - Krediete: 15.00

BScHons Geografie en Omgewingswetenskap (02240415)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Please note that the curriculum may change each year at the discretion of the head of department or the honours coordinator in the Department of Geography, Geoinformatics and Meteorology.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Ander programspesifieke inligting

Appropriate modules, other than the above and approved by the honours coordinator or head of department, may be taken. However, a minimum of 45 elective module credits should come from the Department of Geography, Geoinformatics and Meteorology.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Fundamentele modules

Geographical and environmental principles 710 (GGY 710) - Krediete: 25.00

Kernmodules

Navorsingsprojek 702 (GGY 702) - Krediete: 35.00

Keusemodules

Biometrie 780 (BME 780) - Krediete: 15.00
Natuurlike boomveld en woude: Ekologie en bestuur 700 (BOT 700) - Krediete: 15.00
Basis van omgewingsgesondheid 772 (EHM 772) - Krediete: 5.00
Environmental assessments 785 (ENV 785) - Krediete: 15.00
Inleiding tot omgewings- en beroepsgesondheid 775 (EOH 775) - Krediete: 10.00
Keusetema 701 (GGY 701) - Krediete: 15.00
Toegepaste geomorfologie 718 (GGY 718) - Krediete: 15.00
Stedelike geografie 780 (GGY 780) - Krediete: 15.00
Omgewingsverandering 789 (GGY 789) - Krediete: 15.00
Aspekte van grondhervorming en die omgewing 793 (GGY 793) - Krediete: 15.00
Gevorderde afstandswaarneming 705 (GMA 705) - Krediete: 15.00
Omgewingsbestuur 716 (GTX 716) - Krediete: 15.00
Verantwoordelike ekotoerisme-bestuur 714 (TBE 714) - Krediete: 20.00

BScHons Geoinformatika (02240414)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances,

the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

'n BSc in Geoinformatika of gelykstaande BSc-graad wat voldoen aan die voorvereistes van die honneursmodules. Voornemende studente kan verwag word om bykomende modules te doen om hulle in staat te stel om die verlangde vlak van studie te bereik. Keuring vind plaas voor toelating.

Addisionele vereistes

Prospective students may be required to do additional modules to enable them to reach the desired level of study. Selection takes place before admission.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Fundamentele modules

Navorsingsmetodes 701 (GIS 701) - Krediete: 10.00
GIS professionele praktyk 703 (GIS 703) - Krediete: 15.00

Kernmodules

Navorsingsprojek 702 (GIS 702) - Krediete: 35.00
Ruimtelike statistiek en geodesie 704 (GIS 704) - Krediete: 15.00
Advanced geospatial data 705 (GIS 705) - Krediete: 15.00
Gevorderde afstandswaarneming 705 (GMA 705) - Krediete: 15.00

Keusemodules

Biometrie 780 (BME 780) - Krediete: 15.00
Natuurlike boomveld en woude: Ekologie en bestuur 700 (BOT 700) - Krediete: 15.00
Ruimtelike databasisse 787 (COS 787) - Krediete: 15.00
Basis van omgewingsgesondheid 772 (EHM 772) - Krediete: 5.00
Inleiding tot omgewings- en beroepsgesondheid 775 (EOH 775) - Krediete: 10.00
Internet GIS 706 (GIS 706) - Krediete: 15.00
Spesiale temas 707 (GIS 707) - Krediete: 15.00
Omgewingsbestuur 716 (GTX 716) - Krediete: 15.00
Verantwoordelike ekotoerisme-bestuur 714 (TBE 714) - Krediete: 20.00

BScHons Geologie (02240142)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

'n BSc-graad in Geologie met 'n gemiddeld van 60% vir al die geologie modules op derde vlak. In die keuringsprosedure sal die kandidaat se volledige voorgraadse akademiese rekord oorweeg word. Die poste beskikbaar is beperk tot 25 en kandidate wat deur middel van hul voorgraadse graad vinniger gevorder het, sal voorkeur kry. Buite aansoekers en diegene met 'n ongewone graad struktuur kan na insae van hul akademiese rekords en met die diskresie van die departementshoof toegelaat word.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Vloeistof-rots-interaksie 702 (GLY 702) - Krediete: 12.00
Komanalise 703 (GLY 703) - Krediete: 16.00
Korsevolusie 704 (GLY 704) - Krediete: 12.00
Mynboumetodes 706 (GLY 706) - Krediete: 16.00
Karteerkamp 707 (GLY 707) - Krediete: 9.00
Honneursprojek 710 (GLY 710) - Krediete: 30.00
Stollingspetrologioe en geochemie 711 (GLY 711) - Krediete: 12.00
Metamorfe petrologie en geochemie 712 (GLY 712) - Krediete: 12.00
Ekonomiese geologie 713 (GLY 713) - Krediete: 16.00

BScHons Grondkunde Omgewingsgrondkunde (02240600)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligtig is slegs in Engels beskikbaar.

The honours degree is awarded on the basis of formal modules passed. Students registered for the BScHons in Soil Science [Option: Environmental Soil Science] will register for all the soil science modules prescribed at honours level, as well as any other modules deemed necessary by the head of department.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

In addition to the requirements of the General Regulations an appropriate bachelor's degree is a prerequisite. Soil science at an undergraduate level is required, namely: Introductory soil science, Pedology and Soil chemistry. It is at the discretion of the head of department to prescribe any other modules deemed necessary, or to exempt a prospective student from specific requirements.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Gewasproduksiestelsels (I): Veldgewasse 785 (AGR 785) - Krediete: 15.00
Gevorderde omgewingsgrondchemie 771 (GDK 771) - Krediete: 15.00
Gevorderde omgewingsgrondfisika 772 (GDK 772) - Krediete: 15.00
Plantvoeding, grondbiologie en grondvrugbaarheid 773 (GDK 773) - Krediete: 15.00
Projek in omgewingsgrondkunde 775 (GDK 775) - Krediete: 30.00
Omgewingsbiofisika 750 (LKM 750) - Krediete: 15.00
Wetenskaplike kommunikasie 702 (PGW 702) - Krediete: 15.00
Navorsingsmetodiek 704 (PGW 704) - Krediete: 15.00

BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie (02240376)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

'n BSc-graad in Geologie of Omgewings- en Ingenieursgeologie met 'n gemiddeld van 60% vir al die modules, Toegepaste Geologie op tweedejaars- en derdejaarsvlak. Hierdie modules moet grondmeganika, rots meganika, ingenieursgeologie en hidrogeologie insluit. In die keuringsprosedure sal die kandidaat _se volledige voorgraadse akademiese rekord oorweeg word. Die beskikbare posisies is beperk tot 15 en kandidate wat deur middel van hul voorgraadse graad vinniger gevorder het, sal voorkeur kry. Buite aansoekers en diegene met 'n ongewone graad strukture kan na insae van hul akademiese rekords en deur die diskresie van die departementshoof toegelaat word.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Terreinevalueringprojek 713 (GTX 713) - Krediete: 30.00
Ingenieursgeologie van Suid-Afrika 714 (GTX 714) - Krediete: 15.00
Omgewingsgeochemie 715 (GTX 715) - Krediete: 15.00
Omgewingsbestuur 716 (GTX 716) - Krediete: 15.00
Hidrogeologiese modellering 718 (GTX 718) - Krediete: 15.00
Besoedelingsvervoer 719 (GTX 719) - Krediete: 15.00
Fluid mechanics in geological media 725 (GTX 725) - Krediete: 15.00

Keusemodules

Rotsingenieurswese 722 (GTX 722) - Krediete: 15.00
Rots- en grondverbetering 726 (GTX 726) - Krediete: 15.00

BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie (02240375)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

'n BSc-graad in Geologie of Omgewings- en Ingenieursgeologie met 'n gemiddeld van 60% vir al die modules, Toegepaste Geologie op tweedejaars- en derdejaarsvlak. Hierdie modules moet grondmeganika, rots meganika, ingenieursgeologie en hidrogeologie insluit. In die keuringsprosedure sal die kandidaat se volledige voorgraadse akademiese rekord oorweeg word. Die beskikbare posisies is beperk tot 15 en kandidate wat deur middel van hul voorgraadse graad vinniger gevorder het, sal voorkeur kry. Buite aansoekers en diegene met 'n ongewone graad strukture kan na insae van hul akademiese rekords en deur die diskresie van die departementshoof toegelaat word.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Terreinevalueringprojek 713 (GTX 713) - Krediete: 30.00
Ingenieursgeologie van Suid-Afrika 714 (GTX 714) - Krediete: 15.00
Omgewingsbestuur 716 (GTX 716) - Krediete: 15.00
Konstruksiemateriale 721 (GTX 721) - Krediete: 15.00
Rotsingenieurswese 722 (GTX 722) - Krediete: 15.00
Ingenieurstoepassings 723 (GTX 723) - Krediete: 15.00
Fluid mechanics in geological media 725 (GTX 725) - Krediete: 15.00

Keusemodules

Omgewingsgeochemie 715 (GTX 715) - Krediete: 15.00
Rots- en grondverbetering 726 (GTX 726) - Krediete: 15.00

BScHons Medisinale Plantwetenskap (02240706)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The programme consists of compulsory modules (30 credits) and elective modules (60 credits). Students may register for modules to the maximum of 20 credits presented by another department, which forms part of the elective modules.

Apart from the compulsory and elective modules, a project, leading to a research report (60 credits), forms an essential part of the programme. One seminar (15 credits) must also be written and presented. Field excursions are undertaken. In addition to the compulsory modules, electives are selected in consultation with the supervisor.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

BSc in Plantkunde of 'n aanbeveling van die departementshoof indien die kandidaat nie in Plantkunde gespesialiseer het nie. 'n Minimum van 60% in BOT 365, wat aangebied word in die derde jaar vlak in die Departement Plant- en Grondkunde.

Die aanbevole modules op BSc derdejaarsvlak is soos volg:

1. BOT 366 Plantdiversiteit (Departement Departement Plant- en Grondkunde)
2. BOT 356 Plant ekofisiologie (Departement Departement Plant- en Grondkunde)
3. BCM 368 Molekulêre basis vir siekte (Departement Biochemie)
4. BCM 357 Biokatalise en integrasie van metabolisme (Departement Biochemie)
5. FAR 382 Farmakologie (Departement van Farmakologie)
6. CMY 282 Fisiese Chemie (Departement Chemie)
7. CMY 284 Organiese chemie (Departement Chemie)

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Fitofarmakologie 748 (BOT 748) - Krediete: 10.00
Farmakognosie/Fitoterapie 749 (BOT 749) - Krediete: 10.00
Gevorderde fitomedisyne 761 (BOT 761) - Krediete: 10.00
Navorsingsverslag 782 (BOT 782) - Krediete: 60.00
Seminaar 783 (BOT 783) - Krediete: 15.00

Keusemodules
Biometrie 780 (BME 780) - Krediete: 15.00
Plantnomenklatuur 712 (BOT 712) - Krediete: 10.00
Saadekologie 714 (BOT 714) - Krediete: 10.00
Plantmorfologie 717 (BOT 717) - Krediete: 10.00
Inleidende plantbiotegnologie 718 (BOT 718) - Krediete: 10.00
Primêre plantmetabolisme 719 (BOT 719) - Krediete: 10.00
Planttaksonomie 741 (BOT 741) - Krediete: 10.00
Plantklassifikasie en fitogeografie742 (BOT 742) - Krediete: 20.00
Toepassings in plantbiotegnologie 746 (BOT 746) - Krediete: 10.00
Trends in plant science784 (BOT 784) - Krediete: 10.00
Praktiese plantidentifikasie 786 (BOT 786) - Krediete: 10.00
Ruimtelike ontleding in ekologie 788 (BOT 788) - Krediete: 10.00

BScHons Meteorologie (02240074)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

In bykomend tot die bepalings van Algemene Regulasies G.1.3 en G.62, 'n toepaslike baccalaureusgraad 'n voorvereiste is: 'n kandidaat met 'n gemiddeld van minder as 60% in die hoofvakke nie in die finale jaar van die baccalaureus-graad sal slegs met toegelaat word die goedkeuring van die Dekaan op aanbeveling van die departementshoof. Bykomende voorwaardes kan deur die departementshoof voorgeskryf word.

'n BSc in Meteorologie graad of
'n toepaslike baccalaureusgraad met die tweede jaar wiskunde en eerste jaar fisika.
WKD 155 Atmosferiese struktuur en prosesse
WKD 164 Klimaat en weer van Suider-Afrika
WKD 261 Fisiese weerkunde
WKD 263 Inleiding tot dinamiese meteorologie
WKD 352 Atmosferiese vortisiteit en divergensie
WKD 361 Kwasi-geostrofiese analise
WKD 366 Beginsels van weervoorspelling
WTW 114 Calculus *
WTW 128 Calculus * EN WTW 126 Lineêre algebra * OF WTW 124
WTW 218 Calculus *
WTW 248 Vektoranalise *
PHY 171 Eerste kursus in fisika * of PHY 114 en 124
GMA 220 Afstandswaarneming
(* Of 'n ekwivalente kwalifikasie soos goedgekeur deur die hoof van die departement.)

Ander programspesifieke inligting

Appropriate honours modules from the other disciplines in the Department or Faculty may be taken on approval by the Honours coordinator or Head of Department.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Numeriese modellering: toepassings 704 (WKD 704) - Krediete: 12.00
Dinamiese weerkunde 706 (WKD 706) - Krediete: 16.00
Radar Weerkunde 707 (WKD 707) - Krediete: 12.00
Oorsig van tropiese en midbreedtemeteorologie 731 (WKD 731) - Krediete: 12.00
Satelietweerkunde 733 (WKD 733) - Krediete: 12.00
Navorsingsprojek 763 (WKD 763) - Krediete: 35.00

Keusemodules

Biometrie 780 (BME 780) - Krediete: 15.00
Natuurlike boomveld en woude: Ekologie en bestuur 700 (BOT 700) - Krediete: 15.00
Basis van omgewingsgesondheid 772 (EHM 772) - Krediete: 5.00
Inleiding tot omgewings- en beroepsgesondheid 775 (EOH 775) - Krediete: 10.00
Gevorderde afstandswaarneming 705 (GMA 705) - Krediete: 15.00
Omgewingsbestuur 716 (GTX 716) - Krediete: 15.00
Verantwoordelike ekotoerisme-bestuur 714 (TBE 714) - Krediete: 20.00
Seisonale klimaatmodellering 703 (WKD 703) - Krediete: 12.00
Grenslaagweerkunde 719 (WKD 719) - Krediete: 12.00

Mesoskaal weerkunde 734 (WKD 734) - Krediete: 12.00
Gekeurde temas 736 (WKD 736) - Krediete: 12.00
Wolkdinamika 781 (WKD 781) - Krediete: 12.00

BScHons Mikrobiologie (02240601)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

'n Gemiddelde slaagsyfer van 60% of meer in ten minste vier modules aangebied deur die Departement Mikrobiologie en Plantpatologie aan 300-vlak (waarvan een MBY 364 moet wees) of toestemming deur die hoof van die departement. Let daarop dat addisionele modules kan deur die hoof van die departement waar dit nodig geag word voorgeskryf word.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Navorsingsmetodes 751 (MCP 751) - Krediete: 30.00
Seminaarkursus 752 (MCP 752) - Krediete: 15.00
Tendense in mikrobiologie (MCP 753) - Krediete: 15.00
Navorsingsprojek en literatuurstudie 754 (MCP 754) - Krediete: 60.00
Molekulêre en selbiologie 721 (MLB 721) - Krediete: 15.00

BScHons Natuurlewebestuur (02240700)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The curriculum is compiled in consultation with the Director of the Centre for Wildlife Management from the relevant modules. The programme includes lectures/discussions, seminars, a research project (paper), excursions and informal seminars/lectures. A final mark of at least 50% is required in each of the modules listed for this honours degree.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

Alle aansoeke om toelating moet teen 30 Oktober van die voorafgaande jaar aanlyn ingedien wees.

Om vir toelating tot die BScHons in Wildlewe Bestuur te kwalifiseer, moet voornemende studente 'n BSc-graad met Veekunde, Ekologie, Dierkunde, Plantkunde, of 'n soortgelyke relevante biologiese hoofvak voltooi het; of 'n BScAgric Veekundige Wetenskappe en / of Plantproduksie; 'n BSc Bosbou, 'n BVSc-graad, of 'n soortgelyke graad. 'n Suid-Afrikaanse ekwivalente gemiddelde punt van 60% word gewoonlik vereis vir al die modules wat in die finale jaar van voorgraadse studie. Bepaling, houding en standaard van voorgraadse projekte, waar beskikbaar, sal ook in ag geneem word nie. Studente word op meriete gekeur.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Jaar 1

Minimum krediete: 135

Kernmodules

Biometrie 780 (BME 780) - Krediete: 15.00
Praktiese plantidentifikasie 786 (BOT 786) - Krediete: 10.00
Wildlife ecology 780 (NLB 780) - Krediete: 10.00
Natuurlewebestuurbeginsels en -tegnieke 781 (NLB 781) - Krediete: 10.00
Wildvoeding 782 (NLB 782) - Krediete: 15.00
Parasiete, siektes en die vang van wilde diere 783 (NLB 783) - Krediete: 10.00
Seminaar 785 (NLB 785) - Krediete: 5.00

Navorsingsprojek 795 (NLB 795) - Krediete: 50.00
Veldbestuur in natuurlewesisteme 701 (WDE 701) - Krediete: 10.00

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Biometrie 780 (BME 780) - Krediete: 15.00
Praktiese plantidentifikasie 786 (BOT 786) - Krediete: 10.00
Wildlife ecology 780 (NLB 780) - Krediete: 10.00
Natuurlewebestuurbeginsels en -tegnieke 781 (NLB 781) - Krediete: 10.00
Wildvoeding 782 (NLB 782) - Krediete: 15.00
Parasiete, siektes en die vang van wilde diere 783 (NLB 783) - Krediete: 10.00
Seminaar 785 (NLB 785) - Krediete: 5.00
Navorsingsprojek 795 (NLB 795) - Krediete: 50.00
Veldbestuur in natuurlewesisteme 701 (WDE 701) - Krediete: 10.00

BScHons Plantkunde (02240707)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The programme consists of compulsory modules and elective modules. Students may register for modules to the maximum of 20 credits presented by another department, which forms part of the elective modules.
The following fields are presented in the BScHons in Plant Science programme:

- Plant Diversity (D)
- Plant Biotechnology/Physiology (PB)
- Plant Ecology (E)
- Option: Medicinal Plant Science

Apart from the compulsory and elective modules, a project, leading to a research report (60 credits), forms an essential part of the training programme. One seminar (15 credits) must also be written and presented. Field excursions are undertaken.
In addition to the compulsory modules, electives are selected in consultation with the supervisor.
Suitably qualified candidates may also apply for the interdepartmental BScHons in Biotechnology degree (Code 02240392) with a supervisor in the Department of Plant Science.
Please consult Prof P Bloomer, Tel: +27 12 420 3259, for further details

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

BSc in Plantkunde, of 'n aanbeveling van die hoof van die departement indien die kandidaat nie in Plantkunde gespesialiseer het nie. Voorkeur sal aan aansoekers met die hoogste finale graad punt gemiddeld vir hul voorafgaande graad gegee word, en kwalifiserende kandidate kan aan 'n toelatings eksamen onderwerp word. Toegang is verder afhanklik van die beskikbaarheid van studieleiers en / of navorsingsprojekte binne die deelnemende departemente.

Ander programspesifieke inligting

BOT 705 and BTW 701 are for BScHons (Biotechnology) students. PB students who wish to take one of these modules as an elective need to apply to the programme leader.

The curriculum for the balance of the credits will be determined by the heads of department of the interdepartmental BScHons (Biotechnology) degree programme.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Hierdie inligting is slegs in Engels beskikbaar

Core credits: 85
Elective credits: 50

The programme consists of compulsory modules and elective modules. Students may register for modules to the maximum of 20 credits presented by another department, which forms part of the elective modules.
The following fields are presented in the BScHons in Plant Science programme:

- Plant Diversity (D)
- Plant Biotechnology/Physiology (PB)
- Plant Ecology (E)
- Option: Medicinal Plant Science

Apart from the compulsory and elective modules, a project, leading to a research report (60 credits), forms an essential part of the training programme. One seminar (15 credits) must also be written and presented. Field excursions are undertaken.
In addition to the compulsory modules, electives are selected in consultation with the supervisor.
Suitably qualified candidates may also apply for the interdepartmental BScHons in Biotechnology degree (Code 02240393) with a supervisor in the Department of Plant and Soil Science.
Please consult Prof P Bloomer, Tel: +27 12 420 3259, for further details

Kernmodules

Navorsingsverslag 782 (BOT 782) - Krediete: 60.00
Seminaar 783 (BOT 783) - Krediete: 15.00

Keusemodules

Biometrie 780 (BME 780) - Krediete: 15.00
Natuurlike boomveld en woude: Ekologie en bestuur 700 (BOT 700) - Krediete: 15.00
Molekulere tegnieke 705 (BOT 705) - Krediete: 15.00
Plantnomenklatuur 712 (BOT 712) - Krediete: 10.00
Saadekologie 714 (BOT 714) - Krediete: 10.00
Plantmorfologie 717 (BOT 717) - Krediete: 10.00
Inleidende plantbiotegnologie 718 (BOT 718) - Krediete: 10.00
Primêre plantmetabolisme 719 (BOT 719) - Krediete: 10.00
Plantekologie 730 (BOT 730) - Krediete: 10.00
Planttaksonomie 741 (BOT 741) - Krediete: 10.00
Plantklassifikasie en fitogeografie742 (BOT 742) - Krediete: 20.00
Toepassings in plantbiotegnologie 746 (BOT 746) - Krediete: 10.00
Gevorderde fitomedisyne 761 (BOT 761) - Krediete: 10.00
Trends in plant science784 (BOT 784) - Krediete: 10.00
Praktiese plantidentifikasie 786 (BOT 786) - Krediete: 10.00
Ruimtelike ontleding in ekologie 788 (BOT 788) - Krediete: 10.00
Biotegnologie in die werkplek 701 (BTW 701) - Krediete: 15.00

BScHons Toegepaste Wiskunde (02240172)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The programme compilation consists of seven honours modules of 15 credits each as well as the mandatory project (30 credits). It is required that students select the stream and elective modules according to the prerequisites of the modules.

- Stream 1: Applied analysis
- Stream 2: Differential equations and modelling

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

A BSc in Mathematics, Applied Mathematics or equivalent Bachelor's degree with at least a 60% average in the

final year Mathematics or Applied Mathematics subjects. The final year should include at least four of the following third-year level modules or equivalent: partial differential equations, dynamical systems (ordinary differential equations), real analysis, complex analysis, numerical analysis and continuum mechanics (UP modules WTW 386, WTW 382, WTW 310, WTW 320, WTW 383 or WTW 387). In the selection procedure the candidate's complete undergraduate academic record will be considered.

Bevordering tot volgende studiejaar

The progress of all honours candidates is monitored biannually by the postgraduate coordinator/head of department. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Parsiële differensiaalvergelykings van wiskundige fisika 776 (WTW 776) - Krediete: 15.00
Projek 795 (WTW 795) - Krediete: 30.00

Keusemodules

Funksionaalanalise 710 (WTW 710) - Krediete: 15.00
Numeriese analise 733 (WTW 733) - Krediete: 15.00
Maatteorie en waarskynlikheid 734 (WTW 734) - Krediete: 15.00
Main principles of analysis in application 735 (WTW 735) - Krediete: 15.00
Wiskundige optimering 750 (WTW 750) - Krediete: 15.00
Eindige-elementmetode 763 (WTW 763) - Krediete: 15.00
Stogastiese calculus 764 (WTW 764) - Krediete: 15.00
Wiskundige metodes en modelle 772 (WTW 772) - Krediete: 15.00
Kontinuummeganika 787 (WTW 787) - Krediete: 15.00

BScHons Voedselwetenskap (02240602)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances,

the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

A BSc in Food Science degree with a pass mark of at least 60%. A candidate with another, applicable academic background can be admitted to the programme on passing a preliminary examination and/or on completion of certain prescribed modules aimed at supplementing lacking background knowledge.

Ander programspesifieke inligting

Each candidate must complete elective modules to a total of 30 credits. We strongly recommend the following two modules as electives, or other modules as approved by the head of department:

- FST 701 Animal food technologies 701
- FST 702 Advanced plant food science and technologies 702

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Navorsingsmetodiek en seminare 700 (FST 700) - Krediete: 15.00
Sintuiglike evaluering 712 (FST 712) - Krediete: 10.00
Produkontwikkeling en kwaliteitsbestuur 713 (FST 713) - Krediete: 25.00
Gevorderde voedselwetenskap 720 (FST 720) - Krediete: 15.00
Navorsingsprojek 763 (FST 763) - Krediete: 40.00

BScHons Wiskunde (02240182)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of

this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

An appropriate BSc or equivalent Bachelor's degree with a minimum of 60% for all Mathematics/Applied mathematics modules on third-year level. In the selection procedure the candidate's complete undergraduate academic record will be considered. In particular, it is required that the candidate has completed real analysis and algebra on third-year level each with a mark of at least 60% (UP modules WTW 310 and WTW 381).

Bevordering tot volgende studiejaar

The progress of all honours candidates is monitored biannually by the postgraduate coordinator/head of department. A candidate’s study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Funksionaalanalise 710 (WTW 710) - Krediete: 15.00
Axiomatic set theory and mathematical logic 724 (WTW 724) - Krediete: 15.00
Algebra 731 (WTW 731) - Krediete: 15.00
Maatteorie en waarskynlikheid 734 (WTW 734) - Krediete: 15.00
Topologie 790 (WTW 790) - Krediete: 15.00
Projek 795 (WTW 795) - Krediete: 30.00

Keusemodules

Spesiale temas 727 (WTW 727) - Krediete: 15.00
Numeriese analise 733 (WTW 733) - Krediete: 15.00
Eindige-elementmetode 763 (WTW 763) - Krediete: 15.00
Stogastiese calculus 764 (WTW 764) - Krediete: 15.00
Wiskundige metodes en modelle 772 (WTW 772) - Krediete: 15.00
Parsiële differensiaalvergelykings van wiskundige fisika 776 (WTW 776) - Krediete: 15.00

BScHons Wiskunde en Wiskundeonderwys Algebra en Analise (02240183)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The programme consists of seven honours modules (five modules of 15 credits each from the Department of

Mathematics and Applied Mathematics and two modules of 16 credits each from the Department of Science, Mathematics and Technology Education) as well as the compulsory research project (30 credits). Elective modules should be selected according to the prerequisites of these modules.
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and other requirements for honours degrees.

Toelatingsvereistes

An appropriate BSc degree with a minimum of 60% for all Mathematics/Applied mathematics modules on third-year level. In the selection procedure the candidate's complete undergraduate academic record will be considered. In particular, it is required that the candidate has completed Real analysis and Algebra on third-year level (each with a mark of at least 60%).

Bevordering tot volgende studiejaar

The progress of all honours candidates is monitored biannually by the postgraduate coordinator/head of department. A candidate’s study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 137

Fundamentele modules

Projek 795 (WTW 795) - Krediete: 30.00

Kernmodules

Wiskunde- en wiskundegeletterheid onderwys 730 (MCE 730) - Krediete: 16.00
Opvoedkundige navorsingsmetodolgie 745 (NMQ 745) - Krediete: 16.00
Funksionaalanalise 710 (WTW 710) - Krediete: 15.00
Axiomatic set theory and mathematical logic 724 (WTW 724) - Krediete: 15.00
Algebra 731 (WTW 731) - Krediete: 15.00
Maatteorie en waarskynlikheid 734 (WTW 734) - Krediete: 15.00

Keusemodules

Spesiale temas 727 (WTW 727) - Krediete: 15.00
Numeriese analise 733 (WTW 733) - Krediete: 15.00
Main principles of analysis in application 735 (WTW 735) - Krediete: 15.00
Wiskundige optimering 750 (WTW 750) - Krediete: 15.00
Eindige-elementmetode 763 (WTW 763) - Krediete: 15.00
Stogastiese calculus 764 (WTW 764) - Krediete: 15.00
Wiskundige metodes en modelle 772 (WTW 772) - Krediete: 15.00
Parsiële differensiaalvergelykings van wiskundige fisika 776 (WTW 776) - Krediete: 15.00
Kontinuummeganika 787 (WTW 787) - Krediete: 15.00

BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering (02240185)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The programme consists of seven honours modules (five modules of 15 credits each from the Department of Mathematics and Applied Mathematics and two modules of 16 credits each from the Department of Science, Mathematics and Technology Education) as well as the compulsory research project (30 credits). Elective modules should be selected according to the prerequisites of these modules.
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and other requirements for honours degrees.

Toelatingsvereistes

A BSc in Mathematics, Applied Mathematics or equivalent degree with at least a 60% average in the final year Mathematics or Applied Mathematics subjects. The final year should include at least four of the following third-year level modules or equivalent: partial differential equations, dynamical systems (ordinary differential equations), real analysis, complex analysis, numerical analysis and continuum mechanics. In the selection procedure the candidate's complete undergraduate academic record will be considered.

Bevordering tot volgende studiejaar

The progress of all honours candidates is monitored biannually by the postgraduate coordinator/head of department. A candidate’s study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 137

Fundamentele modules

Projek 795 (WTW 795) - Krediete: 30.00

Kernmodules

Wiskunde- en wiskundegeletterheid onderwys 730 (MCE 730) - Krediete: 16.00
Opvoedkundige navorsingsmetodolgie 745 (NMQ 745) - Krediete: 16.00
Numeriese analise 733 (WTW 733) - Krediete: 15.00
Main principles of analysis in application 735 (WTW 735) - Krediete: 15.00
Wiskundige optimering 750 (WTW 750) - Krediete: 15.00
Parsiële differensiaalvergelykings van wiskundige fisika 776 (WTW 776) - Krediete: 15.00

Keusemodules

Spesiale temas 727 (WTW 727) - Krediete: 15.00

Maatteorie en waarskynlikheid 734 (WTW 734) - Krediete: 15.00
Eindige-elementmetode 763 (WTW 763) - Krediete: 15.00
Stogastiese calculus 764 (WTW 764) - Krediete: 15.00
Wiskundige metodes en modelle 772 (WTW 772) - Krediete: 15.00
Kontinuummeganika 787 (WTW 787) - Krediete: 15.00

BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise (02240184)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The programme consists of seven honours modules (five modules of 15 credits each from the Department of Mathematics and Applied Mathematics and two modules of 16 credits each from the Department of Science, Mathematics and Technology Education) as well as the compulsory research project (30 credits). Elective modules should be selected according to the prerequisites of these modules.
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and other requirements for honours degrees.

Toelatingsvereistes

A BSc in Mathematics, Applied Mathematics or equivalent degree with at least a 60% average in the final year Mathematics or Applied Mathematics subjects. The final year should include at least four of the following third-year level modules or equivalent: partial differential equations, dynamical systems (ordinary differential equations), real analysis, complex analysis, numerical analysis and continuum mechanics. In the selection procedure the candidate's complete undergraduate academic record will be considered.

Bevordering tot volgende studiejaar

The progress of all honours candidates is monitored biannually by the postgraduate coordinator/head of department. A candidate’s study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 137

Fundamentele modules

Projek 795 (WTW 795) - Krediete: 30.00

Kernmodules

Wiskunde- en wiskundegeletterheid onderwys 730 (MCE 730) - Krediete: 16.00
Opvoedkundige navorsingsmetodolgie 745 (NMQ 745) - Krediete: 16.00
Funksionaalanalise 710 (WTW 710) - Krediete: 15.00
Numeriese analise 733 (WTW 733) - Krediete: 15.00

Wiskundige optimering 750 (WTW 750) - Krediete: 15.00
Parsiële differensiaalvergelykings van wiskundige fisika 776 (WTW 776) - Krediete: 15.00

Keusemodules
Spesiale temas 727 (WTW 727) - Krediete: 15.00
Maatteorie en waarskynlikheid 734 (WTW 734) - Krediete: 15.00
Main principles of analysis in application 735 (WTW 735) - Krediete: 15.00
Eindige-elementmetode 763 (WTW 763) - Krediete: 15.00
Stogastiese calculus 764 (WTW 764) - Krediete: 15.00
Wiskundige metodes en modelle 772 (WTW 772) - Krediete: 15.00
Kontinuummeganika 787 (WTW 787) - Krediete: 15.00

BScHons Wiskunde van Finansies (02240276)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

An appropriate BSc or equivalent Bachelor's degree with a minimum of 60% for all Mathematics/Applied mathematics modules at third-year level. In the selection procedure the candidate's complete undergraduate academic record will be considered. In particular, it is required that the candidate has completed real analysis at third-year level and linear algebra on second-year level each with a mark of at least 60% (UP modules WTW 310 and WTW 211 / WTW 221).

Ander programspesifieke inligting

WTW 732 and WTW 762 are presented as weekly lectures together with some extra block lectures.

Bevordering tot volgende studiejaar

The progress of all honours candidates is monitored biannually by the postgraduate coordinator/head of department. A candidate’s study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Funksionaalanalise 710 (WTW 710) - Krediete: 15.00
Wiskundige modelle van finansiële ingenieurswese 732 (WTW 732) - Krediete: 15.00
Numeriese analise 733 (WTW 733) - Krediete: 15.00
Maatteorie en waarskynlikheid 734 (WTW 734) - Krediete: 15.00
Wiskundige modelle van finansiële ingenieurswese 762 (WTW 762) - Krediete: 15.00
Stogastiese calculus 764 (WTW 764) - Krediete: 15.00
Projek 792 (WTW 792) - Krediete: 30.00
Projek 795 (WTW 795) - Krediete: 30.00

Keusemodules

Lineêre modelle 710 (LMO 710) - Krediete: 15.00
Lineêre modelle 720 (LMO 720) - Krediete: 15.00
Meerveranderlike analise 710 (MVA 710) - Krediete: 15.00
Meerveranderlike analise 720 (MVA 720) - Krediete: 15.00
Wiskundige optimering 750 (WTW 750) - Krediete: 15.00
Eindige-elementmetode 763 (WTW 763) - Krediete: 15.00
Wiskundige metodes en modelle 772 (WTW 772) - Krediete: 15.00
Parsiële differensiaalvergelykings van wiskundige fisika 776 (WTW 776) - Krediete: 15.00

BScHons Wiskundige Statistiek (02240192)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Details of compilation of curriculum are available from the Head of the Department of Statistics as well as from the departmental postgraduate brochure.

A candidate must compile his/her curriculum in consultation with the head of department or his representative. It is also possible to include postgraduate modules from other departments. Refer to the Departmental website for further information.

Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of

this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

- A relevant bachelor's degree with Mathematical Statistics on the 300-level is required.
- For BScHons in Mathematical Statistics, an average mark of 65% or more

  (i) in Mathematical statistics on the 300-level or

  (ii) in an equivalent statistical module(s) at an accredited institution is required.
- In addition to passing of the core modules, WST 312 is also required as prerequisite for BScHons and BComHons in Mathematical Statistics.
- Students from other accredited institutions must comply with the same requirements based on equivalent modules at their institutions. In addition, students from other accredited institutions must also pass an entrance evaluation.
- Student numbers are limited to a maximum of 40, collectively over all honours programmes in the Department of Statistics. Selection is based on performance in the prior degree, conditional on ii and iii above.
- Historical performance during prior studies will also be considered in selecting students. Specific attention will be given to modules repeated and duration of study.
- Any additional entrance requirements as specified by the head of department in consultation with the departmental postgraduate selection committee.
- International qualifications have to be evaluated by SAQA.

Bevordering tot volgende studiejaar

The progress of all honours candidates is monitored biannually by the postgraduate coordinator/head of department. A candidate’s study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Lineêre modelle 710 (LMO 710) - Krediete: 15.00
Meerveranderlike analise 710 (MVA 710) - Krediete: 15.00
Navorsingsoriëntasie 796 (STK 796) - Krediete: 0.00
Navorsingsverslag: Wiskundige statistiek 795 (WST 795) - Krediete: 30.00

Keusemodules

Inleiding tot statistiese leer 720 (EKT 720) - Krediete: 15.00
Lineêre modelle 720 (LMO 720) - Krediete: 15.00

Meerveranderlike analise 720 (MVA 720) - Krediete: 15.00
Parametriese en nie-parametriese stogastiese prosesse 720 (PNP 720) - Krediete: 15.00
Steekproefnemingstegnieke 720 (SFT 720) - Krediete: 15.00
Statistiese proseskontrole 780 (SPC 780) - Krediete: 15.00
Tydreeksanalise 720 (TRA 720) - Krediete: 15.00
Verdelingsvrye metodes 710 (VMT 710) - Krediete: 15.00

Magister

MAgric Diereproduksiebestuur (02256000)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The curriculum consists of further study in the field of specialisation and a dissertation or, alternatively a mini-dissertation accompanied by more coursework than that required if the dissertation option is followed. The mini-dissertation will consist of research done by the candidate under supervision of a member of the Faculty staff. (A dissertation comprises at least 120 of the credits required for the degree, whereas a mini-dissertation comprises 100 credits.)

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Slaag met lof

The MScAgric degree is conferred with distinction on candidates who obtain a final average mark of at least 75%

and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1
Minimum krediete: 180

Kernmodules
Navorsingsverslag: Diereproduksie 802 (APZ 802) - Krediete: 180.00

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Navorsingsverslag: Diereproduksie 802 (APZ 802) - Krediete: 180.00

MAgric Landelike Ontwikkeling (02256003)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

A dissertation must be submitted, prepared under the guidance of a member of the academic staff.

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Slaag met lof

The MScAgric degree is conferred with distinction on candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Miniverhandeling: Landelike ontwikkeling 891 (ARD 891) - Krediete: 115.00
Gevorderde landelike finansies 884 (LEK 884) - Krediete: 15.00

Keusemodules

Voedselbeleid 833 (LEK 833) - Krediete: 15.00
Meting en monitering van voedselsekuriteit 834 (LEK 834) - Krediete: 15.00
Institusionele ekonomie 882 (LEK 882) - Krediete: 15.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Miniverhandeling: Landelike ontwikkeling 891 (ARD 891) - Krediete: 115.00
Gevorderde landelike finansies 884 (LEK 884) - Krediete: 15.00

Keusemodules

Voedselbeleid 833 (LEK 833) - Krediete: 15.00
Meting en monitering van voedselsekuriteit 834 (LEK 834) - Krediete: 15.00
Institusionele ekonomie 882 (LEK 882) - Krediete: 15.00

MAgric Voorligting en Landelike Ontwikkeling (02256001)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The degree programme comprises:

- the development of a research proposal (AGV 800 Agrarian extension) – these credits will not be included in

the total credits required;
- a dissertation in the form of a situation-specific development programme or based on appropriate research in the field of Extension (AGV 890 Dissertation: Agrarian extension).

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Slaag met lof

The MScAgric degree is conferred with distinction on candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1
Minimum krediete: 180

Kernmodules
Verhandeling: Agrariese Voorligting 890 (AGV 890) - Krediete: 180.00

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Verhandeling: Agrariese Voorligting 890 (AGV 890) - Krediete: 180.00

MConSci (02253014)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Ander programspesifieke inligting
Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

A basic course in statistics is compulsory when a quantitative approach is used for the research for the dissertation.

Work on the dissertation consists of three parts, namely a research proposal, project execution, and writing the dissertation. It is compulsory to give an oral presentation of the proposal as well as of the research on completion of the degree.

Slaag met lof
The degree is conferred with distinction on a student who obtains a final average of at least 75%, as well as at least 75% for the dissertation and provided that all the members of the Examination Commission indicate in writing that the degree be conferred with distinction.

Kurrikulum: Jaar 1
Minimum krediete: 180

Kernmodules
Verhandeling: Verbruikerswetenskap 890 (VBR 890) - Krediete: 180.00

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Verhandeling: Verbruikerswetenskap 890 (VBR 890) - Krediete: 180.00

MConSci Interieurwarebestuur (02253011)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Ander programspesifieke inligting

Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

A basic course in statistics is compulsory when a quantitative approach is used for the research for the dissertation.

Work on the dissertation consists of three parts, namely a research proposal, project execution, and writing the dissertation. It is compulsory to give an oral presentation of the proposal as well as of the research on completion of the degree.

Slaag met lof

The degree is conferred with distinction on a student who obtains a final average of at least 75%, as well as at least 75% for the dissertation and provided that all the members of the Examination Commission indicate in writing that the degree be conferred with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Verhandeling: Verbruikerswetenskap 890 (VBR 890) - Krediete: 180.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Verbruikerswetenskap 890 (VBR 890) - Krediete: 180.00

MConSci Kledingbestuur (02253012)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Ander programspesifieke inligting

Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

A basic course in statistics is compulsory when a quantitative approach is used for the research for the dissertation.

Work on the dissertation consists of three parts, namely a research proposal, project execution, and writing the dissertation. It is compulsory to give an oral presentation of the proposal as well as of the research on completion of the degree.

Slaag met lof

The degree is conferred with distinction on a student who obtains a final average of at least 75%, as well as at least 75% for the dissertation and provided that all the members of the Examination Commission indicate in writing that the degree be conferred with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Verhandeling: Verbruikerswetenskap 890 (VBR 890) - Krediete: 180.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Verbruikerswetenskap 890 (VBR 890) - Krediete: 180.00

MConSci Voedselbestuur (02253013)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Ander programspesifieke inligting

Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

A basic course in statistics is compulsory when a quantitative approach is used for the research for the dissertation.

Work on the dissertation consists of three parts, namely a research proposal, project execution, and writing the dissertation. It is compulsory to give an oral presentation of the proposal as well as of the research on completion of the degree.

Slaag met lof

The degree is conferred with distinction on a student who obtains a final average of at least 75%, as well as at least 75% for the dissertation and provided that all the members of the Examination Commission indicate in writing that the degree be conferred with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Verhandeling: Verbruikerswetenskap 890 (VBR 890) - Krediete: 180.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Verbruikerswetenskap 890 (VBR 890) - Krediete: 180.00

MSc Aktuariële Wetenskap (02250396)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The programme consists of a dissertation. Additional modules (as approved by the postgraduate coordinator) may be required depending on the candidate's background and the scope of the study.

Further details are available from the Head of the Department of Insurance and Actuarial Science as well as in the departmental brochure.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- A BScHons degree in Actuarial Science with a minimum of 60% for all modules at honours level. In the selection procedure the candidate's complete undergraduate and honours academic record will be considered.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Addisionele vereistes

Admission is also subject to the availability of a suitable supervisor for the study.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Aktuariële wetenskap 890 (AKW 890) - Krediete: 180.00

MSc Biochemie (02250512)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

A recommendation from the head of department and depending on availability of supervisor/s and/or projects within the department.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a

mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Biochemie: Verhandeling 890 (BCM 890) - Krediete: 180.00

MSc Bioinformatika (02250514)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing

that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Bioinformatika: Verhandeling 803 (BIF 803) - Krediete: 180.00

MSc Biotegnologie (02250537)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This is an interdepartmental programme.

The curriculum is to be determined by the heads of the participating departments, namely the departments of Biochemistry, Genetics, Microbiology and Plant Pathology, Plant Science, and Plant Production and Soil Science.

Please consult with Prof P Bloomer, Tel: 012 420 3259, for further details.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- In addition to the General Regulations G.1.3 G.30 and G.62 an appropriate BScHons degree, with a final grade point average of 60%, is a prerequisite for admission. Additional requirements and conditions may be prescribed by the Dean on the recommendation of the supervisor, head of department and/or Postgraduate Studies Committee.
- Preference will be given to applicants with the highest final grade point averages for their preceding degree and qualifying applicants may be subjected to an entrance evaluation examination. Admission is furthermore contingent on the availability of supervisors and/or research projects within the participating departments.

Addisionele vereistes

Preference will be given to applicants with the highest final grade point averages for their preceding degree and qualifying applicants may be subjected to an entrance evaluation examination. Admission is furthermore contingent on the availability of supervisors and/or research projects within the participating departments.

Ander programspesifieke inligting

Additional modules may be prescribed by the heads of department where deemed necessary.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Agronomie 890 (AGR 890) - Krediete: 180.00
Biochemie: Verhandeling 890 (BCM 890) - Krediete: 180.00
Verhandeling: Plantkunde 890 (BOT 890) - Krediete: 180.00
Verhandeling: Genetika 890 (GTK 890) - Krediete: 180.00

MSc Bosboubestuur en die Omgewing (Gedoseer) (02250415)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

This programme is coordinated by the Department of Plant and Soil Science.

The purpose of this option is to equip graduates with a biological and/or agricultural background to specialise further to obtain skills in environmental management and in sustainable forest resource use and management. On completion of the training, candidates should be conversant with the multifunctional nature of the forest resource base and be equipped to render advice concerning forest resource use and management with an understanding of the environmental consequences associated with exploitative use of natural resources. This includes grounding in forest resource use and management, including yield regulations in natural and commercial forest systems, participatory approaches to natural resource management, ecosystem structure, composition and function, ecosystem services, notions of ecosystem health, control of invasive species and community restoration, understanding of local communities, forestry and rural development, participatory

planning and monitoring, the forest harvesting schedules and logistics, non-timber forest products, the science of wood and forest wood products utilisation, understanding of the basic economics of natural resources and social development and planning.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00
Algemene Inleiding tot bosbou 831 (FOR 831) - Krediete: 15.00

Keusemodules

Strategiese omgewingsbestuur 822 (ENS 822) - Krediete: 15.00
Omgewing en Grondhervorming 823 (ENS 823) - Krediete: 15.00

Internasionale omgewingsbestuurstelsels 822 (ENV 822) - Krediete: 15.00
Bome in 'n multifunksionele landskap 833 (ENV 833) - Krediete: 15.00
Bosbouhulpbrongebuiksbeplanning 832 (FOR 832) - Krediete: 15.00
Bosbouingenieurswese 833 (FOR 833) - Krediete: 15.00
Houtwetenskap en bosbouprodukte 834 (FOR 834) - Krediete: 15.00
Bosbou-ekologie en -bestuur 835 (FOR 835) - Krediete: 15.00
Bosboukunde 836 (FOR 836) - Krediete: 15.00
Bosbouhulpbronekonomie en -beleid 831 (LEK 831) - Krediete: 20.00
Omgewingsverandering 881 (OMS 881) - Krediete: 15.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00
Algemene Inleiding tot bosbou 831 (FOR 831) - Krediete: 15.00

Keusemodules

Strategiese omgewingsbestuur 822 (ENS 822) - Krediete: 15.00
Omgewing en Grondhervorming 823 (ENS 823) - Krediete: 15.00
Internasionale omgewingsbestuurstelsels 822 (ENV 822) - Krediete: 15.00
Bome in 'n multifunksionele landskap 833 (ENV 833) - Krediete: 15.00
Bosbouhulpbrongebuiksbeplanning 832 (FOR 832) - Krediete: 15.00
Bosbouingenieurswese 833 (FOR 833) - Krediete: 15.00
Houtwetenskap en bosbouprodukte 834 (FOR 834) - Krediete: 15.00
Bosbou-ekologie en -bestuur 835 (FOR 835) - Krediete: 15.00
Bosboukunde 836 (FOR 836) - Krediete: 15.00
Bosbouhulpbronekonomie en -beleid 831 (LEK 831) - Krediete: 20.00
Omgewingsverandering 881 (OMS 881) - Krediete: 15.00

MSc Bosbouwetenskap (02250532)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This is an interdepartmental programme.

The curriculum is to be determined by the heads of department in the biological sciences. Please consult with Prof P Chirwa, Tel: 012 420 3213, for further details.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student

Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Ander programspesifieke inligting

Additional modules may be prescribed by the head of department where deemed necessary.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Bosbouwetenskap 890 (FOR 890) - Krediete: 180.00

MSc Chemie (02250123)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Chemie 890 (CHM 890) - Krediete: 180.00

MSc Dierkunde (02250516)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- In addition to the General Regulations G.1.3 G.30 and G.62 an appropriate BScHons degree is a prerequisite for

admission. An average of at least 60% in the honours year of study, or recommendation by the Head of Department, is required for admission to the MSc. Additional requirements and conditions may be prescribed by the Dean on the recommendation of the supervisor, Head of Department and Postgraduate Studies Committee. Admission is approved by the Postgraduate Studies Committee in consultation with the Head of Department and the supervisor.
- Where admission to the MSc degree study does not follow on a BScHons degree the minimum period of study for the MSc degree is two years.
- ?Admission is additionally dependent on availability of supervisor/s and/or projects and/or funding within the Department of Zoology and Entomology.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Dierkunde 890 (ZOO 890) - Krediete: 180.00

MSc e-Wetenskap (02250193)

Minimum duur van studie	2 jaar

Programinligting

*Hierdie inligting is slegs in Engels beskikbaar.

The curriculum for the MSc (eScience) coursework degree programme comprises 180 credits of coursework and a research component. One of the key features of the curriculum is a capstone project that runs parallel with coursework modules in the first year of study. During the capstone project, students will go through the entire cycles of solving a real-world data science problem, collecting and processing real-world data, designing methods to solve the problem, and implementing a solution. The capstone project and coursework prepare the student for the mini-dissertation problem supervised by an expert.

Toelatingsvereistes

The admission requirements are:

- an honours degree in either statistics, mathematics, computer science, physics, or related fields; AND demonstrable knowledge of basic principles of probability and statistics, computing, calculus and linear algebra;

  OR

- passing an entrance evaluation designed by the academic advisory committee of the programme within the consortium. An average of 65% at honours level is the minimum for consideration, although admission will be competitive and an honours average of at least 70% is highly recommended.
- Student numbers are limited to a maximum of 30.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the participating departments.
- Historical performance during prior studies will also be considered in selecting students. Specific attention will be given to modules repeated and duration of study.
- The research proposal of applicants should be in line with the research focus of the participating departments.
- Any further additional entrance requirements as specified by the head of department in consultation with the departmental postgraduate selection committee.
- The head of department, in consultation with the departmental postgraduate selection committee and participating departments reserves the right to prescribe additional modules.

Ander programspesifieke inligting

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and other requirements for master's degrees.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75%, with a minimum of 65% in each module, and a mark of at least 75% for the mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 90

Kies 4 modules uit die lys keusemodules ter waarde van 60 krediete.

Kernmodules

Navorsingsmetodes en dekklip projek in datawetenskap 801 (NEP 801) - Krediete: 15.00
Dataprivaatheid en -etiek 802 (NEP 802) - Krediete: 15.00

Keusemodules

Aanpasbaarheidsverwerking en masjienleer 803 (NEP 803) - Krediete: 15.00
Datavisualisering en -bestudering 804 (NEP 804) - Krediete: 15.00
Grootskaalse verwerkingstelsels en wetenskaplike verwerking 805 (NEP 805) - Krediete: 15.00
Wetenskaplike grondslae van datawetenskap 806 (NEP 806) - Krediete: 15.00
Besondere temas in datawetenskap 807 (NEP 807) - Krediete: 15.00
Statistiese grondslae van datawetenskap 808 (NEP 808) - Krediete: 15.00
Grootskaalse optimalisering vir datawetenskap 809 (NEP 809) - Krediete: 15.00

Kurrikulum: Finale jaar

Minimum krediete: 90

Fundamentele modules

Miniverhandeling: e-Wetenskap 800 (NEP 800) - Krediete: 90.00

MSc Entomologie (02250518)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

An MSc degree by virtue of a dissertation.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- In addition to the General Regulations G.1.3 G.30 and G.62 an appropriate BScHons degree is a prerequisite for admission. An average of at least 60% in the honours year of study, or recommendation by the Head of Department, is required for admission to the MSc. Additional requirements and conditions may be prescribed by the Dean on the recommendation of the supervisor head of department and Postgraduate Studies Committee. Admission is approved by the Postgraduate Studies Committee in consultation with the Head of Department and the supervisor.
- Where admission to the MSc degree study does not follow on a BScHons degree the minimum period of study for the MSc degree is two years.
- Admission is additionally dependent on availability of supervisor/s and/or projects and funding within the Department of Zoology and Entomology.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Entomologie 890 (ENT 890) - Krediete: 180.00

MSc Finansiële Ingenieurswese (02250188)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The candidate must complete a dissertation in one of the fields of Financial Engineering in which research is actively being done in the Department.

The programme consists of 180 credits all allocated to the dissertation. If deemed necessary and depending on the candidate’s academic background and the scope of the study, additional requirements will be set. These additional requirements are non-credit bearing and will be assessed. The composition of the additional requirements is to be decided in consultation with the supervisor and Head of Department or nominated representative. The successful completion of any additional requirements is mandatory and forms part of the degree requirements.

Full details of the compilation of the curriculum, research fields and names of possible supervisors are available in the departmental postgraduate brochure at: www.up.ac.za/maths/postgrad

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- An appropriate BScHons degree in Financial Engineering with a minimum of 60% for all modules at honours level. In the selection procedure the candidate's complete undergraduate and honours academic record will be considered.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Finansiële Ingenieurswese 894 (WTW 894) - Krediete: 180.00

MSc Fisika (02250232)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The programme consists of:

- Dissertation (determined by supervisor and head of department)
- Theoretical modules (maximum of 60 lectures) may be taken and are determined by the supervisor and head of department. These modules are to supplement the subject of the dissertation of the student.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the

second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

In bykomend tot die Algemene Regulasies G.1.3 G.30 en G.62 'n toepaslike BScHons -graad is 'n voorvereiste vir toelating. 'N gemiddeld van 60 % word vereis om in die honneurs studiejaar vir toelating tot die MSc. Bykomende vereistes en voorwaardes kan deur die Dekaan voorgeskryf word op aanbeveling van die promotor departementshoof en Nagraadse Studies Komitee. Toelating deur die Nagraadse Studies goedgekeur in oorleg met die departementshoof en studieleier .

Waar toelating tot die MSc -studie nie op 'n honneursgraad volg die minimum tydperk van studie vir die MSc -graad is twee jaar.

HonsBSc in Fisika (of ekwivalente kwalifikasie) en met die toestemming van die Hoof van die Departement

Addisionele vereistes

Permission from the head of department and depending on availability of supervisor/s and/or projects within the department.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Fisika 890 (FSK 890) - Krediete: 180.00

MSc Genetika (02250535)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

'n toepaslike BScHons -graad, met 'n finale graad punt gemiddeld van ten minste 60 %, of op aanbeveling van die Hoof van die Departement . Voorkeur sal aan aansoekers met die hoogste finale graad punt gemiddeld vir hul voorafgaande graad en kwalifiserende aansoekers gegee word , kan 'n ingang evaluering ondersoek onderwerp word . Toegang is verder afhanklik van die beskikbaarheid van studieleiers en / of navorsingsprojekte binne die Departement.

Ander programspesifieke inligting

Additional modules may be prescribed by the head of department where deemed necessary.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and

Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Verhandeling: Genetika 890 (GTK 890) - Krediete: 180.00

MSc Geografie (02250413)

Minimum duur van studie	1 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes
- Bykomend tot die Algemene Regulasies G.1.3 G.30 en G.62 'n toepaslike BScHons -graad is 'n voorvereiste vir toelating. 'n gemiddeld van 60 % word vereis om in die honneurs studiejaar vir toelating tot die MSc. Bykomende vereistes en voorwaardes kan deur die Dekaan voorgeskryf word op aanbeveling van die verteenwoordigende departementshoof en Nagraadse Studies Komitee. Toelating deur die Nagraadse Studies goedgekeur in oorleg met die departementshoof en studieleier .
-
- Waar toelating tot die MSc -studie nie op 'n honneursgraad volg die minimum tydperk van studie vir die MSc -graad is twee jaar.

Bevordering tot volgende studiejaar
The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where

applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Geografie 890 (GGF 890) - Krediete: 180.00

MSc Geoinformatika (02250414)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- In bykomend tot die Algemene Regulasies G.1.3 G.30 en G.62 'n toepaslike BScHons -graad is 'n voorvereiste vir toelating. 'n gemiddeld van 60 % word vereis om in die honneurs studiejaar vir toelating tot die MSc. Bykomende vereistes en voorwaardes kan deur die Dekaan voorgeskryf word op aanbeveling van die promotor departementshoof en Nagraadse Studies Komitee. Toelating deur die Nagraadse Studies goedgekeur in oorleg met die departementshoof en studieleier .
- Waar toelating tot die MSc -studie nie op 'n honneursgraad volg die minimum tydperk van studie vir die MSc -graad is twee jaar.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable

to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Geoinformatika 890 (GIS 890) - Krediete: 180.00

MSc Geologie (02250142)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- In bykomend tot die Algemene Regulasies G.1.3 G.30 en G.62 'n toepaslike BScHons -graad is 'n voorvereiste vir toelating. 'n gemiddeld van 60 % word vereis om in die honneurs studiejaar vir toelating tot die MSc. Bykomende vereistes en voorwaardes kan deur die Dekaan voorgeskryf word op aanbeveling van die promotor departementshoof en Nagraadse Studies Komitee. Toelating deur die Nagraadse Studies goedgekeur in oorleg met die departementshoof en studieleier .
- Waar toelating tot die MSc -studie nie op 'n honneursgraad volg die minimum tydperk van studie vir die MSc -graad is twee jaar.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Geologie 890 (GLG 890) - Krediete: 180.00

MSc Grondkunde (02250502)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

'n drie - jaar basiese Grondkunde graad met 'n BScHons (Grondkunde) of gelykwaardige kwalifikasie met 'n minimum gemiddeld van 60 % word vereis vir toelating . Daarbenewens moet 'n motiveringsbrief weerspieël navorsing belang om die aansoekvorm vergesel. Keuring van studente sal gebaseer word op akademiese prestasie , die motiveringsbrief , beskikbaar toesighoudende hoedanigheid en navorsingsprojek befondsing.

Let wel

Afhangend van die akademiese agtergrond van die student en die gekose area van studie , kan dit nodig wees van die student bykomende kursuswerk te doen .

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Grondkunde 890 (GDK 890) - Krediete: 180.00

MSc Ingenieurs- en Omgewingsgeologie Hidrogeologie (02250376)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Hidrogeology 890 (GTX 890) - Krediete: 180.00

MSc Ingenieurs- en Omgewingsgeologie (02250375)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Ingenieursgeologie 890 (IGL 890) - Krediete: 180.00

MSc Ingenieursgeologie (02250374)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Ingenieursgeologie 890 (IGL 890) - Krediete: 180.00

MSc Lugkwaliteitbestuur (02250520)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Coordinated by the Department of Geography, Geoinformatics and Meteorology.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

The extensions to the National Environmental Management Act (NEMA) promulgated after 2005 affect environmental management in South Africa in a profound way. In particular, the Air Quality Act brings South African legislation into line with international trends. The metro councils are charged with the responsibility of implementing the Act at the local level. In addition, companies need appropriate expertise to obtain licenses for their air quality management plans. This focus area serves to provide suitable expertise for the implementation of the above legislation by industry by training graduates specialised for careers in air quality management. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning the legislative requirements with respect to air quality management, modelling of and measurement of air pollution and the interpretation of pollution plumes, the measurement and interpretation of chemical air pollution as well as dust pollution, international agreements and requirements as well as the effects of air pollution on humans.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Lugkwaliteitbestuur 898 (ENV 898) - Krediete: 180.00

MSc Lugkwaliteitbestuur (Gedoseer) (02250408)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Coordinated by the Department of Geography, Geoinformatics and Meteorology.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

The extensions to the National Environmental Management Act (NEMA) promulgated after 2005 affect environmental management in South Africa in a profound way. In particular, the Air Quality Act brings South African legislation into line with international trends. The metro councils are charged with the responsibility of implementing the Act at the local level. In addition, companies need appropriate expertise to obtain licenses for their air quality management plans. This focus area serves to provide suitable expertise for the implementation of the above legislation by industry by training graduates specialised for careers in air quality management. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning the legislative requirements with respect to air quality management, modelling of and measurement of air pollution and the interpretation of pollution plumes, the measurement and interpretation of chemical air pollution as well as dust pollution, international agreements and requirements as well as the effects of air pollution on humans.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

Candidates must be in possession of an appropriate four-year degree or equivalent degree status which includes mathematics and chemistry at first-year level. Admission is subject to the approval of the Director of the Centre and the appropriate head of department outside the Centre.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Grenslaagmeterologie 811 (AQM 811) - Krediete: 15.00
Atmosferiese chemie 812 (AQM 812) - Krediete: 15.00
Atmosferiese termodinamika 813 (AQM 813) - Krediete: 15.00
Lugbesoedeling: omgewing en samelewing 814 (AQM 814) - Krediete: 15.00
Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Grenslaagmeterologie 811 (AQM 811) - Krediete: 15.00
Atmosferiese chemie 812 (AQM 812) - Krediete: 15.00
Atmosferiese termodinamika 813 (AQM 813) - Krediete: 15.00
Lugbesoedeling: omgewing en samelewing 814 (AQM 814) - Krediete: 15.00
Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00

MSc Medisinale Plantwetenskap (02250539)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- BScHons in Medicinal Plant Science with an average of 60% or a recommendation by the head of department. A minimum of 60% will be necessary in the compulsory modules BOT 761, BOT 748 and BOT 749 which are offered at honours level in the Department of Plant and Soil Science.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation,

that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Medisinale plantwetenskap 890 (MPS 890) - Krediete: 180.00

MSc Meteorologie (02250073)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- In bykomend tot die Algemene Regulasies G.1.3 G.30 en G.62 'n toepaslike BScHons -graad is 'n voorvereiste vir toelating. 'N gemiddeld van 60 % word vereis om in die honneurs studiejaar vir toelating tot die MSc. Bykomende vereistes en voorwaardes kan deur die Dekaan voorgeskryf word op aanbeveling van die promotor departementshoof en Nagraadse Studies Komitee. Toelating deur die Nagraadse Studies goedgekeur in oorleg met die departementshoof en studieleier .
- Waar toelating tot die MSc -studie nie op 'n honneursgraad volg die minimum tydperk van studie vir die MSc -graad is twee jaar.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Meteorologie 890 (AWM 890) - Krediete: 180.00

MSc Mikrobiologie (02250504)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- 'n Toepaslike BScHons -graad, met 'n finale graad punt gemiddeld van ten minste 60 %, of op aanbeveling van die Hoof van die Departement . Voorkeur sal aan aansoekers met die hoogste finale graad punt gemiddeld vir hul voorafgaande graad en kwalifiserende aansoekers gegee word , kan 'n ingang evaluering ondersoek onderwerp word . Toegang is verder afhanklik van die beskikbaarheid van studieleiers en / of navorsingsprojekte binne die Departement.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Mikrobiologie 890 (MBY 890) - Krediete: 180.00

MSc Natuurlewebestuur (02250510)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The degree programme entails a research project with dissertation. Please contact the programme manager at the Centre for Wildlife Management for the available options.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation,

that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Natuurlewebestuur 890 (NLB 890) - Krediete: 180.00

MSc Omgewing en Samelewing (02250522)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

The programme is coordinated by the Department of Geography, Geoinformatics and Meteorology.

The purpose of this focus area is to train environmental graduates who specialised in careers in the humanities. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in the management of human-environment interactions. This includes social impact assessments, policy formulation, social development and planning, participatory appraisal assessments, demographic pattern and trend interpretations, resource appraisals and management.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Omgewing en samelewing 893 (ENV 893) - Krediete: 180.00

MSc Omgewing en Samelewing (Gedoseer) (02250403)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

The programme is coordinated by the Department of Geography, Geoinformatics and Meteorology.

The purpose of this focus area is to train environmental graduates who specialised in careers in the humanities. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in the management of human-environment interactions. This includes social impact assessments, policy formulation, social development and planning, participatory appraisal assessments, demographic pattern and trend interpretations, resource appraisals and management.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Ander programspesifieke inligting

At least one additional elective module must be selected in consultation with the Director of the Centre and the Head of the Department of Geography, Geoinformatics and Meteorology. Options will be based on the academic background and/or anticipated career of the candidate.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Omgewing en Ontwikkeling 811 (ENS 811) - Krediete: 15.00
Strategiese omgewingsbestuur 822 (ENS 822) - Krediete: 15.00
Omgewing en Grondhervorming 823 (ENS 823) - Krediete: 15.00
Sosiale modellering en bepaling 824 (ENS 824) - Krediete: 15.00
Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00
Omgewingsverandering 881 (OMS 881) - Krediete: 15.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Omgewing en Ontwikkeling 811 (ENS 811) - Krediete: 15.00
Strategiese omgewingsbestuur 822 (ENS 822) - Krediete: 15.00
Omgewing en Grondhervorming 823 (ENS 823) - Krediete: 15.00
Sosiale modellering en bepaling 824 (ENS 824) - Krediete: 15.00
Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00

Miniverhandeling 891 (ENV 891) - Krediete: 90.00
Omgewingsverandering 881 (OMS 881) - Krediete: 15.00

MSc Omgewingsbestuur (02250526)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

Coordinated by the Department of Zoology and Entomology.

The purpose of this focus area is to train environmental graduates considered generalists for managing the full spectrum of human-environment-economic interactions. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in managing social, economic and environmental processes in a sustainable manner. This includes social and environmental impact assessment, policy formulation, social development and planning, eco-system structure, composition and function, ecosystem services, ecosystem health, invasive species, species and community restoration, conservation education, local communities and conservation, economic inefficiency, misallocation, market failure, policy failure, the economics of renewable and non-renewable resources, cost-benefit analysis, valuation of environmental goods and services and environmental accounting.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where

applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Omgewingsbestuur 894 (ENV 894) - Krediete: 180.00

MSc Omgewingsbestuur (Gedoseer) (02250407)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Coordinated by the Department of Zoology and Entomology.

The purpose of this focus area is to train environmental graduates considered generalists for managing the full spectrum of human-environment-economic interactions. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in managing social, economic and environmental processes in a sustainable manner. This includes social and environmental impact assessment, policy formulation, social development and planning, eco-system structure, composition and function, ecosystem services, ecosystem health, invasive species, species and community restoration, conservation education, local communities and conservation, economic inefficiency, misallocation, market failure, policy failure, the economics of renewable and non-renewable resources, cost-benefit analysis, valuation of environmental goods and services and environmental accounting.

There are two independent foci of the master’s option in Environmental Management:

- Focus area: Sustainable Development
- Focus area: Environmental Economics

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of

registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

Candidates must be in possession of a BScHons degree or a degree with equivalent degree status (SAQA NQF 7). Final admission is subject to the approval of the Director of the Centre for Environmental Studies.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Ander programspesifieke inligting

Note:
For the focus on Sustainable Development, final admission is subject to the approval of the Director of the Centre for Environmental Studies.

For the focus on Environmental Economics, students without a formal background in economics will be considered. Admission is subject to the approval of the Head of the Department of Agricultural Economics, Extension and Rural Development and the Director of the Centre for Environmental Studies. Additional courses in economics or related topics may be prescribed for students, depending on their academic background.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Omgewing en Ontwikkeling 811 (ENS 811) - Krediete: 15.00
Strategiese omgewingsbestuur 822 (ENS 822) - Krediete: 15.00
Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00

Keusemodules

Sosiale modellering en bepaling 824 (ENS 824) - Krediete: 15.00
Omgewingswaardasie en beleid 826 (LEK 826) - Krediete: 15.00
Institusionele ekonomie 882 (LEK 882) - Krediete: 15.00
Omgewingsverandering 881 (OMS 881) - Krediete: 15.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Miniverhandeling 891 (ENV 891) - Krediete: 90.00

MSc Omgewingsekologie (02250524)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

Coordinated by the Department of Zoology and Entomology.

The purpose of this focus area is to train environmental graduates who specialised in careers in the ecology of the environment, including conservation planning, environmental management and air quality management. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in the management of the ecological consequences of human existence. This includes a thorough grounding in ecosystem structure, composition and function, ecosystem services, notions of ecosystem health, the management of declining and small populations, captive propagation, control of invasive species, species and community restoration, conservation education, local communities and conservation, as well as aspects of biogeography and macro-ecology, conservation planning and monitoring, the structure, composition and function of biological communities, population and community variability.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL

test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Omgewingsekologie 892 (ENV 892) - Krediete: 180.00

MSc Omgewingsekologie (Gedoseer) (02250404)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

Coordinated by the Department of Zoology and Entomology.

The purpose of this focus area is to train environmental graduates who specialised in careers in the ecology of the environment, including conservation planning, environmental management and air quality management. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in the management of the ecological consequences of human existence. This includes a thorough grounding in ecosystem structure, composition and function, ecosystem services, notions of ecosystem health, the management of declining and small populations, captive propagation, control of invasive species, species and community restoration, conservation education, local communities and conservation, as well as aspects of biogeography and macro-ecology, conservation planning and monitoring, the structure, composition and function of biological communities, population and community variability.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Ander programspesifieke inligting

One of the listed specialisation modules may be substituted with an elective module subject to the approval of the Director of the Centre. Choice of an elective is based on the academic background and/or anticipated career of the student but is expected to be relevant to either conservation biology or sustainable forestry management.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Bome in 'n multifunksionele landskap 833 (ENV 833) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00
Bewaringsbeplanning en -monitering 808 (ZEN 808) - Krediete: 15.00
Biogeografie en makro-ekologie 809 (ZEN 809) - Krediete: 15.00

Keusemodules

Omgewing en Ontwikkeling 811 (ENS 811) - Krediete: 15.00
Strategiese omgewingsbestuur 822 (ENS 822) - Krediete: 15.00

Omgewing en Grondhervorming 823 (ENS 823) - Krediete: 15.00
Sosiale modellering en bepaling 824 (ENS 824) - Krediete: 15.00
Internasionale omgewingsbestuurstelsels 822 (ENV 822) - Krediete: 15.00
Waterkwaliteitsbestuur 810 (EWM 810) - Krediete: 15.00
Waterbewaring- en aanvraagbestuur 821 (EWM 821) - Krediete: 15.00
Watervoorsiening en sanitasie 822 (EWM 822) - Krediete: 15.00
Bosbou-ekologie en -bestuur 835 (FOR 835) - Krediete: 15.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Bome in 'n multifunksionele landskap 833 (ENV 833) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00
Bewaringsbeplanning en -monitering 808 (ZEN 808) - Krediete: 15.00
Biogeografie en makro-ekologie 809 (ZEN 809) - Krediete: 15.00

Keusemodules

Omgewing en Ontwikkeling 811 (ENS 811) - Krediete: 15.00
Strategiese omgewingsbestuur 822 (ENS 822) - Krediete: 15.00
Omgewing en Grondhervorming 823 (ENS 823) - Krediete: 15.00
Sosiale modellering en bepaling 824 (ENS 824) - Krediete: 15.00
Internasionale omgewingsbestuurstelsels 822 (ENV 822) - Krediete: 15.00
Waterkwaliteitsbestuur 810 (EWM 810) - Krediete: 15.00
Waterbewaring- en aanvraagbestuur 821 (EWM 821) - Krediete: 15.00
Watervoorsiening en sanitasie 822 (EWM 822) - Krediete: 15.00
Bosbou-ekologie en -bestuur 835 (FOR 835) - Krediete: 15.00

MSc Omgewingsekonomie (02250405)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This programme is coordinated in the Department of Agricultural Economics, Extension and Rural Development.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Applied econometrics 810 (LEK 810) - Krediete: 15.00
Toegepaste mikro-ekonomie 815 (LEK 815) - Krediete: 15.00
Omgewingswaardasie en beleid 826 (LEK 826) - Krediete: 15.00
Natuurlike hulpbron en omgewingsekonomie 880 (LEK 880) - Krediete: 15.00
Verhandeling: Landbou-ekonomie 890 (LEK 890) - Krediete: 180.00

Keusemodules

Production economics 811 (LEK 811) - Krediete: 15.00
Quantitative methods for agricultural and environmental policy 814 (LEK 814) - Krediete: 15.00
Institusionele ekonomie 882 (LEK 882) - Krediete: 15.00
Natuurlike hulpbron ekonomie 886 (LEK 886) - Krediete: 15.00

MSc Omgewingsonderwys (02250528)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

This programme is coordinated by the Faculty of Education.

The purpose of this focus area is to train environmental graduates who specialised in careers in environmental education. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in the transfer of environmental principles by education. This includes the

transfer of relevant ethical, social and ecological principles to learners, the roles of the NQF and outcomes-based education for approaches towards environmental education, the roles of facilitation, engagement, meta-learning, creative problem solving, cooperative learning and feedback in the learning task.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Omgewingsopvoedkunde 897 (ENV 897) - Krediete: 180.00

MSc Omgewingsonderwys (Coursework) (02250531)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

This programme is coordinated by the Faculty of Education.

The purpose of this focus area is to train environmental graduates who specialised in careers in environmental education. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in the transfer of environmental principles by education. This includes the transfer of relevant ethical, social and ecological principles to learners, the roles of the NQF and outcomes-based education for approaches towards environmental education, the roles of facilitation, engagement, meta-learning, creative problem solving, cooperative learning and feedback in the learning task.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Ander programspesifieke inligting

At least one additional elective module must be selected in consultation with the Director of the Centre and the Head of the Department Curriculum Studies, Faculty of Education. Choices will be based on the academic background and/or anticipated career of the candidate.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules
Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00
Navorsingmetodes in wetenskaponderwys 881 (SCE 881) - Krediete: 15.00

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00
Navorsingmetodes in wetenskaponderwys 881 (SCE 881) - Krediete: 15.00

MSc Plantkunde (02250541)

Minimum duur van studie	1 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes
- BScHons in Plant Science or BScHons in Medicinal Plant Science with an average of 60% or a recommendation from the head of department.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Bevordering tot volgende studiejaar
The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Plantkunde 890 (BOT 890) - Krediete: 180.00

MSc Plantpatologie (02250500)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- In bykomend tot die Algemene Regulasies G.1.3 G.30 en G.62 'n toepaslike BScHons -graad is 'n voorvereiste vir toelating. 'N gemiddeld van 60 % word vereis om in die honneurs studiejaar vir toelating tot die MSc. Bykomende vereistes en voorwaardes kan deur die Dekaan voorgeskryf word op aanbeveling van die promotor departementshoof en Nagraadse Studies Komitee. Toelating deur die Nagraadse Studies goedgekeur in oorleg met die departementshoof en studieleier .
- Waar toelating tot die MSc -studie nie op 'n honneursgraad volg die minimum tydperk van studie vir die MSc -graad is twee jaar.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate

coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Plantpatologie 890 (PPT 890) - Krediete: 180.00

MSc Toegepaste Wiskunde (02250172)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The candidate must complete a dissertation in one of the fields of Applied Mathematics in which research is actively being done in the Department.

The programme consists of 180 credits all allocated to the dissertation. If deemed necessary, and depending on the candidate’s academic background and the scope of the study, additional requirements will be set. These additional requirements are non-credit bearing and will be assessed. The composition of the additional requirements is to be decided in consultation with the supervisor and Head of Department or nominated representative. The successful completion of any additional requirements is mandatory and forms part of the degree requirements.

Full details of the compilation of the curriculum, research fields and names of possible supervisors are available in the departmental postgraduate brochure at: http://www.up.ac.za/maths/postgrad

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of

registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- An appropriate BScHons degree with a minimum of 60% for all modules at honours level. In the selection procedure the candidate's complete undergraduate and honours academic record will be considered. In particular it is strongly recommended that the following modules be included at honours level: Measure and integration theory, Functional analysis, Partial differential equations and Numerical analysis.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Toegepaste wiskunde 890 (TWS 890) - Krediete: 180.00

MSc Voedingkunde (02250416)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inliging is slegs in Engels beskikbaar.

The degree is conferred based on a dissertation and 60 credits of coursework. Modules at the advanced level chosen in consultation with the Director of the Centre for Nutrition and the head of department. (See relevant list of modules.)

Candidates must write a dissertation on their research project in Nutrition and at least a concept research paper for publication in a peer-reviewed scientific journal.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the

second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- In addition to the General Regulations G.1.3 G.30 and G.62 an appropriate BScHons degree is a prerequisite for admission. An average of 60% is required in the honours year of study for admission to the MSc. Additional requirements and conditions may be prescribed by the Dean on the recommendation of the supervisor head of department and Postgraduate Studies Committee. Admission is approved by the Postgraduate Studies Committee in consultation with the head of department and the supervisor.
- Where admission to the MSc degree study does not follow on a BScHons degree the minimum period of study for the MSc degree is two years.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.
- International qualifications have to be evaluated by SAQA.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Voeding 890 (VDG 890) - Krediete: 180.00

MSc Voedselwetenskap (02250506)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Candidates must write a dissertation on their research project in food science and/or food technology and at least a concept research paper for publication in a peer-reviewed scientific journal.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Voedselwetenskap 890 (FST 890) - Krediete: 180.00

MSc Waterhulpbronbestuur (02250530)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

Coordinated by the Department of Microbiology and Plant Pathology.

The purpose of this focus area is to train environmental graduates who specialised in careers in the sustainable management of water resources. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in water resource management in Southern Africa. This includes principles of quality management, water conservation, water demand management, water supply and sanitation technologies.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Waterhulpbronbestuur 896 (ENV 896) - Krediete: 180.00

MSc Waterhulpbronbestuur (Gedoseer) (02250406)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

This programme is coordinated by the Department of Microbiology and Plant Pathology.

The purpose of this focus area is to train environmental graduates who specialised in careers in the sustainable management of water resources. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in water resource management in Southern Africa. This includes principles of quality management, water conservation, water demand management, water supply and sanitation technologies.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Addisionele vereistes

Candidates must demonstrate proficiency in the English language up to the level required by either the TOEFL test (www.ets.org/toefl) or the IELTS language proficiency test (www.ielts.org).

Ander programspesifieke inligting

At least one additional elective module must be selected in consultation with the Director of the Centre and the Head of the Department of Microbiology and Plant Pathology. Choice of electives will be based on the academic background and/or anticipated career of the candidate.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation,

that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00
Waterkwaliteitsbestuur 810 (EWM 810) - Krediete: 15.00
Waterbewaring- en aanvraagbestuur 821 (EWM 821) - Krediete: 15.00
Watervoorsiening en sanitasie 822 (EWM 822) - Krediete: 15.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Omgewingsparadigmas 810 (ENV 810) - Krediete: 15.00
Omgewingsreg 816 (ENV 816) - Krediete: 15.00
Miniverhandeling 891 (ENV 891) - Krediete: 90.00
Waterkwaliteitsbestuur 810 (EWM 810) - Krediete: 15.00
Waterbewaring- en aanvraagbestuur 821 (EWM 821) - Krediete: 15.00
Watervoorsiening en sanitasie 822 (EWM 822) - Krediete: 15.00

MSc Wetenskaponderwys (02250445)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This programme is offered by the Centre for Science, Mathematics and Technology Education. Students are registered in a discipline department. The MSc (Science Education) is designed for educators who wish to pursue their postgraduate studies in both a scientific discipline and in science education. Science, in this context, is interpreted in its broadest sense, and includes the physical, biological and earth sciences, as well as mathematics and technology.

At the end of this programme the student will be capable of doing research in both scientific and educational disciplines. Candidates achieve an adequate background to pursue further qualifications in either content disciplines or the discipline of Science Education.

Related master’s degree: MSc in Mathematics Education.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student

Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

Verwys na regulasie Sc 9.1 in die Regulasies van die Fakulteit Natuur- en Landbouwetenskappe (Voorgraads) sowel as die Algemene Regulasies G.30 tot G.44.

Ander programspesifieke inligting

Postgraduate modules may be required by the head of the department concerned. The dissertation will be supervised jointly by the Centre for Science Education and a discipline department.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Chemie 890 (CHM 890) - Krediete: 180.00

MSc Wiskunde (02250185)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The candidate must complete a dissertation in one of the fields of Mathematics in which research is actively being done in the Department.

The programme consists of 180 credits all allocated to the dissertation. If deemed necessary and depending on the candidate’s academic background and the scope of the study, additional requirements will be set. These

additional requirements are non-credit bearing and will be assessed. The composition of the additional requirements is to be decided in consultation with the supervisor and Head of Department or nominated representative. The successful completion of any additional requirements is mandatory and forms part of the degree requirements.

Full details of the compilation of the curriculum, research fields and names of possible superviors are available in the departmental postgraduate brochure at: http://www.up.ac.za/maths/postgrad

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- An appropriate BScHons degree with a minimum of 60% for all modules at honours level. In the selection procedure the candidate's complete undergraduate and honours academic record will be considered. In particular it is strongly recommended that the following modules be included at honours level: Measure and integration theory, Functional analysis, Topology and Algebra.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Ander programspesifieke inligting

The minimum duration for this degree is one year. Subject to other faculty regulations, a student for a master's degree must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited fixed extension of this period. (Also see the General Regulations.)

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Wiskunde 890 (WIS 890) - Krediete: 180.00

MSc Wiskunde van Finansies (02250186)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The candidate must complete a dissertation in one of the fields of Mathematics of Finance in which research is actively being done in the Department.
The programme consists of 180 credits all allocated to the dissertation. If deemed necessary and depending on the candidate's academic background and the scope of the study, additional requirements will be set. These additional requirements are non-credit bearing and will be assessed. The composition of the additional requirements is to be decided in consultation with the supervisor and Head of Department or nominated representative. The successful completion of any additional requirements is mandatory and forms part of the degree requirements.

Full details of the compilation of the curriculum, research fields and names of possible supervisors are available in the departmental postgraduate brochure at: www.up.ac.za/maths/postgrad

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- An appropriate BScHons degree with a minimum of 60% for all modules at honours level. In the selection procedure the candidate's complete undergraduate and honours academic record will be considered. In particular it is required that the following modules be included at honours level: Measure and integration theory, Functional analysis and Financial mathematics/Financial engineering.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Ander programspesifieke inligting

The mimimum duration for this degree is normally one year. Subject to other faculty regulations, a student for a master's degree must complete his or her studies within three years after first registering for the degree. Under

special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited fixed extension of this period. (Also see the General Regulations.)

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Wiskunde van Finansies 892 (WTW 892) - Krediete: 180.00

MSc Wiskunde-Onderwys (02250187)

Minimum duur van studie	1 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The candidate must complete a dissertation in one of the fields of Mathematics Education in which research is actively being done in the Department.

The programme consists of 180 credits all allocated to the dissertation. If deemed necessary and depending on the candidate’s academic background and the scope of the study, additional requirements will be set. These additional requirements are non-credit bearing and will be assessed. The composition of the additional requirements is to be decided in consultation with the supervisor and Head of Department or nominated representative. The successful completion of any additional requirements is mandatory and forms part of the degree requirements.

Full details of the compilation of the curriculum are available in the departmental postgraduate brochure at: http://www.up.ac.za/maths/postgrad

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student

Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- An appropriate BScHons degree with a minimum of 60% for all modules at honours level. In the selection procedure the candidate's complete undergraduate and honours academic record will be considered. In particular it is strongly recommended that the following modules be included on honours level: Measure and integration theory and Functional analysis.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Ander programspesifieke inligting

The minimum duration for this degree is one year. Subject to other faculty regulations, a student for a master's degree must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited fixed extension of this period. (Also see the General Regulations.)

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Wiskunde-Onderwys 893 (WTW 893) - Krediete: 180.00

MSc Wiskundige Statistiek (Gedoseer) (02250192)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Details of compilation of curriculum are available from the Head of the Department of Statistics as well as from the departmental postgraduate brochure.

A candidate must compile his/her curriculum in consultation with the head of department or his representative. Refer to the Departmental website for further information.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- 'n toepaslike honneursgraad in Wiskundige Statistiek word vereis.
- Vir MSc (Wiskundige Statistiek) 'n gemiddelde punt van 65 % of meer in die BScHons in Wiskundige Statistiek.
- Studente van ander geakkrediteerde instellings moet voldoen aan dieselfde vereistes gebaseer op ekwivalent modelle op hul instellings. Daarbenewens studente van ander geakkrediteerde instellings moet ook ' n ingang evaluering.
- Student getalle is beperk tot 'n maksimum van 20 , gesamentlik oor al meester " s programme in die Departement van Statistiek.
- Toelating is ook onderhewig aan die beskikbaarheid van 'n geskikte studieleier vir die studie.
- Historiese prestasie gedurende vorige studies sal ook oorweeg word in studente kies . Spesifieke aandag sal gegee word aan modules herhaal en duur van studie.
- Die navorsingsvoorstel van kandidate moet in lyn wees met die navorsingsfokus van die departement.
- Enige verdere addisionele toelatingsvereistes soos deur die departementshoof in oorleg met die departementele nagraadse keurkomitee.
- Die hoof van die departement , in oorleg met die departementele nagraadse keurkomitee behou die reg om addisionele modules voor te skryf.

Ander programspesifieke inligting

As long as progress is satisfactory, renewal of registration of a master's student will be accepted for a second year of study in the case of a full-time student. Renewal of registration for a third and subsequent years for a full-time student will only take place when Student Administration of the Faculty receives a written motivation (the required form can be obtained from the Head of Department) that is supported by the Head of Department and Postgraduate Studies Committee. (Also see the General Regulations.)

Details of compilation of curriculum are available from the Head of the Department of Statistics as well as from the departmental postgraduate brochure.

A candidate must compile his/her curriculum in consultation with the head of department or his representative. Refer to the Departmental website for further information.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.

Kurrikulum: Jaar 1

Minimum krediete: 80

Fundamentele modules

Navorsingsoriëntasie 899 (STK 899) - Krediete: 0.00

Keusemodules

Meerveranderlike analise 880 (MVA 880) - Krediete: 20.00
Capita selecta: Statistiek 880 (STK 880) - Krediete: 20.00
Tydreeksanalise 880 (TRA 880) - Krediete: 20.00
Toegepaste regressie-analise 880 (TRG 880) - Krediete: 20.00
Kuber ontledings tegnieke 802 (WST 802) - Krediete: 20.00

Kurrikulum: Finale jaar

Minimum krediete: 100

Fundamentele modules

Navorsingsoriëntasie 899 (STK 899) - Krediete: 0.00

Kernmodules

Miniverhandeling: Wiskundige statistiek 895 (WST 895) - Krediete: 100.00

MScAgric Agronomie (02255010)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Residence

On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

A four-year Applied Plant Sciences degree or equivalent qualification with a minimum average of 60% is required for admission.

In addition, a motivation letter reflecting research interest should accompany the application form.

Note:

- Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

Addisionele vereistes

In addition to the set admission requirements, a motivation letter reflecting research interest should accompany the application form. Selection of students will be based on academic performance, the motivation letter, available supervisory capacity and research project funding.

Ander programspesifieke inligting

Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules
Verhandeling: Agronomie 890 (AGR 890) - Krediete: 180.00

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Verhandeling: Agronomie 890 (AGR 890) - Krediete: 180.00

MScAgric Entomologie (02255003)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes
In bykomend tot die bepalings van Algemene Regulasies G.1.3 en G.62 die BScAgric -graad is 'n voorvereiste vir toelating. 'N gemiddeld van 60 % word vereis om in die finale jaar van die graad BScAgric vir toelating . Bykomende vereistes en voorwaardes kan deur die Dekaan voorgeskryf word op aanbeveling van die departementshoof en studieleier.Toelating deur die Nagraadse Studies goedgekeur in oorleg met die departementshoof en studieleier.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with,

the examinations in the major subject/s, unless the Faculty Board decides otherwise.

ii. General Regulation G.12.2 applies to the calculation of marks.

iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Verhandeling: Entomologie 890 (ENT 890) - Krediete: 180.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Entomologie 890 (ENT 890) - Krediete: 180.00

MScAgric Genetika (02255005)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Residence

On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum

Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- 'n Toepaslike graad BScAgric , met 'n finale graad punt gemiddeld van ten minste 60 %, of op aanbeveling van die Hoof van die Departement . Voorkeur sal aan aansoekers met die hoogste finale graad punt gemiddeld vir hul voorafgaande graad en kwalifiserende aansoekers gegee word , kan 'n ingang evaluering ondersoek onderwerp word . Toegang is verder afhanklik van die beskikbaarheid van studieleiers en / of navorsingsprojekte binne die Departement.

Ander programspesifieke inligting

Students registered for the MScAgric programme will be required to complete ancillary modules concurrently with the abovementioned dissertation during their first year of registration. These modules will be selected from the Genetics honours modules (700-level). Candidates in possession of a BScAgricHons may be exempted from these modules.

Note: Additional modules may be prescribed by the head of department where deemed necessary.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Verhandeling: Genetika 890 (GTK 890) - Krediete: 180.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Genetika 890 (GTK 890) - Krediete: 180.00

MScAgric Grondkunde (02255012)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Residence

On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and

Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

A four-year Applied Soil Science degree or equivalent qualification with a minimum average of 60% is required for admission.

In addition, a motivation letter reflecting research interest should accompany the application form.

Ander programspesifieke inligting

Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1
Minimum krediete: 180

Kernmodules
Verhandeling: Grondkunde 890 (GDK 890) - Krediete: 180.00

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Verhandeling: Grondkunde 890 (GDK 890) - Krediete: 180.00

MScAgric Landbou-ekonomie (Gedoseer) (02255001)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- A BScAgric -graad met hoofvak in landbou-ekonomie en 60 % gemiddeld in die finale jaar.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Ekonometrie 713 (EKT 713) - Krediete: 15.00
Ekonometrie 723 (EKT 723) - Krediete: 15.00
Applied econometrics 810 (LEK 810) - Krediete: 15.00
Production economics 811 (LEK 811) - Krediete: 15.00
Toegepaste mikro-ekonomie 815 (LEK 815) - Krediete: 15.00
Institusionele ekonomie 882 (LEK 882) - Krediete: 15.00
Mikro-ekonomie 780 (MIE 780) - Krediete: 15.00

Kurrikulum: Finale jaar

Minimum krediete: 120

Kernmodules

Verhandeling: Landbou-ekonomie 890 (LEK 890) - Krediete: 180.00

MScAgric Landbouvoorligting (02255014)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Residence

On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum

Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- 'n Vierjaar BScAgric -graad in enige veld van spesialisasie.
- Voltooiing van die BAgricHons (Uitbreiding) of ten minste 120 krediete van relevante Uitbreiding modules op nagraadse vlak (honneursvlak) met 'n gemiddeld van 60 %.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1
Minimum krediete: 180

Kernmodules
Verhandeling: Agrariese Voorligting 890 (AGV 890) - Krediete: 180.00

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Verhandeling: Agrariese Voorligting 890 (AGV 890) - Krediete: 180.00

MScAgric Plantpatologie (02255006)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligtig is slegs in Engels beskikbaar.

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes
- In bykomend tot die bepalings van Algemene Regulasies G.1.3 en G.62 die BScAgric -graad is 'n voorvereiste vir toelating. 'n Gemiddeld van 60 % word vereis om in die finale jaar van die graad BScAgric vir toelating . Bykomende vereistes en voorwaardes kan deur die Dekaan voorgeskryf word op aanbeveling van die departementshoof en studieleier . Toelating deur die Nagraadse Studies goedgekeur in oorleg met die departementshoof en studieleier.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Verhandeling: Plantpatologie 890 (PPT 890) - Krediete: 180.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Plantpatologie 890 (PPT 890) - Krediete: 180.00

MScAgric Tuinboukunde (02255002)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- A four-year Applied Plant Science degree or equivalent qualification with a minimum average of 60% is required for admission.
- In addition, a motivation letter reflecting research interest should accompany the application form.

Addisionele vereistes

A motivation letter reflecting research interest should accompany the application form. Selection of students will be based on academic performance, the motivation letter, available supervisory capacity and research project funding.

Ander programspesifieke inligting

Note: Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Verhandeling: Tuinboukunde 890 (TBK 890) - Krediete: 180.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Tuinboukunde 890 (TBK 890) - Krediete: 180.00

MScAgric Veekunde Diereteling en Genetika (02255013)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The curriculum consists of the following:
A dissertation of 180 credits; or
A dissertation of 150 credits and advanced study in the major subject/s, augmented by ancillary modules to the maximum of 30 credits that may be prescribed by the Dean on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- Die minimum toelatingsvereistes is 'n BScAgric -graad met spesialisering in Veekunde of 'n ekwivalente toepassing graad met 'n minimum geweegde gemiddelde van 60 % vir modules in die betrokke spesialiseringsrigting in die vierde jaar van studie.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1
Minimum krediete: 180

Kernmodules
Verhandeling: Veekunde 890 (VKU 890) - Krediete: 180.00

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Verhandeling: Veekunde 890 (VKU 890) - Krediete: 180.00

MScAgric Veekunde Dierevoeding (02255008)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The curriculum for the MScAgric degree (Animal Science) (Animal Nutrition) consists of the following:

A dissertation of 180 credits; or
A dissertation of 150 credits and advanced study in the major subject/s, augmented by ancillary modules to the maximum of 30 credits that may be prescribed by the Dean on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- Die minimum toelatingsvereistes is 'n BScAgric -graad met spesialisering in Veekunde of 'n ekwivalente toepassing graad met 'n minimum geweegde gemiddelde van 60 % vir modules in die betrokke spesialiseringsrigting in die vierde jaar van studie.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the

examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1
Minimum krediete: 180

Kernmodules
Verhandeling: Veekunde 890 (VKU 890) - Krediete: 180.00

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Verhandeling: Veekunde 890 (VKU 890) - Krediete: 180.00

MScAgric Veekunde Produksiefisiologie en Produkkwaliteit (02255007)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The curriculum for the MScAgric degree consists of a dissertation of 180 credits.

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- Die minimum toelatingsvereistes is 'n BScAgric -graad met spesialisering in Veekunde of 'n ekwivalente toepassing graad met 'n minimum geweegde gemiddelde van 60 % vir modules in die betrokke

spesialiseringsrigting in die vierde jaar van studie.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Verhandeling: Veekunde 890 (VKU 890) - Krediete: 180.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Veekunde 890 (VKU 890) - Krediete: 180.00

MScAgric Veekunde Veeproduksie en ekologie (02255009)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The curriculum consists of the following:
A dissertation of 180 credits; or
A dissertation of 150 credits and advanced study in the major subject/s, augmented by ancillary modules to the maximum of 30 credits that may be prescribed by the Dean on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and

b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- Die minimum toelatingsvereistes is 'n BScAgric -graad met spesialisering in Veekunde of 'n ekwivalente toepassing graad met 'n minimum geweegde gemiddelde van 60 % vir modules in die betrokke spesialiseringsrigting in die vierde jaar van studie.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1
Minimum krediete: 180

Kernmodules
Verhandeling: Veekunde 890 (VKU 890) - Krediete: 180.00

Kurrikulum: Finale jaar
Minimum krediete: 180

Kernmodules
Verhandeling: Veekunde 890 (VKU 890) - Krediete: 180.00

MScAgric Weidingkunde (02255011)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Residence
On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration
As long as progress is satisfactory, renewal of the registration of a master’s student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student

Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum
Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following:
a. A dissertation; and
b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

A four-year Applied Plant/Animal Science degree or equivalent qualification with a minimum average of 60% is required for admission.

In addition, a motivation letter reflecting research interest should accompany the application form.

Note:

- Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

Addisionele vereistes

Selection of students will be based on academic performance, the motivation letter, available supervisory capacity and research project funding.

Ander programspesifieke inligting

Note: Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

Eksamens en slaagvereistes

i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
ii. General Regulation G.12.2 applies to the calculation of marks.
iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.

Kurrikulum: Jaar 1

Minimum krediete: 180

Kernmodules

Verhandeling: Weidingkunde 890 (WDE 890) - Krediete: 180.00

Kurrikulum: Finale jaar

Minimum krediete: 180

Kernmodules

Verhandeling: Weidingkunde 890 (WDE 890) - Krediete: 180.00

Doktoraal

PhD Agronomie (02260803)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This programme is coordinated in the Department of Plant Production and Soil Science.

In addition to further theoretical studies as prescribed by the head(s) of the relevant department(s), the study will involve a doctoral research thesis under guidance of a supervisor selected by the head of the department. The supervisor will be a member of the Faculty staff.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has

demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

- MScAgric (Agronomy) or other applicable research master's qualification with a pass mark of at least 60% for the dissertation component.
- In addition to meeting the admission requirements, a research proposal should accompany the application form.

Addisionele vereistes

In addition to meeting the admission requirements, a research proposal should accompany the application form. Selection of students will be based on academic performance, the written research proposal, available supervisory capacity and research project funding.

Ander programspesifieke inligting

Depending on the academic background of the student and the chosen area of study, it may be required of the student to do additional coursework.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Agronomie 990 (AGR 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Agronomie 990 (AGR 990) - Krediete: 360.00

PhD Aktuariële Wetenskap (02260772)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

A candidate must complete a thesis in one of several fields in which research is actively being done in the Department.

The programme consists of a thesis. Additional modules (as approved by the postgraduate coordinator) may be required depending on the candidate's background and the scope of the study. The research fields and the names of possible supervisors are available from the department at www.up.ac.za/actuarial.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head

of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

An appropriate master's degree is required for admission to doctoral study in actuarial science. The programme composition of the master's degree must have included a substantial research component that led to a dissertation reflecting originality either in the content or in the presentation. In the selection procedure the candidate's complete honours and master's academic records will be considered.

Admission is also subject to the availability of a suitable supervisor for the study.

Ander programspesifieke inligting

The minimum duration for this degree is two years. Subject to other faculty regulations, a student for a doctoral degree must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited fixed extension of this period. (In accordance with General Regulations G.47 and G.51.)

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Bevordering tot volgende studiejaar

The progress of all doctoral candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate’s study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Proefskrif: Aktuariële wetenskap 990 (AKW 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrif: Aktuariële wetenskap 990 (AKW 990) - Krediete: 360.00

PhD Biochemie (02260442)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).

iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Projek en proefskrif 990 (BCM 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Projek en proefskrif 990 (BCM 990) - Krediete: 360.00

PhD Bioinformatika (02261020)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since

registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Bioinformatika 990 (BIF 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Bioinformatika 990 (BIF 990) - Krediete: 360.00

PhD Biotegnologie (02261021)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This is an interdepartmental programme.
The curriculum is to be determined by the heads of the participating departments. Please consult with Prof P Bloomer, Tel: 012 420 3259, for further details.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on

campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for

approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

An appropriate MSc degree, with a final grade point average of at least 60%, or on recommendation by the Head of Department, and contingent upon the availability of supervisors and/or research projects within the participating department.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Agronomie 990 (AGR 990) - Krediete: 360.00
Projek en proefskrif 990 (BCM 990) - Krediete: 360.00
Proefskrif: Plantkunde 990 (BOT 990) - Krediete: 360.00
Proefskrif: Genetika 990 (GTK 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Agronomie 990 (AGR 990) - Krediete: 360.00
Projek en proefskrif 990 (BCM 990) - Krediete: 360.00
Proefskrif: Plantkunde 990 (BOT 990) - Krediete: 360.00
Proefskrif: Genetika 990 (GTK 990) - Krediete: 360.00

PhD Bosbouwetenskap (02260802)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This is an interdepartmental programme. The curriculum is to be determined by the heads of department in the biological sciences.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).

iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Bosbouwetenskap 990 (FOR 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Bosbouwetenskap 990 (FOR 990) - Krediete: 360.00

PhD Chemie (02260453)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since

registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Chemie 990 (CHM 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Chemie 990 (CHM 990) - Krediete: 360.00

PhD Diereproduksiebestuur (02260548)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This programme is coordinated in the Department of Animal and Wildlife Sciences.

In addition to further theoretical studies as prescribed by the head(s) of the relevant department(s), the study will involve a doctoral research thesis under guidance of a supervisor selected by the head of the department. The supervisor will be a member of the Faculty staff.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for

consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

Die minimum toelatingsvereistes is 'n MAgric of MScAgric in Diere Produksie of 'n ekwivalente kwalifikasie.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Diereproduksie 990 (APZ 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Diereproduksie 990 (APZ 990) - Krediete: 360.00

PhD Dierkunde (02260462)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

- In addition to the requirements of General Regulations G.1.3 and G.62 an appropriate MSc degree is a prerequisite for admission to PhD studies. Additional requirements and conditions can be specified by the Dean on the recommendation of the Head of Department and the supervisor.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Dierkunde 990 (ZOO 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Dierkunde 990 (ZOO 990) - Krediete: 360.00

PhD Eksplorasiegeofisika (02260532)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Eksplorasie geofisika 990 (EGF 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Eksplorasie geofisika 990 (EGF 990) - Krediete: 360.00

PhD Entomologie (02260242)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

- In addition to the requirements of General Regulations G.1.3 and G.62 the MSc MScAgric MInstAgrar or other appropriate degree is a prerequisite for admission to PhD studies. Additional requirements and conditions can be specified by the Dean on the recommendation of the Head of Department and the supervisor.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Entomologie 990 (ENT 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Entomologie 990 (ENT 990) - Krediete: 360.00

PhD Fisika (02260482)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years

after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration

of study and the requirements to submit an article/s for publication.

Ander programspesifieke inligting

Additional modules may be prescribed by the head of department. The contents of the coursework will be determined by the supervisor and head of department to supplement the subject of the thesis of the student.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Proefskrif: Fisika 990 (FSK 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrif: Fisika 990 (FSK 990) - Krediete: 360.00

PhD Genetika (02260502)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration

Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head

of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

An appropriate MSc degree, with a final grade point average of at least 60%, or on recommendation by the Head of Department, and contingent upon the availability of supervisors and/or research projects within the Department.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Proefskrif: Genetika 990 (GTK 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrif: Genetika 990 (GTK 990) - Krediete: 360.00

PhD Geografie (02260513)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration

Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head

of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Geografie 990 (GGF 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Geografie 990 (GGF 990) - Krediete: 360.00

PhD Geoinformatika (02260514)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.

ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Geoinformatika 990 (GIS 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Geoinformatika 990 (GIS 990) - Krediete: 360.00

PhD Geologie (02260523)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Geologie 990 (GLG 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Geologie 990 (GLG 990) - Krediete: 360.00

PhD Grondkunde (02260805)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.

c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

- MScAgric (Soil Science) or other applicable research master's qualification with a pass mark of at least 60% for the dissertation component.
- In addition to meeting the admission requirements, a research proposal should accompany the application form.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Grondkunde 990 (GDK 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Grondkunde 990 (GDK 990) - Krediete: 360.00

PhD Ingenieurs- en Omgewingsgeologie Hidrogeologie (02260524)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's

completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.

c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrip: Hidrogeology 990 (GTX 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrip: Hidrogeology 990 (GTX 990) - Krediete: 360.00

PhD Ingenieurs- en Omgewingsgeologie (02260547)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration

Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum

The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study

The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having

completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Ingenieursgeologie 990 (IGL 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Ingenieursgeologie 990 (IGL 990) - Krediete: 360.00

PhD Ingenieursgeologie (02260546)

Minimum duur van studie	2 jaar

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Proefskrif: Ingenieursgeologie 990 (IGL 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrif: Ingenieursgeologie 990 (IGL 990) - Krediete: 360.00

PhD Landbou-ekonomie (02261030)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This programme consists of a thesis and an oral examination.
All students need to follow a preparatory programme for the thesis which is not part of the degree programme. This preparatory programme should at least cover the following modules or their equivalents:

- Any two modules in economic or applied economic theory (eg Microeconomics or Macroeconomics)
- One module in quantitative methods (Econometrics, Applied econometrics, Quantitative methods, or Partial equilibrium modelling)
- One module in the field of specialisation (institutional economics, science and technology policy, food policy, etc)

If these modules or their equivalents have been completed sucessfully and a PhD proposal has been presented succesfully to and approved by the Department's postgraduate committee, the student may proceed to the research phase and the thesis. Students can be exempted from this preparatory programme if equivalent modules are completed at other universities and students could provide evidence that these prerequisites have been met.
For students with an MInstAgrar or similar qualification, additional modules might be recommended in order to ensure that the candidates' quantitative abilities are at the same level as someone entering the programme with an MScAgric.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for

consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Tesis: Landbou-ekonomie 991 (LEK 991) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Tesis: Landbou-ekonomie 991 (LEK 991) - Krediete: 360.00

PhD Landelike Ontwikkeling (02260901)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

In addition to further theoretical studies as prescribed by the head(s) of the relevant department(s), the study will involve a doctoral research thesis under guidance of a supervisor selected by the head of the department. The supervisor will be a member of the Faculty staff.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Tesis: Landelike ontwikkeling 990 (ARD 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Tesis: Landelike ontwikkeling 990 (ARD 990) - Krediete: 360.00

PhD Lugkwaliteitbestuur (02261045)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Coordinated by the Department of Geography, Geoinformatics and Meteorology.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

The extensions to the National Environmental Management Act (NEMA) promulgated after 2005 affect environmental management in South Africa in a profound way. In particular, the Air Quality Act brings South African legislation into line with international trends. The metro councils are charged with the responsibility of implementing the Act at the local level. In addition, companies need appropriate expertise to obtain licenses for their air quality management plans. This focus area serves to provide suitable expertise for the implementation of the above legislation by industry by training graduates specialised for careers in air quality management. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning the legislative requirements with respect to air quality management, modelling of and measurement of air pollution and the interpretation of pollution plumes, the measurement and interpretation of chemical air pollution as well as dust pollution, international agreements and requirements as well as the effects of air pollution on humans.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information

provided by the candidate in his/her reports (items (i) and (ii)).

iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskr: Lugkwaliteitbestuur 998 (ENV 998) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskr: Lugkwaliteitbestuur 998 (ENV 998) - Krediete: 360.00

PhD Medisinale Plantwetenskap (02260800)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.

v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this

in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

- MSc in Medicinal Plant Science or an MSc in Plant Science 60% or a recommendation from the head of department. A minimum of 60% is required in the compulsory modules BOT 761, BOT 748 and BOT 749 which are offered at honours level in the Department of Plant and Soil Science.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Medisinale plantwetenskap 990 (MPS 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Medisinale plantwetenskap 990 (MPS 990) - Krediete: 360.00

PhD Meteorologie (02260632)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.

iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the

department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Meteorologie 990 (AWM 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Meteorologie 990 (AWM 990) - Krediete: 360.00

PhD Mikrobiologie (02260562)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on

campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for

approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Mikrobiologie (MBY 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Mikrobiologie (MBY 990) - Krediete: 360.00

PhD Natuurlewebestuur (02260662)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskibaar.

Research project with thesis only.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years

after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration

of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Natuurlewebestuur 990 (NLB 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Natuurlewebestuur 990 (NLB 990) - Krediete: 360.00

PhD Omgewing en Samelewing (02261040)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

The programme is coordinated by the Department of Geography, Geoinformatics and Meteorology.

The purpose of this focus area is to train environmental graduates who specialised in careers in the humanities. On completion of the training, candidates should be conversant and be able to partake in, or render advice concerning, all aspects involved in the management of human-environment interactions. This includes social impact assessments, policy formulation, social development and planning, participatory appraisal assessments, demographic pattern and trend interpretations, resource appraisals and management.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for

consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Omgewing en samelewing 991 (ENV 991) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Omgewing en samelewing 991 (ENV 991) - Krediete: 360.00

PhD Omgewingsbestuur (02261042)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The Centre for Environmental Studies is a graduate school for multidisciplinary training and research focusing on the environment. Training aims to satisfy the need for environmental professionals for implementing current environmental legislation as well as industry-driven environmental management systems.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Omgewingsbestuur 994 (ENV 994) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Omgewingsbestuur 994 (ENV 994) - Krediete: 360.00

PhD Omgewingsekonomie (02261041)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This programme is coordinated in the Department of Agricultural Economics, Extension and Rural Development.

All students need to follow a preparatory programme for the thesis which is not part of the degree programme. This preparatory programme should at least cover the following modules or their equivalents:

- Any two modules in economic or applied economic theory (e.g. Microeconomics or Macroeconomics)
- One module in quantitative methods (Econometrics, Applied econometrics, Quantitative methods, or Partial equilibrium modelling
- One module in the field of specialisation (institutional economics, science and technology policy, food policy, etc)

If these modules or their equivalents are successfully completed and a PhD proposal has been successfully presented and approved by the Department's postgraduate committee, the student may proceed to the research phase and the thesis. Students can be exempted from this preparatory programme if equivalent modules are completed at other universities and students could provide evidence that these prerequisites have been met.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.

ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the

candidate as a potential doctoral candidate is confirmed.

v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Omgewingsekonomie 993 (ENV 993) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Omgewingsekonomie 993 (ENV 993) - Krediete: 360.00

PhD Plantkunde (02260801)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for

consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

- MSc in Plant Science or an MSc in Medicinal Plant Science 60% or a recommendation from the head of department.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Plantkunde 990 (BOT 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Plantkunde 990 (BOT 990) - Krediete: 360.00

PhD Plantpatologie (02261070)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for

consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Plantpatologie 990 (PPT 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Plantpatologie 990 (PPT 990) - Krediete: 360.00

PhD Tuinboukunde (02260806)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years

after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration

of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

- MScAgric (Horticultural Science) or other applicable research master's qualification with a pass mark of at least 60% for the dissertation component.
- In addition to meeting the admission requirements, a research proposal should accompany the application form.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Proefskrif: Tuinboukunde 990 (TBK 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrif: Tuinboukunde 990 (TBK 990) - Krediete: 360.00

PhD Veekunde (02261050)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The curriculum for the PhD degree programme consists of the following:

1. A theoretical knowledge of the major subject/s and such additional modules as may be prescribed (Animal science modules at 800-level).
2. A thesis.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since

registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Veekunde 990 (VKU 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Veekunde 990 (VKU 990) - Krediete: 360.00

PhD Verbruikerswetenskap Ontwikkeling (02263007)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration

Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum

The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study

The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Ander programspesifieke inligting

It may be required from the student to do additional coursework.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Proefskrif: Verbruikerswetenskap 990 (VBR 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrif: Verbruikerswetenskap 990 (VBR 990) - Krediete: 360.00

PhD Verbruikerswetenskap Voedselbestuur (02263008)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration

Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head

of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Ander programspesifieke inligting

It may be required from the student to do additional coursework.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Proefskrif: Verbruikerswetenskap 990 (VBR 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrif: Verbruikerswetenskap 990 (VBR 990) - Krediete: 360.00

PhD Verbruikerswetenskap Interieurwarebestuur (02263005)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration

Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Ander programspesifieke inligting

It may be required from the student to do additional coursework.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Proefskrif: Verbruikerswetenskap 990 (VBR 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrif: Verbruikerswetenskap 990 (VBR 990) - Krediete: 360.00

PhD Verbruikerswetenskap Kledingbestuur (02263006)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration

Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Verbruikerswetenskap 990 (VBR 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Verbruikerswetenskap 990 (VBR 990) - Krediete: 360.00

PhD Voedingkunde (02260742)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Candidates must write a thesis on their research project in Nutrition and have at least a research paper accepted for publication in a peer-reviewed scientific journal.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum

The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

- In addition to the requirements of General Regulations G.1.3 and G.62, the MSc, MScAgric, MInstAgrar or other

appropriate degree is a prerequisite for admission to PhD studies. Additional requirements and conditions can be specified by the Dean on the recommendation of the head of department and the supervisor.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.
- International qualifications have to be evaluated by SAQA.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Voeding 990 (VDG 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Voeding 990 (VDG 990) - Krediete: 360.00

PhD Voedselwetenskap (02261060)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

The degree is awarded based on a thesis and other requirements as follows: Candidates must write a thesis on their research project in Food Science and have at least a research paper accepted for publication in a peer-reviewed scientific journal.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration

Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum

The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study

The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Voedselwetenskap 990 (FST 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Voedselwetenskap 990 (FST 990) - Krediete: 360.00

PhD Voorligting (02260900)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligiting is slegs in Engels beskikbaar.

The programme consists of:

- Original research leading to a thesis
- An examination on the thesis

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years

after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration

of study and the requirements to submit an article/s for publication.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Voorligting 990 (AGV 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Voorligting 990 (AGV 990) - Krediete: 360.00

PhD Waterhulpbronbestuur (02261043)

Minimum duur van studie	2 jaar

Programinligting
Hierdie inligting is slegs in Engels beskikbaar.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Ander programspesifieke inligting

Additional possible electives in Environmental studies
Any module at master's level in either diplomatic studies or political policy studies as approved by the Head of

the Department of Political Sciences and the Director of the Centre for Environmental Studies.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Waterhulpbronbestuur 990 (ENV 990) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Waterhulpbronbestuur 990 (ENV 990) - Krediete: 360.00

PhD Weidingkunde (02260804)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

This programme is coordinated in the Department of Plant and Soil Science.

In addition to further theoretical studies as prescribed by the head(s) of the relevant department(s), the study will involve a doctoral research thesis under guidance of a supervisor selected by the head of the department. The supervisor will be a member of the Faculty staff.

Duration of studies
The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.
iv. At least two years after complying with all the requirements for a master’s degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years

after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration

of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

MScAgric (Animal/Pasture Science) or applicable research master's qualification with a pass mark of at least 60% for the dissertation component. In addition, a research proposal should accompany the application form.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Proefskrif: Weidingkunde 990 (WDE 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrif: Weidingkunde 990 (WDE 990) - Krediete: 360.00

PhD Wetenskap- en Wiskundeonderwys (02260754)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

The programme is designed for science educators at all levels who wish to pursue their postgraduate studies in science education but closely allied with a scientific discipline. Science, in this context, is interpreted in its broadest sense, and includes the physical, biological and earth sciences, as well as mathematics and technology.

At the end of this programme the student will be capable of doing independent research within the values and approaches of the sciences, and their impact and role in the broader social and economic environment with an educational focus.

For admission to the PhD in Science and Mathematics Education, the programme composition of the master’s degree must have included a reasonable research component that led to a dissertation.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor’s degree.
ii. At least three years after complying with all the requirements for a four-year bachelor’s degree.
iii. At least two years after complying with all the requirements for a bachelor’s degree of five years or more.

iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration
Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum
The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study
The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the

department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

- A candidate must demonstrate expertise in education research methodology (including relevant statistical methods) and in current thinking in the field with the understanding that a candidate who does not satisfy the required level of expertise may be admitted on condition that additional agreed study assignments are completed and/or examinations passed.
- The status of a master's degree, subject to faculty regulations as well as the General Regulations.
- Admission is additionally dependent on availability of supervisor/s and/or projects within the department.

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Kurrikulum: Jaar 1
Minimum krediete: 360

Kernmodules
Proefskrif: Wetenskaponderwys 990 (SCE 990) - Krediete: 360.00
Proefskrrif: Wiskunde-Onderwys 993 (WTW 993) - Krediete: 360.00

Kurrikulum: Finale jaar
Minimum krediete: 360

Kernmodules
Proefskrif: Wetenskaponderwys 990 (SCE 990) - Krediete: 360.00
Proefskrrif: Wiskunde-Onderwys 993 (WTW 993) - Krediete: 360.00

PhD Wiskundige Statistiek (02260612)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

A candidate must complete a thesis in one of several fields in Applied Statistics or Mathematical Statistics in which research is actively being done within the Department. Details are available from the Head of Department of Statistics as well as in the departmental brochure. Refer to the Departmental website for further information.

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration

Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum

The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study

The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.
c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at

conferences and of material that has been submitted for publication and/or published.

ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Ander programspesifieke inligting

Subject to other faculty regulations, a student for a doctoral degree must complete his or her studies within four years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited fixed extension of this period. (Also see the General Regulations.)

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Bevordering tot volgende studiejaar

The progress of all doctoral candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate’s study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Navorsingsoriëntasie 911 (STK 911) - Krediete: 0.00
Proefskrif: Wiskundige statistiek 990 (WST 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Navorsingsoriëntasie 911 (STK 911) - Krediete: 0.00
Proefskrif: Wiskundige statistiek 990 (WST 990) - Krediete: 360.00

PhD Wiskundige Wetenskappe (02260762)

Minimum duur van studie	2 jaar

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

A candidate must complete a thesis in one of several fields in which research is actively being done in the Department. The research fields and the names of possible supervisors are available from the departmental postgraduate brochure at: www.up.ac.za/maths/postgrad

Duration of studies

The doctorate is conferred on a student only if one of the following periods has expired:

i. At least four years after complying with all the requirements for a three-year bachelor's degree.
ii. At least three years after complying with all the requirements for a four-year bachelor's degree.
iii. At least two years after complying with all the requirements for a bachelor's degree of five years or more.
iv. At least two years after complying with all the requirements for a master's degree.
v. With the exception of a shorter period that may be approved by the Dean, at least 12 months since registration for the doctorate at this University has expired.

The head of department may set specific residential requirements for students who are required to live on campus.

Renewal of registration

Subject to other faculty regulations, a student for a doctorate must complete his or her studies within three years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the head of department or the Postgraduate Committee, may give approval for a limited fixed extension of this period.

Curriculum

The curriculum for the PhD degree consists of the following:

i. Theoretical knowledge of the major subject/s and such additional modules as may be prescribed.
ii. A thesis.

Conversion of a master's to doctoral study

The stipulations of G.41 apply as follows:

1. Requirements

a. Under special circumstances, the dean of a faculty may convert the registration of a candidate for the master's degree to registration for a doctoral degree.
b. For such conversions, the head of department and the supervisor must be satisfied that the student's completed work is of the standard that would be expected of a doctoral student, that the student is capable

of completing a doctoral degree, and that the project is of appropriate standard and scope to constitute a doctoral study.

c. For such conversions, the head of department and the supervisor must be satisfied that the student has demonstrated that he or she has the potential to fulfil the requirements of a doctoral degree without having completed a master's degree.

2. Process

a. Application for conversion may be submitted at any time during the course of study for the master's degree.
b. The application for the conversion must include the following documentation:

i. A detailed progress report by the candidate of the work completed for the master's project. The report must provide proof that the results obtained thus far are of such a standard and scientific significance that they justify conversion to a doctoral project. The report should include details of presentations made at conferences and of material that has been submitted for publication and/or published.
ii. A detailed proposal for the intended doctoral project, written by the candidate, including the objectives of the project.
iii. A recommendation by the supervisor with specific comments on the ability of the applicant as a potential doctoral candidate as well as the feasibility of the conversion, especially with regard to the information provided by the candidate in his/her reports (items (i) and (ii)).
iv. A recommendation by the head of department, if he or she is not the supervisor, in which the ability of the candidate as a potential doctoral candidate is confirmed.
v. If the dean considers it advisable for the faculty, the candidate may be required to present a seminar to the department in support of the application. In this case, the head of department should include a report on this in his or her recommendation.

c. The application of the candidate, together with the reports and recommendations, is submitted for consideration to the dean, (who may delegate to the Chairperson of the Faculty Postgraduate Committee) for approval. The decision should be submitted to the Faculty Board for approval.

General
Candidates are required to familiarise themselves with the General Regulations regarding the maximum duration of study and the requirements to submit an article/s for publication.

Toelatingsvereistes

An appropriate master's degree is required for admission to doctoral study in Mathematics and Applied Mathematics. The programme composition of the master's degree must have included a heavy research component that led to a dissertation reflecting originality either in the content or in the presentation. In the selection procedure the candidate's complete honours and master's academic records will be considered. In particular it is required that the master's degree be obtained with distinction. If a candidate did not pass his/her master's degree with distinction he/she may submit an application together with a motivation by his/her potential supervisor to the postgraduate coordinator.

Admission is also subject to the availability of a suitable supervisor for the study.

Ander programspesifieke inligting

Subject to other faculty regulations, a student for a doctoral degree must complete his or her studies within four years after first registering for the degree. Under special circumstances, the Dean, on the recommendation of the

head of department, may give approval for a limited fixed extension of this period. (Also see the General Regulations.)

Eksamens en slaagvereistes

i. Consult the General Regulations that apply to the calculation of marks.
ii. In order to obtain the PhD degree the candidate must:

- pass the examinations and the prescribed modules, as determined in the study programme;
- pass the thesis; and
- pass the final examination on the thesis and general subject knowledge.

Bevordering tot volgende studiejaar

The progress of all doctoral candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Kurrikulum: Jaar 1

Minimum krediete: 360

Kernmodules

Proefskrif: Toegepaste Wiskunde 990 (TWS 990) - Krediete: 360.00
Proefskrif: Wiskunde 990 (WIS 990) - Krediete: 360.00

Kurrikulum: Finale jaar

Minimum krediete: 360

Kernmodules

Proefskrif: Toegepaste Wiskunde 990 (TWS 990) - Krediete: 360.00
Proefskrif: Wiskunde 990 (WIS 990) - Krediete: 360.00

Modules

Arbeidsverhoudinge 320 (ABV 320)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Geesteswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Menslikehulpbronbestuur
Aanbiedingstydperk	Semester 2

Module-inhoud

Teoretiese onderbou van Arbeidsverhoudinge Die basiese begrippe, historiese konteks en teoretiese benaderings tot die vakgebied van Arbeidsverhoudinge word toegelig. Die institusionele raamwerk waarbinne arbeidsverhoudinge bedryf word, word uiteengesit met besondere klem op die strukturele meganismes en institusionele prosesse. Die diensverhouding wat die grondslag van 'n arbeidsvehoudingepraktyk vorm, word ook ontleed. Arbeidsverhoudingepraktyk In hierdie afdeling word konseptuele en praktiese vaardighede deur ervaringsleer oorgedra ten opsigte van praktyksaspekte soos griewehantering, dissiplinering, verskraling, kollektiewe bedinging, nywerheidsaksie en geskilbeslegting.

Veldgewasse 361 (AGR 361)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	PPK 251
Kontaktyd	2 lesings per week, Prakties tweeweekliks
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Plantkundige eienskappe, klassifikasie, groeivereistes, verbouingspraktyke en gebruike van gewasse ryk in olie en proteïn, veselgewasse, tabak, suikerriet en diverse gewasse. Besoeke aan navorsingsinrigtings en produsente.

Groentegewasse 410 (AGR 410)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Integrasie van agronomiese, pedologiese, botaniese, ekonomiese en bestuursoorwegings in gewasproduksiestelsels met die doel om 'n volhoubare oes te genereer. Gevallestudies met spesifieke gewasse word behandel.

Gewasproduksiestelsels (I): Veldgewasse 785 (AGR 785)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde BScHons Grondkunde Omgewingsgrondkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Integrated agronomic, climatic, soil, botanical, economic and managerial considerations in crop production systems aimed at maximum economic yield and sustainability. Case studies of specific field crops.

Gewasproduksiestelsels (II): Groentegewasse 786 (AGR 786)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde
Voorvereistes	Geen voorvereistes.

Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Integrating agronomic, climatic, soil, botanical, economic and managerial considerations in crop production systems aimed at maximum economic yield and sustainability. Case studies of specific vegetable crops.

Gevorderde kursuswerk 801 (AGR 801)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Enige module en/of werkstuk(ke) op die gevorderde vlak gekies in oorleg met die departementshoof.

Verhandeling: Agronomie 890 (AGR 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Biotegnologie MSc Biotegnologie MScAgric Agronomie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module involves the development, presentation and approval of a research proposal, the execution of the research project, and the writing up and presentation of the research results. In addition to the dissertation, the student is also expected to compile a concept research paper for publication in a peer-reviewed UP accredited scientific journal.

Miniverhandeling: Agronomie 891 (AGR 891)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plantproduksie en Grondkunde
Aanbiedingstydperk	Jaar

Module-inhoud

Elke kandidaat moet 'n skripsie skryf oor sy/haar navorsingsprojek in Agronomie en ten minste 'n konsep artikel voorberei vir publikasie in 'n eweknie-geëvalueerde wetenskaplike tydskrif.

Proefskrif: Agronomie 990 (AGR 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Biotegnologie PhD Agronomie PhD Biotegnologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module involves the development, presentation and approval of a research proposal, the execution of the research project, and the writing up and presenting of the research results. In addition to the thesis, the student is also expected to publish at least one research paper in a peer-reviewed, UP accredited scientific journal. An oral examination covering Pasture Science and other fields related to the thesis will be conducted after the thesis has been accepted by examiners. A candidate needs to pass both the written thesis and oral examination to qualify for the degree.

Kommunikasie 421 (AGV 421)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Voorvereistes	Tweedejaar - Akademiese vlak
Kontaktyd	2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans

Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

Kommunikasie: Definisie en begripsverklaring. Teorie en elemente van kommunikasie. Verbale en nie-verbale kommunikasie. Determinante van interpersoonlike kommunikasie. Vermindering van kommunikasiestoornisse. Aard, klassifikasie en doeltreffendheid van kommunikasiekanale.

Leierskap en groepsdinamika 712 (AGV 712)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	BAgricHons Landelike Ontwikkeling BAgricHons Landelike Ontwikkeling BAgricHons Voorligting
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Nature, philosophy and objectives of Extension. The group as channel and instrument in extension; definitions and characteristics of groups; group formation; theories regarding the functioning of groups; group norms; group goals; small group techniques; rural groups and their engagement; definitions and theories of leadership; behaviour and attitude in group work; the extensionist as professional leader; group analysis in group context and process; training of leaders. Conflict resolution, mediation and negotiation. Ethics in extension and agricultural development. Management in extension; Strategic planning; functions of management.

Kommunikasie vir volhoubare landelike ontwikkeling 713 (AGV 713)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BAgricHons Landelike Ontwikkeling BAgricHons Landelike Ontwikkeling BAgricHons Voorligting
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw

Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to the Communication Process, its role and importance. Communication and perception - role of Extension in AKIS. Clarification of principles and definitions; theory of communication; Strategies for communication and Extension methods. Key elements and channels of communication; credibility; persuasion; public speaking; audio visual aids; mass media and their effect; new reporting; articles and newsletters. Designing communication interventions. Impact assessment approaches and tools. Appreciative Communication Inquiry: 5-D Approach.

Beginsels en benaderings vir landelike ontwikkeling en voorligting 715 (AGV 715)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BAgricHons Landelike Ontwikkeling BAgricHons Landelike Ontwikkeling BAgricHons Voorligting
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Overview of the origin, role, development of extension; Philosophy and principles of extension. International approaches to extension delivery: Training and Visit, Farming system development, Project approach, Farmer Field Schools, Participatory Extension and Participatory Technology Development. Extension's role in sustainable agriculture development; Adult learning principles, privatizing and outsourcing of agricultural extension; the role of non-governmental organisations (NGO's) in extension delivery. Decentralisation of extension. Participation and coordination of stakeholders in the planning of linkages between extension, research and the farming community.

Beplanning en bestuur van voorligtingsprogramme 726 (AGV 726)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	BAgricHons Voorligting BAgricHons Voorligting
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessies per week, 2 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied

Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Nature, purpose and principles of a programmed and purposeful Extension. The philosophy, principles and assumptions of program development. Institutional framework for community participation, ownership and empowerment; linking with complementary and support services. Overview of the program cycle: consideration, survey, planning, action and evaluation phases. Participatory need appraisal, problem identification and delimination; problem conceptualisation and development of survey instrument; situation surveys and analysis; formulation of objectives; identification and scheduling of methods and activities; Work plan of calendar construction, budgeting. The project management process. Personnel management and administration.

Evaluering van voorligtingsprogramme 728 (AGV 728)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BAgricHons Voorligting BAgricHons Voorligting
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessies per week, 2 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Meaning, scope and place of evaluation in extension; the research- and evaluation process; problem identification; theory and hypotheses; objectives; literature research and information sources; sampling; methods of data collection; evaluation criteria; quality of measuring instruments; scale construction; interviewing. Conducting research and reporting research findings. Preparation of an evaluation report of an extension programme/project.

Bestuur van menslike- en organisatoriese gedragsverandering 729 (AGV 729)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	BAgricHons Voorligting BAgricHons Voorligting
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 besprekingsklas per week

Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Understanding change and the time lag phenomenon. Principles of human behaviour and its influence on change. Theoretical perspectives on behaviour change. Understanding resistance and barriers to change. Adoption and diffusion of new innovations. Theories and models of decision-making. Introduction to organisational dynamics; Role of Extension organisations in Rural Development. Theoretical perspectives on organisational change; organisations as rationale and open systems. Understanding organisations and society; organisational pathologies; organisational effectiveness.

Agrariese voorligting 800 (AGV 800)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Verhandeling: Agrariese Voorligting 890 (AGV 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MScAgric Landbouvoorligting MAgric Voorligting en Landelike Ontwikkeling MScAgric Landbouvoorligting
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Miniverhandeling: Voorligting 891 (AGV 891)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw

Aanbiedingstydperk	Jaar

Proefskrif: Voorligting 990 (AGV 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Voorligting PhD Voorligting
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Akademiese inligtingbestuur 101 (AIM 101)

Kwalifikasie	Voorgraads
Modulekrediete	6.00
Programme	BTh
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Geesteswetenskappe Fakulteit Regsgeleerdheid Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe Fakulteit Teologie en Religie Fakulteit Veeartsenykunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Inligtingkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Verkry, evalueer, verwerk, bestuur en bied inligtingsbronne vir akademiese doeleindes aan deur gebruik te maak van toepaslike tegnologie. Pas effektiewe soekstrategieë toe in verskillende tegnologiese omgewings. Demonstreer die etiese en regverdige gebruik van inligtingsbronne. Integreer 21ste-eeuse kommunikasie met die bestuur van akademiese inligting.

Akademiese inligtingsbestuur 102 (AIM 102)

Kwalifikasie	Voorgraads
Modulekrediete	6.00

Programme	BVSc BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Aktuariële en Finansiële Wiskunde BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Fisika BSc Genetika BSc Geografie BSc Geoinformatika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Meteorologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Toegepaste Wiskunde BSc Voeding BSc Voedselwetenskap BSc Wiskunde BSc Wiskundige Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Geesteswetenskappe Fakulteit Regsgeleerdheid Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe Fakulteit Teologie en Religie Fakulteit Veeartsenykunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Inligtingkunde

Aanbiedingstydperk	Semester 2

Module-inhoud

Verkry, evalueer, verwerk, bestuur en bied inligtingsbronne vir akademiese doeleindes aan deur gebruik te maak van toepaslike tegnologie. Pas effektiewe soekstrategieë toe in verskillende tegnologiese omgewings. Demonstreer die etiese en regverdige gebruik van inligtingsbronne. Integreer 21ste-eeuse kommunikasie met die bestuur van akademiese inligting.

Akademiese inligtingbestuur 111 (AIM 111)

Kwalifikasie	Voorgraads
Modulekrediete	4.00

Programme	Diploma in Teologie BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Aktuariële en Finansiële Wiskunde BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Fisika BSc Genetika BSc Geografie BSc Geoinformatika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Meteorologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Toegepaste Wiskunde BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe BSc Voeding BSc Voedselwetenskap BSc Wiskunde BSc Wiskundige Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Geesteswetenskappe Fakulteit Regsgeleerdheid Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe Fakulteit Teologie en Religie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week

Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Inligtingkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Vind, evalueer, prosesseer, bied inligtingbronne aan en bestuur hulle vir akademiese doeleindes deur die gepaste tegnologie te gebruik.

Akademiese inligtingbestuur 121 (AIM 121)

Kwalifikasie	Voorgraads
Modulekrediete	4.00

Programme	Diploma in Teologie BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Aktuariële en Finansiële Wiskunde BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Fisika BSc Genetika BSc Geografie BSc Geoinformatika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Meteorologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Toegepaste Wiskunde BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe BSc Voeding BSc Voedselwetenskap BSc Wiskunde BSc Wiskundige Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Geesteswetenskappe Fakulteit Regsgeleerdheid Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe Fakulteit Teologie en Religie Fakulteit Veeartsenykunde
Voorvereistes	Geen voorvereistes.

Kontaktyd	2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Informatika
Aanbiedingstydperk	Semester 2

Module-inhoud

Pas effektiewe soekstrategieë toe in verskillende tegnologiese omgewings. Demonstreer die etiese en regverdige gebruik van inligtingsbronne. Integreer 21ste-eeuse kommunikasie met die bestuur van akademiese inligting.

Verhandeling: Aktuariële wetenskap 890 (AKW 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Aktuariële Wetenskap MSc Aktuariële Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Jaar

Proefskrif: Aktuariële wetenskap 990 (AKW 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Aktuariële Wetenskap PhD Aktuariële Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Jaar

Inleiding: Menslike anatomie en embriologie 121 (ANA 121)

Kwalifikasie	Voorgraads
Modulekrediete	4.00
Programme	BSc Mediese Wetenskappe BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	MLB 111 en CMY 117; Slegs vir BSc Mediese Wetenskappe-studente
Kontaktyd	1 praktiese sessie per week, 1 lesing per week

Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Terminologie, skeletspierstelsel, senuweestelsel, oppervlakanatomie, kardiovaskulêre stelsel, respiratoriese stelsel, urogenitale stelsel, spysverteringstelsel, endokriene stelsel, inleidende osteologie en gewrigte, inleidende embriologie.

Menslike osteologie 122 (ANA 122)

Kwalifikasie	Voorgraads
Modulekrediete	4.00
Programme	BScHons Anatomie BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Slegs vir BSc Mediese Wetenskappe-studente.
Kontaktyd	1 praktiese sessies per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Inleiding tot osteologie, beenfunksie en klassifikasie, humerus, radius, ulna, femur, tibia, fibula, klavikel, skapula, ribbes, sternum, werwelkolom, bekken, hand- en voetbene, sesamoïedbene, skedel, mandibel, gewrigte.

Basiese menslike histologie 126 (ANA 126)

Kwalifikasie	Voorgraads
Modulekrediete	4.00
Programme	BSc Mediese Wetenskappe BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	CMY 117 en MLB 111; slegs vir BSc Mediese Wetenskappe-studente.
Kontaktyd	1 lesing per week, 1 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Algemene inleiding tot selle en weefsels: terminologie, die sel met sitoplasma, organelle en insluitsels, dek en klierepitele, algemene bindweefsel, gespesialiseerde bindweefsels nl. kraakbeen, been, bloedselle en hemopoïetiese weefsel, spier- en senuweestelsel.

Menslike sel- en ontwikkelingsbiologie 214 (ANA 214)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mediese Wetenskappe BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	ANA 121 en ANA 126 en CMY 127
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 1

Module-inhoud

Funksionele oorsig van die sel en selinhoud. Normale en abnormale selfunksie in verband gebring met struktuur. Beheer van die menslike sel, oorerwing en die menslike genoom. Selkommunikasie, groei en ontwikkeling, hegtings en verdeling. Aspekte van selnavorsing. Tegnieke om selle te bestudeer. Mediese sel- en molekulêre biologietoepassing.
LW: Hierdie module is nie oop vir alle studente nie, en mag slegs deur BSc: Mediese Wetenskappestudente geneem word.

Paleoantropologie 215 (ANA 215)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mediese Wetenskappe BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot paleo-antropologie, gefokus op hominiede fossielrekord, beginsels van evolusie, beginsels van oorerwing, menslike variasie, inleiding tot primatologie, hominiede taksonomie, tydskale en dateringsmetodes, fossilisasie en tafonomie, neigings in hominiede evolusie, hominiede terreine, Australopithecus, homo habilis, homo erectus, homo sapiens neanderthalensis, die oorsprong van anatomies moderne mense, DNA-studies, paleo-omgewings, hominiede diëte, inleiding tot die ontwikkeling van kultuur, Suid-Afrikaanse bevolkings, menslike aanpassings en modernisasie.

Menslike histologie 226 (ANA 226)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mediese Wetenskappe BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	ANA 126
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Algemene inleiding tot orgaanstruktuur.
Terminologie. Die oog, oor, vel, sirkulasiestelsel, senuweestelsel, limfoiede stelsel, spysverteringstelsel, spysverteringskliere, respiratoriese stelsel, urinêre stelsel, manlike geslagstelsel, vroulike geslagstelsel, endokriene stelsel.
LW: Hierdie module is nie oop vir alle studente nie, en mag slegs deur BSc: Mediese Wetenskappe-studente geneem word.

Menslike anatomie Deel 1 247 (ANA 247)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mediese Wetenskappe BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	ANA 121, ANA 122 en CMY 127
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Regionale benadering tot menslike anatomie.

Kadawerdisseksie van die boonste en onderste ledemate, rug, toraks, abdomen, bekken, perineum en genital gebied. Anatomiese tegnieke.

LW: Hierdie module is nie oop vir alle studente nie, en mag slegs deur BSc: Mediese Wetenskappe student geneem word.

Forensiese antropologie 315 (ANA 315)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mediese Wetenskappe BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	ANA 122, ANA 215
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot forensiese antropologie, opsporing van grafte, opgrawing van grafte, menslike vs. dierlike bene, forensiese entomologie, osteometrie, kraniale en post-kraniale afmetings, nie-metriese eienskappe van die skelet, ouderdomsbepaling, geslagsbepaling, rasbepaling, antemortem lengte, tand-analise, osteopatologie, faktore van individualisasie, afmetings van die gesig, inleiding tot gesigskartering en skedelfoto superimposisie, wetlike aspekte. LW: Hierdie module is nie oop vir alle studente nie, en mag slegs deur BSc: Mediese Wetenskappe-studente geneem word.

Sel- en weefseltegnieke 316 (ANA 316)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mediese Wetenskappe BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	ANA 226
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 1

Module-inhoud

Algemene inleiding tot lig- en elektronmikroskopiese tegnieke: fiksering, prosessering, inbedding, kleuring. Beginsels van verskillende kleuringstegnieke vir lig- en elektronmikroskopie: roetinekleurings, kleurings vir proteïne, koolhidrate, nukleïensure, metachromasie, immunositochemiese kleurings, lektienkleurings, ander gespesialiseerde kleurings. Beginsels van werking van lig- en elektronmikroskopie: gewone ligmikroskopie, fluoormikroskopie, differensiële kontrasmikroskopie, donkerveld mikroskopie, fase- kontrasmikroskopie, transmissie en skanderingelektronmikroskopie.

Menslike sel- en ontwikkelingsbiologie 324 (ANA 324)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mediese Wetenskappe BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	ANA 214, ANA 226
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Praktiese aspekte van selbiologie. Sel, weefsel en organismekulture. Biologie van kultuuromgewing. Sellulêre basis van morfogenese, verdelingspatrone en gastrulasie. Vroeë werweldierontwikkeling; neurilasie, ekto-, meso-, en endodermderivate. Selbestemming en embrioniese axis, insluitend abnormaliteite. Ontwikkeling van die tetropodaledemaat en selsterfte. Afstandselinteraksies deur middel van hormone en metamorfose. LW: Hierdie module is nie oop vir alle studente nie, en mag slegs deur BSc: Mediese Wetenskappe studente geneem word.

Vergelykende anatomie 327 (ANA 327)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	ANA 121, ANA 122, ANA 217, ANA 227
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Inleiding tot vergelykende anatomie. Inleiding tot vergelykende osteologie. Vergelykende anatomie van die appendikulêre skelet. Vergelykende anatomie van die aksiale skelet. LW: Hierdie module is nie oop vir alle studente nie, en mag slegs deur BSc: Mediese Wetenskappe-studente geneem word.

Toegepaste navorsingstegnieke 328 (ANA 328)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	ANA 315#, ANA 316#
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Inleiding tot navorsing. Ontwikkeling van navorsingsprojek. Navorsingsvaardighede. Voltooiing van literatuuroorsig. LW: Hierdie module is nie oop vir alle studente nie, en mag slegs deur BSc: Mediese Wetenskappe-studente geneem word.

Menslike anatomie Deel 2 347 (ANA 347)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mediese Wetenskappe BSc Mediese Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	ANA 247 GS
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Anatomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Regionale benadering tot menslike anatomie.

Kadawerdisseksie van die kop, nek sowel as neuro-anatomie. Anatomiese tegnieke.

LW: Hierdie module is nie oop vir alle studente nie, en mag slegs deur BSc (Mediese Wetenskappe)-studente geneem word.

Gewasfisiologie 461 (APS 461)

Kwalifikasie	Voorgraads

Modulekrediete	15.00
Programme	BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	GKD 250 en BOT 356
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

? Oorsig van fotosintese en respirasie met die doel om die fisiologiese basis van oesopbrengs te ondersoek. Dit sluit in die assessering van parameters wat groei beïnvloed, faktore wat opbrengs beïnvloed, in planta kompartementering / verspreiding van foto- assimilante en geleenthede vir opbrengsverhoging. Gewasgroei en opbrengs sal in perspektief met klimaatsverandering beskou word asook die evaluering van plante se reaksie op abiotiese stremming en plante se vermoë op omgewingsveranderinge “aan te voel”. Die verskeie rolle van groeireguleerders in plante en die belang van hierdie komponente in landbou sal ook uitgelig word.

Gewasfisiologie 761 (APS 761)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	Tweeweeklikse praktiese sessies, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

An overview of photosynthesis and respiration, with the aim of examining the physiological basis of yield in cropping systems. this includes an assessment of parameters for determining plant growth, factors governing yield, partitioning of photoassimilates within plants and opportunities for increasing yield. Crop growth and yield will be put into context of a changing global climate. Evaluation of the manner in which plants respond to various abiotic stresses and how plants sense changing environments. The various roles of plant growth regulators in plants and the importance of these compounds in agriculture.

Veeteling 325 (APZ 325)

Kwalifikasie	Voorgraads
Modulekrediete	10.00

Voorvereistes	GTS 261
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Inleiding tot toegepaste diereteling: Genetiese defekte in plaasvee en geselskapsdiere (enkelgeen- en multifaktorale eienskappe). Fenotipe uitdrukking van gene in kwalitatiewe en kwantitatiewe oorerwing. Beginsels in teling en seleksie van plaasvee en geselskapsdiere, telingsisteme, toepassing en interpretasie van teeltwaardes en diere-aantekeningskemas.

Navorsingsverslag: Diereproduksie 802 (APZ 802)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MAgric Diereproduksiebestuur MAgric Diereproduksiebestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Proefskrif: Diereproduksie 990 (APZ 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Diereproduksiebestuur PhD Diereproduksiebestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Lugkwaliteitsbestuur 810 (AQM 810)

Kwalifikasie	Nagraads
Modulekrediete	80.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 seminaar per week, 2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied

Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Meteorology: Physical laws of atmospheric flow, turbulence, fine resolution flow modelling. Atmospheric chemistry: persistent organic pollutants, aerosols, airborne particles, dispersion modelling of trace gases, measurement techniques, quality control in measurements. Toxicology and physiology of air quality, Air pollution control technology. Inspection of industrial plants.

Grenslaagmeterologie 811 (AQM 811)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Lugkwaliteitbestuur (Gedoseer) MSc Lugkwaliteitbestuur (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Introduction to global circulation and South African weather and climate. Mathematical functions and atmospheric balance laws. Stability and mixing heights. The atmospheric boundary layer over urban and rural areas. Turbulence. Earth’s energy budget. Transfer and exchange of energy. Introduction to atmospheric and chemical dispersion modelling. Practical modelling of air pollution: Box models, Gausian puff or plume models, stochastic models, trajectory models.

Atmosferiese chemie 812 (AQM 812)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Lugkwaliteitbestuur (Gedoseer) MSc Lugkwaliteitbestuur (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie

Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

The history of atmospheric pollution. Cycles of matter and atmospheric transformations. Gaseous inorganic pollutants. Gas phase organic pollutants. Particulates. The chemistry of atmospheric environmental problems, including acid rain; global warming; ozone depletion; persistant organic pollutants; and photochemical smog. Atmospheric monitoring: sampling methods; sampling strategies; and analytical techniques.

Atmosferiese termodinamika 813 (AQM 813)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Lugkwaliteitbestuur (Gedoseer) MSc Lugkwaliteitbestuur (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Gas laws. Virtual temperature. The hydrostatic and hypsometric equations. Dry adiabatic processes. The first law of thermodynamics. Latent heat. Stabilities and instabilities. Dry adiabatic temperature lapse rate. Potential temperature. Inversion layers. Atmospheric moisture and saturated-adiabatic processes. Vapour pressure. Saturation and condensation. Dew and frost point. Relative humidity. Saturated adiabatic temperature lapse rate. Cloud and rain formation. The second law of thermodynamics

Lugbesoedeling: omgewing en samelewing 814 (AQM 814)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Lugkwaliteitbestuur (Gedoseer) MSc Lugkwaliteitbestuur (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

International air quality criteria and standards. Ambient air quality and meteorological monitoring. Domestic pollution. Household fuel burning. Vehicle emissions. Toxicology and physiology. Industrial pollution. Emissions inventory and report sources. Air pollution and biomass. Air pollution control. Identification of alert air quality thresholds and associate information reporting, investigation and mitigation requirements. Renewable energy. Air pollution and climate. Practical experience.

Landbou en landelike ontwikkelingstudies 480 (ARD 480)

Kwalifikasie	Voorgraads
Modulekrediete	32.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Module-inhoud

Oorsig van die konsepte en teorieë betrokke by landelike ontwikkeling; die rol van landbou in landelike ontwikkeling. Landelike lewensonderhoudsisteme: huishoudelike boerderysisteme; besluite betrokke by die werking van boerderysisteme; ondernemings en SMME's in die landelike ontwikkeling; huishoudelike voedselsekuriteit. Landelike inrigtings: definisies en rol van inrigtings; landelike eiendomsreg; landelike finansiële markte; plaaslike ontwikkeling van inrigtings; menslike kapitaal, kennissisteme. Metodologieë vir landelike ontwikkeling: die boerderysisteme-benadering; deelnemende tegnieke; evaluering van landgebruikspatrone (soneringstegnieke); tipologiese tegnieke; tegnologie-oordrag en besluitnemingsondersteuning, kommunikasie vir landelike ontwikkeling; beplanning van landelike ontwikkeling op plaaslike vlak.

Landelike ontwikkelingstudies 780 (ARD 780)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BAgricHons Landelike Ontwikkeling BAgricHons Landelike Ontwikkeling BAgricHons Voorligting
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw

Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Overview of the concepts and theories of rural development including evolution of rural development theories, role of agriculture in rural developments, natural resource base and role of government. Rural livelihood systems focusing on household farming systems, decisions and operation of farming systems, the farm as a social system, nonfarm, off-farm small, micro and medium enterprises in the rural economy, development intervention and household food security. Rural institutions including local governance, community based and farmer organisations, agricultural credit and rural finance, input and output markets, human capital formation, land tenure and land reform, policy making institutions, and institutions of the agricultural knowledge triangle (research, teaching and extension). The relationship between rural sociology, community development and extension; physical and social structures of communities; cultural relativism; sustainability; indigenous knowledge; social stratification; development as change; principles and functions of community development; development barriers; participatory development methodologies, rural poverty. Methodologies for rural development including farming systems approach, participatory appraisal techniques, assessment of land-use patterns and agrarian systems in rural settings: zoning techniques, socio-economic and technical assessment of the farming system, topological techniques and gender sensitive methodologies. Communication for rural development and planning rural development at local levels. Practical assignment in collaboration with rural communities managed by the School's outreach department.

Navorsingsprojek 784 (ARD 784)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BAgricHons Landelike Ontwikkeling BAgricHons Landelike Ontwikkeling
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Research project and case study of rural problems, challenges and dynamics in rural communities. The research project should address an important contemporary rural development problem or challenge and contribute towards the solution thereof.

Miniverhandeling: Landelike ontwikkeling 891 (ARD 891)

Kwalifikasie	Nagraads
Modulekrediete	115.00

Programme	MAgric Landelike Ontwikkeling MAgric Landelike Ontwikkeling
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Tesis: Landelike ontwikkeling 990 (ARD 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Landelike Ontwikkeling PhD Landelike Ontwikkeling
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Verhandeling: Meteorologie 890 (AWM 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Meteorologie MSc Meteorologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Proefskrif: Meteorologie 990 (AWM 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Meteorologie PhD Meteorologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Bedryfsanalise 780 (BAN 780)

Kwalifikasie	Nagraads
Modulekrediete	16.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Nie vir Bedryfsingenieurswese studente nie
Kontaktyd	24 kontakure per semester
Onderrigtaal	Module word in Engels aangebied
Departement	Bedryfs- en Sisteemingenieurswese
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

- Monte Carlo Simulation
- Continuous Simulation
- System Dynamics
- Multi-objective Decision-making
- Operations Research
- Decision Analysis
- Discrete Simulation

Inleiding tot proteïne en ensieme 251 (BCM 251)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BDietetics BSc Biochemie BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Voeding BSc Voedselwetenskap BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	CMY 117 GS en CMY 127 GS en MLB 111 GS
Kontaktyd	0.5 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Biochemie
Aanbiedingstydperk	Semester 1

Module-inhoud

Strukturele en ioniese eienskappe van aminosure. Peptiede, die peptiedbinding, primêre, sekondêre, tersiêre en kwaternêre struktuur van proteïene. Interaksies wat proteïenstruktuur stabiliseer, denaturasie en renaturasie van proteïene. Inleiding tot metodes vir die suiwering van proteïene, aminosuursamestelling en volgorde bepalings. Inleiding tot ensiemkinetika en ensieminhibisie. Allosteriese ensieme, regulering van ensiemaktiwiteit, aktiewe sentra en meganismes van ensiemkatalise. Voorbeelde van industriële toepassings van ensieme. Praktiese opleiding in laboratorium tegnieke en Goeie Laboratorium Praktyk. Tegnieke vir die kwantitatiewe en kwalitatiewe ontleding van biologiese molekules. Verwerking en aanbieding van wetenskaplike data.

Koolhidraatmetabolisme 252 (BCM 252)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BDietetics BSc Biochemie BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Voeding BSc Voedselwetenskap BScAgric Veekunde
Diensmodules	Fakulteit Opvoedkunde Fakulteit Gesondheidswetenskappe
Voorvereistes	CMY 117 GS en CMY 127 GS en MLB 111 GS
Kontaktyd	2 lesings per week, 0.5 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Biochemie
Aanbiedingstydperk	Semester 1

Module-inhoud

Biochemie van koolhidrate. Termodinamika en bio-energetika. Glikolise, sitroensuursiklus en elektrontransport. Glikogeen metabolisme, pentose-fosfaat padweg, glukoneogenese en fotosintese. Praktiese opleiding in studie en ontleding van metaboliese bane en ensieme. Wetenskaplike metode en ontwerp: Hipotese ontwerp en toetsing, metode ontwerp en wetenskaplike kontrole.

Lipied-en Stikstofmetabolisme 261 (BCM 261)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BDietetics BSc Biochemie BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Genetika BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Voeding BSc Voedselwetenskap BScAgric Veekunde
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	CMY 117 GS en CMY 127 GS en MLB 111 GS
Kontaktyd	2 lesings per week, 0.5 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Biochemie
Aanbiedingstydperk	Semester 2

Module-inhoud

Biochemie van lipiede, membraanstruktuur, anabolisme en katabolisme van lipiede. Stikstof metabolisme, aminosuurbiosintese en katabolisme. Biosintese van neurotransmittors, pigmente, hormone en nukleotiede vanuit aminosure. Katabolisme van puriene en pirimidiene. Terapeutiese agente gerig teen nukleotiedmetabolisme. Voorbeelde van erflik oordraagbare afwykings van die metabolisme van stikstofbevattende verbindings. Die ureumsiklus, stikstof-uitskeiding. Praktiese opleiding in wetenskaplike skryfvaardighede: evaluasie van 'n wetenskaplike verslag. Tegnieke vir die skeiding en ontleding van biologiese molekules.

Biochemiese beginsels van voeding en toksikologie 262 (BCM 262)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BDietetics BSc Biochemie BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Genetika BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensgenetika BSc Voeding BSc Voedselwetenskap BScAgric Veekunde
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	CMY 117 GS en CMY 127 GS en MLB 111 GS
Kontaktyd	2 lesings per week, 0.5 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Biochemie
Aanbiedingstydperk	Semester 2

Module-inhoud

Biochemie van voeding en toksikologie. Onmiddellike analise van voedingstowwe. Hersiening van energie-vereistes en -verbruik. Respiratoriese kwosiënt. Vereistes en funksie van water, vitamiene en minerale. Interpretasie en wysiging van ADT-waardes vir spesifieke diëte, bv. groei, oefening, swangerskap en laktasie, veroudering en verhongering. Interaksies tussen voedingstowwe. Vergelyking van monogastriese en herkouer metabolisme. Cholesterol, poli-onversadigde, essensiële vetsure en dieet anti-oksidante. Oksidasie van vette. Biochemiese meganismes van water-en vetoplosbare vitamiene en assessering van vitamien status. Minerale vereistes, biochemiese meganismes, wanbalanse en diarree. Biochemie van vreemde metaboliete: absorpsie, verspreiding, metabolisme en uitskeiding (ADME); ontgiftingsreaksies: oksidasie / reduksie (Fase I), vervoegings (Fase II), uitvoer uit selle (Fase III); faktore wat metabolisme en geneigdheid beïnvloed. Toksiese gevolge: weefselbeskadiging en fisiologiese effekte, teratogenese, immunovergiftiging, mutagenese en karsinogenese. Voorbeelde van toksiene: biochemiese meganismes van bekende toksiene en hul teenmiddels. Antibiotika en weerstand. Natuurlike gifstowwe uit swamme, plante en diere: goitrogene, sianogene, cholienesterase inhibitore, ergotoksiene, aflatoksiene. Praktiese opleiding in ontleding van voedingstowwe, vetsuurskeidings, antioksidant bepaings, en meting van ensiemaktiwiteit, PO-verhouding van mitochondria, elektroforese, ekstraksie, oplosbaarheid en gelpermeasie-tegnieke.

Macromolekules van die lewe: struktuurfunksie en bioinformatika 356 (BCM 356)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Mensgenetika BSc Biochemie BSc Biotegnologie BSc Chemie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Voeding
Voorvereistes	BCM 251 en BCM 252
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Biochemie
Aanbiedingstydperk	Semester 1

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Perspectives on the flow of information from nucleic acids to proteins, the structure and functions of nucleic acids and proteins and their organisation into hierarchical, interdependent systems. Nucleic acid structure as observed in fibres and crystals as well as global DNA and RNA analyses (methods and bioinformatic analyses). Biochemical analyses of nucleotides. DNA-DNA recognition: non-standard and higher order DNA structures. The RNA structural world, RNAi, miRNA and ribosomes. Cellular functions of coding and non-coding nucleic acids. Principles of small molecule-DNA recognition. Principles of protein-DNA recognition and interactions. Bioinformatics predictions of protein and small molecule DNA interactions. Chemical reactivity of amino acids. Domain structures of proteins and Ramachandran plots. Protein folding, sequence motifs and domains, higher order and supramolecular structure, self-assembly, conjugated proteins, post-translational modifications, conjugated proteins and bioinformatics predictions. Principles of protein function and protein structure relationships. Protein-ligand and protein-protein interactions. Protein aggregation in disease. Examples of the diverse functions of proteins and peptides, including enzymes, hormones, neurotransmitters, antibodies, receptors, transport and membrane proteins. Global analysis of proteins through proteomics. Basic principles of nuclear magnetic resonance, mass spectrometry and X-ray crystallography. Protein purification and characterization including, pI, molecular mass, amino acid composition and sequence. Practical training will include interactive computer-guided demonstrations of protein analysis, hands-on practical sessions for nucleic acid purification and chemical structure characterisation, protein expression and purification (including SDS-PAGE), protein sequence analysis including mass spectrometry, protein structure analysis by 3D protein modelling and protein folding (Bioinformatics).

Biokatalisering en integrasie van metabolisme 357 (BCM 357)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Mensgenetika BSc Biochemie BSc Biotegnologie BSc Chemie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde
Voorvereistes	BCM 251 en BCM 252 en BCM 261
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Biochemie
Aanbiedingstydperk	Semester 1

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Nomenclature: enzyme nomenclature and classification. Specificity and mechanisms: the active site, mechanisms of catalysis and examples of specific enzyme mechanisms, e.g. lysozyme and carboxypeptidase A. Advanced enzyme kinetics, Cleland nomenclature and multi-substrate reactions. Allosteric enzymes: models by Koshland, Hill and Monod. Ligands binding to proteins. Problems and answers: tutorials of problems and answers based on above concepts. Integration of metabolism; hormones and second messengers; cell signalling; a case study in connectivity among metabolic pathways and their regulation, in for example diabetes and starvation. Inhibitors of angiotensin converting enzyme (ACE). RNA as enzymes. Applications of enzymes in food and cosmetics industries and in clinical pathology assays as biomarkers of diseases and toxic responses. Elucidation of metabolic pathways.
Practical sessions cover tutorials on calculations, isolation of an enzyme, determination of pH and temperature optimum, determination of Km and Vmax, enzyme activation, enzyme inhibition, purification table and final report, oral defense of report.

Selstruktuur en -funksie 367 (BCM 367)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensgenetika BSc Biochemie BSc Biotegnologie BSc Chemie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde
Voorvereistes	BCM 251 en BCM 252 en BCM 261
Kontaktyd	2 lesings per week, 1 praktiese sessie per week

Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Biochemie
Aanbiedingstydperk	Semester 2

Module-inhoud

Visualisering van selstruktuur en lokalisering van proteïene binne selle. Sel-ultrastruktuur. Suiwering van subsellulêre organelle. Kweek van selle. Diversiteit en ooreenkomste van selle. Biomembraanstruktuur. Transmembraan-transport van ione en klein molekules. Plasing van proteïene binne-in membrane en organelle. Vesikulêre verkeer, uitskeiding, eksositose en endositose. Selorganisasie en -beweging. Sel-sel- en sel-matriks-hegtings. Praktiese opleiding sluit tutoriale in wat handel oor vloeisitometrie en mikroskopie, mininavorsingsprojekte waartydens studente ingelei word tot en begelei word deur die aspekte van navorsingmetodologie, eksperimentele beplanning sowel as tegnieke wat verband hou met sellul?re ontledings.Aktiewe transportstudies in gisselle.

Molekulêre grondslag van siekte 368 (BCM 368)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensgenetika BSc Biochemie BSc Biotegnologie BSc Chemie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Voeding
Voorvereistes	BCM 251 en BCM 252 en BCM 261
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Biochemie
Aanbiedingstydperk	Semester 2

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Normal and abnormal regulation of the cell cycle: The biochemistry of proliferation, quiescence, senescence, differentiation and apoptosis, illustrated by cancer. Host-Pathogen co-evolution: How adaptive immunity emerged from innate immunity. Infection: Molecular and cellular immunobiochemistry of protection against viral, bacterial and parasitic pathogens. Auto-immunity: Molecular mechanisms of the maintenance and failure of the recognition of foreign in the context of self in the mammalian body. Practical training includes debate on ethics of research on animal and human diseases, experimental design and execution of an immunoassay to test for a biomarker antibody of an infectious disease, tutorials to determine the performance of a diagnostic test for disease, including the principle of ROC curve analysis, positive and negative predictiveness, sensitivity, specificity and accuracy, applications of polyclonal and monoclonal antibodies for characterisation of disease with fluorescence, confocal and electron microscopy, flow cytometry and biosensors.

Tendense in biochemiese navorsing 771 (BCM 771)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Biochemie BScHons Biochemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Study and discussion of topical research results from recent scientific publications.

Navorsingsprojek en -verslag 773 (BCM 773)

Kwalifikasie	Nagraads
Modulekrediete	60.00
Programme	BScHons Biotegnologie BScHons Biochemie BScHons Biotegnologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 ander kontak per week
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Navorsingsmetodes 774 (BCM 774)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Biotegnologie BScHons Biochemie BScHons Biotegnologie
Voorvereistes	Toelating tot BScHons Biochemie, Biotegnologie, Genetika, Mikrobiologie, Bioinformatika of Mensfisiologie
Kontaktyd	4 lesings per week, 2 praktiese sessies per week, 2 webgebaseerde periodes per week
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

Students are guided through the methodology of research planning and data handling, as well as science communication skills. They are offered hands-on experience in a range of advanced techniques employed in biochemistry, molecular technologies and biochemical analysis. Scientific writing and presentation skills required for research in biochemistry, are also addressed. Ethical and philosophical issues in the broader field of the Cellular and Molecular Sciences are also addressed. Several of these aspects will be presented collaboratively by the Department of Genetics and the Department of Microbiology and Plant Pathology.

Gevorderde biochemie 775 (BCM 775)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Biochemie BScHons Biochemie
Voorvereistes	Toelating tot BScHons Biochemie, Genetika, Mikrobiologie, Bioinformatika of Mensfisiologie
Kontaktyd	4 webgebaseerde periodes per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Module-inhoud

* Hierdie inligting is slegs in Engels beskikbaar.

The latest trends towars a biological systems approach of metabolism, functional genomics and control. This includes intergration of metabolic pathways, mechanisms of regulation and metabolic control analysis.

Biochemie: Verhandeling 890 (BCM 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Biotegnologie MSc Biochemie MSc Biotegnologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Projek en proefskrif 990 (BCM 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Biotegnologie PhD Biochemie PhD Biotegnologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Bedryf- en organisasiesielkunde 181 (BDO 181)

Kwalifikasie	Voorgraads
Modulekrediete	5.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Menslikehulpbronbestuur
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

Capita selecta Hierdie module verskaf ‘n inleiding tot die personeelsielkunde, organisasiegedrag en arbeidsverhoudinge. Dit verwys na die keuring van werknemers en die opleiding en ontwikkeling van menslike hulpbronne om by veranderende omstandighede aan te pas. Die rol van leierskap in groepbenutting en motivering word teoreties en prakties behandel. Arbeidsverhoudinge word bestudeer aan die hand van die institusionele prosesse en die diensverhouding, asook praktykaspekte soos griewehantering, dissiplinering en geskilbeslegting.

Bemarkingsbestuur 120 (BEM 120)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Kontaktyd	3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Bemarkingsbestuur
Aanbiedingstydperk	Semester 2

Module-inhoud

Die module bied ‘n oorsig van die beginsels van bemarking deur die uitruilproses, kliëntewaarde, bemarkingsnavorsing en die ontwikkeling van ‘n bemarkingsplan aan te spreek. Dit spreek ook die elemente van die bemarkingsmengsel aan met spesifieke fokus op die sewe diensbemarkingselemente naamlik die diensproduk, fisiese bewyse, mense, prosesse, distribusie, prysstrategie en geïntegreede bemarkingskommunikasie.

Verbruikersgedrag 212 (BEM 212)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BA Visuele Studies BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BEM 120 GS
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Bemarkingsbestuur
Aanbiedingstydperk	Semester 1

Module-inhoud

Interne en eksterne beïnvloedingsfaktore van verbruikersgedrag, die verbruiker se besluitnemingsproses en toepassingsvelde van verbruikersgedrag, verbruikerswese en sosiale verantwoordelikheid, aankoopsgedrag van verbruikers in produk- en diensteverwante bedrywe, verbruikersielkunde en die invloed daarvan op aankoopsgedrag, sielkunde van beprysing, beïnvloedende faktore in verbruikers-gedrag, die impak van verskeie bemarkingskommunikasievorme op aankoopsgedrag.

Geïntegreerde handelsnaamkommunikasie 224 (BEM 224)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BA Visuele Studies BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BEM 120 GS
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Bemarkingsbestuur
Aanbiedingstydperk	Semester 2

Module-inhoud

Geïntegreerde handelsnaam kommunikasiebenadering, bemarkingskommunikasiebeplanning, doelwitte en begroting van geïntegreerde bemarkingskommunikasiebestuur, beginsels en strategieformulering van bemarkingskommunikasie-elemente, nuwe media, die handelsnaamkommunikasieproses, meting en evaluering van bemarkingskommunikasie-effektiwiteit.

Bemarkingsnavorsing 314 (BEM 314)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BA Visuele Studies BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur
Diensmodules	Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BEM 120 en STK 110 GS
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik

Departement	Bemarkingsbestuur
Aanbiedingstydperk	Semester 1

Module-inhoud

Die rol van bemarkingsnavorsing, die proses van bemarkingsnavorsing, vertolking van sekondêre data, kwalitatiewe navorsing, opnamenavorsing, waarneming, meting- en houdingskale, vraelysontwerp, steekproefontwerp en steekproefprosedures, basiese dataontleding, beskrywende statistiese ontleding, vertolking en verslagdoening van bevindinge en skryf van verslae.

Bemarkingsbestuur 321 (BEM 321)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BA Visuele Studies BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BEM 120
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Bemarkingsbestuur
Aanbiedingstydperk	Semester 2

Module-inhoud

Strategiese vraagstukke in bemarking, strategiese bemarking, strategiese ontleding, (markontleding, klantontleding, mededingersontleding en interne ontleding), markstrategieë (mededingingstrategieë, strategieë in die produklewensiklus, en verhoudingsbestuurstrategieë) asook strategie-implementering en beheer.

Besigheidsreg 210 (BER 210)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Geoinformatika BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.

Kontaktyd	2 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Handelsreg
Aanbiedingstydperk	Semester 1

Module-inhoud

Basiese beginsels van die kontraktereg; koopreg; kredietooreenkomste, huurreg.

Besigheidsreg 220 (BER 220)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Geoinformatika BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Geoinformatika
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Eksamentoelating vir BER 210
Kontaktyd	1 besprekingsklas per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Handelsreg
Aanbiedingstydperk	Semester 2

Module-inhoud

Arbeidsreg; aspekte van sekerheidstelling; insolvensiereg; ondernemingsreg; maatskappyereg; reg insake beslote korporasies en vennootskapsreg.

Bioinformatika teorie en toepassings 701 (BIF 701)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Bioinformatika BScHons Bioinformatika
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Module-inhoud
*Hierdie inligting is slegs in Engels beskikbaar.

General concepts in bioinformatics; sequence motifs and features; sequence databases; common bioinformatics tools; programming in Python; the bioinformatics toolkit for Python; pairwise and multiple sequence alignments; genome analysis; data visualisation; specialised statistics for bioinformatics; specialised algorithms for bioinformatics; nucleic acid modelling; transcription analysis; microarray data analysis; genome annotation; phylogenetics; mapping and markers; structural modelling.

Tendense in bioinformatika en literatuurseminaar 702 (BIF 702)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Bioinformatika BScHons Bioinformatika
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Module-inhoud
*Hierdie inligting is slegs in Engels beskikbaar.
Study and discussion of topical research results from recent scientific publications.

Navorsingsprojek en -verslag 703 (BIF 703)

Kwalifikasie	Nagraads
Modulekrediete	60.00
Programme	BScHons Bioinformatika BScHons Bioinformatika
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 ander kontak per week
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Inleiding tot molekulêre biologie vir bioinformatika 704 (BIF 704)

Kwalifikasie	Nagraads
Modulekrediete	15.00

Programme	BScHons Bioinformatika BScHons Bioinformatika
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Atoms and molecules; the chemistry of life, organisation of the cell; energy; chromosomes; heredity; DNA; RNA and protein synthesis; gene regulation; genetic engineering; genomes; genes and development; evolution; speciation; diversity.

Bioinformatika: Verhandeling 803 (BIF 803)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Bioinformatika MSc Bioinformatika
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Proefskrif: Bioinformatika 990 (BIF 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Bioinformatika PhD Bioinformatika
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Biochemie
Aanbiedingstydperk	Jaar

Algemene mikrobiologie 260 (BLG 260)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	Geen voorvereistes.

Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Algemene anatomie en morfologie van bakterieë, virusse en swamme. Basiese voedingsbehoeftes van mikro-organismes en die invloed van omgewingsfaktore op groei van mikrobes. Mikro-organismes as noodsaaklikke komponente van ekosfere: plant-, water- en grond-ekosisteme. Voedselbederf, voedselvergiftiging en preservering van voedsel deur mikro-organismes. Basiese beginsels van ontsmetting, sterilisasie en beheer van mikrobes; tegnieke vir onderdrukking van mikrobe-groei: sterilisasie deur gebruik te maak van hitte, bestraling, filtrasie, chemikalieë, vermindering van getalle.

Biometrie 120 (BME 120)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Voeding BSc Voedselwetenskap BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe Fakulteit Veeartsenykunde
Voorvereistes	Minstens 4 (50-59%) in Wiskunde in die graad 12-eksamen, of minstens 50% in beide Statistiek 113, 123
Kontaktyd	1 praktiese sessie per week, 4 lesings per week

Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

Enkelvoudige statistiese analise: Data-insameling en -verwerking, Steekproewe, tabellering, grafiese voorstelling, beskrywing van lokaliteit, spreiding en skeefheid. Inleidende waarskynlikheid en distribusieleer. Steekproefverdelings en die sentrale limietstelling. Statistiese inferensie: Basiese beginsels, beraming en toetsing in die een- en tweesteekproefgevalle (parametries en nie-parametries). Inleiding tot eksperimentele ontwerp. Een-en tweerigting ontwerpe, ewekansige blokontwerp. Meervoudige statistiese analise: Tweeveranderlike datastelle, krommepassing (lineêr en nie-lineêr), groeikrommes. Statistiese inferensie in die enkelvoudige regressieverband. Kategoriese data-analise: Pasgehaltetoetsing en gebeurlikheidstabelle. Meervoudige regressie en korrelasie: Passing en toetsing van modelle. Residu-ontleding. Rekenaarvaardigheid: Gebruik van rekenaarpakkette by dataverwerking en verslagskrywing.

Biometrie 210 (BME 210)

Kwalifikasie	Voorgraads
Modulekrediete	24.00
Programme	BSc Biotegnologie BSc Biotegnologie BSc Voeding BScAgric Veekunde
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BME 120
Kontaktyd	1 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

Variansie-analise: Meerrigtingklassifikasie. Toetsing van modelaannames, grafika. eenvoudige vergelykings. Vaste, stogastiese en gemengde-effek-modelle. Blokeksperimente. Effekberaming. Eksperimentele ontwerp: Beginsels van eksperimentele ontwerp. Faktoriaaleksperimente: Strengeling, enkelvryheidsgraadbenadering, hiërargiese klassifikasie. Gebalanseerde en ongebalanseerde ontwerpe. Verdeelde-perseel-ontwerpe. Kovariansie-analise. Rekenaarvaardigheid: Skryf en interpretasie van rekenaarprogramme. Verslagskrywing.

Biometrie 780 (BME 780)

Kwalifikasie	Nagraads
Modulekrediete	15.00

Programme	BScHons Plantkunde BScHons Bioinformatika BScHons Dierkunde BScHons Entomologie BScHons Geografie en Omgewingswetenskap BScHons Geoinformatika BScHons Medisinale Plantwetenskap BScHons Meteorologie BScHons Natuurlewebestuur BScHons Plantkunde
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 Blokweke
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The principles of experimental design as required for the selection of an appropriate research design. Identification of the design limitations and the impact thereof on the research hypotheses and the statistical methods. Identification and application of the appropriate statistical methods needed. Interpreting of statistical results and translating these results to the biological context.

Plantbiologie 161 (BOT 161)

Kwalifikasie	Voorgraads
Modulekrediete	8.00

Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Voedselwetenskap BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	MLB 111 GS
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Basiese struktuur en funksie van plante; inleidende planttaksonomie en plantsistematiek; beginsels van plantmolekulêre biologie en biotegnologie; aanpassings van plante by stres; medisinale verbindings van plante, basiese beginsels van plantekologie en die toepassing daarvan by natuurlikehulpbronbestuur.

Suid-Afrikaanse flora en plantegroei 251 (BOT 251)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BSc Mensfisiologie BSc Biochemie BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mensfisiologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BScAgric Toegepaste Plant- en Grondwetenskappe
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	BOT 161 of toestemming van die departementshoof
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Oorsprong en affiniteit van Suid-Afrikaanse flora en plantegroeitipes; beginsels van plantgeografie; plantdiversiteit in Afrika Suider-Afrika; eienskappe, omgewings en plantegroei van Suid-Afrikaanse biomeen belangrike verwante ekologiese prosesse; sentrums van endemisme; skaars en bedreigde plantspesies; rooidatalyste; plantbewaring; bewaring van diversiteit en ekosisteembestuur; indringerbiologie; bewaringstatus van Suid-Afrikaanse plantegroeitipes

Plantfisiologie en -biotegnologie 261 (BOT 261)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mensfisiologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe
Diensmodules	Fakulteit Opvoedkunde

Voorvereistes	BOT 161, CMY 117 en CMY 127 of toestemming van die departementshoof
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Stikstofmetabolisme in plante; stikstofbinding in landbou; sekondêre metabolisme in plante en natuurlike produkte; fotosintese en koolhidraatmetabolisme in plante; toepassings ten opsigte van sonligenergie; plantegroeiregulering en die Groen Revolusie; reaksies van plante teenoor die omgewing; ontwikkeling van plante met weerstand teen droogte en siektes.

Plantekofisiologie 356 (BOT 356)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mikrobiologie BSc Biochemie BSc Biotegnologie BSc Ekologie BSc Genetika BSc Mikrobiologie BSc Plantkunde BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	BOT 161 of toestemming van die departementshoof
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Die klem val op die doeltreffendheid van die meganismes waardeur C3-, C4- en CAM-plante CO2 vaslê en hoe omgewingsfaktore dit beïnvloed. Die meganismes en faktore wat die respiratoriese omsetting van koolstofskelette bepaal en hoe dit produksie raak, word behandel. Insig in die ekologiese verspreiding en die manipulering van plante vir beter produksie word verkry deur bespreking van die interne meganismes waardeur koolstoftoedeling, hormoonproduksie, groei, blomvorming en vrugset deur eksterne faktore beïnvloed word. Vir begrip van die funksionering van plante in diverse omgewings word relevante strukturele eienskappe van plante, en die impak van grondsamestelling, en die beweging van water in die grond-plant-lug-kontinuum en langafstandvervoer van voedingstowwe bespreek. In die praktikums sal verskeie belangrike tegnieke gebruik word om, byvoorbeeld aspekte soos effektiewe watergebruik, fotosintese en respirasie van plante te ondersoek.

Plantekologie 358 (BOT 358)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mikrobiologie BSc Biochemie BSc Biotegnologie BSc Ekologie BSc Genetika BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde
Voorvereistes	BOT 161 of toestemming van die departementshoof
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Teorie van plantgemeenskappe, floristiese en strukturele samestelling, plantdiversiteit, ekologiese suksessie, landskapekologie. Dataverwerking. Fundamentele beginsels van plantbevolkingsbiologie: lewenstabelle; planttelingsisteme en bestuiwing; bevolkingsdinamika; lewensgeskiedenisstrategieë; intraspesifieke kompetisie; interspesifieke kompetisie en naasbestaan.

Fitomedisyne 365 (BOT 365)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensgenetika BSc Biochemie BSc Biotegnologie BSc Genetika BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	BOT 161 of toestemming van die departementshoof
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
The module will include a review on the discovery and use of plant medicines and phyto-therapeutically important molecules obtained from plants. Certain aspects of natural product chemistry i.e. the biosynthesis, ecological role and toxicity of the three main classes of secondary compounds; terpenoids, phenolics, and alkaloids are discussed. An introduction to the principles and applications of metabolomics is presented. The role of these natural products in defense against microorganisms and herbivores is reviewed during the module. The importance of ethnobotany and phylogenetics in modern drug discovery from biodiversity will presented along with legal and ethical considerations surrounding bioprospecting. This will follow on with modern theories and practices regarding sustainable utilisation and conservation of medicinal plants. The basics of alternative medicines, with an emphasis on traditional African and Chinese medicines, are also discussed as well as current evidence-based research and product development derived from these. Biotechnological approaches to medicinal natural product production, 'farmer to pharma', will be covered, including plant cell culture and bioreactors. Practical sessions on drug discovery approaches using chromatographic techniques for phytochemical analysis of secondary metabolites such as tannins, alkaloids, and saponins are conducted. Bioassays on micro-organisms are also done during the practical sessions in order to develop the skills for the potential discovery of new antibiotics.

Plantdiversiteit 366 (BOT 366)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Biotegnologie BSc Biochemie BSc Biotegnologie BSc Ekologie BSc Genetika BSc Plantkunde
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	BOT 161 of toestemming van die departementshoof
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Basiese beginsels en metodes van plantklassifikasie. Bronne van plantvariasie. Moderne metodes om evolusionêre verwantskappe tussen plante te bepaal. Die omvang en belang van vaatplantverskeidenheid. Algemene strukturele en biologiese kenmerke van evolusionêr- en ekologies-belangrike plantgroepe. Botaniese nomenklatuur. Plantidentifikasie in die praktyk; identifikasie-metodes, sleutels, herbariums en botaniese tuine. Diagnostiese kenmerke vir die veldidentifikasie van bome, veldblomme en grasse. Familie-herkenning van Suider-Afrikaanse plante. Beskikbare literatuur vir plantidentifikasie. Metodes om floristiese opnames te doen. Aard en betekenis van bewyseksemplare.

Natuurlike boomveld en woude: Ekologie en bestuur 700 (BOT 700)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Plantkunde BScHons Geografie en Omgewingswetenskap BScHons Geoinformatika BScHons Meteorologie BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Definitions of woodlands and forests and vegetation and forest resources in southern Africa; Classification of forest and woodland in southern Africa; Woodland dynamics including disturbance, recruitment, growth and mortality, recovery after disturbance; Ecosystem services (microclimate and nutrient cycling, carbon sequestration etc); Sustainable forest resource management (resource assessment, socio-economic assessment e.g. wood and non-forest products, participatory resource management processes); Forest health; Monitoring of resource-use impacts and adaptive management; Development of a framework for sustainable conservation and use of non-timber forest products; Climate change and resilience. Forest disease and pathology.

Molekulere tegnieke 705 (BOT 705)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Plantkunde BScHons Biotegnologie BScHons Plantkunde
Voorvereistes	*Admission into BSc Hons in Plant Science (Plant Biotechnology/Physiology)*
Kontaktyd	1 lesing per week, 5 praktiese sessies per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Students are guided through the methodology of research planning and data handling. They are offered hands-on experience in a range of advanced techniques employed in molecular research and analysis.

Plantnomenklatuur 712 (BOT 712)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 ppraktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The regulations of the International Code for Botanical Nomenclature. Principles of nomenclature. History of plant collecting. Type specimens.

Saadekologie 714 (BOT 714)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 ppraktiese sessie per week, 1 lesing per week, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Regeneration of plants from seed under natural conditions. Early stages in the life of a plant from ovule to established seedling: seed production; seed predation; seed dispersal; seed germination and dormancy, seed bank dynamics and seedling establishment.

Plantmorfologie 717 (BOT 717)

Kwalifikasie	Nagraads
Modulekrediete	10.00

Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 ppraktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Speciation in flowering plants; plant variation. Sex determination in flowering plants. Reproductive systems in flowering plants.

Inleidende plantbiotegnologie 718 (BOT 718)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Plant genome: structure and composition of the plant genome (nuclear, mitochondrial and chloroplast); applications in plant biotechnology: plant tissue culture (microproagation, somatic embryogenesis and cell suspension cultures). Genetic manipulation and gene transfer technology (Agrobacterium-based and other) and DNA-marker technology.

Primêre plantmetabolisme 719 (BOT 719)

Kwalifikasie	Nagraads
Modulekrediete	10.00

Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 1 besprekingsklas per week, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Regulation and interaction of primary plant metabolic pathways on the sub-cellular and whole plant level.

Plantekologie 730 (BOT 730)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Plantkunde BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	8 uur per dag vir 5 dae
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Practical applications of plant ecology principles. Designing and executing field studies. Exposure to skills of field ecology and plant identification. This module includes a compulsory 5-day field component.

Planttaksonomie 741 (BOT 741)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 ppraktiese sessie per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied

Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Classification, identification and nomenclature, methodology of a revision study, analysis and presentation of taxonomic information, evolution, phylogeny and cladistics.

Plantklassifikasie en fitogeografie742 (BOT 742)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	BOT 366
Kontaktyd	2 lesings per week, 1 ppraktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An overview of phylogenetics sets the scene, and sources of taxonomic information (morphology, anatomy, chemotaxonomy, cytogenetics, reproductive biology, palynology, ethnobotany and paleobotany) and how these data are used are discussed. This is followed by a section on the use of phylogenies as tools to understand ecological and geographical patterns and processes. Modern plant distribution patterns are assessed from the framework of the competing explanations of dispersalisn and vicariance.

Toepassings in plantbiotegnologie 746 (BOT 746)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud
*Hierdie inligting is slegs in Engels beskikbaar.

Creation of genetically modified plants and their impact on modern agriculture.

Fitofarmakologie 748 (BOT 748)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Medisinale Plantwetenskap BScHons Medisinale Plantwetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud
*Hierdie inligting is slegs in Engels beskikbaar.

Pharmacological action of low molecular plant constituents and high molecular weight compounds. Plant constituents as anticancer, antibacterial, antiviral, hypoglycaemic, freeradical scavengers, hypotensive and as anti-inflammatory agents. Cell culturing, cell growth and apoptosis, cell mediated immune responses. Drug development in TB as models for research. Enzymes, receptors and plant constituents. The unique challenges of plant-based medicines.

Farmakognosie/Fitoterapie 749 (BOT 749)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Medisinale Plantwetenskap BScHons Medisinale Plantwetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Basic concepts of toxicology. Systemic, developmental, genetic and organ-specific toxic effects. Hallucinogenic, allergenic, teratogenic and other toxic plants. Plant constituents, contradictions and interactions. Phytotoxicity unrelated to plant constituents. Safety and efficacy issues of commonly used Phyto-drugs with emphasis on pharmaceutical applications. Practical aspects related to the manufacture of good quality plant-based medicines. Phyto-drug formulation, standardisation and aspects concerning different dosage forms.

Gevorderde fitomedisyne 761 (BOT 761)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 ppraktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Metabolism and functions of secondary compounds such as tannins, alkaloids, terpenoids, flavonoids and free amino acids. Importance of secondary compounds in the defence mechanisms of plants. Isolation and identification of medicinal bioactive compounds from plants. Their current scope and potential applications in ethnobotany. Strategies to discover new pharmaceuticals from ethnomedicine.

Navorsingsverslag 782 (BOT 782)

Kwalifikasie	Nagraads
Modulekrediete	60.00
Programme	BScHons Biotegnologie BScHons Biotegnologie BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Teaching and planning, execution and documentation of a research project.

Seminaar 783 (BOT 783)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Literature study, discussion and oral presentation of a subject related to the main discipline.

Trends in plant science784 (BOT 784)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Literature study of recent publications in a subject related to one of the elective disciplines.

Praktiese plantidentifikasie 786 (BOT 786)

Kwalifikasie	Nagraads
Modulekrediete	10.00

Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Natuurlewebestuur BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Beginsels van identifikasie, klassifikasie en nomenklatuur; identifikasie van plante; familieherkenning; versameling van planteksemplare vir identifikasie; herbarium as inligtingsbron. Variasie in saadplante en voortplantingsisteme. Praktiese werk behels ook

Ruimtelike ontleding in ekologie 788 (BOT 788)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Plantkunde BScHons Medisinale Plantwetenskap BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Mapping and analysing spatial data. Theory and basic techniques of analysing and manipulating spatial data using geographical information systems. Mapping of vegetation types, species distributions and diversity, species traits. Understanding the spatial drivers of biodiversity patterns. The influence of scale on biodiversity analyses. Relevance for conservation planning for mapping biodiversity risk and prioritsing conservation, especially in a South African context.

Land reclamation and restoration ecology 791 (BOT 791)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Diensmodules	Fakulteit Geesteswetenskappe
Voorvereistes	No prerequisites.

Kontaktyd	Block: 6 weke per semester, 3 besprekings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

This module will provide students with the skills to use biophysical information and data obtained by undertaking a natural resource inventory. This will be supported by taught methods of critically evaluating data and information obtained through assessment methodologies and an understanding of sampling design (choosing reference sites, spatial replication) and monitoring methods (e.g. recording biomass vs vegetation cover vs species richness; aspects of seed biology etc.). Through the additional understanding of ecological and agricultural concepts (e.g. productivity, decomposition rate, carbon uptake, pollinator abundance, erosion protection, dust reduction) students will acquire the skills to provide reclamation and restoration solutions to land degradation challenges in South Africa.
A site visit or field trip during which students will get exposed to the realities of reclamation and restoration and apply their knowledge and skills will be a compulsory component of this module.

Plantsistematiek 802 (BOT 802)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Plant variation and evolution; theory and practice of plant classification; concept of categories in the taxonomic hierarchy; sources and handling of taxonomic data; taxonomic collections (herbaria and curating of collections); the process of plant identification; code of nomenclature; taxonomic publication.

Verhandeling: Plantkunde 890 (BOT 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Plantkunde MSc Biotegnologie MSc Plantkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans

Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Proefskrif: Plantkunde 990 (BOT 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Biotegnologie PhD Biotegnologie PhD Plantkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Plantgenetika en gewasbiotegnologie 361 (BTC 361)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensgenetika BSc Biochemie BSc Biotegnologie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BScAgric Plantpatologie
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	GTS 251 en {GTS 261 GS of BOT 261} en {GTS 351 en GTS 352 word aanbeveel}
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Semester 2

Module-inhoud

Plant genetika en genomika: geenbeheer in plante, epigenetika, ko-onderdrukking, voorwaartse en omgekeerde genetika, strukturele en funksionele genomika. Plantontwikkeling: seinpersepsie, seldood, beheer van selverdeling. Plant-omgewing interaksies. Genetiese modifisering van gewasse: voedselsekuriteit, GGO regulering, planttransformasie, heel-chromosoom transformasie, sintetiese biologie, homoloë rekombinasie. Gewas molekulêre merkers: merker tipes, genotipering, KEL kartering, merker-gebaseerde teling. Toekoms van gewasbiotegnologie: toepassings van genomika, biofarmasie, genetiese genomika, sisteembiologie.

Biotegnologie in die werkplek 701 (BTW 701)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Plantkunde BScHons Biotegnologie BScHons Plantkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to the principles and realities of working in the field of biotechnology. Discussions on various aspects, including entrepreneurship; intellectual property; patent rights; financial management; grant applications and product marketing. The module will be assessed by way of a simulated grant application for the development of a hypothetical biotechnological venture.

Inleidende fisika 152 (CGS 152)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 besprekingsklasse per week, 2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Heat and temp: Thermal interaction; operational definition of temperature; expansion; temperature in the kinetic molecular model; work, energy and heat; phase transitions and mechanisms of heat transfer. Measurements: What is measuring; the scientific method; measuring error; significant figures. Geometric optics: Light travels straight; shadow formation; plane, convex and concave mirrors; refraction and lenses (thin); optical instruments. Practicals related to the topics.

Inleidende fisika 162 (CGS 162)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	CGS 152

Kontaktyd	2 besprekingsklasse per week, 2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Kinematics: Basic concepts in kinematics in vector notation; different representations to describe motions; instantaneous velocity; acceleration; equations of motion (constant acceleration). Dynamics: Interactions, Newton's third law, Newton's first and second law; gravitation; normal force and friction. Forces in two dimensions: resolving and adding forces. Work energy and power. Electricity: Static and flowing electricity, current, potential difference, power, resistance, simple DC-circuits.
Practicals related to the topics.

Algemene chemie 171 (CHM 171)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BIng Siviele Ingenieurswese ENGAGE
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week, 1 besprekingsklas per week, 1 webgebaseerde periode per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Chemie
Aanbiedingstydperk	Semester 1

Module-inhoud

Algemene inleiding tot anorganiese, analitiese en fisiese chemie. Nomenklatuur van anorganiese en ioniese verbindings, stoïgiometriese berekeninge van chemiese reaksies, redoksreaksies, oplosbaarhede en oplossings, atoomstruktuur, periodisiteit. Molekulêre struktuur en binding, gebruik van die VSEPA-model. Beginsels van reaktiwiteit, elektrochemie, energie en chemiese reaksies, entropie en vrye energie. Toepaslike oefenklasse en praktika.

Algemene chemie 172 (CHM 172)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BIng Elektroniese Ingenieurswese ENGAGE
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Geen voorvereistes.

Kontaktyd	1 besprekingsklas per week, 4 lesings per week, 1 webgebaseerde periode per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Chemie
Aanbiedingstydperk	Semester 2

Module-inhoud

Algemene inleiding tot anorganiese, analitiese en fisiese chemie. Nomenklatuur van anorganiese en ioniese verbindings, stoïgiometriese berekeninge van chemiese reaksies, redoksreaksies, oplosbaarhede en oplossings, atoomstruktuur, periodisiteit. Molekulêre struktuur en binding, gebruik van die VSEPA-model. Beginsels van reaktiwiteit, elektrochemie, energie en chemiese reaksies, entropie en vrye energie. Toepaslike oefenklasse en praktika.

Algemene chemie 181 (CHM 181)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BIng Chemiese Ingenieurswese ENGAGE
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	CHM 171
Kontaktyd	1 besprekingsklas per week, 1 praktiese sessie per week, 4 lesings per week, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 2

Module-inhoud

Algemene fisies-analitiese chemie: fisiese gedrag van gasse, vloeistowwe en vastestowwe, intermolekulêre kragte, oplossings, chemiese ewewig, sure en basisse, buffers, presipitasie. Organiese chemie: struktuur (binding) en funksionele groepe, nomenklatuur, isometrie, inleidende stereochemie, inleiding tot chemiese reaksies en chemiese eienskappe van organiese verbindings.
Toepaslike oefenklasse en praktika.

Chemie 215 (CHM 215)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BIng Chemiese Ingenieurswese ENGAGE
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	CHM 171 of CHM 172 en CHM 181
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied

Departement	Chemie
Aanbiedingstydperk	Semester 1

Module-inhoud

Organiese chemie. Chemiese eienskappe van organiese (insluitend aromatiese) verbindings. Funksionele groeptransformasie en sintese.

Chemie 226 (CHM 226)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BIng Chemiese Ingenieurswese ENGAGE
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	CHM 171 of CHM 172 en CHM 181
Kontaktyd	2 lesings per week, 6 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 2

Module-inhoud

Teorie: Inleiding tot die instrumentele chemiese analise. Integrasie van elektroniese, chemiese, optiese en rekenaarbeginsels vir die daarstelling van analitiese instrumentasie. Detail bespreking van beginsels en enkele instrumentele metodes uit drie vakgebiede binne die analitiese chemie, nl. die elektrochemie, spektroskopie en chromatografie. Dit sluit in potensiometrie, (AA) atoomabsorpsie-, (IGP) atoomemmissie-, ultraviolet (UV) molekulêre-, en infrarooi (IR) molekulêrespektroskopie, potensiometriese en fotometriese titrasies, gaschromatografie, vloeistofchromatografie, sowel as kombinasies van hierdie tegnieke. Prakties: IR spektroskopie, UV spektroskopie, AA spektroskopie, potensiometriese titrasie, gaschromatografie.

Verhandeling: Chemie 890 (CHM 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Wetenskaponderwys MSc Chemie MSc Wetenskaponderwys
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Chemie
Aanbiedingstydperk	Jaar

Proefskrif: Chemie 990 (CHM 990)

Kwalifikasie	Nagraads

Modulekrediete	360.00
Programme	PhD Chemie PhD Chemie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Chemie
Aanbiedingstydperk	Jaar

Algemene chemie 117 (CMY 117)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BDietetics BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Fisika BSc Genetika BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Meteorologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Voeding BSc Voedselwetenskap BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Gesondheidswetenskappe Fakulteit Veeartsenykunde
Voorvereistes	'n Kandidaat moet Wiskunde en Fisiese Wetenskap me minste 60% geslaag het in die G12-eksamen.

Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Chemie
Aanbiedingstydperk	Semester 1

Module-inhoud

Algemene inleiding tot anorganiese en analitiese chemie. Atoomstruktuur en periodisiteit. Molekulêre struktuur en binding, gebruik van die VSEPA model. Nomenklatuur van anorganiese ione en verbindings. Klassifikasie van reaksies: neerslag, suur-basis, redoks en gasvormende reaksies. Beginsels van reaktiwiteit: energie en chemiese reaksies. Molbegrip en stoïgiometriese berekeninge van chemiese reaksies. Fisiese gedrag van gasse, vloeistowwe en oplossings en die rol van intermolekulêre kragte. Tempo van reaksies: Inleiding tot chemiese kinetika.

Algemene chemie 127 (CMY 127)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BDietetics BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Fisika BSc Genetika BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Meteorologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Voeding BSc Voedselwetenskap BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde

Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Gesondheidswetenskappe Fakulteit Veeartsenykunde
Voorvereistes	Natuur- en Landbouwetenskappe studente: CMY 117 GS of CMY 154 GS Gesondheidswetenskappe studente: geen
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Chemie
Aanbiedingstydperk	Semester 2

Module-inhoud

Algemene fisies-analitiese chemie: Chemiese ewewig, sure en basisse, buffers, oplosbaarheidsewewig, entropie en vrye energie, elektrochemie. Organiese chemie: struktuur (binding), nomenklatuur, isomerie, inleidende stereochemie, inleiding tot chemiese reaksies en chemiese eienskappe van organiese verbindings en biologiese verbindings, nl. koolhidrate en aminosure.

Chemie 133 (CMY 133)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	Soos vir BSc Vierjaarprogram
Kontaktyd	Elke twee weke, 3 besprekingsklasse per week, Funderingskursus, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Chemie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
The field of Chemistry – an overview; Mathematics in Chemistry; atomic theory: historical overview; atoms, molecules and ions; relative atomic mass; electronic structure of atoms; the periodic table; periodicity; chemical bonding.

Chemie 143 (CMY 143)

Kwalifikasie	Voorgraads

Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	CMY 133
Kontaktyd	Funderingskursus, Elke twee weke, 2 lesings per week, 3 besprekingsklasse per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Chemie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Bonding and molecular geometry: VSEPR theory; bonding and organic compounds (structural formulas, classification and nomenclature); matter and its properties; mole concept; reaction stoichiometry; reactions in aqueous solutions: precipitation, acidbase and redox.

Chemie 151 (CMY 151)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BPhysio Fisioterapie
Diensmodules	Fakulteit Gesondheidswetenskappe Fakulteit Veeartsenykunde
Voorvereistes	'n Kandidaat moet Wiskunde en Fisiese Wetenskap me minste 60% geslaag het in die G12-eksamen.
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Chemie
Aanbiedingstydperk	Semester 1

Module-inhoud

Teorie: Inleiding tot algemene chemie: Meting in chemie, materie en energie, atoomteorie en die periodieke tabel, chemiese verbindings en chemiese bindings, kwantitatiewe verwantskappe in chemiese reaksies, fases van materie en die kinetiese teorie, oplossings en kolloïde, sure, basisse en ioniese verbindings, chemiese ewewig. Inleiding tot organiese chemie: Chemiese binding in organiese verbindings, aard, fisiese eienskappe en benaming van eenvoudige organiese molekules, isomerie, chemiese eienskappe van alkane en sikloalkane, alkene, alkohole, aldehiede en ketone, karboksielsure en esters, amiene en amiede, koolhidrate, proteïne en lipiede.

Chemie 154 (CMY 154)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	CMY 133 en CMY 143
Kontaktyd	2 tutoriale per week, 3 lesings per week, Prakties tweeweekliks, Funderingskursus
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Principles of reactivity: energy and chemical reactions. Physical behaviour of gasses, liquids, solids and solutions and the role of intermolecular forces. Rate of reactions: Introduction to Chemical kinetics. Introduction to chemical equilibrium. Introduction to organic chemistry: hybridisation, isomers (structural, geometrical and conformational), additions reactions and reaction mechanisms.

Fisiese chemie 282 (CMY 282)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Chemie BSc Fisika BSc Genetika BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Mensfisiologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	CMY 117 en CMY 127
Kontaktyd	4 lesings per week, 1 tutoriaal per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

Teorie: Klassieke chemiese termodinamika, gasse, eerste en tweede wet en toepassings, fisiese veranderinge van suiwer stowwe en eenvoudige mengsels. Fasereël: Chemiese reaksies, chemiese kinetika, reaksietempo's.

Analitiese chemie 283 (CMY 283)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Chemie BSc Fisika BSc Genetika BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Mensfisiologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	CMY 117 en CMY 127
Kontaktyd	1 tutoriaal per week, 2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

Teorie: Statistiese evaluering van data, gravimetriese analise, waterige oplossing chemie, chemiese ewewig, presipiterings-, neutraliserings- en kompleksvormingtitrasies, redokstitrasies, potensiometriese metodes, inleiding tot elektrochemie.

Organiese chemie 284 (CMY 284)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Chemie BSc Fisika BSc Genetika BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Mensfisiologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	CMY 117 en CMY127

Kontaktyd	1 tutoriaal per week, 2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

Teorie: Resonans, konjugasie en aromatisiteit. Sure en basisse.Inleiding tot ^{13}C KMR spektroskopie. Elektrofiele addisie: alkene. Nukleofiele substitusie, eliminasie, addisie: alkielhaliede, alkohole, eters, epoksiede, karbonielverbindings: ketone, aldehiede, karboksielsure en hul derivate.

Anorganiese chemie 285 (CMY 285)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Chemie BSc Fisika BSc Genetika BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Mensfisiologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	CMY 117 en CMY 127
Kontaktyd	2 praktiese sessies per week, 1 tutoriaal per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

Teorie: Atoomstruktuur, struktuur van vastestowwe (ioniese model). Koördinasiechemie van oorgangsmetale: Oksidasietoestande van oorgangsmetale, ligande, stereochemie, kristalveld-teorie, gevolge van d-orbitaalsplitsing, chemie van die hoofgroepelemente, elektrochemiese eienskappe van oorgangsmetale in waterige oplossing, industriële toepassings van oorgangs-metale. Basiese beginsels van spektroskopie en inleiding tot IR-spektroskopie.

Fisiese chemie 382 (CMY 382)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Mensfisiologie BSc Biochemie BSc Chemie BSc Fisika BSc Geologie BSc Mensfisiologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	CMY 282, CMY 283, CMY 284 en CMY 285
Kontaktyd	2 praktiese sessies per week, 1 besprekingsklas per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

Teorie: Molekulêre kwantummeganika. Inleiding: Tekortkomings van klassieke fisika, dinamika van mikroskopiese sisteme, kwantummeganiese beginsels, translasie-, vibrasie- en rotasiebewegings. Atoomstruktuur en spektra: Atomiese waterstof, meerelektronsisteme, spektra van komplekse atome, molekulêre struktuur, die waterstofmolekulêre ioon, diatomiese en poliatomiese molekule, struktuur en eienskappe van molekule. Molekule in beweging: Viskositeit, diffusie, mobiliteit. Oppervlakchemie: Fisisorpsie en chemiesorpsie, adsorpsie isoterme, oppervlakspanning, heterogene katalise tempovergelykings, kapillariteit.

Analitiese chemie 383 (CMY 383)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Chemie BSc Fisika BSc Geologie BSc Mensfisiologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	CMY 282, CMY 283, CMY 284 en CMY 285
Kontaktyd	1 besprekingsklas per week, 4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

Teorie: Skeidingsmetodes: Ekstraksie, veelvuldige ekstraksie, chromatografiese sisteme. Spektroskopie: Instrumentsamestellings, atoomabsorpsie- en atoomemissie-spektrometrie, oppervlakanalise tegnieke. Massaspektrometrie. Instrumentele elektrochemie.

Organiese chemie 384 (CMY 384)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Chemie BSc Fisika BSc Geologie BSc Mensfisiologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	CMY 282, CMY 283, CMY 284 en CMY 285
Kontaktyd	2 praktiese sessies per week, 1 besprekingsklas per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

Teorie: Aromatisiteit en aromatiese chemie, sintetiese metodiek: Koolstof-koolstof bindingsvorming: Alkilering op nukleofiliese koolstofatome, aldol en verwante kondensasiereaksies, Wittig en verwante reaksies, asilering van karbanione (Claisen-kondensasie).

Anorganiese chemie 385 (CMY 385)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Chemie BSc Fisika BSc Geologie BSc Mensfisiologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	CMY 282, CMY 283, CMY 284 en CMY 285
Kontaktyd	2 praktiese sessies per week, 1 besprekingsklas per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

Teorie: Struktuur en binding in anorganiese chemie: Molekuulorbitaalbenadering, di- en poliatomiese molekule, driesenterbindings, metaal-metaalbindings, oorgangsmetaalkomplekse, magnetiese eienskappe, elektroniese spektra, reaktiwiteit en reaksiemeganismes, reaksie-tipes, spesiale onderwerpe.

Analitiese chemie A 706 (CMY 706)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Chemie BScHons Chemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsperiode per week vir 4 weke, 6 lesings per week vir 4 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Selected aspects of: Mass spectometry: ion sources, analysers, detectors, isotope ratios, accurate mass, ion fragmentation, tandem mass spectrometry. Chromatography: theory and instrumentation of gas, liquid and supercritical fluid chromatography, multidimensional systems and coupling to mass spectrometry.

Analitiese chemie B 707 (CMY 707)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Chemie BScHons Chemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week vir 4 weke, 1 besprekingsperiode per week vir 4 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Selected aspects: Electrochemistry: fundamental theory, voltammetry, metal-ligand equilibria, modelling and measurement of solution composition. Statistics: precision and accuracy, random errors, hypothesis testing, method of least squares, curve fitting, multivariate statistics, interpreting patterns of data. Chemical metrology: propagation of errors, quality control of quantitative and qualitative analytical information, international standards, interlaboratory calibration.

Organiese chemie A 708 (CMY 708)

Kwalifikasie	Nagraads
Modulekrediete	10.00

Programme	BScHons Chemie BScHons Chemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsperiode per week vir 4 weke, 6 lesings per week vir 4 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Stereocontrolled organic synthesis: substrate stereocontrol in diastereoselective synthesis. Retrosynthesis: principles and applications. Protecting groups in synthesis. Aromatic and heteroaromatic chemistry.

Organiese chemie B 709 (CMY 709)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Chemie BScHons Chemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsperiode per week vir 4 weke, 6 lesings per week vir 4 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Stereocontrolled organic synthesis: chiral auxiliaries in synthesis; reagent controlled synthesis; catalyst controlled synthetic methods. Pericyclic reactions and transition metals in organic synthesis. Aliphatic and heterocyclic amine chemistry.

Anorganiese chemie A 714 (CMY 714)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Chemie BScHons Chemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsperiode per week vir 4 weke, 6 lesings per week vir 4 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie

Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Inorganic and organometallic chemistry. Classification of ligands and complexes. Synthesis, structure, bonding and reactivity of complexes. From complexes to clusters to networks. Reaction kinetics and mechanisms.

Anorganiese chemie B 715 (CMY 715)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Chemie BScHons Chemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsperiode per week vir 4 weke, 6 lesings per week vir 4 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Main group chemistry. Bioinorganic and bioorganometallic compounds. Metals in medicine. Homogeneous catalysis and template effects. Supramolecular chemistry.

Fisiese chemie A 716 (CMY 716)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Chemie BScHons Chemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsperiode per week vir 4 weke, 6 lesings per week vir 4 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Crystallography: theoretical principles, symmetry elements and operations, point groups, space groups, theory of crystals, X-rays, crystallographic techniques, structure determinations, powder diffraction and crystallographic data bases.

Molecular modelling: molecular structure/energy, methodology, principles and and molecular surfaces.

Fisiese chemie B 717 (CMY 717)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Chemie BScHons Chemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week vir 4 weke, 1 prakties per week vir 7 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Chemical kinetics: rates of chemical reactions, equilibrium reactions, temperature dependence of reactions, complex reactions, reaction mechanisms and kinetics by thermal analysis. Statistical mechanics: Boltzmann distribution, partition functions, ensembles, thermodynamic functions, equilibria.

Organiese/anorganiese projek 718 (CMY 718)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	BScHons Chemie BScHons Chemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 seminaar per week, 1 prakties per week vir 7 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 1 en Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Students work on one project during the year which has a significant laboratory component requiring preparation or manipulation of inorganic or organic chemicals. A report and a presentation are required.

Fisiese/analitiese projek 719 (CMY 719)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	BScHons Chemie BScHons Chemie

Voorvereistes	Geen voorvereistes.
Kontaktyd	1 prakties per week vir 7 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Semester 1 en Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Students work on one project during the year which has a significant component that can be described as instrumental or computational or analysis of data or theoretical. A report and a presentation are required.

Gevorderde praktiese tegnieke 730 (CMY 730)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Chemie BScHons Chemie
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 lesings per week vir 6 weke, 5 tutoriaal periodes per week vir 6 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Chemie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Chemical information literacy; Molecular modelling; NMR spectroscopy; Mass spectrometry; Crystallography and Metrology will be presented from a practical point of view with an emphasis on the interpretation of data and use of instrumentation rather than on underlying theory.

Gemeenskapsvoeding 310 (CNT 310)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Tweedejaarstatus
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding
Aanbiedingstydperk	Semester 1

Module-inhoud
*Verwys na die Engelse weergawe van die Course Catalogue.

Gemeenskapsvoeding 320 (CNT 320)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Derdejaarstatus
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding
Aanbiedingstydperk	Semester 2

Module-inhoud

Gemeenskapvoedingpraktyke in die groter publieke gesondheidkonteks. Voeding in primêre gesondheidsorg. Voeding en gemeenskapontwikkeling, sowel as projekbeplanning en –bestuur.

Community nutrition 321 (CNT 321)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BDietetics
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Derdejaarstatus
Kontaktyd	2 lesings per week, Gemeenskapsbetrokkenheid
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Community nutrition practice within the larger public health realm. Nutrition within primary healthcare. Nutrition and community development as well as project planning and management.

Gemeenskapsvoeding 411 (CNT 411)

Kwalifikasie	Voorgraads
Modulekrediete	25.00
Programme	BDietetics
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Vierdejaarstatus

Kontaktyd	4 lesings per week, Gemeenskapsbetrokkenheid, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Global nutrition challenges e.g. food security, protein-energy and micronutrient malnutrition, non communicable diseases of lifestyle, etc. Public health approaches and general nutrition interventions to address these challenges. Nutrition program development including assessment, analysis and interventions in the South African context as well as Nutrition Policy formulation.

Programontwerp: Inleiding 110 (COS 110)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	COS 132, COS 151 en Wiskunde vlak 5
Kontaktyd	1 praktiese sessie per week, 1 tutoriaal per week, 3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Rekenaarwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Die fokus is op objekgeoriënteerde (OO) programmering. Konsepte wat die volgende insluit: oorerwing en veelvoudige oorerwing, polimorfisme, operatoroorlaaiing, geheuebestuur (statiese en dinamiese binding), koppelvlakke, enkapsulasie, herbruikbaarheid, ens. sal tydens die verloop van die module gedek word. Die module leer deeglike programontwerp met die fokus op modulêre kode, wat lei tot goed gestruktureerde, robuuste en gedokumenteerde programme. 'n Moderne OO-programmeringstaal word gebruik as die medium om hierdie vaardighede te ontwikkel. Die module sal die studente aan basiese datastrukture, lyste, stapels en toue blootstel.

Imperatiewe programmering 132 (COS 132)

Kwalifikasie	Voorgraads
Modulekrediete	16.00

Programme	BSc Wiskundige Statistiek BSc Aktuariële en Finansiële Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	TPT van 30 en Vlak 5 (60-69%) Wiskunde
Kontaktyd	1 tutoriaal per week, 1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Rekenaarwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Die module stel die studente aan imperatiewe rekenaarprogrammering bekend, wat 'n fundamentele boublok van rekenaarwetenskap is. Die proses om 'n program vir 'n gegewe probleem te ontwikkel, programmeer, te redigeer, te vertaal (met die hand of automaties), uit te voer en te ontfout, word van die begin af gedek. Die doel is om die elemente van programmeertaal te bemeester, en om hul saam te kan voeg om sodoende programme te skep wat gebruik maak van tipes, kontrolestrukture, skikkings, funksies en biblioteke. 'n Inleiding tot objekgeoriënteerdheid sal gegee word. Na afloop van die module, behoort 'n student die fundamentele elemente van 'n program te verstaan, asook die belangrikheid van goeie programontwerp en gebruikersvriendelike koppelvlakke. Studente behoort basiese programanalise te kan doen en volledige elementêre programme te kan skryf.

Inleiding tot rekenaarwetenskap 151 (COS 151)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Wiskundige Statistiek BSc Wiskundige Statistiek
Diensmodules	Fakulteit Opvoedkunde Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	TPT van 30 en vlak 5 (60-69%) Wiskunde
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Rekenaarwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Hierdie module bied 'n inleiding tot konsepte en terminologie wat verwant is aan die rekenaarwetenskapdissipline. Algemene onderwerpe wat gedek word, sluit die geskiedenis van rekenaarwetenskap, masjienvlakvoorstelling van data, boolse logika en hekke, basiese rekenaarsisteemorganisasie, algoritmes en kompleksiteit en automata-teorie in. Die module sal ook van die subdissiplines van rekenaarwetenskap aanraak, soos rekenaarnetwerke, databasisstelsels, vertalers, inligtingsekuriteit en intelligentestelsels. Hierdie module fokus ook op die modellering van algorithmes.

Grafika 211 (COS 211)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	COS 110 en COS 151
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Rekenaarwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module introduces students to a framework for investigating both computability and complexity of problems. Topics include, but are not limited to: finite-state machines, regular expressions and their application in a language such as awk, the Halting problem, context-free grammars, P vs NP problem, NP-complete class, reduction techniques, regular languages, DFAs and NFAs, Lattices, context-free grammars, Church-Turing thesis.

Ruimtelike databasisse 787 (COS 787)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geoinformatika BScHons Geoinformatika
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module covers the major themes of spatial databases with application to geographic information systems (GIS), i.e. systems concerning data with an implicit or explicit reference to a location relative to the earth. Topics covered include an introduction to spatial databases and spatial data management systems, representation of geographic data, spatial data modelling, computational geometry, spatial data indexing, query processing and spatial data standards. For Computer Science students the module is an introduction to the ever increasing application field of geographics information systems (GIS), and for Geoinformatics students the module provides insight into the Computer Science foundations of the field.

Diereanatomie en -fisiologie 200 (DAF 200)

Kwalifikasie	Voorgraads
Modulekrediete	32.00
Programme	BSc Biotegnologie BSc Biotegnologie BScAgric Veekunde
Voorvereistes	CMY 127 of toestemming van die departementshoof
Kontaktyd	4 lesings per week, 1 praktika elke 2de week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The body cavities, the origin of trunk wall and the principle arrangement of other anatomical structures as explained by the basic embryological development of mammals. Introduction to anatomy and anatomical terminology. Introduction to basic histology of cells, epithelial tissue and connective tissue. Basic anatomy of tissues, organs, systems and joints. Anatomy of the musculo-skeletal system integrated, the histology of connective tissue and muscles. The anatomy and histology of the integument and skin structures, the cardiovascular, respiratory, immune, endocrine, urogenital and digestive systems all of which serves as basis for the physiology component of the module. General species differences of the anatomy and histology where applicable.

Diereanatomie 310 (DAN 310)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	DAF 200
Kontaktyd	1 lesing per week, Prakties tweeweekliks
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde

Aanbiedingstydperk	Semester 1

Module-inhoud

Funksionele anatomie, groei en ontwikkeling van weefsels en orgaanstelsels. Veranderings gedurende volwassewording, reproduksie, die post-partumperiode en laktasie. Veroudering en weefselveranderings met erosiesiektes. Die invloed van hormone, produksie en reproduksie op konformasie en ‘n kritiese evaluasie van beoordeling van diere vir funksionele doeltreffendheid.

Dierefisiologie 311 (DFS 311)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	DAF 200
Kontaktyd	2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Homeostase en Homeorese in diere: Termoregulering. Aanpassing van glukose, lipied en proteïen metabolisme as gevolg van kort- en langtermyn veranderinge in die toevoer en balans van nutriënte en as gevolg van veranderinge in die aanvraag deur weefsels na nutriënte gedurende verskillende fisiologiese stadia. Afwykings vanaf normale homeostase, metaboliese siektes en die voorkoming daarvan. Patogenese van ontsteking en infeksies; immuniteit.

Groeifisiologie 320 (DFS 320)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	DFS 311
Kontaktyd	1 praktika elke 2de week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Functional anatomy, growth and development of tissues and organ systems. The underlying physiological processes in growth and development. Pre- and postnatal growth and factors which determine growth rate: growth curves, stimulants of growth, age, nutrition, breed, sex. Changes during maturation, reproduction, the post-partum period and lactation. Ageing and tissue changes with erosion diseases. The influence of hormones, production and reproduction on conformation and a critical evaluation of assessment of animals for functional efficiency.

Proefskrif: Landelike ontwikkeling beplanning 990 (DPL 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Dieetkundige toepassing van kommunikasiebeginsels 223 (DTT 222)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Tweedejaarstatus
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding
Aanbiedingstydperk	Semester 2

Module-inhoud

’n Omvattende dieetbenadering in kommunikasie oor voedsel- en voedingboodskappe deur die gebruikmaking van teoretiese raamwerke, insluitende die beplanning en evaluering van inhoud sowel as aanbiedingsvaardighede.

Navorsingsmetodiek 801 (EBW 801)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Programme	PhD Toerismebestuur
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.

Kontaktyd	Vrydag- en Saterdagklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Ekon en Bestuurswet Dekaanskantoor
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

- Developing the background to a research problem, and developing a problem statement and propositions and hypotheses relevant to their study.
- Compiling a thorough literature review of the topics they intend to study.
- Approaches to research: An overview of the different approaches to research (qualitative, quantitative and mixed methods) and the philosophical approaches that underpin them (positivism, post-positivism, interpretivism, constructivism, critical theory and pragmatism).
- Different research designs in quantitative and qualitative methods, and appropriate sampling approaches for the different research designs.
- Qualitative research methodology: An overview of qualitative methods for organisational research. An overview of the different methodologies on a continuum between modernistic qualitative and post-modernistic qualitative research.
- Quantitative research methodology

Verhandeling: Eksplorasie-Geofisika 890 (EGF 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geologie
Aanbiedingstydperk	Jaar

Proefskrif: Eksplorasie geofisika 990 (EGF 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Eksplorasiegeofisika PhD Eksplorasiegeofisika
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geologie
Aanbiedingstydperk	Jaar

Basis van omgewingsgesondheid 772 (EHM 772)

Kwalifikasie	Nagraads

Modulekrediete	5.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geoinformatika BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Gemeenskapsgesondheid
Aanbiedingstydperk	Jaar

Ekonomie 110 (EKN 110)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BPolSci Politieke Studies BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Ekonomie
Aanbiedingstydperk	Semester 1

Module-inhoud

Hierdie module het te doen met die kern beginsels van ekonomie. 'n Onderskeid tussen makro-ekonomie en mikro-ekonomie word getref. 'n Bespreking van die markstelsel en die sirkulêre vloei van goedere, dienste en geld word gevolg deur 'n afdeling wat handel oor mikro-ekonomiese beginsels, insluitend vraag- en aanbod ontleding, verbruikers gedrag en nutmaksimering, produksie en die koste daarvan, en die verskillende mark modelle van firma gedrag. Arbeids markinstellings en kwessies, loonbepaling, asook inkome-ongelykheid en armoede word aangespreek. 'n Afdeling oor geld, bankwese, rentekoerse en monetêre beleid sluit die kursus af.

Ekonomie 113 (EKN 113)

Kwalifikasie	Voorgraads
Modulekrediete	15.00

Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Ten minste 6 (70-79%) in Wiskunde of 60% in beide STK 113 en 123.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot ekonomie en beginsels van mikro-ekonomie
‘n Oorsig van ekonomie, die basiese teorie van vraag en aanbod, prys, inkome en kruiselastisiteit, verbruikersnut, die nutsfunksie en gevallestudies. Die teorie van die produsent oor die kort- en langtermyn, markstrukture, naamlik volmaakte mededinging, monopolie, oligopolie en monopolistiese mededinging, staatsfinansies, mikro- versus makro-ekonomie en ekonomiese statistiek.

Ekonomie 120 (EKN 120)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BPolSci Politieke Studies BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	EKN 110 GS of EKN 113 GS en ten minste 4 (50-59%) in Wiskunde in die Graad 12 eksamen of 60% in STK 113 en gelyktydig geregistreer vir STK 123
Kontaktyd	2 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Ekonomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Hierdie module beskou die kern beginsels van ekonomie, met spesifieke fokus op makro-ekonomiese maatstawwe. Die private en openbare sektore van die Suid-Afrikaanse ekonomie word behandel, terwyl die makro-ekonomiese verwantskappe en meting van binnelandse produk en nasionale inkomste bespreek word. Totale vraag en -aanbod vorm die kern van hierdie ontleding. Verwante konsepte van ekonomiese groei, werkloosheid en inflasie word ook aan studente verduidelik met behulp van hierdie analise. Die mikro-eknomiese beginsels van die owerheid word behandel in 'n afsonderlike afdeling, gevolg deur 'n afdeling oor internasionale ekonomie wat fokus op internasionale handel, wisselkoerse en die betalingsbalans. Ontwikkelings ekonomie en 'n afdeling van Suid-Afrika in die konteks van die wêreld-ekonomie vorm die laaste deel van die kursus.

Ekonomie 123 (EKN 123)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Ten minste 6 (70-79%) in Wiskunde of 60% in beide STK 113 en 123; EKN 113 GS.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Nasionale inkome en beginsels van makro-ekonomie
Die aard en meganika van nasionale rekeninge, die Keynesiaanse makro-ekonomiese model, die geldmark, vraag na en aanbod van geld, geld- en kredietskepping en die rol van die monetêre owerhede. Die IS-LM makro-ekonomiese ewewigsmodel en monetêre en fiskale beleidstoepassings. Die totale vraag en aanbodmodelle en die debat tussen die klassieke, monetaristiese en Keynesiaanse skole. Die probleme van inflasie en werkloosheid. Makro-ekonomiese aspekte, naamlik makro-ekonomiese beleid, internasionale handel, die betalingsbalans en ekonomiese groei.

Ekonomie 214 (EKN 214)

Kwalifikasie	Voorgraads
Modulekrediete	16.00

Programme	BSc Wiskundige Statistiek BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	EKN 110 GS & EKN 120 OR EKN 113 GS & EKN 123; & STK 110 GS OR STK 113 & STK 123 & STK 120/121 or concurrently registered for STK120/121 OR WST 111 & WST121 are prerequisites instead of STK 120/121 or WST 111 and concurrently registered for WST 121.
Kontaktyd	3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Ekonomie
Aanbiedingstydperk	Semester 1

Module-inhoud

Makro-ekonomie
Vanaf Wall en Bay Street tot Diagonal Street: 'n deeglike begrip van die meganisme en teorieë wat die funksionering van die ekonomie verduidelik, is onontbeerlik. Makro-ekonomiese insig in die reële mark, die geldmark, tweemarkewewig, monetarisme, groeiteorieë, konjuktuuranalise, inflasie, Keynesiaanse algemene ewewigsanalise, fiskale en monetêre beleidsaangeleenthede.

Ekonomie 224 (EKN 224)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Wiskundige Statistiek BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	EKN 110 GS & EKN 120 OR EKN 113 GS & EKN 123; & STK 110 GS OR STK 113 & STK 123 & STK 120/121 or concurrently registered for STK120/121 OR WST 111 & WST121 are prerequisites instead of STK 120/121 or WST 111 and concurrently registered for WST 121.
Kontaktyd	3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Ekonomie

Aanbiedingstydperk	Semester 1

Module-inhoud

Mikro-ekonomie
Mikro-ekonomiese insig in produsente- en verbruikersteorie, algemene mikro-ekonomiese ewewig, Pareto-optimaliteit en optimaliteit van die prysmeganisme, welvaartsekonomie, markvorme en die produksiestruktuur van Suid-Afrika.

Ekonomie 234 (EKN 234)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	EKN 214 and STK 120/121 or WST 121 OR concurrently registered for STK 120/121 or WST 121
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Makro-ekonomie

Toepassing van die beginsels geleer in EKN 214 op die wêreld waarin ons leef. Ons pas die teorie toe op internasionale marke en dinamiese makro-ekonomiese modelle, terwyl ons die student blootstel aan die makro-ekonomiese beleidsvraagstukke van die dag. Ons kyk ook na die jongste makro-ekonomiese navorsingsvraagstukke in die wêreld. Die kursus sluit onderwerpe in van die wiskundige en ekonometriese ontleding van makro-ekonomiese vraagstukke.

Ekonomie 244 (EKN 244)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe

Voorvereistes	EKN 214 and STK 120/121 or WST 121 OR concurrently registered for STK 120/121 or WST 121.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Mikro-ekonomie

Vanaf algemene ewewig en ekonomiese welvaart, tot onsekerheid en assimetriese inligting. In hierdie module word die beginsels wat in EKN 224 geleer word toegepas op die wêreld om ons, deurdat ons die mikro-ekonomiese beginsels van die arbeids- en kapitaalmark bestudeer, asook die redes waarom die vryemarkstelsel soms misluk. Ons raak aan die owerheid se rol in hierdie markmislukkings. Die kursus sluit onderwerpe in van die wiskundige en ekonometriese ontleding van mikro-ekonomiese vraagstukke.

Ekonomie 310 (EKN 310)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BSc Wiskundige Statistiek BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	EKN 214, EKN 234 of EKN 224, EKN 244
Kontaktyd	1 besprekingsklas per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Ekonomie
Aanbiedingstydperk	Semester 1

Module-inhoud

Staatsfinansies
Rol van die owerheid in die ekonomie. Welvaartsteorie en die optimaliteitsteorieë. Maniere waarop markmislukkings reggestel word. Owerheidsbestedingsteorieë, modelle en programme. Owerheidsinkomste. Modelle oor belasting, effek van belasting op die ekonomie. Beoordeling van belasting vanuit 'n optimaliteits- en effektiwiteitsoogpunt. Suid-Afrikaanse perspektief op owerheidsfinansies.

Ekonomie 314 (EKN 314)

Kwalifikasie	Voorgraads

Modulekrediete	20.00
Programme	BSc Wiskundige Statistiek BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	EKN 234, EKN 224
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 1

Module-inhoud

Internasionale handel/finansiering Internasionale ekonomiese insig in die volgende: internasionale ekonomiese verhoudings en geskiedenis, internasionale handelsteorie, internasionale kapitaalbewegings, internasionale handelspolitiek, ekonomiese en doeane-unies en ander vorme van streeksamewerking en integrasie, internasionale monetêre verhoudings, buitelandse valutamarkte, wisselkoersaangeleenthede en die betalingsbalans asook die makro-ekonomiese aspekte van oop ekonomieë.

Ekonomie 320 (EKN 320)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BSc Wiskundige Statistiek BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	EKN 310 GS
Kontaktyd	2 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Ekonomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Ekonomiese analises Die identifikasie, insameling en interpretering van ekonomiese data; die nasionale rekeninge (inkome- en produksierekeninge, die nasionale finansiële rekening, die betalingsbalans en inset-uitsettabelle); ekonomiese groei; inflasie; werkskepping; werkloosheid, lone, produktiwiteit en inkomeverdeling; besigheidsiklusse; finansiële aanwysers; sosiale aanwysers; internasionale vergelykings; regressie-analise van verwantskappe tussen ekonomiese tydreekse; langtermyn toekomsstudies en scenarios; algehele beoordeling van die Suid-Afrikaanse ekonomie vanaf 1994.

Ekonomie 325 (EKN 325)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BSc Toegepaste Wiskunde BSc Wiskunde BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	EKN 214, EKN 234
Kontaktyd	1 besprekingsklas per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 2

Module-inhoud

Ekonomiese beleid en ontwikkeling: capita selecta Die kursus bied 'n inleiding tot ekonomiese groei en ook sommige onderwerpe en ontwikkelinge ekonomie. Eerstens word historiese bewyse ontleed en dan ook die kanonieke Solow-groei model en sommige van die empiriese toepassings daarvan (menslikekapitaal en konvergensie). Tweedens word die nuwe groeiteorie (die AK- en Romer modelle van endogene ekonomiese groei) gedek. Sommige van die ontwikkeling onderwerpe wat behandel word is tegnologie-oordrag, sosiale infrastruktuur en natuurlike hulpbronne.

Mikro-ekonomie 812 (EKN 812)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	MPhil Ekonomie (Gedoseer)
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Slegs vir studente in toepaslike program
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie

Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The module will first expose students to knowledge related to how individual consumers and firms behave under a very strict set of circumstances. Toward the end of the semester, the module will then begin to examine behaviour under less strict assumptions. The module covers in detail, firm behaviour, consumer behaviour, general equilibrium, behaviour under uncertainty and risk, strategic behaviour, information, game theory and to a lesser extent, the interaction between the government and the individual.

Makro-ekonomie 813 (EKN 813)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	MPhil Ekonomie (Gedoseer)
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Slegs vir studente in toepaslike program
Kontaktyd	1 ander kontak per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The basic framework for this module will be infinitely-lived dynamic stochastic and non-stochastic macro models in both discrete and continuous time frames. Overlapping generation models will also be used to deal with certain topics. Topics include:
• The Lucas Critique
• Growth models
• Expectations
• Business cycles
• Basics of a new Keynesian business cycle model
• Overlapping generations models

Monetêre ekonomie en bankwese 816 (EKN 816)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	MCom Ekonomie (Gedoseer)
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Slegs vir studente in toepaslike program
Kontaktyd	1 lesing per week

Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Verwys na die Engelse weergawe van die Course Catalogue.

Ekonometrie 713 (EKT 713)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BComHons Landbou-ekonomie MScAgric Landbou-ekonomie (Gedoseer)
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Slegs vir BComHons: Landbou-Ekonomie, Ekonometrie of Ekonomie studente
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An introductory yet comprehensive course in econometrics, encompassing an in-depth examination of elementary statistics and regression analysis. This includes the fundamentals of simple and multiple regression analyses, as well as estimation, inference and hypothesis testing. Considerable attention is devoted to practical applications on current economic issues and examples drawn from the applied economic literature.

Inleiding tot statistiese leer 720 (EKT 720)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskundige Statistiek BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	RAL 780, WST 311, 312, 321, 322
Kontaktyd	1 lesing per week, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The emphasis is on the theoretical understanding and practical application of advances in statistical modelling. The following topics are covered: Single equation models: Nonparametric regression. Bootstrap procedures within regression analysis, k-nearest neighbour classification. Modelling categorical dependent variables - Logit/Probit models. Multiple outputs. Linear regression of an indicator matrix. Ridge regression. Non-linear regression modelling. Some new developments in regression and classification.
Simultaneous equation models: Specification, identification and estimation of simultaneous equation models.

Ekonometrie 723 (EKT 723)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MScAgric Landbou-ekonomie (Gedoseer)
Voorvereistes	Slegs vir Hons Ekonometrie of Ekonomie studente; EKT 713
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An advanced course in econometrics that goes beyond elementary statistics and regression analysis. This includes in-depth analyses of the theory and application of stationarity, unit roots and co-integration in single equations. In addition to this, the concepts of qualitative analysis, cross-sectional modelling and simultaneous-equation modelling are dealt with.

Omgewing en Ontwikkeling 811 (ENS 811)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekologie (Gedoseer) MSc Omgewing en Samelewing (Gedoseer) MSc Omgewingsbestuur (Gedoseer) MSc Omgewingsekologie (Gedoseer)
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

Hierdie module fokus op die interaksie tussen sosiale en omgewingsdinamika. Dit dek aspekte van sosiale struktuur, kultuur, politiek, opvoeding, migrasie, produksie, stadsvorming, demografie en sosiale instellings en hul effek op die omgewing. Die materiaal sluit ook in die gevolg van impakte soos omgewingsverandering wat op hul beurt weer die samelewing beïnvloed. Die ontleding van komplekse verwantskappe tussen die samelewing en die omgewing, koppelinge tussen die samelewing en omgewing en sinergistiese effekte tussen hierdie verskynsels.

Strategiese omgewingsbestuur 822 (ENS 822)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Omgewing en Samelewing (Gedoseer) MSc Omgewingsbestuur (Gedoseer) MSc Omgewingsekologie (Gedoseer)
Diensmodules	Fakulteit Regsgeleerdheid
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 besprekingsklasse per week, 5 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Strategic environmental planning: introduction, objectives and principles; levels; South African overview; guidelines: national and international; strategy and management; structure, strategy and agency; South African guidelines; diagnostic tools; RESP analysis; strategic resource planning; applications, implementation and control; development and policy implementation; South African environmental policy; evaluation frameworks; portfolio analysis; competitive forces; alliances; business benefits; intangibles, survival and catalytic contributions; South African legislation and regulations.

Omgewing en Grondhervorming 823 (ENS 823)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Omgewing en Samelewing (Gedoseer) MSc Omgewingsekologie (Gedoseer)
Voorvereistes	Geen voorvereistes.

Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The need and purpose of land reform in South Africa and its contribution towards sustainable social-environmental interaction. An overview of the global variety of land tenure systems, and tenure reform programmes in other countries. Overview of previous systems of land tenure in South Africa. Land reform policy in South Africa: restitution, redistribution, and tenure reform. Critical assessment of progress in terms of land reform objectives. Evaluation of the contribution of the South African land reform programme towards creating sustainable environments.

Sosiale modellering en bepaling 824 (ENS 824)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsbestuur (Gedoseer) MSc Omgewing en Samelewing (Gedoseer) MSc Omgewingsbestuur (Gedoseer) MSc Omgewingsekologie (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

In this module students will be introduced to the various methods of modelling and assessing social impacts. Specific emphasis will be placed upon modelling societal-economic-environmental interactions, formulating stochastic and dynamic models of population-development-environment interactions, conducting research to determine possible impacts of environmental changes on communities and performing social impact surveys. Students will be introduced to both quantitative as well as qualitative methods of conducting social impacts assessments.

Verhandeling: Entomologie 890 (ENT 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00

Programme	MSc Entomologie MSc Entomologie MScAgric Entomologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Proefskrif: Entomologie 990 (ENT 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Entomologie PhD Entomologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Inleiding tot omgewingswetenskappe 101 (ENV 101)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Geografie BSc Geoinformatika BSc Meteorologie BSc Omgewingswetenskappe BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

Inleiding tot die basiese konsepte en verwantskappe wat nodig is vir insig in die kompleksiteit van natuurlike omgewingsprobleme, fisiese en menslike omgewings, mensgeïnduseerde omgewingsprobleme, die wyses waarop die natuurlike omgewing menslike gemeenskappe en biodiversiteit beïnvloed, oorsig van belangrike omgewingsvraagstukke in Suidelike Afrika en volhoubare ontwikkeling binne hierdie konteks.

Mens-omgewing-interaksies 301 (ENV 301)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Geoinformatika BSc Fisika BSc Geografie BSc Geoinformatika BSc Meteorologie BSc Omgewingswetenskappe
Diensmodules	Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

Fokus op kontemporêre omgewingsvraagstukke in suidelike Afrika. Huidige en toekomstige impak van menslike druk op natuurlike hulpbronne, die stand van die omgewing in Suid-Afrika, bestuur van kritiese hulpbronne, bevolkingstendense, verlies aan biodiversiteit, besoedeling, waterskaarste, verwoestyning, klimaatsverandering, akkumulasie en bestuur van afval, omgewingsbestuurstegnieke, omgewingsopvoeding en wetgewing t.o.v. omgewingsbestuur.

Navorsing en aanbiedingsvaardighede 703 (ENV 703)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

'n Module wat fokus op navorsingsmetodieke en data-insamelingstegnieke sowel as visuele en verbale aanbiedingsvaardighede. Die evaluering van die module berus hoofsaaklik op die finale aanbieding van die inhoud van die honneursprojek.

Omgewingsgehoorgewing 727 (ENV 727)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Hulpmiddels ter voldoening aan omgewings-, grondwetlike en administratiewe voorwaardes, strafregtelike vereistes, besigheidsentiteite en aanspreeklikheid, mandaat en magte van omgewingsinspekteurs, wetstoepassingsetiek, netwerke en hulpbronne, konflikbestuur.

Industriële omgewings-regsvoldoening 729 (ENV 728)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	ENV 727
Kontaktyd	5 lesings vir periode van een week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Gesondheid en veiligheid gedurende industriële wetstoepassing, inspeksiebeginsels m.b.t. voldoening in industrieë, beginsels van ondersoek, monsterneming en kuratorskap t.o.v. toetsmonsters, interaksie met ISO 14001, prosedures tydens vervolging.

Industriële omgewings-regsvoldoening 729 (ENV 729)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	ENV 727
Kontaktyd	5 lesings vir periode van een week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie

Aanbiedingstydperk	Semester 2

Module-inhoud

Gesondheid en veiligheid gedurende industriële wetstoepassing, inspeksiebeginsels m.b.t. voldoening in industrieë, beginsels van ondersoek, monsterneming en kuratorskap t.o.v. toetsmonsters, interaksie met ISO 14001, prosedures tydens vervolging.

Environmental assessments 785 (ENV 785)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geografie en Omgewingswetenskap
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The aim of this module is to understand the principles and processes behind environmental assessments. The module will give an overview of the history of assessments, compare assessment processes internationally, evaluate the strengths and weaknesses of different approaches, provide an overview of the South African regulatory context and the environmental authorisation process.

Omgewingsparadigmas 810 (ENV 810)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsonderwys (Coursework) MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Lugkwaliteitbestuur (Gedoseer) MSc Omgewing en Samelewing (Gedoseer) MSc Omgewingsbestuur (Gedoseer) MSc Omgewingsekologie (Gedoseer) MSc Omgewingsonderwys (Coursework) MSc Waterhulpbronbestuur (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Omgewingsfilosofie en etiek. Omgewingsekologie, omgewing, gemeenskap en ontwikkeling, omgewingsekonomie, kritiese hulpbronbestuur. Waterbenutting, lug-kwaliteitsbeheer, beplanning van landbenutting. Kenmerke van grond. Beplanning van biodiversiteit. Determinisme versus ko-evolusionêre omgewingsraamwerke. Navorsings-metodologie en -praktyk.

Omgewingsanalise, -assessering en -modellering 812 (ENV 812)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	MA Omgewing en Samelewing (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Module-inhoud

Beginsels van enkel-variante statistiek, klassifikasie en ordinering, multivariate statistiek, inleiding tot GIS, gereedskap vir omgewingsanalise, "spatial" statistiek-interpolering, "spatial" outokorrelasie, regressie, risiko-assessering, assessering van sosiale impak.

Omgewingsreg 816 (ENV 816)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsonderwys (Coursework) MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Lugkwaliteitbestuur (Gedoseer) MSc Omgewing en Samelewing (Gedoseer) MSc Omgewingsbestuur (Gedoseer) MSc Omgewingsekologie (Gedoseer) MSc Omgewingsonderwys (Coursework) MSc Waterhulpbronbestuur (Gedoseer)
Diensmodules	Fakulteit Regsgeleerdheid
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 2 praktiese sessies per week, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Legislation for sustainable development within the framework of international agreements, the different acts affecting water quality and water use, the SEMAs within the NEMA framework, the NEMA EIA regulations, legislation pertaining to hazardous substances, interaction between mining development and NEMA, energy law, strategic environmental legislation, marine and coastal managment.

Internasionale omgewingsbestuurstelsels 822 (ENV 822)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Omgewingsekologie (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 lesings oor tydperk van 1 week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The ISO framework, environmental risks and opportunities for companies, global environmental concerns, environmental legislation, identification of environmental impacts, environmental certification and auditing, follow-up activities, the Forestry Stewardship Council framework, chain of custody requirements, production standards, FSC reporting.
(** additional costs involved for international UK certificate)

Bome in 'n multifunksionele landskap 833 (ENV 833)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Omgewingsekologie (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 besprekingsklasse per week, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Kwartaal 3

Module-inhoud
*Hierdie inligting is slegs in Engels beskikbaar.

Place and role of trees in multifunctional rural landscapes. Trees outside forests. Multipurpose trees. Trees and biodiversity. Trees and environmental services. Trees and sustainable development. Domesticated forests. Agroforestry (definition, classification, challenges and examples). Multiple use of forests and trees. Non-timber tree and forest products. Domestication of multipurpose trees. Forests and people. Trees and agricultural production systems (yield, interactions, synergy, competition, pests and diseases). Case-study examples from sub-Saharan Africa.

Miniverhandeling 891 (ENV 891)

Kwalifikasie	Nagraads
Modulekrediete	90.00
Programme	MSc Omgewingsonderwys (Coursework) MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Lugkwaliteitbestuur (Gedoseer) MSc Omgewing en Samelewing (Gedoseer) MSc Omgewingsbestuur (Gedoseer) MSc Omgewingsekologie (Gedoseer) MSc Omgewingsonderwys (Coursework) MSc Waterhulpbronbestuur (Gedoseer)
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Module-inhoud
*Hierdie inligting is slegs in Engels beskikbaar.

The student needs to conduct a research project under the supervision of an academic member of staff associated with the Centre for Environmental Studies. This project needs to be of a sufficient quality to be publishable in the open scientific literature. The research report is examined as a manuscript for a suitable journal.

Verhandeling: Omgewingsekologie 892 (ENV 892)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Omgewingsekologie MSc Omgewingsekologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie

Aanbiedingstydperk	Jaar

Verhandeling: Omgewing en samelewing 893 (ENV 893)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Omgewing en Samelewing MSc Omgewing en Samelewing
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Verhandeling: Omgewingsbestuur 894 (ENV 894)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Omgewingsbestuur MSc Omgewingsbestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Verhandeling: Waterhulpbronbestuur 896 (ENV 896)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Waterhulpbronbestuur MSc Waterhulpbronbestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Verhandeling: Omgewingsopvoedkunde 897 (ENV 897)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Omgewingsonderwys MSc Omgewingsonderwys

Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Verhandeling: Lugkwaliteitbestuur 898 (ENV 898)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Lugkwaliteitbestuur MSc Lugkwaliteitbestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Proefskrif: Waterhulpbronbestuur 990 (ENV 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Waterhulpbronbestuur PhD Waterhulpbronbestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Jaar

Proefskrif: Omgewing en samelewing 991 (ENV 991)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Omgewing en Samelewing PhD Omgewing en Samelewing
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Proefskrif: Omgewingsekologie 992 (ENV 992)

Kwalifikasie	Nagraads

Modulekrediete	360.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Proefskrif: Omgewingsekonomie 993 (ENV 993)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Omgewingsekonomie PhD Omgewingsekonomie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Proefskrif: Omgewingsbestuur 994 (ENV 994)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Omgewingsbestuur PhD Omgewingsbestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Proefskr: Lugkwaliteitbestuur 998 (ENV 998)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Lugkwaliteitbestuur PhD Lugkwaliteitbestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Inleiding tot omgewings- en beroepsgesondheid 775 (EOH 775)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geoinformatika BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Gemeenskapsgesondheid
Aanbiedingstydperk	Jaar

Akademiese geletterdheid (1) 110 (EOT 110)

Kwalifikasie	Voorgraads
Modulekrediete	6.00
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe Fakulteit Teologie en Religie Fakulteit Veeartsenykunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 ander kontak per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Eenheid vir Akademiese Geletterdheid
Aanbiedingstydperk	Semester 1

Module-inhoud

Hierdie module bied ’n inleiding tot die ontwikkeling van akademiese geletterdheid, met inagneming van verskillende leerstyle en -strategieë. Aanvanklik word die kenmerke van akademiese taal oorsigtelik behandel, en daar word spesifiek op luister- en praatvaardigheid gekonsentreer. Daar word verder op die insameling en verwerking van inligting vir akademiese opdragte gefokus. Klem word ook op die uitbreiding van akademiese woordeskat gelê. Daar word op elementêre vlak met akademiese skryfwerk begin.

Akademiese geletterdheid (2) 120 (EOT 120)

Kwalifikasie	Voorgraads
Modulekrediete	6.00

Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe Fakulteit Teologie en Religie Fakulteit Veeartsenykunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 ander kontak per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Eenheid vir Akademiese Geletterdheid
Aanbiedingstydperk	Semester 2

Module-inhoud

Die fokus op die insameling en verwerking van akademiese inligting word uitgebrei om ook deurlopende oefening in akademiese leesvaardigheid in te sluit. Studente se akademiese woordeskat word in spesifieke vakgebiede uitgebou. Akademiese luister-, lees- en skryfvaardigheid word in hierdie laaste module geïntegreer. Die hooffokus val op die generering van akademiese inligting by wyse van argumentatiewe skryfwerk; dit wil sê daar word gefokus op die voortbrenging van ’n akademiese diskoers wat rasioneel, samehangend, duidelik en presies is.

Estetika 121 (EST 121)

Kwalifikasie	Voorgraads
Modulekrediete	9.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	OBG 111
Kontaktyd	1 lesing per week, 1 ppraktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Voorstellingstegnieke: visuele voorstellings en tegniese tekeninge. Voorstellingstegnieke met CAD as hulpmiddel.

Estetika: Produk, verbruiker en omgewing 320 (EST 320)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur

Voorvereistes	OBG 111
Kontaktyd	2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot estetika. Die wisselwerking tussen die omgewing en verbruikers se estetiese ervaring. Handerlsware voostelling: basiese komponente, hulpmiddels en tegnieke; beplanning in kleding-, interieur- en voedselklein-handelomgewings

Waterkwaliteitsbestuur 810 (EWM 810)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekologie (Gedoseer) MSc Omgewingsekologie (Gedoseer) MSc Waterhulpbronbestuur (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Severity of waterborne disease, accurate risk analysis, emergence of pathogens resistant to disinfection, the use of indicator organisms, toxicity risks, viral and protozoal contamination, water borne diseases surveillance, epidemiology of water borne diseases, water quality standards and monitoring, education.

Waterbewaring- en aanvraagbestuur 821 (EWM 821)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekologie (Gedoseer) MSc Omgewingsekologie (Gedoseer) MSc Waterhulpbronbestuur (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie

Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Public access to information regarding water quality, water supply sustainability and public education, demand projections, water management efficiency systems approach to water management, watershed protection, drinking water treatment and distribution, wastewater collection and treatment, effects of deforestation and treatment, and complex water system developments, destruction of wetlands, effects of recreation, agriculture and aquaculture on eutrophication.

Watervoorsiening en sanitasie 822 (EWM 822)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekologie (Gedoseer) MSc Omgewingsekologie (Gedoseer) MSc Waterhulpbronbestuur (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Low technology water treatment options, sanitary engineering, high technology options, water disinfection methods, selection of treatment regimes, stormwater management.

Farmakologie 381 (FAR 381)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BDietetics BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensgenetika
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FLG 211, FLG 212, FLG 221, FLG 222 GS
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Farmakologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding, reseptore, antagonisme, kinetiese begrippe. Middels wat inwerk op die outonome en sentrale senuweestelsel. Geneesmiddelbehandeling van hipertensie, angina pectoris, miokardiale infarksie, hartversaking, hart-aritmieë, en epilepsie. Diuretika, glukokortikosteroïede, lokale verdowers, narkosemiddels, analgetika, yster en vitamiene, onkostatika, immuunonderdrukkers.

Farmakologie 382 (FAR 382)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BDietetics BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensgenetika
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FAR 381, FLG 211, FLG 212, FLG 221, FLG 222 GS
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Farmakologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Hormone, geneesmiddels wat inwerk op histaminerge, serotonerge en dopaminerge reseptore. Geneesmiddelbehandeling van diabetes mellitus, skisofrenie, depressie, vetsug, angs, insomnia, spysverteringskanaalsiektes. Antistolmiddels, antimikrobe middels.

Finansiële bestuur 110 (FBS 110)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Toegepaste Wiskunde BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Finansiële Bestuur
Aanbiedingstydperk	Semester 1

Module-inhoud

*Slegs beskikbaar vir BSc (Wiskundige Statistiek, Konstruksiebestuur, Eiendomswese en Bourekenkunde) en BEng (Bedryfsingenieurswese) -studente. Doel en funksie van finansiële bestuur, grondliggende finansiële bestuursbegrippe. Rekeningkundige konsepte en die gebruik van die basiese rekeningkundige vergelyking om die finansiële toestand van ‘n onderneming te beskryf. Teboekstelling van rekeningkundige transaksies. Verband tussen kontant en rekeningkundige wins. Interne beheer en die bestuur van kontant. Debiteure en korttermynbeleggings. Voorraadwaardasiemetodes. Waardevermindering. Gebruik en verslagdoening oor skuldfinansiering en aandelekapitaal. Opstel en gebruik van finansiële state. Onderskeidende eienskappe van die verskillende ondernemingsvorme. Oorsig van die finansiële markte en die rol van finansiële instellings. Beskrywing van die risiko- en opbrengseienskappe van verskillende finansiële instrumente. Uitgifte van gewone aandele en skuldfinansieringsinstrumente.

Finansiële bestuur 112 (FBS 112)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Ten minste 6 (70-79%) in Wiskunde in die Graad 12-eksamen of WTW 133 (60%), WTW 143 (60%), WST 133 (60%) en WST 143 (60%).
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Finansiële Bestuur
Aanbiedingstydperk	Semester 1

Module-inhoud

*Slegs beskikbaar vir studente in BSc (Aktuariële en Finansiële Wiskunde), BSc (Wiskunde), BSc (Toegepaste Wiskunde), BSc (Wiskundige Statistiek), BSc Verlengde program – Wiskundige Wetenskappe en BCom (Statistiek) wat aan die gestelde voorvereistes voldoen

Grondbeginsels van finansiële bestuur. Maatskappy-eienaarskap. Belasting. Inleiding tot finansiële state. Struktuur van finansiële state. Depresiasie en reserwes. Voorbereiding van finansiële state. Groeps- finansiële state van 'n versekeringsmaatskappy. Vertolking van finansiële state. Beperking van finansiële state. Uitreiking van aandelekapitaal.

Finansiële bestuur 120 (FBS 120)

Kwalifikasie	Voorgraads
Modulekrediete	10.00

Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Toegepaste Wiskunde BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BCom Financial Sciences, Investment Management and Law: FRK111 and FRK121 (or FRK100 or 101), STK110,120 or FBS121, and simultaneously registered for FRK211; BSc Construction Management, Quantity Surveying and Real Estate: FBS110, STK110 and STK120
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Finansiële Bestuur
Aanbiedingstydperk	Semester 2

Module-inhoud

*Slegs beskikbaar vir BSc (Wiskundige Statistiek) -studente.
Ontleding en vertolking van finansiële state. Begrotings en begrotingsbeheer. Belastingsbeginsels en die normale belastingaanspreeklikheid van individue. Tydwaarde van geld en die gebruik daarvan vir finansiële en beleggingsbesluite. Berekening van die koste van kapitaal en die finansiering van die onderneming met die oog op die handhawing van 'n optimale kapitaalstruktuur. Die investeringsbesluit en 'n studie van die verskillende besluitnemingskriteria vir kapitaalinvesteringsbesluite. Die dividend besluit en 'n oorsig van finansiële risikobestuur.

Finansiële bestuur 122 (FBS 122)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Finansiële Bestuur
Aanbiedingstydperk	Semester 2

Module-inhoud

Finansiële instrumente. Gebruik van finansiële instrumente. Finansiële instellings. Tydwaarde van geld. Komponentkoste van kapitaal. Geweegde gemiddelde koste van kapitaal. Kapitaalstruktuur en dividendbeleid. Kapitaalprojektaksasie. Evaluering van riskante investerings.

Wetenskap en wêreldbeskouing 155 (FIL 155)

Kwalifikasie	Voorgraads
Modulekrediete	6.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Mediese Wetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe
Diensmodules	Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Filosofie
Aanbiedingstydperk	Semester 1

Module-inhoud

Hierdie module is ‘n inleiding tot wetenskapfilosofie en die geskiedenis van die wetenskap in die breë. Die volgende is voorbeelde van temas en tydperke wat bespreek kan word: Wêreldbeskouings in antieke Griekeland; Sokrates; Plato – die grondlegger van die Westerse denke; Aristoteles – die vestiging van ’n nuwe tradisie; Leonardo da Vinci; die vestiging van die moderne wetenskap; die wonderjare van die 17de eeu – die hoogbloei van die wetenskappe en filosofie; die opkoms van die meganika; ’n drastiese wending in die sieninge van die mens – die opkoms van die sielkunde; hoe die relatiwiteitsteorie ons siening van die kosmos verander het; die kwantumteorie en die implikasies daarvan vir die moderne wêreldbeskouing; die biologiese wetenskappe en die geheime van die lewe; Opkoms en rol van sielkunde. die neurowetenskappe; die plek, rol en nut van filosofiese denke in die wetenskappe.

Inleidende en neurofisiologie 211 (FLG 211)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BDietetics BSc Biochemie BSc Chemie BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Voeding
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe

Voorvereistes	CMY 117, CMY 127, MLB 111 en PHY 131
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Orientation in physiology, homeostasis, cells and tissue, muscle and neurophysiology, cerebrospinal fluid and the special senses.
Practical work: Practical exercises to complement the theory.

Sirkulatoriese fisiologie 212 (FLG 212)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BDietetics BSc Biochemie BSc Chemie BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Voeding
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	CMY 117, CMY 127, MLB 111 en PHY 131
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Body fluids; haematology; cardiovascular physiology and the lymphatic system. Practical work: Practical exercises to complement the theory.

Long- en nierfisiologie, suurbasis-ewewig en temperatuur 221 (FLG 221)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BDietetics BSc Biochemie BSc Chemie BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Voeding
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FLG 211 en FLG 212
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Structure, gas exchange and non-respiratory functions of the lungs; structure, excretory and non-urinary functions of the kidneys, acid-base balance, as well as the skin and body temperature control.
Practical work: Practical exercises to complement the theory.

Vertering, endokrinologie en voortplantingstelsels 222 (FLG 222)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BDietetics BSc Biochemie BSc Chemie BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Voeding
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FLG 211 and FLG 212
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Nutrition, digestion and metabolism; hormonal control of the body functions and the reproductive systems. Practical work: Practical exercises to complement the theory.

Industriële fisiologie 322 (FLG 322)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensfisiologie BSc Mensfisiologie
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BCM 251 GS, BCM 252 GS, BCM 261 GS, BCM 262 GS, FLG 221 en FLG 222
Kontaktyd	1 praktiese sessie per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Problem-orientated module, with the emphasis on occupational health and safety in the industrial environment. Integration of different physiological systems is required. Practical work: Exposure to occupational hygiene measurement techniques. *Students interested in pursuing postgraduate studies in OHS must take FLG 322.

Hoër neurologiese funksies 327 (FLG 327)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensgenetika BSc Biochemie BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BCM 251 GS, BCM 252 GS, BCM 261 GS, BCM 262 GS, FLG 221 en FLG 222
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 1

Module-inhoud
*Hierdie inligting is slegs in Engels beskikbaar.
Overview of higher cognitive functions and the relationship between psyche, brain and immune system. Practical work: Applied practical work.

Sellulêre en ontwikkelingsfisiologie 330 (FLG 330)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensgenetika BSc Biochemie BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensgenetika
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BCM 251 GS, BCM 252 GS, BCM 261 GS, BCM 262 GS, FLG 221 en FLG 222
Kontaktyd	1 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie module word slegs in Engels aangebied
During this module the biology of cellular processes such as the cell cycle, cell death, migration and their related cellular signalling pathways will be discussed as well as their role in early stage embryology and age-related pathologies. Practical work: Exposure to applied molecular biology techniques.

Oefenings- en voedingswetenskap 331 (FLG 331)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensfisiologie BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BCM 251 GS, BCM 252 GS, BCM 261 GS, BCM 262 GS, FLG 221 en FLG 222
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Mechanisms of muscle contraction and energy sources. Cardio-respiratory changes, thermo-regulation and other adjustments during exercise. Use and misuse of substances to improve performance. Practical work: Applied practical work

Toegepaste en patofisiologie 332 (FLG 332)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensgenetika BSc Biochemie BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BCM 251 GS, BCM 252 GS, BCM 261 GS, BCM 262 GS, FLG 221 en FLG 222
Kontaktyd	2 lesings per week, 1 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Integration of all the human physiological systems. Practical work: Applied practical work.

Inleiding tot voedsel, voeding en gesondheid 121 (FNH 121)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Voeding BSc Voeding
Voorvereistes	Natural and Agricultural Sciences students
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Teen 2050 sal die wêreld meer as 8 biljoen mense moet voed. Hierdie module gee die onderliggende wetenskaplike basis in Voedsel, Voeding en Gesondheid en stel 'n aantal wetenskaplike beginsels en basiese begrippe bekend. Lesings: Inleiding tot voedselkeuse soos wat dit beinvloed word deur sosiale faktore, godsdienstige invloede, etnisiteit, gesondheid, veiligheid, ekonomie, sensoriese eienskappe van voedsel; Inleiding tot die voedselketting met spesiale klem op die voedings-, omgewings-, etiese en veiligheidkwessies wat van belang is vir verbruikers; Honger - voedsel behoeftes, met inbegrip van voedsel en voeding sekuriteit, die aard van voedingsprobleme, bestriding vanoor-en ondervoeding; Inleiding tot voiding: Nutriënte in voedsels, voedselsamestelling, biobeskikbaarheid van nutriënte, dieet en kroniese siektes; die sleutels tot gesonde eetgewoontes; Inleiding tot funksionele chemiese komponente van voedsel, Inleiding tot voedselprosessering en –preservering; Inleiding tot voedselveiligheid, gevare en risiko's; Inleiding tot voedselkwaliteit en-voorkeure van verbruikers; Belangrikheid van voedsel wetgewing om gesonde en veilige voedsel te verskaf, insluitende voedingsetikettering, gesondheid en voedingsbewerings; Voedsel, Voeding en Gesondheid kwessies in die nuus. Praktiese werk Beginsels en praktyk van basiese begrippe in voedsel, voeding en gesondheid.

Voedsel- en voedingsekuriteit 320 (FNH 320)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Voeding BSc Voeding
Voorvereistes	Tweede jaar status of TDH
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

Globale voedselsisteme en voedselsekuriteit, lewensbestaan en huishoudelike dinamieke, geslagskwessies.

Navorsingsprojek 400 (FNH 400)

Kwalifikasie	Voorgraads
Modulekrediete	40.00
Programme	BSc Voeding BSc Voeding
Voorvereistes	Derde jaar status
Kontaktyd	2 praktiese sessies per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

'n Laboratorium-gebaseerde, analitiese navorsingsprojek oor 'n goedgekeurde onderwerp in voedingswetenskap word beplan, uitgevoer en aangebied in die vorm van 'n geskrewe verslag.

Gevorderde voedsel, voeding en gesondheid 420 (FNH 420)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BSc Voeding BSc Voeding
Voorvereistes	Derdejaar status of TDH
Kontaktyd	1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Besprekingsklasse op'n gevorderde vlak van voedingswetenskappe in onderwerpe soos mikronutriënt metabolisme in die menslike gesondheid en siekte, Voedings Bnobeskikbaarheid, Nutri-genoom, Voedingsintervensies, Voeding en die metaboliese sindroom. Probleemoplossing en literatuurbespreking.

Internasionale voeding 421 (FNH 421)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BSc Voeding BSc Voeding
Voorvereistes	Derde jaar status
Kontaktyd	2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

Besprekingsklasse in Internasionale Voeding fokus op die belangrikste huidige voedingskwessies wat bevolkings wêreldwyd beinvloed. Dit sluit in die identifisering van voedingsuitdagings en tendense in beide ontwikkelende en ontwikkelde lande. Die kursus sluit aspekte in van epidemiologie, etiologie vn siektes en die gevolge van oor- en ondervoeding.

Finansies en beleggings 700 (FNI 700)

Kwalifikasie	Nagraads
Modulekrediete	40.00

Programme	BScHons Aktuariële Wetenskap BScHons Aktuariële Wetenskap
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The application of modern techniques in financial management to the financing of corporate entities and the management of assets. Topics include: the theory of finance, valuation of investments, asset modelling, capital structure and the cost of capital, portfolio management, capital project appraisal and performance management.

Algemene Inleiding tot bosbou 831 (FOR 831)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 bpb, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

What is forestry? Global forest resources. Natural forests and plantations in Southern Africa. Forestry systems (natural, multipurpose forests, plantation forestry, agroforestry). Sustainable forestry development policy and legislation. Silviculture and management of plantations. Forest certification. Effects of site and silviculture on wood quality. Forest harvesting, utilisation and forest wood products. Non-timber forest products of natural and plantation forests. Forests and woodlands management (forest planning; forest mensuration, growth and yield estimates and regulation). Environmental management of natural and plantation forests. Forestry research. Human resource management in forestry. This module will also have a field practical expedition to introduce students to the field experience.

Bosbouhulpbrongebuiksbeplanning 832 (FOR 832)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer)

Voorvereistes	Geen voorvereistes.
Kontaktyd	20 bpb, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Forest planning. Forest mensuration. Growth and yield models and its application in growth and yield simulators. Quantitative silviculture. Yield regulation and forest economics. GIS and spatial analysis in forestry.

Bosbouingenieurswese 833 (FOR 833)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 bpb, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Forest road engineering. Forest road system management. Forest operations analysis. Production planning. Strategic and tactical planning techniques. Forest operations design. Forest transportation systems. Harvesting management. Logging mechanics.

Houtwetenskap en bosbouprodukte 834 (FOR 834)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 webgebaseerde periode per week, 20 bpb
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Common characteristics of wood. Properties controlling the technical performance of wood. Natural growth phenomena affecting wood quality. Effect of site and silviculture on wood quality. The genetics of wood. Sawmilling and wood drying. Composite wood products. Deterioration of wood and wood products and methods of protection.

Bosbou-ekologie en -bestuur 835 (FOR 835)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Omgewingsekologie (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 bpb, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Structure and function of natural forests, species composition and diversity, disturbance processes and regimes, recovery (succession) concepts and theory, biodiversity in forest ecosystems, energy and nutrient flux in natural forest ecosystems. Resource assessment and planning. Silvicultural systems and management of natural forests (and woodlands), natural regeneration and forest rehabilitation management for sustainability of natural forest ecosystems: multiple use for timber and non-timber forest products, forest rehabilitation (invader plants, mining, degraded forests).

Bosboukunde 836 (FOR 836)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 besprekingsklasse per week, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Understand the development of modern plantation forestry. Commercial plantation species. Forest pests and diseases. Forestry site classification. Basis of forestry rotation length (economics, biological, wood quality). Effect of silvicultural practices on wood quality (managing wood quality). Forestry management regimes for different species and end products. Pros and cons of plantation forestry on the environment. Fire management. Propagation techniques for forestry systems and bio-renewable resources, ecological basis of silviculture and fire management systems.

Verhandeling: Bosbouwetenskap 890 (FOR 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Bosbouwetenskap MSc Bosbouwetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Interdepartmental programme. The curriculum is determined by the heads of department in the biological sciences and will include the research
methodology and scientific writing. This is followed by research in the area of the chosen specialization in Forest Science culminating in the preparation and
submission of research dissertation

Bosbouwetenskap 990 (FOR 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Bosbouwetenskap PhD Bosbouwetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Interdepartmental programme. The curriculum is determined by the heads of department in the biological sciences and will include the research proposal development and scientific writing. This is followed by research in the area of the chosen specialization in Forest Science culminating in the preparation and submission of research dissertation: including submission of scientific papers for peer reviewed credited journals.

Chemiese en mikrobiologiese aspekte van voedsel 451 (FPP 451)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Voorvereistes	Derdejaarstatus of TDH
Kontaktyd	2 lesings per week, 1 ppraktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

Chemiese aspekte: Die rol en samestelling van die basiese komponente van voedsel (water, koolhidrate, proteïne en lipiede). Die inhoud en voedingsrol van verskillende chemiese komponente van voedsel (minerale en vitamiene). Die beginsels en beheer van ensimatiese en nie-ensimatiese verbruining. Die samestelling en gebruik van ensieme in voedselprosessering. Mikrobiologiese aspekte: Inleiding tot mikro-organismes. Intrinsieke en ekstrinsieke faktore wat die groei en oorlewing van mikro-organismes beïnvloed. Belangrike mikrobiologiese groepe in voedsel. Mikrobiologiese bederf van voedsel. Bepaling van mikro-organismes en/of hul produkte in voedsel. Die preservering van voedsels. Mikrobiologiese indikators vir voedselveiligheid en kwaliteit. Voedselgedraagde siektes en vergiftiging. Die benutting van mikro-organismes.

Gevorderde Kursusse 801 (FPP 801)

Kwalifikasie	Nagraads
Modulekrediete	90.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Miniverhandeling 890 (FPP 890)

Kwalifikasie	Nagraads
Modulekrediete	150.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap

Aanbiedingstydperk	Jaar

Finansiële rekeningkunde 111 (FRK 111)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Verlengde program - Biologiese en Landbouwetenskappe BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Regsgeleerdheid Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Rekeningkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Die aard en funksie van rekeningkunde; die ontwikkeling van rekeningkunde; finansiële toestand; finansiële prestasie; die boekstawingsproses; verwerking van rekeningkundige data; elementêre inkomstestaat en balansstaat; dokumentevloei; rekeningkundige stelsels; inleiding tot interne beheer en interne beheermaatreëls; bankrekonsiliasies; kontrolerekeninge; aansuiwerings; opstel van finale state van 'n eenmansaak; die rekeningkundige raamwerk.

Finansiële rekeningkunde 121 (FRK 121)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BConSc Gasvryheidsbestuur BSc Verlengde program - Biologiese en Landbouwetenskappe BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FRK 111 GS
Kontaktyd	4 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans

Departement	Rekeningkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Eiendom, aanleg en toerusting; ontasbare bates; voorraad; laste; aanbieding van finansiële state; ondernemings sonder winsoogmerk; vennootskappe; maatskappye; beslote korporasies; kontantvloeistate; ontleding en vertolking van finansiële state.

Finansiële rekeningkunde 122 (FRK 122)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	LLB Regsgeleerdheid BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Regsgeleerdheid Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FRK 111 GS of FRK 133, FRK 143
Kontaktyd	4 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Rekeningkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Begroting, salarisverantwoording, belasting – inkomstebelasting en ‘n inleiding tot ander soorte belasting, krediet en die nuwe Kredietwet, versekering, verantwoording van voorraad (klem op voorraad en die rekeningkundige inskrywings, nie berekeninge nie), vertolking van finansiële state.

Finansiële rekeningkunde 133 (FRK 133)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Slegs beskikbaar vir die BCom vierjaar-program
Kontaktyd	Funderingskursus, 4 lesings per week, 3 tutoriale per week
Onderrigtaal	Module word in Engels aangebied
Departement	Rekeningkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The nature and function of accounting; the development of accounting; financial position; financial performance; flow of documents; the recording process; processing of accounting data; treatment of VAT; elementary statement of comprehensive income (income statement) and statement of financial position (balance sheet).

Finansiële rekeningkunde 143 (FRK 143)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FRK 133; Slegs beskikbaar vir die BCom vierjaar-program
Kontaktyd	4 lesings per week, 3 tutoriale per week, Funderingskursus
Onderrigtaal	Module word in Engels aangebied
Departement	Rekeningkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Accounting systems; introduction to internal control and internal control measures; bank reconciliations; control accounts; adjustments; preparing the financial statements of a sole proprietorship; the accounting framework.

Fisiologie 110 (FSG 110)

Kwalifikasie	Voorgraads
Modulekrediete	6.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap BSc Verlengde program - Biologiese en Landbouwetenskappe
Diensmodules	Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Hierdie inligting is slegs in Engels beskikbaar.

Introduction (terminology and anatomical orientation); chemical principles; cytology and histology; neuro-physiology and the senses; haematology and body fluids; cardiovascular system.

Fisiologie 120 (FSG 120)

Kwalifikasie	Voorgraads
Modulekrediete	6.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap BSc Verlengde program - Biologiese en Landbouwetenskappe
Diensmodules	Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FSG 110
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisiologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Hierdie inligting is slegs in Engels beskikbaar.

Respiratory system; nutrition; digestion and metabolism; kidneys and acid-base equilibrium; endocrinology; reproduction physiology and reproduction; skin and body temperatures.

Fisika 116 (FSK 116)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BIng Rekenaaringenieurswese ENGAGE
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week, 1 besprekingsklas per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleidende Wiskunde: simbole, eksponente, logaritmes, hoek in grade, radiaalmaat, goniometrie, differensiasie en integrasie. Beweging in 'n reguit lyn: posisie en verplasing, versnelling. Vektore: optel van vektore, komponente, vermenigvuldigingsvektore. Beweging in twee en drie dimensies: projektielbeweging, sirkelbeweging. Krag en beweging: Newton se wet, krag, wrywing. Kinetiese energie en werk: werk, drywing. Potensiële energie: massamiddelpunt, linieêre momentum. Botsings: impuls en linieêre momentum, elastiese botsings, anelastiese botsings. Rotasie: kinetiese energie van rotasie, wringkrag. Ossilasies en golwe: eenvoudige harmoniese beweging, golftipes, golflengte en -frekwensie, interferensie van golwe, staande golwe, die Doppler-effek. Temperatuur, hitte en die eerste wet van termodinamieka.

Fisika 176 (FSK 176)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BIng Siviele Ingenieurswese ENGAGE
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 1 besprekingsklas per week, 4 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

Inleidende Wiskunde: simbole, eksponente, logaritmes, hoek in grade, radiaalmaat, goniometrie, differensiasie en integrasie. Beweging in 'n reguit lyn: posisie en verplasing, versnelling. Vektore: optel van vektore, komponente, vermenigvuldigingsvektore. Beweging in twee en drie dimensies: projektielbeweging, sirkelbeweging. Krag en beweging: Newton se wet, krag, wrywing. Kinetiese energie en werk: werk, drywing. Potensiële energie: massamiddelpunt, linieêre momentum. Botsings: impuls en linieêre momentum, elastiese botsings, anelastiese botsings. Rotasie: kinetiese energie van rotasie, wringkrag. Ossilasies en golwe: eenvoudige harmoniese beweging, golftipes, golflengte en -frekwensie, interferensie van golwe, staande golwe, die Doppler-effek. Temperatuur, hitte en die eerste wet van termodinamieka.

Fisika 700 (FSK 700)

Kwalifikasie	Nagraads
Modulekrediete	135.00
Programme	BScHons Fisika BScHons Fisika
Voorvereistes	Geen voorvereistes.
Kontaktyd	10 lesings per week, 1 ander kontak per week, 1 besprekingsklas per week, 1 seminaar per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika

Aanbiedingstydperk	Jaar

Module-inhoud

Die kursusinhoud word deur die Hoof van die Departement Fisika bepaal . Benewens die gewone onderwerpe, naamlik klassieke meganika, kwantummeganika, statistiese meganika, elektrodinamika, vastetoestandfisika, eksperimente of modelering, en 'n mini-navorsingsprojek, is daar ook elektiewe onderwerpe.

Wiskundige metodes 710 (FSK 710)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geneeskundige Fisika
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Reekse; komplekse analise; Bessel en ander spesiale funksies; integraaltransforme; Green-funksies

Klassieke dinamika 711 (FSK 711)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geneeskundige Fisika
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Gevorderde probleme in klassieke dinamika; Hamilton formalisme; kanoniese transformasies; kontinuum meganika

Kwantummeganika (I) 713 (FSK 713)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geneeskundige Fisika
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week

Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Meetproses. Algemene onbepaaldheidsverbande. Harmoniese ossillator. Simmetrie, invariansies en behoudswette. Hoekmomentum. Spin. Steuringsteorie. Schrödinger-Heisenbert- en interaksiebeelde

Elektrodinamika (1) 714 (FSK 714)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geneeskundige Fisika
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Poisson-vergelyking; Green-funksies; Maxwell-vergelykings

Kernfisika 727 (FSK 727)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Kollektiewe-model; skilmodel; benaderde kernstruktuurmetodes soos bv Hartree-Fock; kansfase-benadering; Tamm-Dankoff reaksieteorie en optiese model.

Fisika 800 (FSK 800)

Kwalifikasie	Nagraads
Modulekrediete	1.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week

Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Jaar

Fisika 808 (FSK 808)

Kwalifikasie	Nagraads
Modulekrediete	36.00
Programme	MMed Anestesiologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Jaar

Verhandeling: Fisika 890 (FSK 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Fisika MSc Fisika
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Jaar

Proefskrif: Fisika 990 (FSK 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Fisika PhD Fisika
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Jaar

Inleiding tot voedselwetenskap en -tegnologie 250 (FST 250)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BSc Biotegnologie BSc Biotegnologie BSc Voedselwetenskap BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Voorvereistes	CMY 117 en CMY 127 en PHY 131 en WTW 134 of WTW 165 of TDH
Kontaktyd	2 lesings per week, 1 ppraktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Lesings: Voedselwetenskap as dissipline. Aktiwiteite van Voedselwetenskaplikes en Voedingkundiges. Produksie, prosessering en verspreiding van voedsel (voedselpyplyn). Wêreldvoedselprobleem. Menslike voeding en menslike voedingsvereistes. Boustene van voedsel: funksionele eienskappe. Voedselkwaliteit. Voedselagteruitgang en beheer (voedselpreservering). Voedselveiligheid, -risiko's en -gevare. Geselekteerde voedselbedrywe. Beginsels van voedselverpakking. Voedselwetgewing en -etikettering. Voedselprosessering en die omgewing. Praktika: Groeptake - toepassing van teorie; praktiese demonstrasies in proeffabrieke; gasdosente - die wêreld van die voedselwetenskaplike; fabrieksbesoek/video's van voedselprosessering.

Beginsels van voedselprosessering en -preservering 260 (FST 260)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Kulinêre Wetenskap BSc Kulinêre Wetenskap BSc Voedselwetenskap
Voorvereistes	CMY 117, CMY 127, MBY 161, PHY 131 en WTW 134 of WTW 165 of TDH
Kontaktyd	1 ppraktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1 en Semester 2

Module-inhoud

Lesings: Voedselpreserveringstegnieke: konsep van struikelbloktegnologie; hitte (blansjering, pasteurisasie en sterilisasie); koue (verkoeling en bevriesing); konsentrering en ontwatering; voedselbestraling; fermentasie; preserveermiddels; nuwe voedselpreserveringstegnieke. Effek van voedselpreserveringstegnologieë op die mikrobiologiese (rakleeftyd- en veiligheidsaspekte), sensoriese en voedingkwaliteit van voedselprodukte. Praktika: Praktiese toepassing van bg. prosesse; fisiese en sensoriese evaluering van geprosesseerde voedsels. Opdrag: Illustrering van struikelbloktegnologie aan die hand van 'n voedselproduk.

Geïntegreerde voedselwetenskap 350 (FST 350)

Kwalifikasie	Voorgraads

Modulekrediete	18.00
Programme	BSc Voedselwetenskap BSc Voedselwetenskap
Voorvereistes	Tweedejaarstatus, FST 250 en FST 260 of TDH
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Literatuurstudies en seminaaraanbiedings van onderwerpe in voedselwetenskap, voeding en gesondheid.

Voedselchemie (1) 351 (FST 351)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Voeding BSc Kulinêre Wetenskap BSc Voeding BSc Voedselwetenskap
Voorvereistes	BCM 251 en BCM 252 en BCM 261 en BCM 262 of TDH
Kontaktyd	2 lesings per week, 1 ppraktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Lesings: Chemie van hoofkomponente van voedsel: Koolhidrate, proteïne, lipiede en water. Chemiese en voedingseienskappe van voedselverwerking: implikasies van verskillende verwerkingstegnieke op die hoofvoedselkomponente. Funksionele eienskappe van die hoofvoedselkomponente. Modifisering van funksionele eienskappe. Voedselontledingsmetodiek. Praktiese werk: Voedselontledings.

Voedselchemie (2) 352 (FST 352)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Voeding BSc Kulinêre Wetenskap BSc Voeding BSc Voedselwetenskap
Voorvereistes	BCM 251 en BCM 252 en BCM 261 en BCM 262 of TDH
Kontaktyd	1 ppraktiese sessie per week, 2 lesings per week

Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Lesings: Basiese voedselontledings en chemie van die mindere komponente van voedsel: Basiese voedselontledings, vitamiene, minerale, additiewe en kontaminante. Chemiese en voedingseienskappe van voedselverwerking: implikasies van verskillende voedselverwerkingstegnieke op hierdie voedselkomponente. Funksionele eienskappe van voedselkomponente. Voedselontledingsmetodiek. Praktika: Voedselontledings.

Voedselingenieurswese 353 (FST 353)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Voedselwetenskap BSc Voedselwetenskap
Voorvereistes	FST 260 of TDH
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Lesings: Massa- en energiebalans. Hitte-oordragteorie: stroming, geleiding en straling. Energie vir voedselprosessering. Vloei van vloeistowwe en reologie. Eenheidsprosesse: hantering van materiaal, skoonmaak, sortering, gradering, skil, disintegrasie, skeiding (bv. membraantegnologie), pomping, vermenging en vorming, verhitting, konsentrering, droging, ekstrusie, verkoeling, bevriesing. Tutoriale/praktika: Berekenings van massa-energie-balanse, psigometrie, verkoeling en bevriesing.

Chemie van voedsel makro-en mikronutriënte 355 (FST 355)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Voorvereistes	BCM 251 en BCM 252 en BCM 261 en BCM 262 of TDH
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Chemie van voedsel makronutriënte: eenvoudige suikers, stysel-en nie-stysel polisakkariede (insluitend dieetvesel komponente), dierlike en plantaardige proteïene (insluitend hul onontbeerlik aminosuursamestelling), en lipiede (insluitend essensiële vetsure, versadigde en onversadigde vetsure en trans-vetsure). Chemie van voedsel mikronutriënte: wateroplosbare vitamiene (vitamiene B1, B2, niasien, B6, B12, foliensuur, biotien en pantoteensuur, Vitamien C) en lipiedoplosbare vitamiene (vitamiene A, D, E en K). bulk minerale en spoorminerale. Praktiese werk Beginsels en praktyk van proksimale analise van voedsel.

Beginsels van die wetenskap en tegnologie van plantvoedsel 360 (FST 360)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Voedselwetenskap BSc Voedselwetenskap
Voorvereistes	FST 250, FST 260, FST 351 en FST 352 of TDH
Kontaktyd	1 ppraktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Grane en peulgewasse, oliesade, vrugte en groente: Samestelling en struktuur; Kwaliteitsevaluering en gradering; Na-oes opberging en fisiologie; Beginsels en tegnologieë van skoonmaak en sortering; Maling – beginsels en tegnologieë, en hul effekte op produkfunksionaliteit en voedingssamestelling; Sap en olie ekstrasie – beginsels en tegnologieë, en hul effekte op produkfunksionaliteit en voedingssamestelling; Brood en maak van gebakte produkte - beginsels en tegnologieë, en hul effekte op produkfunksionaliteit en voedingssamestelling Praktika: Laboratoriumanalises van komponente en produkte van grane, oliesade, peulgewasse, vrugte en groente; Bepaling van kwaliteit; Fabrieksbesoeke.

Voedselwetenskap van dierlike produkte 361 (FST 361)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Voedselwetenskap BSc Voedselwetenskap
Voorvereistes	FST 250, FST 260, FST 351 en FST 352 of TDH
Kontaktyd	2 lesings per week, 1 ppraktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Suiwelwetenskap: Samestelling van melk; fisiese eienskappe van melk; faktore wat die samestelling van melk beïnvloed; mikrobiologiese aspekte van melkproduksie; laktasie; meganiese melking; melkdefekte; voedingswaarde van melk en suiwelprodukte. Praktika: Chemiese en mikrobiologiese toetse op melk; demonstrasies van die kaasmaakproses. Vleis-, pluimvee-, vis- en eierwetenskap: Samestelling, voedingswaarde en kwaliteit van vleis, pluimvee, vis en eiers; faktore wat die kwaliteit beïnvloed - van slag of oes tot verbruik. Praktika: Besoeke aan rooivleis en hoenderslagpale; kwaliteitsbepalings; eierkwaliteit en proteïenfunksionaliteit.

Gevorderde diere- en plantvoedselmikrobiologie 362 (FST 362)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mikrobiologie BSc Mikrobiologie BSc Voedselwetenskap
Voorvereistes	FST 260, MBY 251, MBY 261, MBY 262
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

With an integrated focus on animal and plant food commodities, this module considers food properties and processing operations that impact on the growth, survival and biochemical activity of microorganisms as they relate to spoilage, safety and fermentation. Temperature effects on microbial growth and survival including thermal destruction and cell and spore injury. Microbial stress response (adaptation) during processing. Selection for stress resistant and more virulent pathogenic variants and virulence mechanisms (toxin structure/function) of food-borne pathogens during food processing. Theory and practice of new advances in microbial detection and identification methods. Tools for the production of safe foods including food safety objectives (FSOs) and risk analysis. Practicals will include advanced microbial detection and identification methods applied to animal and plant foods as well as the food supply chain.

Navorsingsmetodiek en seminaar 400 (FST 400)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BSc Voeding BSc Voeding
Voorvereistes	Derdejaarstatus of TDH
Kontaktyd	1 dag seminaar in semester 2, 1 werkswinkel van 5 dae in semester 1
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap

Aanbiedingstydperk	Jaar

Module-inhoud

Lesings en taakopdragte: Navorsingsmetodiek. Literatuurstudie en seminaaraanbiedings oor onderwerpe in voedselwetenskap en/of -tegnologie. Die student moet ook 'n mondelinge eksamen deurkom aan die einde van die module.

Voedseltegnologie van dierlike produkte 401 (FST 401)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Voorvereistes	FST 361 of TDH
Kontaktyd	30 besprekingsklasse, 9 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Suiweltegnologie: Die tegnologie van vloeibare, gekonsentreerde, verpoeierde, bevrore en gefermenteerde suiwelprodukte asook suurselkulture. Vereistes gestel aan die melkvoorraad en ander bestanddele. Beginsels betrokke by die bereiding van produkte in hierdie kategorie. Defekte wat mag voorkom: hul oorsake en voorkoming. Praktika: Bereiding van kondensmelk, vla, reg-om-te-eet melkgebaseerde nageregte, gegeurgde melkdranke, melkvrugtesapmengsels; roomys en ander bevrore nageregte; joghurt en ander gefermenteerde melkprodukte; kase. Evaluering en beoordeling van die produkte. Effek van prosessering op die voedingswaarde van suiwelprodukte. Fabrieksbesoeke. Vleis-, pluimvee, vis -en eiertegnologie: Verwerkingsprosesse en toerusting vir prosessering van vleis, pluimvee, vis en eiers. Vleisemulsie, kuurproses, drogings- en fermentasietegnologieë. Preservering en opberging. Verpakking. Wetgewing. Kwaliteitsbeheer en higiëne. Effek van prosessering op die voedingswaarde van vleisprodukte. Praktika: Vervaardiging van gedroogde, gekuurde, gefermenteerde en emulsietipe produkte. Besoeke aan verwerkingsfabrieke.

Gevorderde plant voedselwetenskap en -tegnologie 402 (FST 402)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Voorvereistes	FST 360 of TDH
Kontaktyd	5 praktiese sessies in Semester 1, 8 besprekingsklasse in semester 1, 3 praktiese sessies S2, 5 besprekingsklasse in semester 2
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

Funksionaliteit van plantkomponente: Stysel, nie-stysel polisakkariedes, proteïene. Gevorderde reologie en tekstuur. Vermouting en brou van bier. Gereed-om-te-eet tegnologieë en hul impak op funksionele en voedingskwaliteit. Prosessering van plantolies. Minimale prosessering van vrugte en groente. Praktika: Smeereienskappe van stysel; Reologie van deeg, Isolering van graan en peulgewas proteïene, SDS PAGE van peulgewas-en graanproteïene; Vermouting en fynmaking van sorghum- en garsmout; ekstraksie van essensiële olies; HPLC van fenoliese verbindings; Minimale prosessering van vrugte en groente.

Sintuiglike evaluering 412 (FST 412)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BSc Kulinêre Wetenskap BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Voorvereistes	FST 260, FST 351 en FST 352 of TDH
Kontaktyd	12 besprekingsklasse, 6 praktiese sessies per semester
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Beginsels en toepassings van sintuiglike evaluering. Tipes panele, toetse en toetskondisies en hul funksies. Selektering en opleiding van paneellede vir beskrywende sintuiglike evaluering. Instrumentele sintuiglike kwaliteitsmetings. Statistiese ontleding en interpretasie van data. Praktika: Praktiese aspekte en uitvoering van sintuiglike evalueringstegnieke, ontleding en interpretasie van data. Instrumentele sintuiglike kwaliteitsmetings.

Produkontwikkeling en kwaliteitsbestuur 413 (FST 413)

Kwalifikasie	Voorgraads
Modulekrediete	30.00
Voorvereistes	FST 260 of TDH en FST 351 en FST 352
Kontaktyd	6 praktiese sessies per semester, 15 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Lesings: Beginsels betrokke en stappe wat gevolg word in die ontwikkeling van nuwe voedselprodukte wat veilig, smaaklik, voedsaam en koste-effektief is. Toepassing van die teorie van voedselprodukontwikkeling. Kwaliteitsbestuursisteme met spesifieke verwysing na Goeie Vervaardigingspraktyke, HACCP, ISO 9000-sisteme. Nasionale en internasionale standaarde van toepassing op die voedselbedryf. Codex Alimentarius, die Food and Drug Administration (FDA). Die toepassing van voedselwetgewing Voedselverpakking. Praktika: ‘n produkontwikkelingsprojek word beplan, uitgevoer en aangebied. Toepassing en implementering van HACCP.

Gevorderde voedselwetenskap 420 (FST 420)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Voorvereistes	Derdejaarstatus of TDH
Kontaktyd	12 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

Besprekingsklasse in gevorderde voedselchemie, voedselmikrobiologie, voedselingenieurswese, voedselprosessering en voeding. Probleemoplossing en literatuurbesprekings.

Navorsingsprojek 463 (FST 463)

Kwalifikasie	Voorgraads
Modulekrediete	40.00
Voorvereistes	Derdejaarstatus in Voedselwetenskap of TDH
Kontaktyd	1 ppraktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

Beplanning, uitvoering en verslaglewering van 'n navorsingsprojek oor 'n geselekteerde Voedselwetenskap- en/of Tegnologie-onderwerp.

Navorsingsmetodiek en seminare 700 (FST 700)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Voedselwetenskap BScHons Voedselwetenskap
Voorvereistes	Geen voorvereistes.

Kontaktyd	1 werkswinkel van 5 dae in semester 1, 1 dag seminaar in semester 2
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Lectures and assignments: Research methodology. Literature study and seminar presentations on topics in Food Science and/or Technology. The candidate must also pass an oral examination at the end of the module.

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Voedseltegnologie van dierlike produkte 701 (FST 701)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	9 praktiese sessies, 30 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Dairy technology: The technology of fluid, concentrated, dried, frozen and fermented dairy products and starter cultures. Requirements for milk supply and other ingredients. Principles for the manufacturing of products in this category. Possible defects, causes and prevention.
Practical work: Preparation of condensed milk, custard, ready-to-eat milk-based desserts, flavoured milk beverages, dairy-fruit juice mixtures; ice cream and other frozen desserts; yoghurt and cultured milk products; cheeses. Evaluation and analysis of the products. Effect of processing on the nutritional value of dairy products. Factory visits.
Meat, poultry, fish and egg technology: Meat, poultry, fish and egg processing and equipment. Meat emulsion, curing, dehydration and fermentation technology. Preservation and storage. Packaging. Legislation. Quality control and hygiene. Effect of processing on the nutritional value of meat products.
Practical work: Manufacturing of dried, cured, fermented and emulsion type products. Visits to processing factories.

Gevorderde plantvoedselwetenskap en tegnologie 702 (FST 702)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 praktiese sessies in Semester 1, 5 besprekingsklasse in semester 2, 8 besprekingsklasse in semester 1, 3 praktiese sessies S2

Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Plant food functionality: Starch, non-starch polysaccharides, protein. Advanced rheology and texture. Malting and brewing. Ready-to-eat (RTE) technologies and their impact on functional and nutritional quality. Plant oil processing. Minimal processing of fruits and vegetables. Practical work: Pasting properties of starch; Dough rheology; Isolation of legume and cereal proteins; SDS-PAGE electrophoreses of legume and cereal proteins; Malting and mashing of sorghum and barley male; Extraction of essential oils; Extraction and identification of phenolic compounds; Minimal processing of fruit and vegetables.

Sintuiglike evaluering 712 (FST 712)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Voedselwetenskap BScHons Voedselwetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 praktiese sessies per semester, 12 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Lectures: principles and applications of sensory evaluation. Types of panels, tests and test conditions and their functions. Selection and training of panellists for descriptive sensory evaluation. Instrumental sensory quality measurements. Statistical analysis and interpretation of data.
Practicals: Practical aspects and execution of sensory evaluation techniques, analysis and interpretation of data. Instrumental sensory quality measurements.

Produkontwikkeling en kwaliteitsbestuur 713 (FST 713)

Kwalifikasie	Nagraads
Modulekrediete	25.00
Programme	BScHons Voedselwetenskap BScHons Voedselwetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	15 besprekingsklasse, 6 praktiese sessies per semester
Onderrigtaal	Module word in Engels aangebied

Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Lectures: principles involved and steps that are followed to develop new food products that are safe, tasty, nutritious and cost effective. Application of the theory of food product development. Quality management systems with specific reference to Good Manufacturing Practices, HACCP and ISO 9000. National and international standards, Codex Alimentarius, FDA. Application of food legislation. Food packaging. Practicals: A product development project will be planned, conducted and presented. Application and implementation of HACCP.

Gevorderde voedselwetenskap 720 (FST 720)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Voedselwetenskap BScHons Voedselwetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	12 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Discussion classes in advanced level food chemistry, food microbiology, food engineering, food processing and nutrition. Problem solving and literature discussion.

Navorsingsprojek 763 (FST 763)

Kwalifikasie	Nagraads
Modulekrediete	40.00
Programme	BScHons Voedselwetenskap BScHons Voedselwetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
A short research project on an approved topic in food science and/or technology is planned, executed and presented in the form of a written report.

Verhandeling: Voedselwetenskap 890 (FST 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Voedselwetenskap MSc Voedselwetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Each candidate must write a dissertation on his/her research project in Food science and/or Food technology and at least a concept research paper for publication in a peer-reviewed scientific journal.

Proefskrif: Voedselwetenskap 990 (FST 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Voedselwetenskap PhD Voedselwetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Gevorderde omgewingsgrondchemie 771 (GDK 771)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Grondkunde Omgewingsgrondkunde BScHons Grondkunde Omgewingsgrondkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied

Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Advanced theoretical and experimental soil chemistry, including the organic fraction.

Gevorderde omgewingsgrondfisika 772 (GDK 772)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Grondkunde Omgewingsgrondkunde BScHons Grondkunde Omgewingsgrondkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Advanced theoretical soil physics with the emphasis on mathematical modelling of fluxes of water, heat and solutes.

Plantvoeding, grondbiologie en grondvrugbaarheid 773 (GDK 773)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde BScHons Grondkunde Omgewingsgrondkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Study of the latest trends and developments in plant nutrition, soil biology and soil fertility.

Projek in omgewingsgrondkunde 775 (GDK 775)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Grondkunde Omgewingsgrondkunde BScHons Grondkunde Omgewingsgrondkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Research project on a practical aspect of Environmental Soil Science.Literature review, formulation of a problem statement, hypotheses and aims of the research, as well as the design and execution of a laboratory or field scale trial. Project to be written up in a specific scientific format suitable for publication with an oral and visual presentation on the research.

Gevorderde kursuswerk 801 (GDK 801)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Enige module en/of werkstuk(ke) op die gevorderde vlak gekies in oorleg met die departementshoof.

Verhandeling: Grondkunde 890 (GDK 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Grondkunde MSc Grondkunde MScAgric Grondkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module involves the development, presentation and approval of a research proposal, the execution of the research project, and the writing up and presentation of the research results. In addition to the dissertation, the student is also expected to compile a concept research paper for publication.

Skripsie: Grondkunde 891 (GDK 891)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Elke kandidaat moet 'n verhandeling skryf oor sy/haar navorsingsprojek in Grondkunde en ten minste 'n konsep artikel voorberei vir publikasie in 'n eweknie-geëvalueerde wetenskaplike tydskrif.

Proefskrif: Grondkunde 990 (GDK 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Grondkunde PhD Grondkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module involves the development, presentation and approval of a research proposal, the execution of the research project, and the writing up and presenting of the research results. In addition to the thesis, the student is also expected to publish at least one research paper in a peer-reviewed, UP accredited scientific journal. An oral examination covering Soil Science and other fields related to the thesis will be conducted after the thesis has been accepted by examiners. A candidate needs to pass both the written thesis and oral examination to qualify for the degree.

Verhandeling: Geografie 890 (GGF 890)

Kwalifikasie	Nagraads

Modulekrediete	180.00
Programme	MSc Geografie MSc Geografie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Proefskrif: Geografie 990 (GGF 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Geografie PhD Geografie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Aspekte van menslike geografie 156 (GGY 156)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Chemie BSc Geografie BSc Geoinformatika BSc Meteorologie BSc Omgewingswetenskappe BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Gesondheidswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 tutoriaal per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

Hierdie module begin met die begryping van menslike geografie. Daarna word volg die politieke verdeling van ruimte: kulturele diversiteit asook etniese geografie globaal en plaaslik; bevolkingsgeografie van die wêreld en Suid-Afrika; en vier ekonomiese vlakke en ontwikkeling. Die doel is om Suid-Afrika in die wêreld te plaas en die toekoms te verstaan.

Suider-Afrikaanse geomorfologie 166 (GGY 166)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Chemie BSc Geografie BSc Geoinformatika BSc Meteorologie BSc Omgewingswetenskappe BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Gesondheidswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

Die studie van Suider-Afrikaanse landskappe en die plasing daarvan in ‘n teoretiese en globale konteks. Die geomorfologiese evolusie van suider-Afrika. Inleiding tot konsepte in Geomorfologie en die verwantskappe met ander fisiese wetenskappe (bv. meteorologie, klimatologie, geologie, hidrologie en biologie). Die prosesse en kontroles betrokke in landvorme en landvorm-evolusie. Praktiese oefeninge dek die basiese tegnieke in Geomorfologiese analise en aktuele kwessies in Geomorfologie.

Prosesgeomorfologie 252 (GGY 252)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Geoinformatika BSc Fisika BSc Geografie BSc Geoinformatika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BSc Omgewingswetenskappe

Diensmodules	Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe
Voorvereistes	GGY 166 of GLY 155
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

Fisiese prosesse wat die aardoppervlak en die bestuur daarvan beïnvloed. Spesifieke prosesse en hul interaksie in temas soos verwering, gronderosie, massabewegingsprosesse en fluviale prosesse. Praktiese laboratorium oefeninge sal gebaseer word op die temas wat tydens die teorie komponent behandel sal word

Geomorfologie van die bou-omgewing 265 (GGY 265)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Fisika BSc Fisika BSc Ingenieurs- en Omgewingsgeologie
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

*Slegs vir Argitektuur- en Landskapargitektuur-studente. Die teorie-komponent bestudeer die geomorfologiese aspekte van die bou-omgewing insluitend landskapsidentifikasie; verwering en degradasie van natuurlike klip en toepassings op die ontwerp en bewaring van geboue en monumente; hellingshidrologie en stabiliteit; gronderosieprosesse en konstruksie-impakte; modifikasie van dreinering in stedelike gebiede; identifikasie van vleilande, menslike impakte en rehabilitasie; impak van ontspanning en bestuur. Bykomend tot die teorie word ‘n projek wat op veldwerk gebaseer is onderneem.

Stedelike struktuur, omgewing en samelewing 266 (GGY 266)

Kwalifikasie	Voorgraads
Modulekrediete	24.00

Programme	BSc Geoinformatika BSc Chemie BSc Fisika BSc Geografie BSc Geoinformatika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BSc Omgewingswetenskappe
Diensmodules	Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

'n Verstedelikende wêreld. Stedelike struktuur en grondgebruike. Stedelike prosesse. Die stedelike omgewing. Sosiale struktuur en verandering in stede. Leefstyl in stede. Ekonomie, samelewing en politiek in stede. Derde-wêreld stede en Suid-Afrikaanse stede. Toekoms van stede.

Inleidende geografiese inligtingstelsels 283 (GGY 283)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BSc Meteorologie BSc Geografie BSc Geoinformatika BSc Meteorologie
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe
Voorvereistes	GMC110
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot Geografiese Inligtingstelsels (GIS), teoretiese konsepte en toepassings van GIS. Die klem val op die GIS proses van datavaslegging, data-analise, data-uitsette en gepaardgaande tegnologie. Hierdie module verskaf die fondasies vir meer gevorderde GIS- en geoinformatika-onderwerpe.

Volhoubare ontwikkeling 356 (GGY 356)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Geoinformatika BSc Chemie BSc Fisika BSc Geografie BSc Geoinformatika BSc Meteorologie BSc Omgewingswetenskappe
Diensmodules	Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

Konseptuele integrasie van die omgewings-, ekonomiese en sosiale komponente van volhoubare ontwikkeling. Ander temas sluit in die veranderende persepsies oor ontwikkeling en omgewing, ontwikkelingsparadigmas, die uitdagings verbonde aan volhoubare ontwikkeling asook die rolspelers en aksies in volhoubare ontwikkeling. Landelike en stedelike bestaanswyses, en ‘n Derde-wêreldevaluering van volhoubare ontwikkeling in die ontwikkelde wêreld.

Omgewingsgeomorfologie 361 (GGY 361)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BPolSci Internasionale Studies BSc Geografie BSc Omgewingswetenskappe
Diensmodules	Fakulteit Geesteswetenskappe
Voorvereistes	GGY 252 en slegs BSc (Geografie) of BSc (Omgewingswetenskappe) studente.
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

*LW: Die module is net vir BSc (Geografie)- en BSc (Omgewingswetenskappe)- studente beskikbaar. Die inhoud van hierdie module is dieselfde as GGY 363 en studente mag nie vir beide GGY 361 en GGY 363 krediete verwerf nie.

Interaksies van geomorfologiese prosesse in fisiese en mensgemaakte omgewings; temas soos geomorfologie en omgewingsverandering, heuwelhangprosesse en die omgewing, geomorfiese risiko's en gevare, gronderosie en bewaring, geomorfologie in omgewingsbestuur, toegepaste verwerwingsprosesse. Praktika behels veldwerk insluitend monster opname en kartering en daaropvolgende laboratoriumanalise.

Toegepaste geomorfologie 363 (GGY 363)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Chemie BSc Chemie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	GGY 252
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

*LW: Die inhoud van hierdie module is dieselfde as GGY 361 en studente mag nie vir beide GGY 361 en GGY 363 krediete verwerf nie.
Interaksies van geomorfologiese prosesse in fisiese en mensgemaakte omgeings; temas soos gemorfiese en omgewingsveranderinge, heuwelhangprosesse en die omgewing, geomorfiese risiko’s en gevare, gronderosie en bewaring, geomorfologie in omgewingsbestuur, toegepaste verwerwingsprosesse.

Ontwikkelingsraamwerke 366 (GGY 366)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Geoinformatika BSc Chemie BSc Fisika BSc Geografie BSc Geoinformatika BSc Meteorologie BSc Omgewingswetenskappe
Diensmodules	Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe

Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

Klassieke ontwikkelingstrategieë. Die geskiedenis en erfenis van ruimtelike ontwikkeling in Suid-Afrika. Oorsig van huidige omgewingswetgewing in Suid-Afrika. Landelike ontwikkelingstrategie. Landelike en landboukundige rekonstruksie. Grondhervorming. Stedelike ontwikkeling en strategie. Stedelike ruimtelike strategie. Nasionale ruimtelike ontwikkelingstrategieë.

Keusetema 701 (GGY 701)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geografie en Omgewingswetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 webgebaseerde periode per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A self-study module on an aspect or aspects of geographical or environmental science selected in consultation with the head of the department from: (a) themes not covered in existing options; (b) educational subjects.

Navorsingsprojek 702 (GGY 702)

Kwalifikasie	Nagraads
Modulekrediete	35.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geografie en Omgewingswetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An approved individual research project, carried out under the guidance of a lecturer. The project culminates in a research report in the format of a research paper and presentation. The student is expected to obtain the respective skills (theoretical and practical research techniques, data analysis, communication and computer skills) necessary for the research topic.

Geographical and environmental principles 710 (GGY 710)

Kwalifikasie	Nagraads
Modulekrediete	25.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geografie en Omgewingswetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The module provides a critical review of the structures and paradigms in which the geographical and environmental sciences are practised. Particular reference is made to the development and impact of paradigms and the interdependence of systems within space and time.

Toegepaste geomorfologie 718 (GGY 718)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geografie en Omgewingswetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module focuses on processes and applications of geomorphology. Topics that may be studied include: soil erosion and conservation, weathering, geomorphic response to environmental change, slope processes and geomorphological hazards. The module includes practical fieldwork and field assessments.

Stedelike geografie 780 (GGY 780)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geografie en Omgewingswetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The main themes of the module include: overview of global urbanisation theories and processes; urban morphology and change; the administrative structure and functions of African cities and; the quality of urban life in the developing world.

Omgewingsverandering 789 (GGY 789)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geografie en Omgewingswetenskap
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Study themes include past environmental change, causes and consequences of human-induced environmental change and South Africa and climate change.

Aspekte van grondhervorming en die omgewing 793 (GGY 793)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geografie en Omgewingswetenskap

Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The module aims to provide students with an understanding and knowledge of contemporary land reform issues against the background of international land reform experiences. The module also touches on other rural development strategies and ultimately aims to enhance the student's ability to conceptualise and analyse policy in the context of broader environmental issues.

Geografiese data-analise 220 (GIS 220)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BSc Omgewingswetenskappe BSc Chemie BSc Fisika BSc Geografie BSc Geoinformatika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BSc Omgewingswetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	GMC 110 en (STK 110 of BME 120)
Kontaktyd	1 ppraktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Die aard van geografiese data en meting. Toepassing van statistiek in die geografiese domein. Waarskynlikheid, waarskynlikheidsverspreiding en -digtheid, verwagte waardes en veranderlikes, Sentrale Limietbeginsel. Steekproefneming. Ondersoekende data-analise, beskrywende statistiek, statistiese skatting, hipotese toetsing, korrelasie-analise en regressie-analise.

Inleiding tot geografiese inligtingstelsels 221 (GIS 221)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BSc Geografie BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Omgewingswetenskappe
Voorvereistes	Verbode kombinasie GGY 283
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

* GIS 221 verskaf nie toelating tot enige module op 300 vlak nie.
Inleiding tot Geografiese Inligtingstelsels (GIS), teoretiese konsepte en toepassings van GIS. Die klem val op die GIS-proses van datavaslegging, data-analise, data-uitsette en gepaardgaande tegnologie. Hierdie module leer studente hoe om GIS as’n hulpmiddel te gebruik.

Geografiese inligtingstelsels 310 (GIS 310)

Kwalifikasie	Voorgraads
Modulekrediete	22.00
Programme	BSc Omgewingswetenskappe BSc Chemie BSc Geografie BSc Geoinformatika BSc Geologie BSc Meteorologie BSc Omgewingswetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	GGY 283
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Gevorderde teorie en praktyk van geografiese inligtingstelsels, oorsig van die verskeidenheid van GIS-toepassings. Ontwikkeling en implementering van GIS toepassings. 'n Projek of opdragte van ten minste 64 beraamde leerure.

Geoinformatika 311 (GIS 311)

Kwalifikasie	Voorgraads

Modulekrediete	22.00
Programme	BSc Geoinformatika BSc Geoinformatika
Voorvereistes	GGY 283 , INF 164, INF 261. Slegs vir BSc (Geoinformatika)-studente.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Gevorderde geoinformatika-onderwerpe in geovisualisering en -berekenings (*geocomputation*). ’n Projek of opdragte van ten minste 64 beraamde leerure.

Ruimtelike analise 320 (GIS 320)

Kwalifikasie	Voorgraads
Modulekrediete	22.00
Programme	BSc Omgewingswetenskappe BSc Chemie BSc Geografie BSc Geoinformatika BSc Geologie BSc Meteorologie BSc Omgewingswetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	GIS 310 of TDH
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Konstruksie van Raster Geovisualiserings, konstruksie en gebruik van 'n ruimtelike model, Multi-kriteria besluitnemingsanalise. Faktoranalise: Hoofkomponentanalise. Geostatistiek: Ruimtelike afhanklikheidsmodellering, algemene kriging, Markov-kettings en sellulêre Automata, gekombineerde modelle.

Navorsingsmetodes 701 (GIS 701)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Geoinformatika BScHons Geoinformatika

Kontaktyd	14 ure kontaktyd
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The module introduces students to planning, research design, scientific reading, writing and presentation as required for geoinformatics research.

Navorsingsprojek 702 (GIS 702)

Kwalifikasie	Nagraads
Modulekrediete	35.00
Programme	BScHons Geoinformatika BScHons Geoinformatika
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

Hierdie module verskaf aan die student die geleentheid om 'n GIS-toepassing te skep. Projekstadia sluit in: probleem- en hipotesestelling, projekmetodologie, databehoeftebepaling, databasisontwerp, data-analise en kommunikasie van die finale inligtingsprodukte.

GIS professionele praktyk 703 (GIS 703)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geoinformatika BScHons Geoinformatika
Kontaktyd	28 kontakure per semester
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Professionalism, including professional ethics, professional practices, partnerships, client relationships, SA Council for Professional and Technical Surveyors (including legislation and rules), and social responsibility. Relevant legislation, including Promotion of Access to Information Act and Spatial Data Infrastructure Act. Role of international associations/societies in Geoinformatics.

Ruimtelike statistiek en geodesie 704 (GIS 704)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geoinformatika BScHons Geoinformatika
Voorvereistes	GMC 310 en GIS 320 of ekwivalent
Kontaktyd	28 kontakure per semester
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

Ruimtelike kleinste kwadrate regressie, oppervlakinterpolasie deur die gebruik van kleinste kwadrate en koordinaattransformasies. Onderwerpe en Geodesie: Ruimtelik gebaseerde meetstelsels, seevlak metings, bepaling van die geoid, aardas orientasie en aarddinamika.

Advanced geospatial data 705 (GIS 705)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geoinformatika BScHons Geoinformatika
Voorvereistes	GIS 310 of ekwivalent
Kontaktyd	28 kontakure per semester
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Advanced topics in geospatial data management, such as data quality assurance, data quality assessment and the supply chain for geospatial data acquisition.

Internet GIS 706 (GIS 706)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geoinformatika BScHons Geoinformatika
Voorvereistes	INF 164 of ekwivalent

Kontaktyd	28 kontakure per semester
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

Hierdie module verskaf ‘n oorsig van hoe Geografiese Inligting oor die internet en intranet versprei kan word. Dit sal aantoon hoe GIS-funksionaliteit aan ‘n wye reeks netwerkgebaseerde toepassings in besighede, die staat, onderwys, ens. verskaf kan word. Studente sal leer hoe om webgebaseerde kaarte te ontwikkel deur gebruik te maak van sagteware wat tans beskikbaar is ten einde die potensiaal van GIS in die Internet-omgewing te verwesenlik.

Spesiale temas 707 (GIS 707)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geoinformatika BScHons Geoinformatika
Voorvereistes	Geen voorvereistes.
Kontaktyd	28 kontakure per semester
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A special topic in Geoinformatics linked to research specialisation in the department and/or visiting lecturers. For example, research trends and advances in a specific topic or field of specialisation in Geoinformatics.The module is presented in the form of guided advanced readings, seminars and/or discussion sessions.

Verhandeling: Geoinformatika 890 (GIS 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Geoinformatika MSc Geoinformatika
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Proefskrif: Geoinformatika 990 (GIS 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Geoinformatika PhD Geoinformatika
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Inleidende grondkunde 250 (GKD 250)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Plantkunde BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BSc Omgewingswetenskappe BSc Plantkunde BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	CMY 117 GS of TDH
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Oorsprong en ontstaan van grond, verwerings- en grondvormingsprosesse. Profieldifferensiasie en -morfologie. Fisiese eienskappe: tekstuur, struktuur, grondwater, - atmosfeer en -temperatuur. Chemiese eienskappe: kleiminerale, ioonuitruiling, pH, buffering, grondversuring, - versouting en -verbrakking. Grondvrugbaarheid en bemesting. Grondklassifikasie. Praktika: Laboratoriumevaluering van eenvoudige grondeienskappe. Veldprakties oor grondvorming in die Pretoria-omgewing.

Grondchemie 320 (GKD 320)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BSc Geografie BSc Geografie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	GKD 250
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Die meer eksakte chemie van gronde word sistematies uiteengesit deur eerstens die betrokke chemiese beginsels goed te verstaan. Ladingsoorsprong. Chemiese ewewigte. Sorpsieverskynsels. Ioonuitruiling. Vervolgens word suurgronde, brakgronde en die organiese fraksie van grond in diepte bestudeer. Die chemie van die belangrike plantvoedingselemente P, K en N word uiteengesit.

Grondklassifikasie en kartering 350 (GKD 350)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BSc Geografie BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Omgewingswetenskappe BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	GKD 250 GS
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

'n Taksonomiese sisteem vir Suid-Afrika. USDA se Soil Taxonomy. Landgeskiktheidsevaluering. Optimale hulpbronbenutting. Die bewaringskomponent. Ekologiese aspekte. Ekotoop, landtipe. Grondkaarte. Praktika: Veldpraktika en verpligte ekskursie. Identifisering van grondhorisonne, vorms en families. Landgeskiktheidsevaluering. Elementêre karteringsoefening.

Grondvrugbaarheid, grondmikrobiologie en plantvoeding 420 (GKD 420)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	GKD 250 GS
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Grond beheer die beskikbaarheid van voedingstowwe aan plante en ander organismes in die grond. Die gesondheid en dinamika van biota in die grond is nouliks verbind met die interaksie tussen die pedosfeer en die biosfeer .Hierdie kursus handel oor die beskikbaarheid en opname van makro en mikro voedingstowwe in die plant – mikrobe – grond sisteem, tekorte en toksisiteite van essensiële voedingstowwe en ook grondeienskappe en grondomgewingstoestande wat grondvrugbaarheid en grond se geskiktheid as ? groeimedium beïnvloed. Praktikums sluit in laboratoriumevaluasie van grondvrugbaarheid en glashuisproewe om voedingstofopname, sowel as tekort en toksisiteit simptome, in plante te ondersoek.

Omgewingsbestuur 460 (GKD 460)

Kwalifikasie	Voorgraads
Modulekrediete	26.00
Voorvereistes	GKD 250 en GKD 350
Kontaktyd	1 praktiese sessie per week, 4 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie module mag slegs geneem word deur studente wat reeds in 2009 of vroeër geregistreer was. Chemiese, fisiese en biologiese gronddegradasie (met klem op besoedeling): tipes, oorsake, gevolge en bedkamping. Bio-geochemiese elementsiklusse. Rioolslyk. Suurreën. Plaagdoders. Aspekte van gronderosie. Geïntergreerde omgewingsbestuur. Omgewingsimpakstudies asook beplanning, implementering en nasien van omgewingsbestuursplanne. Strook en oopgroefmynbou. Opvanggebiedstudies en –bestuursbeplanning Vewoestyning. Beheer van eksotiese indringerplante en bosverdigting. Water en lug besoedeling. Omgewingswetgewing. Praktika: Studies oor aspekte rakend die lesings.

Verhandeling 881 (GLG 881)

Kwalifikasie	Nagraads
Modulekrediete	120.00

Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A dissertation on a topic approved by the course leader. In this module the candidate must do a research project in order to show that they have mastered the theoretical knowledge covered in the theoretical modules and can apply it to a research topic from their own industrial experience.

Verhandeling: Geologie 890 (GLG 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Geologie MSc Geologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geologie
Aanbiedingstydperk	Jaar

Proefskrif: Geologie 990 (GLG 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Geologie PhD Geologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geologie
Aanbiedingstydperk	Jaar

Inleiding tot geologie 155 (GLY 155)

Kwalifikasie	Voorgraads
Modulekrediete	16.00

Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	'n Kandidaat moet Wiskunde met ten minste 60% geslaag het in die G12-eksamen.
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Solar system; structure of solid matter; minerals and rocks; introduction to symmetry and crystallography; important minerals and solid solutions; rock cycle; classification of rocks. External geological processes (gravity, water, wind, sea, ice) and their products (including geomorphology). Internal structure of the earth. The dynamic earth – volcanism, earthquakes, mountain building – the theory of plate tectonics. Geological processes (magmatism, metamorphism, sedimentology, structural geology) in a plate tectonic context. Geological maps and mineral and rock specimens.

Aardgeskiedenis 163 (GLY 163)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Dierkunde BSc Ekologie BSc Entomologie BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BSc Plantkunde BSc Verlengde program - Fisiese Wetenskappe
Voorvereistes	GLY155; spesiale vrystelling word gegee aan tweedejaarstudente geregistreer vir programme in Plantkunde, Entomologie, Ekologie en Dierkunde.
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module will give an overview of earth history, from the Archaean to the present. Important concepts such as the principles of stratigraphy and stratigraphic nomenclature, geological dating and international and South African time scales will be introduced. A brief introduction to the principles of palaeontology will be given, along with short descriptions of major fossil groups, fossil forms, ecology and geological meaning. In the South African context, the major stratigraphic units, intrusions and tectonic/metamorphic events will be detailed, along with related rock types, fossil contents, genesis and economic commodities. Practical work will focus on the interpretation of geological maps and profiles.

Sedimentologie 253 (GLY 253)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	CMY 117, CMY 127, GLY 155, GLY 161, GLY 162, WTW 114/WTW 158 en PHY 114
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to sedimentology; grain studies; composition and textures of sedimentary rocks; flow dynamics and behaviour of sediment particles in transport systems; description and genesis of sedimentary structures; diagenesis; depositional environments and their deposits, modern and ancient; chemical sedimentary rocks; economic sedimentology; field data acquisition from sedimentary rocks and writing of reports; sieve analysis; Markov analysis; analysis of palaeocurrent trends; interpretation of sedimentary profiles.

Struktuurgeologie 254 (GLY 254)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BIng Mynbou-ingenieurswese ENGAGE
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	GLY 151, GLY 161, WTW 114/WTW 158 en FSK 116/FSK 176
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

*Verwys na die Engelse weergawe van die Course Catalogue.

Fundamentele en toegepaste mineralogie 255 (GLY 255)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	CMY 117, CMY 127, GLY 155, GLY 161, GLY 162, WTW 114/WTW 158 en PHY 114
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Fundamental concepts in mineralogy, and practical applications of mineralogy, including: the basics of crystal structure; the crystallographic groups; the rules of atomic substitution; phase transitions and phase diagrams; the structure and uses of olivine, pyroxene, feldspar, amphibole, mica, aluminosilicates, garnet, cordierite, and more uncommon mineral groups such as oxides, sulphides and carbonates; the calculation of mineral formulae from chemical analyses using various methods. Practical sessions: the basics of optical mineralogy and the use of transmitted light microscopy for thin section examination of minerals and rocks; the practicals will develop mineral identification skills for the minerals covered in the lectures, and cover basic textural identification.

Geology for engineering 256 (GLY 256)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BIng Siviele Ingenieurswese ENGAGE
Voorvereistes	Slegs vir BIng Mynbou-ingenieurswese en BIng Siviele Ingenieurswese studente.
Kontaktyd	4 lesings per week, 1 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module is given to Mining and Civil Engineering students, focused on the practical application of basic geological principles to engineering problems. The course covers basic rock identification, principles of stratigraphy and landscape formation, and engineering applications of geology such as mining, slope stability, and civil applications. Practicals cover geological maps and profiles, as well as basic rock identification.

Stollingspetrologie 261 (GLY 261)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	GLY 255
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Classification and nomenclature of igneous rocks. The nature of silicate melts; physical and chemical factors influencing crystallisation and textures of igneous rocks. Phase diagrams, fractional crystallisation and partial melting. Trace elements and isotopes, and their use in petrogenetic studies. Global distribution of magmatism and its origin. Mid-oceanic ridges, active continental margins, intraplate magmatism.

Metamorfe petrologie 262 (GLY 262)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	GLY 255
Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Classification of metamorphic rocks. Anatexis, migmatite and granite; eclogite. Metamorphic textures. PT-time loops. Metamorphism in various plate tectonic environments.

Grondwater 265 (GLY 265)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Voorvereistes	CMY 117, CMY 127, GLY 155, GLY 161, GLY 162, WTW 114/WTW 158 en PHY 114
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

*Vewys na die Engelse weergawe van die Course Catalogue.

Geological field mapping 266 (GLY 266)

Kwalifikasie	Voorgraads
Modulekrediete	6.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	CMY 117, CMY 127, GLY 155, GLY 161, GLY 162, WTW 158 and PHY 114
Kontaktyd	7 dae voltydse blokweek
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Introduction to field mapping techniques

Geodinamika en ertsvorming 352 (GLY 352)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BIng Mynbou-ingenieurswese ENGAGE
Voorvereistes	GLY 256
Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied

Departement	Geologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module is offered to mining engineering students, and addresses the processes that formed mineral deposits, and the geological approach to exploiting such deposits. The module covers the principles of ore-forming processes and geological environments of ore formation, ore classification schemes, the geometry and geostatistical evaluation of ore bodies, the principles of rock deformation, stress, strain and rheology, joints, fault systems, folds and interference folding, tectonic fabrics, shear zones, and progressive deformation. The practicals cover the identification and classification of ore deposits, and the recognition and mitigation of geologically related mining hazards such as faults, shears and folding.

Ertsafsettings 361 (GLY 361)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Vyf van die tweedejaarsmodules: GLY 253, GLY 254, GLY 255, GLY 261, GLY 262, GLY 265
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

*Verwys na die Engelse weergawe van die Course Catalogue.

Geostatistiek en ertsreserwe-berekening 362 (GLY 362)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Voorvereistes	GLY 253, GLY 254, GLY 255, GLY 261, GLY 262, GLY 265
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

*Verwys na die Engelse weergawe van die Course Catalogue.

Ingenieursgeologie 363 (GLY 363)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Geologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	GLY 354
Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Definition and scope of engineering geology; engineering geological properties and problems of rocks and soils within different stratigraphic units and climatic regions in southern Africa.

Rotsmeganika 364 (GLY 364)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Geologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	GLY 354
Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Strength and failure modes of rock material and rock failure criteria. The characteristics of joints in rock. Joint line surveys and interpretation of data. Characteristics of a rock mass, rock mass classification and determination of strength. Slope stability in surface mines. Induced seismicity due to deep mining and rock bursts.

Strukruele geologie 365 (GLY 365)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie

Voorvereistes	Drie van die tweedejaarsmodules: GLY 255, GLY 261, GLY 262, GLY 253; spesiale vrystelling word aan vierdejaar Mynbou Ingenieurswesestudente, wat reeds die voorgeskrewe eerstejaars Geologiemodules geslaag het, gegee.
Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Integrated theoretical and practical course dealing with the princples of rock deformation and analysis of deformed rocks. Stress, strain and rheology, joints, experimental rock deformation, fault systems and Anderson's theory of faulting. Folds and interference folding, tectonic fabrics, shear zone, prograssive deformation. Stereographic projection and structural analysis.

Grondwater 366 (GLY 366)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	Drie van die tweedejaarsmodules: GLY 255, GLY 261, GLY 262, GLY 253
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskibaar.

Origin and classification of groundwater; classification of aquifers; groundwater movement; equations for groundwater flow into boreholes; the La Place equation and solutions for pump tests; execution and interpretation of pump tests; contaminant transport; low temperature aqueous geochemistry; groundwater exploration and management.

Ekonomiese geologie 367 (GLY 367)

Kwalifikasie	Voorgraads
Modulekrediete	36.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie

Voorvereistes	GLY 365 and GLY 366
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module details the genesis and exploitation of major ore deposits, with an emphasis on South African examples. The processes through which ore deposits are formed and modified will be discussed, highlighting the relevance of sedimentary, metamorphic and igneous processes in the genesis of world-class ore bodies. The module will also address the methods of mining commonly used, and the international commodity market, including a brief introduction to ore reserve estimation and the evaluation of potential ore deposits.

Advanced Geological field mapping 368 (GLY 368)

Kwalifikasie	Voorgraads
Modulekrediete	6.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	Three of the second-year modules: GLY 255, GLY 261, GLY 262, GLY 253
Kontaktyd	7 dae voltydse blokweek
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Advanced field mapping techniques.

Vloeistof-rots-interaksie 702 (GLY 702)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Geologie BScHons Geologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie

Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module traces the path of magmas from their ultimate source in the mantle, storage and evolution in the crust, through eruption at the surface where they interact with the landscape and atmosphere. Volcanic eruptions and the transfer of mass and volatiles from the deep interior of the planet. Transformation of the landscape by violent eruptions, and impact on the atmosphere on short timescales. An integrated history of magmatism and its central role in the production of the crust and the degassing history of the planet. The fluid dynamics of volcanoes, from viscous magma flows to turbulent, multiphase eruptions.

Komanalise 703 (GLY 703)

Kwalifikasie	Nagraads
Modulekrediete	16.00
Programme	BScHons Geologie BScHons Geologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 lesings per week, 5 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Physical properties of rocks and minerals: porosity and permeability; density; magnetic properties; natural radioactivity; elastic properties; seismic wave attenuation; thermal properties; electrical properties. Basic principles and applications of various geophysical techniques: gravity, magnetic, resistivity, electromagnetic, seismic and radiometric techniques. Principles of basin analysis; controls on sea level change; subsurface analytical methods; basin mapping methods; subsidence analysis (decompaction and sediment loading, subsidence curves); sequence stratigraphy; sedimentation systems in different basin types; Precambrian basins.

Korsevolusie 704 (GLY 704)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Geologie BScHons Geologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie

Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Precambrian crustal evolution. Precambrian plate tectonics. Precambrian evolution of the African plate (Eburnean, Kibaran and Pan-African events). Phanerozoic evolution to the African plate; global examples of tectonics as a continental crustal source. Determination of deformational history of crustal rocks; determination of palaeostress conditions in ancient crustal rocks. Practical experience of structural analysis and determination of deformational history.

Mynboumetodes 706 (GLY 706)

Kwalifikasie	Nagraads
Modulekrediete	16.00
Programme	BScHons Geologie BScHons Geologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Systematic review of major metallic and non-metallic ore types and examples in South Africa and world-wide; ore type models (geometry, size, geodynamic setting, grade, chemistry/mineralogy). Controlling legislation and infrastructural requirements for mining. . Mining methods: open cast and underground. Metallurgical treatment, metallurgical plants and waste disposal. Pollution, acid drainage and acid rain.

Karteerkamp 707 (GLY 707)

Kwalifikasie	Nagraads
Modulekrediete	9.00
Programme	BScHons Geologie BScHons Geologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Mapping and analysis of a geologically complex area using different techniques.

Honneursprojek 710 (GLY 710)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Geologie BScHons Geologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Independent acquisition of geological field and/or laboratory data, treatment and interpretation thereof, and writing of an honours essay.

Stollingspetrologioe en geochemie 711 (GLY 711)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Geologie BScHons Geologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Interpretation and application of advanced petrogenetic tools: the Rb/Sr and Sm/Ndisotopic systems, quantitative interpretation of binary and ternary phase diagrams, assimilation-fractional crystallisation – partial melting. Abundance of elements in the crust, crust-forming models. Hydrous geochemistry. Recognition of geochemical anomalies. Analytical methods and the treatment of geochemical data.

Metamorfe petrologie en geochemie 712 (GLY 712)

Kwalifikasie	Nagraads

Modulekrediete	12.00
Programme	BScHons Geologie BScHons Geologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Geothermometers and geobarometers, PT-t loops. Studies of major African and other mobile belts: Limpopo, Natal-Namaqua, Pan-African and Hoggar.

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Ekonomiese geologie 713 (GLY 713)

Kwalifikasie	Nagraads
Modulekrediete	16.00
Programme	BScHons Geologie BScHons Geologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Basic remote sensing methods and their applications to geology; basic geophysical and geochemical exploration techniques; exploration target generation - philosophies and methods; professional geological practice; the SAMREC and similar codes; geologists in the business environment; case studies. Practical component (runs parallel to theory above) encompasses ore-microscopy; ore mineral identification; ore textures; analysis of ore assemblages; instrumental techniques applied to ores.

Afstandswaarneming 220 (GMA 220)

Kwalifikasie	Voorgraads
Modulekrediete	14.00

Programme	BSc Geografie BSc Geografie BSc Geoinformatika BSc Geologie BSc Meteorologie BSc Omgewingswetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	GMC 110
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Hierdie module verskaf ‘n deeglike inleiding tot die basiese wetenskaplike beginsels betrokke by afstandswaarneming en sommige toepassings daarvan op studies van die aardoppervlak. Die basiese fisika agter elektromagnetiese radiasie en die komplekse interaksies tussen radiasie, die aardoppervlak en die atmosfeer (i.e. spektrale kentekens) word hierby ingesluit. Basiese konsepte van fotogrammetrie word bespreek. Die teoretiese agtergrond wat vasgelê word in die eerste helfte van die module verskaf tegnieke en insig wat benodig word vir die studie van verskeie afstandswaarnemingstoepassings met data verkry vanuit verskillende vlakke van die elektromagnetiese spektrum. Die toepassings sluit in die gebruik van satellietdata in die kartering en monitering van plantegroei, grond en minerale, sneeu en ys, waterbronne en kwaliteit, en stedelike landskappe. Die laboratoriumsessies verskaf praktiese ervaring op verskillende satelliet-datastelle.

Afstandwaarneming 320 (GMA 320)

Kwalifikasie	Voorgraads
Modulekrediete	22.00
Programme	BSc Geografie BSc Geografie BSc Geoinformatika BSc Geologie BSc Meteorologie BSc Omgewingswetenskappe
Voorvereistes	GMA 220
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Hiedie module verskaf aan studente werkskennis en vaardighede ten opsigte van metodes en tegnieke gebruik tydens die insameling, prosessering en analisering van afstandswaargeneemde data. Klem word deurgaans geplaas op beeldprosessering, beeldanalise, beeldklassifisering, afstandswaarneming en die toepassing van afstandswaarneming in geografiese analise en omgewingsmonitering. Die samestelling van die module sluit lesings, leeswerk, laboratorium oefeninge en navorsingsopdragte in.'n Projek of opdragte van ten minste 64 beraamde leerure.

Gevorderde afstandswaarneming 705 (GMA 705)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geografie en Omgewingswetenskap BScHons Geoinformatika BScHons Meteorologie
Voorvereistes	GMA 320 of ekwivalent
Kontaktyd	28 kontakure per semester
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The aim of the module is to provide knowledge and understanding of image analysis and information extraction methods in remote sensing. The emphasis is on equipping students with knowledge and skills necessary to process imagery to extract diverse biophysical and geospatial information. The course gives insight into the possibilities and limitations of the application of modern remote sensing/image acquisition systems for Earth and atmosphere research purposes at different levels of detail.

Kartografie 110 (GMC 110)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Geografie BSc Geoinformatika BSc Meteorologie BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik

Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Geskiedenis, hede en toekoms van Kartografie. Inleidende Geodesie: Vorm van die aarde, graadnet en riutnette, definisie van 'n datumvlak, elementêre kaart projeksie teorie, berekeninge op die sfeer. Voorstelling van geografiese data op kaarte: Kartografiese ontwerp, kartografiese abstraksie, vlakke van meting en visuele veranderlikes. Semiotiek vir kartografie: tekens, stelsels van tekens, kaart semantiek en sintaks, eksplisiete en implisiete betekenisse van kaarte (kaart pragmatiek).

Geometriese en ruimte geodesie 310 (GMC 310)

Kwalifikasie	Voorgraads
Modulekrediete	22.00
Programme	BSc Geografie BSc Geografie BSc Geoinformatika BSc Meteorologie
Voorvereistes	GMC 110 en WTW 114/WTW 134
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Boldriehoeksmeetkunde. Geometriese Geodesie: Datumvlakke en koördinaatstelsels in Geodesie, Berekeninge op die Ellipsoide, Datum transformasies. Kaartprojeksies: Beginsels van Kaartprojeksies, Berekening van verwringing, konstruksie van konforme, gelykoppervlakkige en afstandsgetroue projeksies, die Transversale Mercator projeksie en UTM projeksie van 'n ellipsoidale aarde, projeksie transformasies. Ruimte Geodesie: Tydstelsels, Die hemelgewelf en waarnemer koördinaatstelsels, Globale Navigasie Satelliet Stelsels (GNSS), Satelliet wentelbane en wentelbaan parameters, 3-D posisionering. 'n Projek of opdragte van ten minste 64 beraamde leerure.

Geometriese optika 800 (GMO 800)

Kwalifikasie	Nagraads
Modulekrediete	36.00
Programme	MMed Oogheelkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Mathematical description of waves; Light as an electromagnetic wave; Nature of sources of light; Wave fronts (Huygens principle); Snell's Law; Index of refraction; Exploration of the laws of reflection and refraction at planar and curved surfaces; Ray tracing methodology to find position, Nature of images and magnification; Thin lens formula; Conjugate foci formula; Lensmaker's formula; Ophthalmic prisms: characteristics, classification and refractive power; Thin lenses: types, image formation; Cylindrical lenses: Introduction; Optical Systems: Lens combinations (notation, toric lenses); Thick lenses (cardinal points, system power); The Eye: structure and function, reduced eye; Aberrations in general; Eye defects: myopia, hyperopia, presbyopia, astigmatism; Optical apparatus for ophthalmology: invasive / non-invasive, ophthalmic laser, ophthalmoscope, fundus camera, light coagulator.

Geoinformatikaprojek 320 (GMT 320)

Kwalifikasie	Voorgraads
Modulekrediete	22.00
Programme	BSc Geografie BSc Geografie BSc Geoinformatika
Voorvereistes	GIS 310 en GIS 311. Slegs vir Geoinformatika studente.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

'n Projek wat deur die dosent goedgekeur is en waarin een of meer van die bestudeerde tegnieke van dataversameling en -verwerking gebruik word om 'n produk te lewer waaruit ruimtelik verwysde inligting verkry kan word. Die projek moet ten volle beskryf word in 'n projekverslag.

Seminaar 702 (GTK 702)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Genetika BScHons Genetika
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 seminaar per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Students are guided to collect relevant literature from disparate papers and to condense and collate this into a written seminar. Seminars are presented, along with formal article talks. Themes and articles covered in the course form part of the written examination upon completion of the module.

Navorsingsprojek 703 (GTK 703)

Kwalifikasie	Nagraads
Modulekrediete	60.00
Programme	BScHons Biotegnologie BScHons Biotegnologie BScHons Genetika
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A mini-dissertation with well-defined limits is undertaken under the guidance of a supervisor. The students are allowed to choose from a number of projects from the different research programmes in the department. The module also has a strong theoretical component since emphasis is placed on writing and presenting a comprehensive literature review and project proposal. Additional technical and analytical training is provided. The project is concluded with a final report, presented in the format of a short manuscript, as well as a poster and an oral presentation.

Tendense in genetika 704 (GTK 704)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Genetika BScHons Genetika
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Discussions and essays focusing on a selection of advanced topics, as well as recent advances in the field of genetics, with an emphasis on contextualising these developments within the broader framework of the Biosciences and its role in modern society. Ethical and philosophical issues in genetics are debated.

Navorsingsmetodes 705 (GTK 705)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Biotegnologie BScHons Biotegnologie BScHons Genetika
Voorvereistes	Geen voorvereistes.
Kontaktyd	10 besprekingsklasse per week, 5 lesings per week, 5 webgebaseerde periodes per week, 5 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Students are guided through the methodology of research planning and data handling. They are offered hands-on experience in a range of advanced techniques employed in molecular research and analysis. Scientific writing and presentation skills, required for research in genetics, are also addressed.

Verhandeling: Genetika 890 (GTK 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Biotegnologie MSc Biotegnologie MSc Genetika MScAgric Genetika
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Jaar

Proefskrif: Genetika 990 (GTK 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00

Programme	PhD Biotegnologie PhD Biotegnologie PhD Genetika
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Jaar

Inleidende genetika 161 (GTS 161)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Voeding BSc Voedselwetenskap BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Veeartsenykunde
Voorvereistes	MLB 111 GS
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Semester 2

Module-inhoud

Chromosome en seldeling. Beginsels van Mendeliese oorerwing: lokus en allele, dominansie- interaksies en epistase. Waarskynlik-heidsleer. Geslagbepaling en geslagsgekoppelde eienskappe. Stamboomanalise. Ekstranukluêre oorerwing. Genetiese koppeling en chromosoomkartering. Chromosoomvariasie.

Molekulêre genetika 251 (GTS 251)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mediese Wetenskappe BSc Biochemie BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Voedselwetenskap BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	GTS 161 GS
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Semester 1

Module-inhoud

Chemiese aard van DNS. Replikasie. Transkripsie. RNA-prosessering en translasie, Beheer van geenuidrukking in prokaryote en eukaryote. Rekombinante DNS-tegnologie en toepassings daarvan in geenanalise en -manipulasie.

Genetiese diversiteit en evolusie 261 (GTS 261)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BSc Mediese Wetenskappe BSc Biochemie BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Voedselwetenskap BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	GTS 251 GS
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Semester 2

Module-inhoud

Chromosoomstruktuur en transponeerbare elemente. Mutasie en DNS-herstel. Genomika en proteomika. Organel-genome. Inleiding tot genetiese analises van populasies: alleel- en genotipiese frekwensies, Hardy Weinberg Wet, die uitbredings en implikasies daarvan vir verskillende paringsisteme. Inleiding tot kwantitatiewe en evolusionêre genetika.

Eukariote geenbeheer en -ontwikkeling 351 (GTS 351)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Biotegnologie BSc Genetika BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde

Voorvereistes	GTS 251 GS en GTS 261 GS
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Semester 1

Module-inhoud

Beheer van geenekspressie in eukariote: beheer op genoom-, transkripsie-, RNA prosesserings- en translasievlak.DNS-elemente en proteïenfaktore betrokke by geenbeheer. Die rol van chromatienstruktuur en epigenetiese veranderings. Tegnologie en eksperimentele benaderins wat gebruik word in die studie van eukariotiese geeenbeheheer. Toepassings van die beginsels van geenbeheer in embrioniese: kanker en ander siektes in die mens.

Gevorderde populasiegenetika 353 (GTS 353)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Voorvereistes	GTS 251 GS en GTS 261 GS of TDH
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Semester 1

Module-inhoud

Genetiese variasie en telingsisteme. Alleelfrekwensie-veranderings: genetiese drywing, natuurlike en verwantskapsseleksie, mutasie en migrasie. Molekulêre evolusie: nukleotied substitusies in multigeen families en die neutraliteitsteorie. Kwantitatiewe genetika: analise van genetiese variasie, erfbaarheid, natuurlike seleksie en kunsmatige seleksie van kwantitatiewe eienskappe. Identifikasie van kwantitatiewe eienskapsloki (''QTLs'').

Genoom-evolusie en filogenetika 354 (GTS 354)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Biotegnologie BSc Genetika BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde

Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	GTS 251 GS en GTS 261 GS
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Semester 1

Module-inhoud

Meganismes betrokke by die evolusie van genome. Vergelyking van die molekulêre organisasie van irale, archaea-, eubakteriese genome. Genoom projekontwerp. DNS-volgorde bepalingsmetodes en annotasie. Molekulêre evolusie. Filogenetiese afleimetodes. Toepassings van filogenetika en kontemporére genoom navorsing.

Populasie en evolusionêre genetika 367 (GTS 367)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensfisiologie BSc Biochemie BSc Biotegnologie BSc Genetika BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	GTS 251 en [GTS 261 GS]
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Semester 2

Module-inhoud

Genetiese en fenotipiese variasie. Organisasie van genetiese variasie. Toevallige genetiese drywing. Mutasie en die neutrale teorie. Darwiniese seleksie. Inteling, populasie-onderverdeling en migrasie. Evolusionêre kwantitatiewe genetika. Populasiegenomika. Menspopulasiegenetika. Vlakke van seleksie en individualiteit. Wapenwedlope en onomkeerbaarheid. Kompleksiteit. Toegepaste evolusie.

Genetika in mensgesondheid 368 (GTS 368)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Mensfisiologie BSc Biochemie BSc Biotegnologie BSc Genetika BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde
Voorvereistes	GTS 251 en [GTS 261 GS]
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Semester 2

Module-inhoud

Toepassing van moderne genetika in mensvariasie, gesondheid en siekte. Molekulêre oorsprong van Mendeliese en multifaktoriale siektes. Die gebruik van polimorfismes, geenkartering, koppeling en assosiasiestudies in mediese genetika. Genetiese diagnose – toepassings van sitogenetiese, molekulêre en genomiese tegnieke. Kongenitale abnormaliteite, risikoberekening en genetiese konsultasie. Prenatale toetsing, populasiesifting, behandeling van genetiese siektes en geen-gebaseerde terapie. Farmakogenetika en kankergenetika. Etiese aspekte in mediese genetika.

Terreinevalueringprojek 713 (GTX 713)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie
Voorvereistes	GLY 363/GLY 364 of TDH
Kontaktyd	13 praktiese sessies per week vir 11 weke, 1 lesing per week vir 11 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Field work which includes mapping, soil and rock description, joint surveys, borehole testing, water sampling, interpretation of laboratory test results and compilation of site investigation reports. Larger projects of at least two months of fieldwork and report writing which involves surface and underground studies, mapping, drill core logging, discontinuity surveys, rock mass classification, stability analyses, interpretation of laboratory tests or pollution studies including water and/or soil sampling, interpretation of laboratory tests, development of a rehabilitation plan or groundwater model and compilation of a report. Compulsory attendance at conferences, short courses, specialist lectures, visits to construction sites and fields excursions.

Ingenieursgeologie van Suid-Afrika 714 (GTX 714)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie
Voorvereistes	SGM 311 of TDH
Kontaktyd	2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Overview of site investigation phases; site investigation techniques; soil profiling and rock core description. Literature study and compilation of reports on the stratigraphy of South African rock types and engineering problems of rocks and soils within different stratigraphic units and climatic regions.

Omgewingsgeochemie 715 (GTX 715)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Principles of low temperature geochemistry; geochemistry and origin of acid mine water; acid-mineral reactions; industrial effluents, remediation methods, waste disposal, environmental sampling and data analysis; geochemical modelling.

Omgewingsbestuur 716 (GTX 716)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geografie en Omgewingswetenskap BScHons Geoinformatika BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Principles of integrated environmental management; environmental impact assessment; environmental management systems (ISO 14000 series); water resource management; environmental legislation; site investigation guidelines; natural hazard risk assessment; seismicity; project management and professional business practice.Geological models and software.

Hidrogeologiese modellering 718 (GTX 718)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie
Voorvereistes	GTX 725
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Finite-difference methods; numerical solution of the flow and transport equations; spatial and temporal discretisation, stability criteria; development of conceptual models; introduction to PMWIN/Modflow.

Besoedelingsvervoer 719 (GTX 719)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie
Voorvereistes	GTX 715 of TDH
Kontaktyd	2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Theory of contaminant transport in porous and fractured aquifiers, determination of transport parameters, boundary conditions, analytical solutions of 1-, 2- and 3-dimensional transport equations for porous aquifiers, analytical solutions for fractured aquifiers.

Konstruksiemateriale 721 (GTX 721)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Requirements for and use of concrete aggregates, road and dam construction materials; site investigation and site development methods; quality control.

Rotsingenieurswese 722 (GTX 722)

Kwalifikasie	Nagraads

Modulekrediete	15.00
Programme	BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie
Voorvereistes	GLY 364 of TDH
Kontaktyd	2 lesings per week vir 3 weke, 2 praktiese sessies per week vir 3 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Mapping, description (core logging and discontinuity surveys) and classification of rock masses; engineering properties of rock masses including deformability, shear strength of discontinuities, in situ strength and permeability of rock masses; effects, theoretical derivation and practical measurements of in situ stresses.

Ingenieurstoepassings 723 (GTX 723)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie
Voorvereistes	GTX 722
Kontaktyd	2 lesings per week vir 3 weke, 2 praktiese sessies per week vir 3 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The influence of geology on construction projects with specific reference to the requirements of dams, tunnels, slopes, waste disposal and urban development.

Fluid mechanics in geological media 725 (GTX 725)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie
Voorvereistes	GLY 363 and GLY 265

Kontaktyd	2 praktiese sessies per week vir 3 weke, 2 lesings per week vir 3 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Statics and dynamics of fluids, including water, aqueous phase liquids (saline water), non-aqueous phase liquids (petroleum hydrocarbons), gases (atmospheric air) and man-made fluids (gout) through natural and man-made porous media (eg soil, rock, concrete). Single phase flow and multiphase flow; saturated and unsaturated flow. Quantification of hydrological parameters. South African hydrostratigraphy. Drainage and dewatering.

Rots- en grondverbetering 726 (GTX 726)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Hidrogeologie BScHons Ingenieurs- en Omgewingsgeologie Ingenieursgeologie
Voorvereistes	GLY 264 of TDH
Kontaktyd	2 lesings per week vir 3 weke, 2 praktiese sessies per week vir 3 weke
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Grouting materials and procedures; rock and soil support and stabilisation; rock and soil compaction; geofabrics; water seepage and drainage methods.

Verhandeling: Hidrogeology 890 (GTX 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Ingenieurs- en Omgewingsgeologie Hidrogeologie MSc Ingenieurs- en Omgewingsgeologie Hidrogeologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geologie
Aanbiedingstydperk	Jaar

Proefskrip: Hidrogeology 990 (GTX 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Ingenieurs- en Omgewingsgeologie Hidrogeologie PhD Ingenieurs- en Omgewingsgeologie Hidrogeologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geologie
Aanbiedingstydperk	Jaar

Grootveevoeding en -produksie 420 (GVK 420)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	RPL 320, VGE 320, VKU 250 en VKU 260
Kontaktyd	1 praktiese sessie per week, 4 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Produksiebestuur van grootvee. Aspekte van 'n grootvee-onderneming. Bestuursprogramme, produksie-stelsels en tegnieke wat in die geval van vleis- en melkbeeste volgens produksiestelsels. Gebruik van rekenaarstelsels vir voedingbestuur. Ontwerp en beplanning van plaasgeboue en strukture. Berging en hantering van voer. Hantering en bestuur van afval. Higiëne en kuddegesondheidsprogramme. Praktiese werk: dit sluit die samestelling van rantsoene volgens vereistes en teen die laagste kosteformulerings, asook gespesialiseerde opdragte en ervaringsleer op die plaas in.

Grootveekunde 800 (GVK 800)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Management programmes and systems for beef cattle, dairy cattle and horses. Optimal use of breeds and regional adaptation of cattle. The stud industry and commercial units. Indigenous breeds and production development. The application of animal science practices and the practise of techniques for breed improvement. Seminars, class discussions, literature studies and assignments on certain fields. Research and production techniques. Agro-economic, agro-ecological and socio-economic assignments can be prescribed.

Mensvoeding 210 (HNT 210)

Kwalifikasie	Voorgraads
Modulekrediete	27.00
Programme	BSc Voeding BSc Voeding
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Tweedejaarstatus
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding
Aanbiedingstydperk	Semester 1

Module-inhoud

Toepassing van natuurwetenskaplike beginsels in mensvoeding. Standaarde, riglyne en voedselsamestellingstabelle.

Mensvoeding 220 (HNT 220)

Kwalifikasie	Voorgraads
Modulekrediete	24.00
Programme	BSc Voeding BSc Voeding
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FLG 211 FLG BCM 253 BCM 254 BCM 256 BCM 263 BCM 264 BCM 265 BCM 266
Kontaktyd	3 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding
Aanbiedingstydperk	Semester 2

Module-inhoud

Sien asseblief Engelse weergawe vir die inhoud van hierdie module.

Gevorderde mensvoeding 411 (HNT 411)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Voeding BSc Voeding
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FLG 312,FLG 314,FAR 381,FAR 382,MRZ 310,NTA 313,RCH 310,DTT 310,VDS 320,VDB 320
Kontaktyd	1 besprekingsklas per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding
Aanbiedingstydperk	Semester 1

Module-inhoud

Seminare en gevalstudies (teorie en praktiese toepassing): Voedinggedrag; eetversteurings; nutriënt/voedingsaanvulling; sportvoeding; vegetarisme; voedselveiligheid; voeding van die gestremde; voorkoming van nie-oordraagbare siektes van lewenstyl, voeding en immuniteit; voeding en genetika.

Beginsels en praktyke 351 (HSC 351)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BScAgric Plantpatologie BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Die georganiseerde kwekerybedryf in Suid-Afrika. Beginsels: saadproduksie; saad-ontkieming; beworteling van steggies; enting en okkulering; voortplanting deur gewysigde plantorgane; mikrovoortplanting (weefselkultuur). Praktyke: kweekhuistruktuur; beligting in die kwekery; verkoeling en verhitting; grond- en hidroponiese groeimedia; kwekeryhouertipes; besproeiing en bemesting; groeimanipulasie; plaag- en siektebeheer. Bestuurs-, ekonomiese en bemarkingsaspekte van ’n tipiese kwekery. Studente sal fisies met plante werk en ook kwekerye besoek.

Vrugteboomgewasse 420 (HSC 420)

Kwalifikasie	Voorgraads

Modulekrediete	15.00
Programme	BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	GKD 250 en PGW 350
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Gewasmodellering, klimaatstreke, klimaatsvereistes, verbouingstreke, ekonomiese belang, anatomie en morfologie, fenologiese modellering. Kommersiëel belangrike bo-stamme, onderstamme en hul interaksies. Gewasbestuur, insluitende bemesting, besproeiing, siekte- en plaagbeheer, boom- en vrugmanipulasie, fisiologiese afwykings van die ekonomies belangrike tropiese, subtropiese en gemagtigde vrugtegewasse geproduseer in Suidelike-Afrika.

Siertuinbou 490 (HSC 490)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Ekonomiese belangrikheid van snyblomme, sierplante en turfgras.Taksonomie en plantbeskrywing. Klimaatsvereistes en kweekpraktyke, insluitend vestiging, groeimanipulasie, voedingsvereistes, besproeiing, insek- en plaagbeheer, oes en na-oeshantering. Identifikasie van sierplante vir kommersiële en landskapsgebruik. Klimaat, voortplanting en onderhoudsvereistes vir bome, palms, broodbome, struike, blomplante, grondbedekkers, turfgras, rankers en binnenshuise plante. Funksionele en estetiese waarde van plante in 'n landskap of binnenshuis. Ekskursies na kwekerye en praktiese ervaring op die proefplaas is verpligtend vir alle deelnemers in die module.

Fruit tree crops 780 (HSC 780)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde

Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An overview of the South African fruit industry indicating economic importance and the areas of production of the various crops. Principles governing orchard establishment and orchard management, including location and site selection, crop and cultivar choices, site preparation, orchard layout and design, irrigation, fertilisation, pruning and training, the application of plant growth regulators and disease and pest management. Harvesting practices and the post-harvest physiology of fruit which determines storage protocols and the quality of the fruit reaching the consumer. Climatic requirements, phenological models, cultivars and rootstocks, fruit manipulation, physiological disorders and pest and disease complexes of subtropical and deciduous fruit crops produced in South Africa.

Gevorderde kursuswerk 801 (HSC 801)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 seminaar per week, 2 besprekingsklasse per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Enige module en/of werkstuk(ke) op die gevorderde vlak gekies in oorleg met die departementshoof.

Miniverhandeling: Tuinboukunde 891 (HSC 891)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Elke kandidaat moet 'n skripsie skryf oor sy/haar navorsingsprojek in Tuinboukunde en ten minste 'n konsep artikel voorberei vir publikasie in 'n eweknie-geëvalueerde wetenskaplike tydskrif.

Aktuariële wiskunde 211 (IAS 211)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Wiskundige Statistiek BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Slaag WTW 114 en (WTW 126 en WTW 128 of (WTW 124) en WTW 123 en WST 111 en WST 121)
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Akkumulasiefunksies, rente, tydwaarde van geld, saamstellingsperiodes, kontant-vloeimodelle, waardevergelykings, jaargelde, uitbreiding na kontinue-tydsmeting, leningskedules, prestasiemeting, waardering van vaste rente-effekte.

Aktuariële wiskunde 221 (IAS 221)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Wiskundige Statistiek BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Voorvereistes	IAS 211
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Beginsels van oorlewingsmodelle eenvoudige sterftewette, afleiding van gebeurlikheid-waarskynlikhede vanaf lewenstabelle, gebeurlikheidsbetalings lewensverwagting, elementêre oorlewingskontrakte,keur- en eindlewenstabelle, gevorderde lyfrentes, akkumulasie en verdiskontering, lewensversekering, netto en bruto premies, reserwes, statistiese oorwegings.

Finansiële wiskunde 282 (IAS 282)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Aktuariële en Finansiële Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	IAS 211 60%
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Veralgemeende kontantvloeimodel. Tydwaarde van geld. Rentekoerse. Verdiskontering en akkumulasie. Saamgestelde rente funksies. Waardevergelykings. Projekevaluering. Beleggings. Eenvoudige saamgestelde renteprobleme. Die ''Geen Arbitrasie''- aanname en termynkontrakte. Termynstruktuur van rentekoerse. Stogastiese rentekoersmodelle.

Gebeurlikhede 353 (IAS 353)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Aktuariële en Finansiële Wiskunde BSc Aktuariële en Finansiële Wiskunde
Voorvereistes	IAS 221 60%
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Die stogastiese benadering tot lyfrentes en assuransies wat een of twee lewens in ag neem. Definisies, beraming en die gebruik van keur-sterftekoersfunksies. Meervoudige afnames en pensioenfondse. Veranderlike voordeel-, ongeskiktheids- en langtermynsorgkontrakte. Lewensversekeringskontrakte: uitgawes en bonusse. Netto en bruto premies vir vaste en veranderlike voordeelkontrakte. Verdiskonteerde opkomende kostetegnieke. Winstoetse. Bate- aandele vir lewensversekeringskontrakte. Veranderinge aan kontrakte. Koste van waarborge onder lewensversekeringskontrakte. Faktore wat geselekteerde of standaard sterftekoerse beïnvloed. Die proses van bevolkingsberaming en die hoofdeterminante. Waardering van voordele onder ? ongeskiktheidsversekeringskontrak.

Versekerings- en aktuariële toepassings 361 (IAS 361)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Aktuariële en Finansiële Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde
Voorvereistes	IAS 211 en IAS 221
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Risiko en versekering. Belanghebbendes en die eskterne omgewing. Professionaliteit. Aktuarisse en die regulerende omgewing. Versekeringsprodukte en hul verskaffers. Prysbepaling van versekeringsprodukte. Wyer velde van die aktuariële praktyk. Herversekering. Nuwe verwikkelinge in die industrie.

Aktuariële modellering 382 (IAS 382)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BSc Aktuariële en Finansiële Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	WST 312 60%
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Beginsels van aktuariële modellering en stogastiese prosesse. Markov kettings en kontinue tyd Markov sprongprosesse. Simulasie van stogastiese prosesse. Oorlewingsmodelle en die lewenstabel. Beraming van die leeftydverdeling Fx(t). Die Cox regressiemodel. Die tweetoestand Markov model. Die algemene Markov model. Binomiale en Poisson modelle. Graduasie en statistiese toetse. Metodes van graduasie. Blootstelling aan risiko. Die evaluering van versekerings en annuïteite. Premies en reserwes.

Actuarial risk management 712 (IAS 712)

Kwalifikasie	Nagraads
Modulekrediete	50.00
Programme	BScHons Aktuariële Wetenskap BScHons Aktuariële Wetenskap
Voorvereistes	IAS 361
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Surplus management. Mergers, acquisitions, insolvency and closure. Options and guarantees. Stakeholders. External environment. Regulation. Introduction to financial products and customer needs. Benefits overview and providers of benefits. Life insurance overview and life products. General insurance overview and products. Cash flows of simple products. Contract design. Project management. Capital project appraisal. Money markets. Bond markets. Equity markets. Property markets. Futures and options. Collective investment schemes. Overseas markets. Economic influences on investment markets. Other influences on investment markets. Relationship between returns on asset classes. Valuation of individual investments. Valuation of asset classes and portfolios. Investment strategy – institutions. Investment strategy – individuals. Developing an investment strategy. Modelling. Data. Setting assumptions. Expenses. Pricing and financing strategies. Discontinuance. Valuing liabilities. Accounting and disclosure. Surplus and surplus management. Sources of risk. Risks in benefit schemes. Pricing and insuring risks. The risk Management process. Risk management tools. Capital management. Monitoring.

Enterprise risk management 721 (IAS 721)

Kwalifikasie	Nagraads
Modulekrediete	40.00
Programme	BScHons Aktuariële Wetenskap BScHons Aktuariële Wetenskap
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

ERM framework. External risk frameworks. Stakeholders. Risk appetite. The risk management function. Risk management processes. Risk identification and assessment. Risk classification. Risk Measurement. Risk modelling. Analysis of data. Copulas. Fitting models. Extreme Value Theory. The use of models in ERM. Analysis of selected risks. Risk optimisation and risk responses. Risk management of selected risks. Economic Capital.

Aktuariële kommunikasie 722 (IAS 722)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Aktuariële Wetenskap BScHons Aktuariële Wetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Effektiewe kommunikasie van tegniese aktuariële konsepte, die ontwerpproses van 'n dokument, beplanning en struktuur van 'n dokument of aanbieding, styl en toon van 'n dokument of aanbieding. Opstel van konsepdokumente (briewe, verslae, besprekings-dokumente, memorandums, e-posse). Aanbiedings (voorbereiding en voordrag, opvolg, ontwerp van visuele hulpmiddels).

Ingenieursgeologie 703 (IGL 703)

Kwalifikasie	Nagraads
Modulekrediete	16.00
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 Kontakure
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geologie
Aanbiedingstydperk	Semester 1

Ingenieursgeologie 704 (IGL 704)

Kwalifikasie	Nagraads
Modulekrediete	16.00
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Geen voorvereistes.

Kontaktyd	10 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geologie
Aanbiedingstydperk	Semester 2

Verhandeling: Ingenieursgeologie 890 (IGL 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Ingenieurs- en Omgewingsgeologie MSc Ingenieurs- en Omgewingsgeologie MSc Ingenieursgeologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geologie
Aanbiedingstydperk	Jaar

Proefskrif: Ingenieursgeologie 990 (IGL 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Ingenieurs- en Omgewingsgeologie PhD Ingenieurs- en Omgewingsgeologie PhD Ingenieursgeologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geologie
Aanbiedingstydperk	Jaar

Informatika 112 (INF 112)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Geoinformatika BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	'n Kandidaat moet Wiskunde met ten minste 4 (50-59%) geslaag het in die Graad 12-eksamen; of STK 113 60%, STK 123 60% of STK 110
Kontaktyd	2 lesings per week

Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Informatika
Aanbiedingstydperk	Semester 2

Module-inhoud

Inleiding tot inligtingstelsels; inligtingstelsels in ondernemings; apparatuur: invoer; verwerking; uitvoer; programmatuur: stelsels- en toepassingsprogrammatuur; organisering van data en inligting; telekommunikasie en netwerke; die internet en intranet. Transaksieverwerkingstelsels; bestuursinligtingstelsels; besluitnemingsteunstelsels; inligtingstelsels in besigheid en samelewing; stelselontleding; stelselontwerp; implementering; onderhoud en hersiening.

Informatika 154 (INF 154)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Geografie BSc Geoinformatika BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	'n Kandidaat moet Wiskunde geslaag het met 4 (50-59%) in die Graad 12-eksamen
Kontaktyd	2 praktiese sessies per week, 1 lesing per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Informatika
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot programmering.

Informatika 164 (INF 164)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Geografie BSc Geoinformatika BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	INF 154; 'n Kandidaat moet Wiskunde met ten minste 4 (50-59%) geslaag het in die Graad 12-eksamen; AIM 101 of AIM 102 of AIM 111 en AIM 121
Kontaktyd	1 lesing per week, 2 praktiese sessies per week

Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Informatika
Aanbiedingstydperk	Semester 2

Module-inhoud

Gevorderde programmering; gebruik van 'n rekenaargesteunde programmatuuringenieurswesehulpmiddel.

Informatika 171 (INF 171)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Geografie BSc Geoinformatika BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	'n Kandidaat moet Wiskunde met ten minste 4 (50-59%) geslaag het in die Graad 12-eksamen
Kontaktyd	2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Informatika
Aanbiedingstydperk	Jaar

Module-inhoud

Algemene stelselteorie; kreatiewe probleemoplossing; sagtestelselmetodologie. Die stelselontleder; stelselontwikkelingsboublokke; stelselontwikkeling; stelselontledingsmetodes; prosesmodellering.

Informatika 214 (INF 214)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BSc Geografie BSc Aktuariële en Finansiële Wiskunde BSc Geografie BSc Geoinformatika BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	AIM 101 of AIM 111 en AIM 121
Kontaktyd	2 praktiese sessies per week, 2 lesings per week

Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Informatika
Aanbiedingstydperk	Semester 1

Module-inhoud

Databasisontwerp: die relasiemodel; gestruktureerde navraagtaal (SQL); entiteitsverwantskap modellering; normalisering; databasis ontwikkelingslewensiklus. Praktiese inleiding tot databasisontwerp. Databasisse: gevorderde entiteitsverwantskapmodellering en -normalisering; objek-geöriënteerde databasisse; databasis-ontwikkelingslewensiklus; gevorderde praktiese databasisontwerp.

Informatika 225 (INF 225)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BSc Geografie BSc Geografie BSc Geoinformatika
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	INF 164 en INF 171; AIM 101 of AIM 102 of AIM 111 en AIM 121
Kontaktyd	1 lesing per week, 3 praktiese sessies per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Informatika
Aanbiedingstydperk	Semester 2

Module-inhoud

'n Oorsig van stelselinfrastruktuur en -integrering.

Informatika 261 (INF 261)

Kwalifikasie	Voorgraads
Modulekrediete	7.00
Programme	BSc Geografie BSc Geografie BSc Geoinformatika
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	INF 214
Kontaktyd	1 lesing per week, 1 praktiese sessies per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Informatika

Aanbiedingstydperk	Semester 2

Module-inhoud

Databasisbestuur: transaksiebestuur; gelyktydige prosesse; herstel; databasisadministrasie: nuwe ontwikkelings: verspreide databasisse: kliëntbedienerdatabasisse; praktiese implementering van databasisse.

Informatika 264 (INF 264)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Geoinformatika
Voorvereistes	INF 112, AIM 101 of AIM 102 of AIM 111 en AIM 121
Kontaktyd	2 praktiese sessies per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Informatika
Aanbiedingstydperk	Semester 2

Module-inhoud

Toepassing van spreiblaaie en navraagtale in 'n rekenkundige omgewing.

Informatika 272 (INF 272)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BSc Geoinformatika BSc Geoinformatika
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	AIM 101 of AIM 102 of AIM 111 en AIM 121INF 163, 164, Regulasie IT.3(g)
Kontaktyd	2 praktiese sessies per week, 1 lesing per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Informatika
Aanbiedingstydperk	Jaar

Module-inhoud

Gebruik van rekenaargesteunde ontwikkelingshulpmiddels; gevorderde programmering.

Informatika 282 (INF 282)

Kwalifikasie	Voorgraads
Modulekrediete	3.00

Programme	BCom Statistiek BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	FRK 111, FRK 121 of FRK 100 of FRK 101
Kontaktyd	2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Informatika
Aanbiedingstydperk	Semester 1 en Semester 2

Module-inhoud

Rekenaarverwerking van rekeningkundige inligting.

Stelselsdenke en -ingenieurswese 780 (ISE 780)

Kwalifikasie	Nagraads
Modulekrediete	16.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 kontakure per semester
Onderrigtaal	Module word in Engels aangebied
Departement	Ingenieurs- en Tegnologiebestuur
Aanbiedingstydperk	Semester 1 en Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A company's ability to remain competitive in modern times hinges increasingly on its ability to perform systems engineering. The technology and complexity of a company's products appears to steadily increase and with it, the risks that need to be managed. This module provides specialised knowledge to apply systems engineering by understanding the tools, processes and management fundamentals.

Interieurware 121 (ITW 121)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week

Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Huishoudelike materiaal- en apparaatstudies: Metale en nie-metale soos gebruik vir die vervaardiging van huishoudelike objekte, apparaat en komponente van toerusting. Studie en evaluering van geselekteerde nie-elektriese huishoudelike toerusting/apparaat in terme van spesifieke eindgebruiksituasies.

Klere- en modegeskiedenis 210 (KLD 210)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Klere- en modegeskiedenis: Voorkomskenmerke van Westerse kleredrag. Beïnvloedende faktore. Evolusie van style van Ou Egipte tot en met die huidige.

Modevooruitskouing 222 (KLD 222)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Die Suid-Afrikaanse modebedryf: basiese beginsels van mode; mode as 'n produk en die verbruiker. Mode-produksie: Haute Couture en pasklaarklere. Modevooruitskouings en - analises.

Sosiale en kulturele aspekte van kleding 311 (KLD 311)

Kwalifikasie	Voorgraads

Modulekrediete	15.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Sosiaal-sielkundige en kulturele aspekte van kleding: Ontwikkeling van 'n raamwerk; die simboliese-interaktionisme as perspektief; die kognitiewe benadering. Ontwikkeling van die self: self en selfkonsep; die fisiese self as indikator: persoonlike waardes en norme. Voorkomsbestuur en aanbieding van die self: rolaanvaarding, identiteit, sosiale beheer en rolle in sosiale kognisie. Kulturele konteks en klere: weerspieëling van menslike aanpassing; kultuurskeppings (tegnies, moreel, seremoniële patrone); gemeenskappe en klere; skoonheidstandaarde en -ideale. Sosiale konteks, identiteit, verandering en klere; die gesin, politiek, godsdiens, ekonomie en die rol van klere as weerspieëling van die sosiale en persoonlike identiteite; mentefakte en identiteite; sosiale verandering en klere.

Kleding kleinhandelbestuur 410 (KLD 410)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	Finalejaarstatus
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Kledingkleinhandelaspekte: Funksionering van kerekleinhandelbedryf. Omgewings, formate end strukture van klerekleinhandelaars. Verkope en winkelplasing. Modeverbruikersgedrag. Etiek en sosiale verantwoordelikhede van klerehandelaars. Modebemarkingskommunikasie: advertensie, direkte bemarking, sales promotions, persoonlike verkope en dienslewering, publisiteit en openbare betrekkinge, modevertoning en spesiale funksies.

Kleding handelswarebestuur 420 (KLD 420)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur

Voorvereistes	Finalejaarstatus
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Kleding handelsware-bestuursaspekte: mode-aankope en beplanningsfunksie, beheer van voorraad, faktore wat beweging van voorraad beïnvloed, herverspreiding van voorraad, klereverkoopsprosesse: opspoor en verhouding me verskaffers, bestuursrolle en -verantwoordelikhede. Aankoopstrategieë, voorspelling en optekening, voorbereiding van 'n aankoopplan, ontwikkeling van verskeidenheidplan. Gebruik van toepaslike sagteware in die aankoop- en beplanningsfunksie. Globale perspektief van die kledingbedryf.

Klereproduksie: Stiktegnieke 110 (KLR 110)

Kwalifikasie	Voorgraads
Modulekrediete	9.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 lesing per week, 1 ppraktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Basiese kledingsaamsteltegnieke en kwaliteitsbeheer.

Klereproduksie: Prosesse 120 (KLR 120)

Kwalifikasie	Voorgraads
Modulekrediete	9.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	KLR 110
Kontaktyd	1 lesing per week, 1 besprekingsklas per week, 1 ppraktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Toepassing van basiese kledingsaamsteltegnieke en kwaliteitbeheer.

Platpatroonontwerp 211 (KLR 211)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	KLR 120
Kontaktyd	2 praktiese sessies per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Rekenaargesteunde ontwerp (CAD).

Patroongebruik en goeie pas 221 (KLR 221)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	KLR 211
Kontaktyd	1 lesing per week, 1 ppraktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Patroongebruik en goeie pas.

Klereproduksie 321 (KLR 321)

Kwalifikasie	Voorgraads
Modulekrediete	17.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	KLR 221
Kontaktyd	1 ppraktiese sessie per week, 1 lesing per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Kleinskaalproduksie: industriële masjiene, produksiesisteme, kwaliteitbeheer.

Produkontwikkeling 411 (KLR 411)

Kwalifikasie	Voorgraads
Modulekrediete	19.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	KLR 221 en KLR 321
Kontaktyd	2 lesings per week, 1 ppraktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Produksie: produkanalise, beplanning en uitvoering. Toepassing van kleding-, tekstiel- en verbruikerskennis deur die gebruik van 'n CAD-program vir die beplanning en samestelling van uitrustings. Die kleinsake bedryf: Inleiding: kleding kleinsake ondernemings; tipes en plekke. Bemarkingsaspekte: teikenmarkkeuse; produkmengsel; prysbesluite; Verspreidingskanale; bemarkingskommunikasie mengsel; finansiële aspekte.

Praktykopleiding in die industrie 403 (KTP 403)

Kwalifikasie	Voorgraads
Modulekrediete	5.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	Dokumentasie van werksondervinding soos vereis vir studiejare 1-3
Kontaktyd	1 praktiese sessies per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Studente moet gedurende die 4 jaar van studie, gedurende vakansietye, oor naweke en na-uurs, ’n totaal van 480 uur praktykopleiding in die industrie doen om praktiese en bedryfsvaardighede te ontwikkel, deel te neem aan gemeenskapsprojekte/ ontwikkeling en diensleergeleenthede te benut. Dit is gelykstaande aan 3 weke x 40 uur (120 uur) per jaar, volgens die vereistes soos bepaal deur die departementshoof. Hierdie "“krediete” sluit bewys in van praktykopleiding, diensleer en gemeenskapsontwikkeling gedurende die vier jaar van die studieprogram en moet suksevol voltooi wees tesame met bewyslewering van ’n volledige portefeulje alvorens die graad toegeken sal word.

Kleinveevoeding en -produksie 420 (KVK 420)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	RPL 320, VGE 320, VKU 250 en VKU 260
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Gespesialiseerde voeding vir kleinvee en wild. Beginsels van kruipvoeding, droogtevoeding, winter- en aanvullende voeding. Voerhokvoeding en laaste voedingsvoorbereiding van lammers. Invloed van voeding op wol, velle en sybokhaar. Beplanning van voervloei. Kleinveebestuur, reëling van die skeerproses en voorbereiding van skeerskure en -toerusting, krale, dip-, drink- en voerfasiliteite. Voorbereiding en bemarking van velle, bokhaar en karakoel. Lamseisoene en kuddebestuur. Bestuursprogramme vir die produksie van wol, vleis, karakoelpels en sybokhaar volgens die betrokke ekologiese streek en vir droogtoestande. Kuddegesondheidsprogramme. Praktiese werk: Formulering van rantsoene teen die laagste koste en praktiese werk met klein herkouers.

Kleinveekunde 800 (KVK 800)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligtinf is slegs in Engels beskikbaar.

Advanced aspects of the small stock industry. The wool, fur and meat production potential of South Africa. Production trends and factors influencing them. Production systems. The influence of flock composition on production. Discussions, seminars and prescribed scientific literature studies on various aspects of the small stock industry.

Landelike Ontwikkeling 990 (LDV 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00

Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Inleiding tot landbou-ekonomie 210 (LEK 210)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BCom Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot finansiële bestuur in die landbou: Boerderybestuur en boerderyfinansiering, boerderybestuursinligting, ontleding en vertolking van boerderystate, risiko- en plaas-beplanning, begrotings insluitende gedeeltelike begrotings, gelykbreekbegrotings, bedryfstakbegrotings, totaalbegrotings, kapitaalbegrotings en kontantbegrotings. Tydwaarde van geld. Inleiding tot produksie-ekonomie en hulpbronaanwending, die landbouproduksie-funksie, totale fisiese produkkurwe, marginale fisiese produkkurwe, gemiddelde fisiese produkkurwe, fases van produksie, bepaling van kortermynkostes, die ekonomie van korttermynbesluite, ekonomie van insetvervanging, laagstekosteverhoudings vir 'n gegewe uitset, korttermynlaagstekoste-insetgebruik, die impak van prysveranderings, laagstekoste-insetgebruik vir 'n gegewe begroting, ekonomie van produkvervanging, produkkombinasies vir winsmaksimering, ekonomie van lewendehawe- en gewasproduksie.

Landbou-ekonomie 220 (LEK 220)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BCom Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	[LEK 210] of [EKN 113 en/of EKN 120]

Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

Die landboubesigheidsisteem, die unieke eienskappe van landbouprodukte, bemarkingsfunksies en -kostes, die markstruktuur, die historiese verloop van landboubemarking in Suid-Afrika, markomgewing en prysanalise in die landbou, inleiding tot vraag en aanbod. Bemarkingsplanne en strategieë vir landbouprodukte, markontledings, produkbestuur, verspreidingskanale vir landbouprodukte, die voedsel- en veselketting, die landboutermynmark.

Landbou-ekonomie 310 (LEK 310)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BCom Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	[LEK 210 of EKN 110] en [EKN 120]
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

Historiese verloop van Suid-Afrikaanse landboubeleid, landbou en die staat: Redes vir ingryping deur regerings, teoretiese aspekte van landboubeleid, inleiding tot landboubeleidsanalise, beginsels van welvaartekonomie, pareto- optimum, makro-ekonomiese beleid en die landbousektor, internasionale handel in die landbou.

Landbou-ekonomie 320 (LEK 320)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BCom Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	LEK 220, LEK 210
Kontaktyd	3 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

Die moderne voedsel- en agribesigheidsisteem. Sleuteldrywers in die globale omgewing. Geheel plaasbeplanning en ontwikkeling van begrotings. Die finansiële ontleding van finansiële state van agribesighede, finansiële modellering, die finansieringsbesluit: Kapitaalverkryging, verskillende bronne van kapitaal, kredietwaardigheid, kapitaalstruktuur. Die investeringsbesluit en bedryfskapitaalbestuur. Waardekettings in agribesigheid. Risikobestuur. Strategiese bestuurs- en bemarkingsbeginsels in agribesigheid. Operasionele bestuur en menslikehulpbronbestuur. Besigheidsbeplanning vir agribesighede.

Landboumark- en prysanalise 410 (LEK 410)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	LEK 220 en LEK 210
Kontaktyd	3 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

Teorie van markanalise. Die module fokus op die fundamentele aspekte van aanbod, vraag en prys anl;ise in die landbou. Nadat die teoretiese agtergrond van vraag en aanbod behandel is, word die aspekte wat toegepas is in ekonometriese simulasiemodelle, ook prakties aangebied. Dit sal insluit die identifikasie van veranderlikes wat die vraag en aanbodkurwes kan skuif, elastisiteite en impakvermenigvuldigers. Die student word getaak om 'n projek in te dien waarin die student die vraag-en-aanbodsituasie van 'n kommoditeit van keuse met behulp van 'n ekonometriese model bepaal het. Landbouprysanalise: Prysvasstelling onder verskillende marksituasies, praktiese benadering tot die bepaling van markstruktuur, wat gevolg sal word deur praktiese toepassings van verskeie markstrukture. Prystendense asook die meting van prysveranderings deur indekse te gebruik, spesifiek seisoenale indeksering, veranderings in die belangrike makro-ekonomiese veranderlikes sal deurlopend bestudeer word. Alle aspekte word ook ondersteun deur hele aantal praktiese lesings.

Landbou-ekonomie 415 (LEK 415)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	EKN 110, LEK 220 en WTW 134 of WTW 165
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans

Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

Afgeleide instrumente in die landbou: Om studente voor te berei vir SAFEX se landboukommoditeitsafdeling se makelaarseksamen. Die semester verskaf 'n in-diepte kennis oor die belangrikheid van verskansing en die ontwerp en implementering van lae-/zero-risiko verskansingstrategieë. Inleiding tot die wiskunde van portefeuljebestuur en wiskundige modellering van afgeleide instrumente. Inleiding tot die bestuur van opsieportefeuljes. Uitbreiding van afgeleide instrumente om aspekte soos rentekoerse, weersomstandighede en dieselkoste te verskans.

Landbou-ekonomie 421 (LEK 421)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	LEK 410 and STK 210
Kontaktyd	3 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

Prys en produksiefunksie-analise. Inset-uitset, inset-inset en produk-produk-verhoudinge; winsmaksimering; die produksieproses oor tyd; ekonomie van grootte; besluitneming in die landboubedryf onder onsekere en riskante omstandighede; liniêre programmering.

Inleiding tot hulpbronekonomie 424 (LEK 424)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	LEK 210
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

Hierdie module hersien die oorsprong en evolusie van natuurlike en omgewingshulpbronekonomie in die hedendaagse paradigmas. Bronne van eksternaliteite en oorsake van omgewingsdegradasie word ondersoek. 'n Inleiding tot konsepte en metodes wat die ontwerp en implementering van omgewingsbeleid ondersteun, word verskaf. Ekonomiese waardering van natuurlike en omgewingshulpbronne word bekend gestel.

Gevorderde produksie ekonomie 711 (LEK 711)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BComHons Landbou-ekonomie
Voorvereistes	EKT 713 en MIE 780
Kontaktyd	1 lesing per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Advanced production economics
(a) Primal approach: Structure of the production technology and properties, elasticity of substitution, homogeneity and returns to scale, separability, estimation of technology parameters and testing hypothesis about properties, functional forms.
(b) Normative supply analysis: Applications of linear programming to farm supply decisions.
(c) Dual approach: The profit function, the cost function, duality and technology structure, estimation and hypothesis testing.
(d) Positive supply analysis: Econometric specification of output supply and factor demand, restrictions from technology structure (homogeneity, etc.), aggregate supply analysis.
(e) Risk and uncertainty: Mean-variance analysis applications in agricultural production, stochastic dominance; MOTAD and quadratic programming.

Landboubemarking 713 (LEK 713)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BComHons Landbou-ekonomie
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Agricultural marketing. The nature, development and conceptualisation of marketing and marketing study; the marketing environment, nationally and internationally; the functional and institutional approaches to marketing study; price discovery and margins; dynamics of agricultural and food marketing channels; competition and concentration on horizontal and vertical level; conflict and power relationships in agricultural marketing; economics of food consumption, consumer behaviour and consumer action; food market segmentation; food quality and branding, price, product, promotional and distributional policy; marketing analysis and planning. Global food marketing issues, contracting and changing global food retail patterns.

Landboubesigheidsbestuur 720 (LEK 720)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BAgricHons Landelike Ontwikkeling BAgricHons Landelike Ontwikkeling
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Strategic management in agriculture. Dynamics of agricultural management. Entrepreneurship. Environmental scanning. Productivity measurement and improvement thereof by the organisation of manpower, capital and financial sources. Business growth. Formulation and implementation of competitive strategy. Corporate governance, strategic analysis and strategic choice, strategy implementation, balanced scorecard.

Landboufinansiering en risiko bestuur 722 (LEK 722)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BComHons Landbou-ekonomie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 lesing per week, 1 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Agricultural finance. Economic theory underlying agricultural finance and agricultural finance institutions. Supply and demand of agricultural financial services. Servicing the farm and the agricultural business firm. Agricultural finance within the broader financial market in South and Southern Africa. Risk assessment and management. Risk in agricultural finance and mitigation strategies.

Agribusiness research report: Case study 777 (LEK 777)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BComHons Landbou-ekonomie
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

In this module students have to select a specific agribusiness and analyse one key dimension of this business. This dimension could be: marketing programme, supply chain management, strategic plan, market analyses, etc. This component of the course should serve as an opportunity for students to identify prevalent problems in an agribusiness and to devise appropriate solutions. This module should have a practical onslaught with a case study approach. It is envisaged that the student will have to work in close cooperation with companies and professionals in the industry, with the written report as the final deliverable of the the case study.

Internasionale landbou handel en beleid 782 (LEK 782)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BComHons Landbou-ekonomie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

WTO/GATT-1994 and agricultural related Agreements and Understandings. Regionalism and trade blocks. International trade and economic development. South Africa's agricultural trade policy. Involvement in bilateral and plurilateral agreements. Application of international market analysis tools. International trade and tariff statistics, trade modelling, theory and familiarity in international and regional databases. The module covers the basic tools to understand what determines the flow of goods across countries, i.e. international trade, and applications to a number of topics of current interest, including the debate on globalisation, free trade agreements, the SA Current account and the medium run prospects for exchange rates.

Gevorderde landelike finansiering 784 (LEK 784)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BComHons Landbou-ekonomie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Advanced rural finance. Economic theory underlying rural financial markets and institutions. Economic growth and financial services. Supply and demand of financial services in rural areas. Rural financial institutions and application to South and Southern Africa.

Landbou projek beplanning en evaluering 785 (LEK 785)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BComHons Landbou-ekonomie BAgricHons Landelike Ontwikkeling
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

a) Project planning and priority setting (project concept to rural socioeconomic development, logical framework analysis, research priority setting methods, strategic planning, scenario planning).
b) Economic analysis of agricultural development projects through CBA (decision making in public and private sectors, financial, social and economic considerations; identification of Cs and Bs, valuation of Cs and Bs; project assessment criteria.
c) Monitoring, evaluation and impact assessment (process and program monitoring, MandE systems; causality, incrementality and the attribution problem; impacts assessment methodology.
d) Project management (scheduling, techniques for management, managing risk and uncertainty, monitoring performance
e) Welfare economics and political economy considerations (Pareto optimality, compensation tests, efficiency and distribution, politics of CBA, development projects vs. development policies, first vs. second best shadow prices, market failure)

Agrivoorsieningskettingbestuur 788 (LEK 788)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BComHons Landbou-ekonomie
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie module word slegs in Engels aangebied.

Agricultural supply chain analysis. Explore the evolution of supply chain management in the global food industry. Establish the different ways in which supply chain management can provide a source of competitive advantage at industry level and for individual firms. Examine the crossfunctional and multidisciplinary nature of supply chain management as it applies in the global food industry. Introduce the core elements of the theoretical literature on supply chain management and consider applications in different sectors. Provide students with practical experience in applying the principles of supply chain management to the exploitation of a marketing opportunity, using case examples from the fresh produce and meat sectors. Provide students with practical experience of undertaking a supply chain audit, with a view to establishing an appropriate business strategy for a food manufacturing company.

Landbou-ekonomie 800 (LEK 800)

Kwalifikasie	Nagraads
Modulekrediete	20.00

Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Applied econometrics 810 (LEK 810)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekonomie MSc Omgewingsekonomie MScAgric Landbou-ekonomie (Gedoseer)
Voorvereistes	LEK 725 of gelykwaardige module
Kontaktyd	1 lesing per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Econometrics. Linear regression: assumptions of the linear regression model, OLS estimators and properties, hypothesis testing (single and multiple restrictions), forecasting, dummy variables. Violations of the linear model assumptions: multi-colinearity, heteroscedasticity, serial correlation and distributed lag models, (GLS estimators). Advanced topics: Quantitative response models (logit, tobit and probit analysis) co-integration, instrumental variables and 2-stage least squares.

Production economics 811 (LEK 811)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekonomie MSc Omgewingsekonomie MScAgric Landbou-ekonomie (Gedoseer)
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module follows on the final-year module LEK 421 and is taught at the intermediate level and now moves beyond the single input production function to analysis with multi-variable functions. Detailed exposure to production, cost and profit functions, and the duality that exists between these is a core element of the module. The focus will also be on the implications of the properties for the economic behavior of agents. At the end of this module students will have complete competence in algebraically solving for the cost minimisation and profit maximisation problems. Themes covered in the module are: Properties of production functions. Economic theory of cost. Economic Theory of Profits. Duality between the cost and production functions. Duality between the profit and production functions. Applied topics.

Agricultural policy analysis 812 (LEK 812)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Agricultural policy analysis. The importance and place of agricultural policy. Policy incidence. Design of agricultural policy Instruments. Public choice theory and agricultural policy. Political economy of agricultural policy. Agricultural policy distortions. The role of the media in agricultural and food policy. Seminars.

Quantitative methods for agricultural and environmental policy 814 (LEK 814)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekonomie MSc Omgewingsekonomie
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Quantitative models for agricultural and environmental policy. This module will introduce students to applications of discrete choice and linear regression models to agricultural and environmental economics. These include demand systems, production functions and treatment effects/impact assessment models. The second part of the class will focus on mathematical programming and numerical methods including but not limited to multisector models, Input-output and programming models and social accounting matrices for consistent production planning, growth, income distribution and trade policy analysis. Computable general equilibrium models.

Toegepaste mikro-ekonomie 815 (LEK 815)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekonomie MSc Omgewingsekonomie MScAgric Landbou-ekonomie (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Economic models and empirical applications in food demand and agricultural production, welfare economics, risk analysis, and industrial organisation as it relates to the agricultural and food industry.

Parsiele ewewig model en kommoditeitsmark analise 820 (LEK 820)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MPhil Landbou-ekonomie (Gedoseer)
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	EKT 723 of LEK 810
Kontaktyd	1 praktiese sessies per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
This module focuses on the modelling of agricultural commodity markets, price determination, policy and trade. The main objective is to provide the basic theoretical principles and skills for partial-equilibrium model building and and opportunity to apply these skills. The approach will include:
1) Economic theory: The theoretical foundations of each modelling component of a typical commodity balance sheet and set of prices will be emphasised in the design and specification of models; price formation and model closure under alternative equilibrium pricing conditions
2) Applied research: Advanced steps in modelling will be emphasised. Throughout the module, applied modelling research will be conducted and presented to gain experience with methods discussed in class. The course applies economic theory and quantitative methods to analyse food and agricultural markets, price, trade and policy issues. The module examines problem formulation, model structure, estimation, and model evaluation applied to demand and supply and to trade and policy interventions.

Omgewingswaardasie en beleid 826 (LEK 826)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsbestuur (Gedoseer) MSc Omgewingsbestuur (Gedoseer) MSc Omgewingsekonomie
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Environmental valuation and policy. This module will review the basic principles of microeconomic theory needed for understanding and analysis of environmental problems, introduce market and non-market techniques of valuation of natural resources and environmental services (hedonic pricing, contingent valuation, transport cost, willingness-to-pay, cost-based techniques, etc.), public goods and environmental externalities, property rights regimes and selection of appropriate environmental policy instruments for management of environmental externalities.

Internasionale landbouhandel en -beleid 827 (LEK 827)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week

Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

WTO/GATT-1994 and agricultural-related agreements and understandings. Regionalism and trade blocks. International trade and economic development. South Africa's agricultural trade policy. Involvement in bilateral and multilateral agreements. Application of international market analysis tools. International agricultural trade and tariff statistics, trade modeling, theory and familiarity in international and regional databases. The module covers the basic tools to understand what determines the flow of agricultural goods across countries, i.e. international trade, and applications to a number of topics of current interest, including the debate on globalisation, free trade agreements, the SA Current account and the medium run prospects for exchange rates.

Bosbouhulpbronekonomie en -beleid 831 (LEK 831)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The economics of optimal management of cultivated and natural forests. Optimal rotation age and harvesting in timber production. Managing forest for their non-timber services. The multiple ecosystem services of forest and their contributions to human wellbeing. Economic valuation of the services of forest ecosystems. Forest resource rents and their capture and distribution under different property rights regimes. Regulation and taxation of forest users. Designing logging concessions and forest exploitation policies. Forest resource accounting and optimal management of the resource rents. Communities and forests. Case study examples from Sub-Saharan Africa.

Beleid vir landbouwetenskap en -tegnologie 832 (LEK 832)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Registrasie vir ten minste 'n magistergraad

Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The basic definitions and concepts related to agricultural science policy. An overview of the trends in research investment, capacity development in the field of agricultural research, juxtaposed against the regional and international performance in this field. The application of concepts and methodologies used in project planning and management with respect to research evaluation and monitoring. Productivity analysis and its use in evaluating technological change, the determination of the RandD effects in terms of agricultural research and development. Case studies dealing with current topics in agricultural science policy highlighting the application of the methodologies learned.

Voedselbeleid 833 (LEK 833)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MAgric Landelike Ontwikkeling MAgric Landelike Ontwikkeling
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Registrasie vir ten minste ’n magistergraad
Kontaktyd	1 lesing per week, 1 praktiese sessies per week, 1 seminaar per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The concept and interrelated causes of food insecurity (production, markets and socio-economic climate) and the global food economy. Household coping strategies and response to risk and shocks. Household dynamics (including livelihoods, purchasing behaviour and nutrition). Practical tools for programme and policy analysis and targeting. Evaluation of possible programme and policy options and their effectiveness in terms of achieving comprehensive and pro-poor growth.

Meting en monitering van voedselsekuriteit 834 (LEK 834)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MAgric Landelike Ontwikkeling MAgric Landelike Ontwikkeling

Voorvereistes	Registrasie vir ten minste ’n magistergraad
Kontaktyd	1 besprekingsklas per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

Verwys na die Engelse weergawe van die 'Course Catalogue'.

Natuurlike hulpbron en omgewingsekonomie 880 (LEK 880)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekonomie MSc Omgewingsekonomie
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Natural resource and environmental economics. This module reviews the origins and evolution of natural and environmental resource economics. It describes and studies the application of economic principles and analytical methods for sustainable development of renewable, non-renewable and environmental economics. Examine sources of inefficiency and causes as well as indicators of environmental degradation. The economics of pollution management: Concepts, policies and instruments. Sustainable management of natural and environmental resources. Introduction to natural and environmental resource policy. Economic valuation of natural and environmental resources.

Institusionele ekonomie 882 (LEK 882)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsbestuur (Gedoseer) MAgric Landelike Ontwikkeling MSc Omgewingsbestuur (Gedoseer) MSc Omgewingsekonomie MScAgric Landbou-ekonomie (Gedoseer)
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	MIE 780

Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

*Verwys asseblief na die Engelse weergawe van die Modulekatalogus vir die inhoud van hierdie module.

Agrivoorsieningskettingbestuur 883 (LEK 883)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MPhil Landbou-ekonomie (Gedoseer)
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Verwys asseblief na die Engelse weergawe van die Modulekatalogus vir die inhoud van hierdie module.

Gevorderde landelike finansies 884 (LEK 884)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MAgric Landelike Ontwikkeling MAgric Landelike Ontwikkeling
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Overview of rural finance: conceptual issues. Role of financial services in economic development. Relationship between financial development and economic growth. Economic theory underlying rural financial markets: market and government failure, imperfect information, transaction costs, agency theory, and pecking order theory. Supply of and demand for financial services in rural areas: theory and measurement issues. Estimating credit demand, supply and constraints. Institutions involved in the provision of rural financial services and innovations in rural finance. Assessing performance of institutions providing rural financial services.

Natuurlike hulpbron ekonomie 886 (LEK 886)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekonomie MSc Omgewingsekonomie
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	LEK 810 of gelykwaardige module
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The economics of natural resources. This course will introduce students to the techniques of optimisation overtime, optimal allocation and management of non-renewable and renewable resources, with case studies from Africa. The influence of property rights regimes on optimal natural resource use will also be stressed. The course consists of three main sections: Methods of dynamic optimisation; Theory of exhaustible and renewable resources and growth models; and Property rights and natural resource use with case studies from Africa.

Geselekteerde ondewerpe in omgewingsekonomie 887 (LEK 887)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MPhil Landbou-ekonomie (Gedoseer)
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	MIE 780 en EKT 713 of gelykwaardige modules
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Selected topics in environmental economics. This module will introduce students to various issues of special importance in environmental economics and policy with special emphasis on international dimensions. Examples of key themes to be covered include trade and the environment, trans-boundary externalities, global public goods, multi-lateral environmental agreements, international aid, economic growth and environmental change, poverty and the environment, etc. The main objective of the module is to equip students with the appropriate tools for analysing the linkages between economic development, trade and globalization, poverty, economic and environmental policy and environmental change.

Verhandeling: Landbou-ekonomie 890 (LEK 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Omgewingsekonomie MSc Omgewingsekonomie MScAgric Landbou-ekonomie (Gedoseer)
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Miniverhandeling 891 (LEK 891)

Kwalifikasie	Nagraads
Modulekrediete	100.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Miniverhandeling: Landbou-ekonomie 892 (LEK 892)

Kwalifikasie	Nagraads
Modulekrediete	90.00
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Miniverhandeling: Omgewingsekonomie 893 (LEK 893)

Kwalifikasie	Nagraads
Modulekrediete	90.00
Onderrigtaal	Module word in Engels aangebied
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Skripsie: Landbou-ekonomie 898 (LEK 898)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Programme	MPhil Landbou-ekonomie (Gedoseer)
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Tesis: Landbouleierskap 996 (LEK 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Landbou-ekonomie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Tesis: Landbou-ekonomie 991 (LEK 991)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Landbou-ekonomie PhD Landbou-ekonomie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Landbou-ekonomie, Voorligting en Landelike Ontw
Aanbiedingstydperk	Jaar

Lewensversekering 700 (LEW 700)

Kwalifikasie	Nagraads
Modulekrediete	40.00
Programme	BScHons Aktuariële Wetenskap BScHons Aktuariële Wetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The following aspects of the operation of a life insurance company are covered: General business environment; products offered; asset shares for life insurance contracts; with-profits surplus distribution; actuarial funding; models; setting of assumptions; aspects of products design; alterations to contracts; development and maintenance; investment; risk management procedures including reinsurance and underwriting; cost of guarantees; policy data checks; capital management and the actuarial control cycle. Modelling and monitoring policy cashflows for purposes of pricing, profit analysis, statutory valuation reserves and ongoing solvency.

Omgewingsbiofisika 450 (LKM 450)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	WTW 134
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Omgewingsveranderlikes. Kwantitatiewe beskrywing en meting van atmosferiese omgewingsveranderlikes en water in organismes. Massa- en energievloede. Kwantitatiewe beskrywing van energievloede in organismes se omgewings. Energiebalanse van dier- en plantgemeenskappe word afgelei.

Omgewingsbiofisika 750 (LKM 750)

Kwalifikasie	Nagraads
Modulekrediete	15.00

Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde BScHons Grondkunde Omgewingsgrondkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Environmental variables. Quantitative description and measurements of atmospheric environmental variables and water in organisms. Mass and energy fluxes. Quantitative description of energy fluxes in organisms' environments. Energy balances of animals and plant communities will be derived.

Lineêre modelle 710 (LMO 710)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese BScHons Wiskunde van Finansies BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 311, WST 312, WST 321 en WST 322
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Projection matrices and sums of squares of linear sets. Estimation and the Gauss-Markov theorem. Generalised t- and F- tests.

Lineêre modelle 720 (LMO 720)

Kwalifikasie	Nagraads
Modulekrediete	15.00

Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese BScHons Wiskunde van Finansies BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	LMO 710
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The singular normal distribution. Distributions of quadratic forms. The general linear model. Multiple comparisons. Analysis of covariance. Generalised linear models. Analysis of categorical data.

Language and study skills 110 (LST 110)

Kwalifikasie	Voorgraads
Modulekrediete	6.00

Programme	BVSc BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Aktuariële en Finansiële Wiskunde BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Fisika BSc Genetika BSc Geografie BSc Geoinformatika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Meteorologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Toegepaste Wiskunde BSc Voeding BSc Voedselwetenskap BSc Wiskunde BSc Wiskundige Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe Fakulteit Veeartsenykunde
Voorvereistes	No prerequisites.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Eenheid vir Akademiese Geletterdheid
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The module aims to equip students with the ability to cope with the reading and writing demands of scientific disciplines.

Taal-, lewens- en studievaardigheid 133 (LST 133)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Soos vir BSc Vierjaarprogram en BCom Vierjaarprogram
Kontaktyd	Funderingskursus, 4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Natuur- en Landbouwetenskappe Dekaanskantoor
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

In this module students use different information and time management strategies, build academic vocabulary, revise basic grammar concepts and dictionary skills, examine learning styles, memory and note-taking techniques, practise academic reading skills and explore basic research and referencing techniques, learn how to use discourse markers and construct definitions, and are introduced to paragraph writing. The work is set in the context of the students' field of study.

Taal-, lewens- en studievaardigheid 143 (LST 143)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	LST 133
Kontaktyd	Funderingskursus, 4 besprekingsklasse per week

Onderrigtaal	Module word in Engels aangebied
Departement	Natuur- en Landbouwetenskappe Dekaanskantoor
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
In this module students learn how to interpret and use visual literacy conventions. Students write more advance paragraphs, and also learn how to structure academic writing, how to refine their use of discourse markers and referencing techniques and how to structure their own academic arguments. Students' writing is expected to be rational, clear and concise. As a final assignment all aspects of the LST 133 and LST 143 modules are combined in a research assignment. In this project, students work in writing teams to produce a chapter on a career and to present an oral presentation of aspects of the chapter. The work is set in the context of the students' field of study.

Differensie van funksies van een veranderlike 151 (MAT 151)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	MPR 193 en MPR 194
Kontaktyd	1 besprekingsklas per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Functions, limits and continuity. Differential calculus of single variable functions, rate of change, curve sketching, applications. The mean value theorem, the rule of L'Hospital. Elementary functions: Exponential functions and their derivatives, logarithmic functions and their derivatives, inverse trigonometric functions, hyperbolic functions, indeterminate forms.

Lineêre algebra 152 (MAT 152)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	MPR 193 en MPR 194
Kontaktyd	1 besprekingsklas per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Geometry of the two and three-dimensional Euclidean spaces: Vectors, dot and cross products, lines and planes. Euclidean m-spaces, systems of linear equations, row reduction of linear systems, linear dependence and independence, subspaces, basis and dimension.
Matrices: Operations on matrices, matrix equations and inverses, determinants, Cramer's rule, rank of a matrix

Integrasie van funksies van een veranderlike 161 (MAT 161)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	MAT 151
Kontaktyd	2 besprekingsklasse per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Definite and indefinite integrals, the fundamental theorem of Calculus, the mean value theorem for integrals Integration techniques: Integration by parts, trigonometric integrals and substitution, approximate integration and improper integrals, areas and distance. Elementary power series and Taylor's theorem. Parametric equations and polar coordinates.

Toepassings van integrasie 162 (MAT 162)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	MAT 161
Kontaktyd	3 lesings per week, 2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Applications of integration: Areas between curves, volumes, volumes by cylindrical shells, work, average value of a function. Further applications of integration: Arc length, area of a surface of revolution. Differential equations: Modelling with differential equations, direction fields and Euler's method, separable equations, linear equations. Vector functions and multivariable functions.

Funksies van meerveranderlikes en vektorcalculus 251 (MAT 251)

Kwalifikasie	Voorgraads

Modulekrediete	20.00
Voorvereistes	MAT 152
Kontaktyd	2 besprekingsklasse per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Parametric equations, vector functions, space curves and arc lengths. Quadric surfaces, calculus of multivariable functions, partial derivatives, directional derivatives. Extrema and Lagrange multipliers. Multiple integrals, polar, cylindrical and spherical coordinates. Line integrals and the theorem of Green.
Vector calculus: Surface integrals and the theorems of Gauss and Stokes.

Lineêre agebra 261 (MAT 261)

Kwalifikasie	Voorgraads
Modulekrediete	11.00
Voorvereistes	MAT 152
Kontaktyd	2 lesings per week, 2 tutoriale per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Vector spaces: Vector spaces and subspaces, linear independence, basis and dimension, coordinate vectors, inner product spaces. Linear transformations: Algebra of linear transformations, kernel and image, matrix of a general linear transformation, change of basis.
Eigenvalues and eigenvectors, diagonalization.

Oneindige rye en reekse 262 (MAT 262)

Kwalifikasie	Voorgraads
Modulekrediete	11.00
Voorvereistes	MAT 161
Kontaktyd	2 lesings per week, 2 tutoriale per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud
*Hierdie inligting is slegs in Engels beskikbaar.
Series of functions, power series and Taylor series.

Reële analise 351 (MAT 351)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Voorvereistes	MAT 251 en MAT 262
Kontaktyd	3 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Topology of finite dimensional spaces: Open and closed sets, sequences, compactness, and completeness. Theorems of Bolzano-Weierstrass and Heine-Borel. Properties of continuous functions and applications. Sequences and series of functions.

Abstrakte algebra 352 (MAT 352)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Voorvereistes	MAT 261
Kontaktyd	3 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Groups: Definition and examples, permutation group of a set, symmetry of a figure, subgroups, cyclic groups and dihedral groups, homomorphisms and isomorphisms. Quotient groups: Equivalence relations, cosets and Lagrange's theorem, normal subgroups and quotient groups, isomorphism theorems.Rings and fields: Rings, integral domains and fields, subrings and ring homomorphisms, polynomial rings, polynomial and Euclidean rings (division algorithm, Euclidean algorithm, unique factorization, factoring real and complex polynomials, factoring rational and integral polynomials). Geometrical constructions: Constructable numbers, constructability and extensions of Q, constructability and polynomials, classical problems.

Komplekse analise 361 (MAT 361)

Kwalifikasie	Voorgraads
Modulekrediete	15.00

Voorvereistes	MAT 251 en MAT 262
Kontaktyd	3 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Complex functions, Cauchy-Riemann equations, Cauchy's theorem and integral formulas.
KMS states. Laurent series, residue theorem and application to calculating of integrals.

Numeriese analise 362 (MAT 362)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Voorvereistes	MAT 251 en MAT 261
Kontaktyd	1 besprekingsklas per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Errors and floating point arithmetic. Roots of nonlinear equations: Bisection, Newton’s method and the secant method, routines for zero finding, non-linear systems of equations. Systems of linear equations: Gauss elimination with partial pivoting, matrix factorisation, matrices with special structure, numerical differentiation and integration.

Inleiding tot mikrobiologie 161 (MBY 161)

Kwalifikasie	Voorgraads
Modulekrediete	8.00

Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Voeding BSc Voedselwetenskap BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	MLB 111 GS
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Hierdie module is ‘n inleiding tot die veld van Mikrobiologie. Basiese Mikrobiologiese aspekte wat gedek gaan word sluit in ‘n inleiding tot die diversiteit van die mikrobe wêreld (bakterieë, archaea, eukariotiese mikroörganismes en virusse), basiese beginsels van sel struktuur en funksie, mikrobe voeding en mikrobiese groei en groei beheer. Toepassings van Mikrobiologie sal geïllustreer word aan die hand van spesifieke voorbeelde onder andere bioremediasie, dier-mikrobe simbiose, plant-mikrobe simbiose en die gebruik van mikroörganismes in industriële mikrobiologie. Afvalwater behandeling, mikrobiese siektes en voedsel preservering sal bespreek word aan die hand van spesifieke voorbeelde.

Bakteriologie 251 (MBY 251)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BSc Mensfisiologie BSc Biochemie BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Voedselwetenskap BScAgric Plantpatologie
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	MBY 161 GS
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Groei replikasie en oorlewing van bakerieë. Energiebronne, gebruik van lig- teenoor chemiese energie, regulering van kataboliese paaie, chemotaksis. Stikstofmetabolisme, ysteropname. Alternatiewe elektron akseptors: identifikasie, sulfaatreduksie, metanogenese. Bakteriese evolusie, sistematiek en genomika. Biodiversiteit: bakterieë in grond, water en lug, geassosïeerd met mense, diere en plante, en die van belang in voedsel en water.

Mikologie 261 (MBY 261)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BSc Mensfisiologie BSc Biochemie BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Voedselwetenskap BScAgric Plantpatologie
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	MBY 161
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Organisasie en molekulêre argitektuur van swamtallusse. Fisies-chemiese behoeftes vir groei. Nutrientopname, Paring en meiose, spoorontwikkeling, spooroorlewing, verspreiding en ontkieming. Swamme as saprofiete in grond, lug, plante en water ekosisteme, rol van swamme in afbreek van verbindings, swamme as predatore en parasiete; mikoses, misetismes, mikotoksikoses, swamme as simbionte van plante, insekte en diere. Toepassings van swamme in biotegnologie.

Voedselmikrobiologie 262 (MBY 262)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Plantkunde BSc Biotegnologie BSc Dierkunde BSc Genetika BSc Kulinêre Wetenskap BSc Mikrobiologie BSc Plantkunde BSc Voedselwetenskap
Voorvereistes	MBY 251
Kontaktyd	2 lesings per week, 1 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied

Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Primere bronne van mikroorganismes in voedsel. Faktore wat die groei en oorlewing van microbes in voedsel beinvloed. Mikrobiologiese kwaliteit, bederf en voedselveiligheid. Diversiteit van organimismes betrokke, hulle isolasie en opsporing. Konvensionele en alternatiee benaderings; vinnige metodes. Voedselfermentasies: tipes, beginsels en organismes betrokke.

Virologie 351 (MBY 351)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensgenetika BSc Biochemie BSc Biotegnologie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BScAgric Plantpatologie
Voorvereistes	BCM 251, CMY 127, GTS 251, GTS 261 en MBY 161
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot die virusse as ‘n unieke ryk met inbegrip van hulle verskillende soorte gashere, veral bakterieë, diere en plante, RNA en DNA virusse; viroïede, tumorvirusse en onkogene, meganismes van replisering, transkripsie en proteïensintese; effek op gashere; virale immunologie; evolusie van virusse.

Bakteriese genetika 355 (MBY 355)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensgenetika BSc Biochemie BSc Biotegnologie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde

Voorvereistes	BCM 251, CMY 127, GTS 251, GTS 261 en MBY 251
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 1

Module-inhoud

DNA-replikasie, en replikasiebeheer. DNA-herkombinasie. DNA-beskadiging en herstel.Genetika van bakteriofage, plasmiede en tronsposons. Bakteriële geenuitdrukkingbeheer op die transkriosionele, translasionele en post-translasionele vlakke. Globale regulering en kompartementalisasie.

Genetiese manipulasie van mikrobes 364 (MBY 364)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mensgenetika BSc Biochemie BSc Biotegnologie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BScAgric Plantpatologie
Voorvereistes	BCM 251, CMY 127, GTS 251, GTS 261 en MBY 251
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Isolasie van kloneerbare DNA (Genoombiblioteke, cDNA-sintese), kloneringsvektore (plasmiede, bakteriofage, kosmiede), plasmied-onvereenigbaarheid en beheer van kopiegetal. Ligeringstrategieë. Direkte en indirekte metodes vir die identifikasie van rekombinante organismes. Karakterisering (polimerase kettingreaksie, nukleïensuurvolgordebepaling) en mutagenese van gekloneerde DNA-fragmente. Geenekspressie in Gramnegatiewe (E.coli), Gram-positiewe (B.subtilis) en gisselle (S.cereviseae). Die gebruik van Agrobacterium en bakulovirusse vir geenekspressie in plante en insekselle, onderskeidelik. Toepassings in proteïen-ingenieurswese, diagnostiek en sintese van bruikbare produkte.

Mikrobe-interaksies 365 (MBY 365)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Mensgenetika BSc Biochemie BSc Biotegnologie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BScAgric Plantpatologie
Voorvereistes	MBY 251, MBY261, MBY 351 and MBY 355
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Interaksie tussen mikrobes en hulle abiotiese omgewing; mikrobiese interaksies met ander stamme van dieselfde en ander spesies; interaksies tussen mikrobes van versikllende ryke; patogeniese interaksies tussen mikrobes en plant of dierlike gashere; mutualistiese interaksies tussen mikrobes en hulle gasheer. Inleiding tot sisteembiologie.

Navorsingsprojek 756 (MBY 756)

Kwalifikasie	Nagraads
Modulekrediete	50.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Research undertaken in a specific topical area in microbiology.

Verhandeling: Mikrobiologie 890 (MBY 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Mikrobiologie MSc Mikrobiologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Mikrobiologie en Plantpatologie

Aanbiedingstydperk	Jaar

Proefskrif: Mikrobiologie (MBY 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Mikrobiologie PhD Mikrobiologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Jaar

Wiskunde- en wiskundegeletterheid onderwys 730 (MCE 730)

Kwalifikasie	Nagraads
Modulekrediete	16.00
Programme	BEdHons Onderwyser Opvoeding en Professionele Ontwikkeling BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Wetenskap-, Wiskunde- en Tegnologie-onderwys
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

Onderrig- en leerperspektiewe in wiskunde. Hierdie eenheid fokus op huidige kwessies in wiskunde-onderrig, byvoorbeeld: Aard van wiskundige kennis in die opvoedkunde; leerteorieë in wiskundeonderwys; gebruik van tegnologie in wiskunde-onderwys; navorsing in die klaskamer; geslag; taal; kultuur (Etno-wiskunde).
Wiskunde in konteks: vooruitsigte en uitdagings. Hierdie eenheid fokus op die rol van wiskunde in verskillende kontekste (beroep- en alledaagse situasies ingesluit): Aard van wiskunde – wiskunde as ‘n menslike aktiwiteit; rasionale vir die leer van wiskunde; die teorie van realistiese wiskunde-onderwys; inhouds- en konteksgedrewe aanslag in wiskunde; wiskundige geletterdheid; kennisoordrag: uitdagings – skoolwiskunde vs realiteit.

Navorsingsmetodes 751 (MCP 751)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Biotegnologie BScHons Biotegnologie BScHons Mikrobiologie

Voorvereistes	Geen voorvereistes.
Kontaktyd	7 lesings per week, 5 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The module provides students with planning, data handling, writing, and presentation skills required for microbiological research. In addition, students are provided with hands-on experience in the advanced techniques utilised in research and analysis. Ethnical and philosophical issues in the broader field of Microbiology and Plant Pathology are also addressed.

Seminaarkursus 752 (MCP 752)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Mikrobiologie BScHons Mikrobiologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 besprekingsklasse per week, 2 seminare per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Students are guided to collect relevant literature from disparate papers in the broader field of Microbiology and Plant Pathology and to condense and collate this into a written seminar, which is also presented verbally.

Tendense in mikrobiologie (MCP 753)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Mikrobiologie BScHons Mikrobiologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 seminare per week, 3 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie

Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Discussions and essays focusing on recent advances in the broader field of Microbiology and Plant Pathology, as well as contextualising these developments within the broader framework of the Biosciences and its role in modern society.

Navorsingsprojek en literatuurstudie 754 (MCP 754)

Kwalifikasie	Nagraads
Modulekrediete	60.00
Programme	BScHons Biotegnologie BScHons Biotegnologie BScHons Mikrobiologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The module includes both practical and theoretical components. In addition to an individual research project with well-defined limits that is undertaken under the guidance of a lecturer, the module also acquaint the student with the theoretical aspects relevant to a specific research topic. The research project is thus preceded by the presentation of an in-depth review of the relevant literature, and the project is concluded with a progress report, presented in the format of a short publication and an oral presentation.

Makro-ekonomie 780 (MEK 780)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BSocSciHons Filosofie, Politiek en Ekonomie
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Toelating tot betrokke program
Kontaktyd	2 lesings per week, 1 seminaar per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
This module will cover the core theoretical concepts of macroeconomics focussing specifically on labour and goods markets as well as intertemporal issues, such as capital markets. Topics will include economic growth, exogenous and endogenous, business cycles, monetary economics, stabilization policies and structural policies.

Mediese fisika 700 (MFK 700)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Afrikaans aangebied
Departement	Fisika
Aanbiedingstydperk	Jaar

Mediese fisika 800 (MFK 800)

Kwalifikasie	Nagraads
Modulekrediete	36.00
Programme	MMed Radiologiese Diagnostiek
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Jaar

Mediese fisika 801 (MFK 801)

Kwalifikasie	Nagraads
Modulekrediete	36.00
Programme	MMed Stralingsonkologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Jaar

Mense en hul omgewing 112 (MGW 112)

Kwalifikasie	Voorgraads
Modulekrediete	6.00

Programme	BDietetics
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Sosiologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Die module behels basiese psigologie- en sosiologiekonsepte soos toepaslik vir Geneeskunde en Tandheelkunde, in die geval van BChD-studente.
Basiese psigiatriese begrippe word ook aangespreek.

Mikro-ekonomie 780 (MIE 780)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BSocSciHons Filosofie, Politiek en Ekonomie MScAgric Landbou-ekonomie (Gedoseer)
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Toelating tot betrokke program
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ekonomie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The core concepts of microeconomic theory will be the focus of the module, including: demand and supply, consumer theory, firm theory, markets and market structure, general equilibrium, information economics and behavioural economics. Applications of this theory will feature prominently.

Molekulêre en selbiologie 111 (MLB 111)

Kwalifikasie	Voorgraads
Modulekrediete	16.00

Programme	BDietetics BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Voeding BSc Voedselwetenskap BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Gesondheidswetenskappe Fakulteit Veeartsenykunde
Voorvereistes	'n Kandidaat moet Wiskunde met ten minste 60% geslaag het in die G12-eksamen
Kontaktyd	1 praktiese sessie per week, 4 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Genetika
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleidende studie van die ultrastruktuur, funksie en samestelling van verteenwoordigende selle en selkomponente. Algemene beginsels van selmetabolisme, molekulêre genetika, selgroei, seldeling en seldifferensiasie.

Molekulêre en selbiologie 133 (MLB 133)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie

Voorvereistes	Soos vir BSc Vierjaarprogam
Kontaktyd	Funderingskursus, 2 lesings per week, 2 praktiese sessies per week, 2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The scientific method, the meaning of life, principles of microscopy, introduction to taxonomy and systematics, introductory study of the structure, function and composition of akaryotes, HIV/ Aids, the immune system and other health issues, ecosystems and human interference.

Molekulêre en selbiologie 143 (MLB 143)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	MLB 133
Kontaktyd	Funderingskursus, 2 lesings per week, 2 praktiese sessies per week, 2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Chemistry of the cell, introduction to the structure, function and composition of prokaryotic and eukaryotic cells, energy and cellular metabolism, photosynthesis.

Molekulêre en selbiologie 153 (MLB 153)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe

Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	MLB 143
Kontaktyd	2 tutoriale per week, Funderingskursus, 2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Genetika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Cell growth and cell division, Mendelian and human genetics, principles of molecular genetics, principles of recombinant DNA technology and its application.

Molekulêre en selbiologie 721 (MLB 721)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Genetika BScHons Biochemie BScHons Bioinformatika BScHons Biotegnologie BScHons Genetika BScHons Mikrobiologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mikrobiologie en Plantpatologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Principles and applications of recombinant DNA, and other novel molecular and genomics technologies, to address questions in the biological sciences and/or biotechnology. Strong emphasis is placed on the principles of research planning, including identifying suitable research objectives, formulating a research strategy and understanding the relevance and feasibility of research. The module is assessed by means of a research project proposal, conceived and formulated by each student. The proposal must focus on the use of molecular technologies in addressing realistic questions in biology and/or biotechnology. There is also an oral defense of the project proposal.
This module is jointly presented in the departments of Biochemistry, Genetics and Microbiology and Plant Pathology.

Verhandeling: Medisinale plantwetenskap 890 (MPS 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Medisinale Plantwetenskap MSc Medisinale Plantwetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Proefskrif: Medisinale plantwetenskap 990 (MPS 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Medisinale Plantwetenskap PhD Medisinale Plantwetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Mediese terminologie 180 (MTL 180)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BRad Diagnostiek
Diensmodules	Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe Fakulteit Veeartsenykunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Moderne Europese Tale
Aanbiedingstydperk	Semester 1 en Semester 2

Module-inhoud

Die aanleer van ‘n basiese, medies-georiënteerde woordeskat saamgestel uit Latynse en Griekse stamvorme verbind met voor- en agtervoegsels afkomstig uit hierdie tale. Die wyse waarop die betekenisse van mediese terme bepaal word deur die ontleding van mediese terme in hul herkenbare betekenisdraende, samestellende dele word onderrig en ingeoefen. Die funksionele gebruik van mediese terme in konteks as praktiese uitkoms van terminologiese toepassing geniet deurlopend aandag.

Meerveranderlike analise 710 (MVA 710)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Finansiële Ingenieurswese BScHons Wiskunde van Finansies BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	WST 311, WST 312, WST 321 en WST 322
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Matrix algebra. Some multivariate measures. Visualising multivariate data. Multivariate distributions. Samples from multivariate normal populations. The Wishart distribution. Hotelling’s T^2 statistic. Inferences about mean vectors.

Meerveranderlike analise 720 (MVA 720)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese BScHons Wiskunde van Finansies BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	MVA 710
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The matrix normal distribution, correlation structures and inference of covariance matrices. Discriminant analysis. Principal component analysis. The biplot. Multidimensional scaling. Exploratory factor analysis. Confirmatory Factor analysis and structural equation models.

Meerveranderlike analise 880 (MVA 880)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	MSc Wiskundige Statistiek (Gedoseer) MSc Wiskundige Statistiek (Gedoseer)
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Supervised and unsupervised methods, including computational methods, within the broader context of data mining. Supervised learning. Linear methods for Regression, Classification and Prediction. Basis Expansions, Regularisation, Smoothing, Additive models and Support Vector Machines.
Unsupervised learning: Clustering, principal components, dimensional reduction. Data methods: Organisation of data and exploratory data analysis.

Miniverhandeling: e-Wetenskap 800 (NEP 800)

Kwalifikasie	Nagraads
Modulekrediete	90.00
Programme	MSc e-Wetenskap MSc e-Wetenskap
Voorvereistes	Voltooiing van die gedoseerde programme
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This is the research component of the MSc (eScience) degree and comprises a mini-dissertation which develops the research skills and bridges the gap between theory and practice.

Navorsingsmetodes en dekklip projek in datawetenskap 801 (NEP 801)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc e-Wetenskap MSc e-Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Scientific writing styles; layouts for assignments, projects, theses or publications; research methodologies; scientific assignments; integration of all the aforementioned content items for a capstone project in data science.

Dataprivaatheid en -etiek 802 (NEP 802)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc e-Wetenskap MSc e-Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Technical processes of data collection, storage, exchange and access; Ethical aspects of data management; Legal and regulatory frameworks in South Africa and in relevant jurisdictions; Data policies; Data privacy; Data ownership; Legal liabilities of analytical decisions and discrimination; and the Technical and algorithmic approaches to enhance data privacy, and relevant case studies.

Aanpasbaarheidsverwerking en masjienleer 803 (NEP 803)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc e-Wetenskap MSc e-Wetenskap
Voorvereistes	Geen voorvereistes.

Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction: Basic concepts. Supervised learning setup: Least means squares, logistic regression, perceptron, exponential family, generative learning algorithms, Gaussian discriminant analysis, naïve Bayes, support vector machines, model selection and feature selection. Learning theory: bias/variance tradeoff, union and Chernoff/Hoeffding bounds, VC dimension, worst case (online) learning. Unsupervised learning: clustering, k-means, expectation maximisation, mixture of Gaussians, factor analysis, principal components analysis, independent components analysis. Reinforcement learning and control: Markov decision processes, Bellman equations, value iteration and policy iteration, Q-learning, value function approximation, policy search, reinforce, partially observable Markov decision problems.

Datavisualisering en -bestudering 804 (NEP 804)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc e-Wetenskap MSc e-Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Data and image models; visualisation attributes (colour) and design (layout); exploratory data analysis; interactive data visualisation; multidimensional data; graphical perception; visualisation software (Python & R); and types of visualisation (animation, networks and text).

Grootskaalse verwerkingstelsels en wetenskaplike verwerking 805 (NEP 805)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc e-Wetenskap MSc e-Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to scientific computing architectures in Python, introduction to distributed systems, introduction to distributed databases, introduction to parallelism, large-data computation and storage models, introduction to well-known distributed systems architectures, and programming large-data applications on open-source infrastructures for data processing and storage systems.

Wetenskaplike grondslae van datawetenskap 806 (NEP 806)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc e-Wetenskap MSc e-Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

High-dimensional space, best-fit subspaces and singular value decomposition, random walks and Markov chains, statistical machine learning, clustering, random graphs, topic models, matrix factorisation, hidden Markov models, graphical models, wavelets, and sparse representations.

Besondere temas in datawetenskap 807 (NEP 807)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc e-Wetenskap MSc e-Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Specialised and applied concepts and trends in data science.

Statistiese grondslae van datawetenskap 808 (NEP 808)

Kwalifikasie	Nagraads
Modulekrediete	15.00

Programme	MSc e-Wetenskap MSc e-Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An understanding of multivariate statistics, hypothesis testing and confidence intervals. The ability to model data using well-known statistical distributions as well as the ability to handle data that is both continuous and categorical. The ability to perform statistical modelling including multivariate linear regression and adjust for multiple hypotheses. Forecasting, extrapolation, prediction and modelling using statistical methods. Bayesian statistics, an understanding of bootstrapping and Monte Carlo simulation.

Grootskaalse optimalisering vir datawetenskap 809 (NEP 809)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc e-Wetenskap MSc e-Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to convex optimisation, subgradient methods, decomposition and distributed optimisation, proximal and operator splitting methods, conjugate gradients, and nonconvex problems.

Ekosisteme en natuurlewebestuur 311 (NLB 311)

Kwalifikasie	Voorgraads
Modulekrediete	4.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

NLB 311 en NLB 312 word as een geïntegreerde module oor ? periode van 21 dae aangebied. Beide modules is gerig op studente in natuurlewebestuur en veeartsenykunde. Hierdie studierigtings bied ? opwindende, praktiese en grondige opvoedkundige ondervinding aan studente en bring hulle tot by die werklikhede op die terrein van natuurlewe in Suid-Afrika. Die opleiding vind tydens ? kampeerekspedisie plaas. Studente kom sodoende op terrein in wisselwerking met natuurlewebioloë, veldwagters, veeartse en navorsers. Dit bied aan hulle ? unieke blik vanuit ? ekologiese asook ? veeartsenykundige perspektief op natuurbewaring se suksesse en probleme. Deelnemers ontmoet en leer ook van pioniers op die gebied van wildvang en kundiges wat daagliks aktief op die vlak van veeartsenykundige natuurlewe betrokke is. Die studente neem aan werklike wildvangste deel. Hulle word ook bewus gemaak van die besondere rol wat veeartse by ? natuurlewe-rehabilitasiesentrums, reptielparke en teling van skaars wildsoorte, vervul. Module-inhoud: • Tegnieke in natuurlewebestuur • Benutting van volhoubare hulpbronne • Ekosisteem- en biodiversiteitbewaring • Oord- en reservaatbestuur • Plaaslike gemeenskapskultuur- en bewaringsperspektiewe in Afrika • Wildvangs en nasorg • Wildsiekte risikobestuur • Bevolkingsdinamika

Deelnemende natuurbewaring 312 (NLB 312)

Kwalifikasie	Voorgraads
Modulekrediete	4.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

NLB 311 en NLB 312 word as een geïntegreerde module oor ? periode van 21 dae aangebied. Beide modules is gerig op studente in natuurlewebestuur en veeartsenykundige. Hierdie studierigtings bied ? opwindende, praktiese en grondige opvoedkundige ondervinding aan studente en bring hulle tot by die werklikhede op die terrein van natuurlewe in Suid-Afrika. Die opleiding vind tydens ? kampeerekspedisie plaas. Studente kom sodoende op terrein in wisselwerking met natuurlewebioloë, veldwagters, veeartse en navorsers. Dit bied aan hulle ? unieke blik vanuit ? ekologiese asook ? veeartsenykundige perspektief op natuurbewaring se suksesse en probleme. Deelnemers ontmoet en leer ook van pioniers op die gebied van wildvang en kundiges wat daagliks aktief op die vlak van veeartsenykundige natuurlewe betrokke is. Die studente neem aan werklike wildvangste deel. Hulle word ook bewus gemaak van die besondere rol wat veeartse by ? natuurlewe-rehabilitasiesentrums, reptielparke en teling van skaars wildsoorte, vervul. Module-inhoud: • Tegnieke in natuurlewebestuur • Benutting van volhoubare hulpbronne • Ekosisteem- en biodiversiteitbewaring • Oord- en reservaatbestuur • Plaaslike gemeenskapskultuur- en bewaringsperspektiewe in Afrika • Wildvangs en nasorg • Wildsiekte risikobestuur • Bevolkingsdinamika

Wildlife ecology 780 (NLB 780)

Kwalifikasie	Nagraads
Modulekrediete	10.00

Programme	BScHons Natuurlewebestuur BScHons Natuurlewebestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Verwys asseblief na die Engelse weergawe van die Modulekatalogus vir die inhoud van hierdie module.

Natuurlewebestuurbeginsels en -tegnieke 781 (NLB 781)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Natuurlewebestuur BScHons Natuurlewebestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per maand, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The most important techniques applicable to wildlife management and wildlife research are discussed. The principles, applications and restrictions of the following are discussed amongst others: wildlife counts, age determination, age and sex ratios, translocation of animals, chemical immobilisation, mechanical capture techniques, transport of wildlife, land-use, predator control and predator-prey studies.

Wildvoeding 782 (NLB 782)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Natuurlewebestuur BScHons Natuurlewebestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 Blokweke, 2 praktiese sessies
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde

Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Ensuring essential prior knowledge of the fundamentals of nutrition through peer-assisted learning strategies. The digestive functioning of selected wild ruminant and non-ruminant herbivores is discussed as well as their nutrient requirements and deficiencies that commonly occur. The spatial scaling of nutrients in vegetation is explained, followed by which foraging strategies large African herbivores of varying body sizes use to adapt to spatial and temporal nutrient heterogeneity, including optimal foraging theory.

Parasiete, siektes en die vang van wilde diere 783 (NLB 783)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Natuurlewebestuur BScHons Natuurlewebestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Parasites, diseases and capture of wild animals. An overview of veterinary aspects with reference to important parasites and diseases of wild animals. The capture of wildlife and the stress-related consequences of the capture of wild animals. The module content includes a discussion of all the different chemicals used to immobilise wild animals, darting, and handling of wild animals under sedation. The internal and external parasites, most important contagious wildlife diseases and the prevention of capture related diseases are discussed.

Seminaar 785 (NLB 785)

Kwalifikasie	Nagraads
Modulekrediete	5.00
Programme	BScHons Natuurlewebestuur BScHons Natuurlewebestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module focuses on elements of science communication, developing practical elements of scientific communication, writing and public presentations.

Navorsingsprojek 795 (NLB 795)

Kwalifikasie	Nagraads
Modulekrediete	50.00
Programme	BScHons Natuurlewebestuur BScHons Natuurlewebestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A research protocol, field work and project report based on an ecological or wildlife management topic.

Natuurlewebestuur (Eksamen) 801 (NLB 801)

Kwalifikasie	Nagraads
Modulekrediete	1.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Afrikaans aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Wildlife ecology 810 (NLB 810)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	MSc Natuurlewegesondheid, -ekologie en -bestuur
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A module on plant ecology, veld management, animal ecology and plant and animal interactions. The students will gain a solid grounding and in-depth understanding of ecological theory and ecological management to maintain and improve ecosystem health. This module will provide a broad view, illustrating a wide variety of different ecosystem examples and will include in-field training in areas around HHWRS.

Verhandeling: Natuurlewebestuur 890 (NLB 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Natuurlewebestuur MSc Natuurlewebestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Proefskrif: Natuurlewebestuur 990 (NLB 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Natuurlewebestuur PhD Natuurlewebestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Navorsingsmetodologie 814 (NMN 814)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

*Verwys na die Engelse weergawe van die Course Catalogue.

Opvoedkundige navorsingsmetodolgie 745 (NMQ 745)

Kwalifikasie	Nagraads
Modulekrediete	16.00
Programme	BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wetenskap-, Wiskunde- en Tegnologie-onderwys
Aanbiedingstydperk	Semester 1

Module-inhoud

Die aard van onderwyskundige navorsing: navorsingskonteks, wetenskap, navorsings-etiek, waarheid, rasionaliteit, subjektiwiteit en objektiwiteit. Kwantitatiewe en kwalitatiewe navorsingsbenaderings, navorsingsontwerpe en data-insamelingstegnieke. Verskeidenheid benaderings in kwalitatiewe navorsing, insluitend: gevallestudies, historiese navorsing, etnografiese en aksienavorsing. Basiese konsepte en beginsels van kwantitatiewe navorsing. Statistiese tegnieke in die onderwysnavorsingsproses. Opnamemetodologie en vraelysontwerp. Klassifikasie en grafiese voorstelling van data. Beskrywende metings. Statistiese inferensie. Dataverwerkingsprosedures. Parametriese versus nieparametriese toetse. Enkele toetsstatistiek (bv. F-toetse, en T–toetse).

Navorsingsprojek 780 (NPN 780)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Aktuariële Wetenskap BScHons Aktuariële Wetenskap
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Aktuariële Wetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The research project is compulsory. A detailed project proposal should be submitted to the head of department by a prescribed date for approval, as described in the departmental document in this regard.

Voedingstatusevaluaring 313 (NTA 313)

Kwalifikasie	Voorgraads
Modulekrediete	40.00
Programme	BDietetics
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe

Voorvereistes	Derdejaarstatus
Kontaktyd	1 besprekingsklas per week, 1 praktiese sessie per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding
Aanbiedingstydperk	Semester 1

Module-inhoud

Evaluering van die voedingstatus. Voedingsorgproses, oorsig van evaluering van voedingstatus. Wetenskaplike beginsels van voedingstatusevaluering, voedingsifting, kliniese, biochemiese en dieetevaluering van voedingstatus. Praktykopleiding: Inoefening van teoretiese beginsels van voedingstatusevaluering in hospitaal/kliniek en/of vaardigheidslaboratorium.

Voedingstatusevaluaring 314 (NTA 314)

Kwalifikasie	Voorgraads
Modulekrediete	22.00
Programme	BSc Voeding BSc Voeding
Voorvereistes	Derdejaarstatus
Kontaktyd	4 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Mensvoeding
Aanbiedingstydperk	Semester 1

Module-inhoud

Voedingevaluering
Voedingsorgproses; oorsig van evaluering van voedingstatus. Wetenskaplike beginsels van voeding-status; voedingsifting; kliniese, biochemiese en dieetkundige evaluering van voedingstatus.

Ontwerpbeginsels 111 (OBG 111)

Kwalifikasie	Voorgraads
Modulekrediete	7.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 1 lesing per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap

Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot die elemente en beginsels van ontwerp soos toegepas in die interieur en kledingontwerp en in voedselbereiding. Kleurteorieë.

Ondernemingbestuur 114 (OBS 114)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BEd Seniorfase en Verdere Onderwys en Opleiding-onderwys BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Geoinformatika
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Mag nie in dieselfde kurrikulum ingesluit word as OBS 155 nie
Kontaktyd	3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Ondernemingsbestuur
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot ondernemingsbestuur as vakwetenskap; die omgewing waarin die onderneming funksioneer; die saketerrein, missie en doelstelling van die sakeonderneming; bestuur en entrepreneurskap. Verantwoordelike leierskap en die rol van 'n besigheid in die samelewing. Die keuse van ‘n ondernemingsvorm; die keuse van produkte en dienste; winsbeplanning en kostebeplanning by verskillende bedryfsgroottes; vestigingsfaktore; aard van produksieprosesse en die uitleg van die bedryf.
Inleiding tot en oorsig van algemene bestuur, veral betreffende die vyf bestuurstake: strategiese bestuur; hedendaagse tendense en bestuursvraagstukke; finansiële bestuur; bemarking en eksterne betrekkinge.
Inleiding tot en oorsig van die waardekettingmodel; bestuur van die insette; die bestuur van die aankoopfunksie; bestuur van die transformasieproses met spesifieke verwysing na produksie- en operasionele bestuur; menslikehulpbronbestuur en inligtingsbestuur; korporatiewe bestuur en swart ekonomiese bemagtiging (SEB).

Ondernemingsbestuur 124 (OBS 124)

Kwalifikasie	Voorgraads
Modulekrediete	10.00

Programme	BSocSci Bedryfsosiologie en Arbeidstudies BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Geoinformatika
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Toelating tot die eksamen in OBS 114
Kontaktyd	3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Ondernemingsbestuur
Aanbiedingstydperk	Semester 2

Module-inhoud

Die aard en ontwikkeling van entrepreneurskap; die individuele entrepreneur en karaktereienskappe van Suid-Afrikaanse entrepreneurs. Kreatiwiteit en innovasie, die ontdekking en ontginning van ? geleentheid. Die sakeplan en hulpbronvereistes word ontleed. Die begin van die onderneming (“start up”). Ondersoek die verskillende weë/roetes na entrepreneurskap. Toetrede tot familie-ondernemings; die aanskaf van ‘n konsessie (“franchise”); tuisgebaseerde onderneming en die besigheidsoorname. Hierdie semester dek ook hoe entrepreneurs netwerking kan bewerkstellig en ondersteuning vind in hulle omgewing. Gevallestudies van suksesvolle entrepreneurs - ook Suid- Afrikaanse entrepreneurs - word bestudeer.

Ondernemingsbestuur 133 (OBS 133)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe
Voorvereistes	Slegs beskikbaar vir BCom (Vierjaar program)-studente
Kontaktyd	3 lesings per week, 1 besprekingsklas per week, Funderingskursus
Onderrigtaal	Module word in Engels aangebied
Departement	Ondernemingsbestuur
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot Ondernemingsbestuur as vakwetenskap; die omgewing waarin die onderneming funksioneer; die saketerrein, missie en doelstelling van die sakeonderneming bestuur en entrepreneurskap. Die keuse van ‘n ondernemingsvorm, die keuse van produkte en dienste, winsbeplanning en kostebeplanning by verskillende bedryfsgroottes, vestigingsfaktore, aard van produksieprosesse en die uitleg van die bedryf.

Ondernemingsbestuur 120 (OBS 143)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe
Voorvereistes	OBS 133; Slegs beskikbaar vir BCom (Vierjaar program)-studente
Kontaktyd	Funderingskursus, 3 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Ondernemingsbestuur
Aanbiedingstydperk	Semester 2

Module-inhoud

Inleiding tot en oorsig van algemene bestuur, veral betreffende die vyf bestuurstake; strategiese bestuur; hedendaagse tendense en bestuursvraagstukke; finansiële bestuur, bemarking, eksterne betrekkinge. (Nota: Vir bemarkingstudente word bemarking vervang met finansiële bestuur en eksterne betrekkinge met kleinsakebestuur). Inleiding tot en oorsig van die waardekettingmodel, bestuur van die insette, die bestuur van die aankoopfunksie, bestuur van die transformasieproses met spesifieke verwysing na produksie- en operasionele bestuur, menslikehulpbronbestuur en inligtingsbestuur; korporatiewe bestuur en swart ekonomiese bemagtiging (SEB).

Ondernemingsbestuur 210 (OBS 210)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BCom Informatika Inligtingstelsels BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	OBS 114 of 124 met toelating tot die eksamen in die ander
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Ondernemingsbestuur
Aanbiedingstydperk	Semester 1

Module-inhoud

Logistieke bestuur Die rol van logistiek in 'n onderneming; omskrywing en omvang van klantediens; elektroniese en ander logistieke inligtingstelsels; voorraadbestuur en materiaalbestuur met besondere verwysing na Japannese stelsels; bestuur van die voorsieningsketting. Vervoermetodes en vervoerkoste; soorte opberging en die koste daarvan; elektroniese hulpmiddels by materiaalhantering; koste en prysbepaling by aankope; organisering vir logistieke bestuur en metodes om logistieke werkverrigting te verbeter.

Ondernemingsbestuur 220 (OBS 220)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BCom Informatika Inligtingstelsels BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	OBS 114 of 124 met toelating tot die eksamen in die ander
Kontaktyd	3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Ondernemingsbestuur
Aanbiedingstydperk	Semester 2

Module-inhoud

Projekbestuur: Inleiding. Konsepte van projekbestuur; behoefte-identifisering; die projek, projekbestuurder en projekspan; soorte projekorganisasies; projekkommunikasie en -dokumentasie. Beplanning en beheer: beplanning, skedulering en skedulebeheer van projekte; hulpbronoorwegings en toedeling; kostebeplanning en prestasie-evaluering.

Onkruidwetenskap 413 (OKW 413)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BScAgric Plantpatologie BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	PLG 251
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Identifikasie van belangrike onkruide in gewasse, tuine en ontspanningsareas. Identifikasie van uitheemse indringerplante en inheemse verdigterspesies. Impak van onkruide op gewensde plantegroei. Die rolle van allelopatie en kompetisie by interaksies tussen plante. Invloed van onkruide op plant-biodiversiteit en gewasopbrengspotensiaal. Onkruide in een- en meerjarige gewassituasies. Biologie en ekologie van onkruide. Meganiese, verbouing- biologiese en chemiese onkruidbestuurspraktyke. Geïntegreerde onkruidbestuur. 'n onkruiddoderformulasies en toedieningstegnieke. Wyse van werking van onkruiddoders en hul gedrag en lotsbestemming in die omgewing.

Omgewingsverandering 881 (OMS 881)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Bosboubestuur en die Omgewing (Gedoseer) MSc Omgewing en Samelewing (Gedoseer) MSc Omgewingsbestuur (Gedoseer)
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

Beginsels in omgewingsverandering: geomorfologie en omgewingsverandering, klimaatsverandering, omgewingsverandering en die impak daarvan op menslike bewoning, die menslike impak op omgewingsverandering, kontemporêre navorsing in omgewingsverandering.

Navorsingsverslag: Omgewing en samelewing 895 (OMS 895)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Praktykopleiding in die industrie 400 (OPI 400)

Kwalifikasie	Voorgraads
Modulekrediete	5.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Voorvereistes	Dokumentasie van werksondervinding soos vereis vir studiejare 1-3
Kontaktyd	1 praktiese sessies per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Studente moet gedurende die 4 jaar van studie, gedurende vakansietye, oor naweke en na-uurs, ’n totaal van 480 ure praktykopleiding in die industrie doen om praktiese en bedryfsvaardighede te ontwikkel,deelname aan gemeenskaps ontwikkeling en diensleer verskaf. Dit is gelykstaande aan 3 weke x 40 uur (120 uur) per jaar, volgens die vereistes soos bepaal deur die departementshoof. Hierdie "krediete" sluit bewys in van praktykopleiding,diensleer en gemeenskapsontwikkeling gedurende die vier jaar van die graadprogram en moet suksesvol voltooi wees tesame met bewyslewering van ’n volledige portefeulje alvorens die graad toegeken sal word.Let wel: Hierdie praktiese en industrie aktiwiteite ondersteun die teoretiese komponente van VDS 322, 413, 414, 417, 424, 427, FST 412 en TBE 311 (soos van toepasssing op die onderskeie Verbruikerswetenskappgramme) en vind na-ure plaas ten einde praktiese en industrie vaardighede te ontwikkel.

Praktykopleiding in industrie 480 (OPI 480)

Kwalifikasie	Voorgraads
Modulekrediete	6.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

Praktykopleiding in die industrie: Studente moet gedurende die 4 jaar van studie, gedurende vakansietye, oor naweke en na-uurs, ‘n totaal van 480 uur praktykopleiding in die industrie doen om praktiese en bedryfsvaardighede te ontwikkel. Dit is gelykstaande aan 3 weke x 40 uur (120 uur) per jaar, volgens die vereistes soos bepaal deur die departementshoof. Hierdie opleiding moet suksesvol voltooi wees tesame met bewyslewering van ‘n volledige portefeulje alvorens die graad toegeken sal word.

Produksiefisiologie 700 (PFS 700)

Kwalifikasie	Nagraads
Modulekrediete	22.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Specialised study of physiological and anatomical factors that influence growth, development, production and product quality. Stress and intensification effects on product quality. Animal science pharmacology. (Theoretical components include VKF 411 and VSX 420.)

Produksie fisiologie 801 (PFS 801)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Specialised study of physiological and anatomical factors that influence growth, development, reproduction and production. Stress and intensification effects on the metabolism of animals. The mechanisms of disease and erosion losses and the modification of reproduction and growth. Specific topics are studied by way of literature, seminars, discussions and research assignments.

Grondwaterverhouding en besproeiing 350 (PGW 350)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BSc Geologie BSc Geologie BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	GKD 250
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Kwantitatiewe beskrywing en meting van grondwaterinhoud en -potensiaal, asook versadigde en onversadigde hidrouliese geleivermoë. Modellering van watervloei in grond. (Darcy se wet, Richards se vergelyking). Infiltrasie, herdistribusie, verdamping, afloop en perkolasie. Besproeiing in Suid-Afrika. Modellering en bestuur van die grondwaterbalans. Plantwateropname en die grond-plant-atmosfeerkontinuum. Besproeiingskedulering (grond-, plant- en atmosfeerbenadering). Bestuur van swak gehalte water. Besproeiingstelsels. Die module sluit 'n veldbesoek aan 'n besproeiingskema in.

Seminaar 400 (PGW 400)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BScAgric Plantpatologie BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe

Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 3 seminare per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Basiese begingsels van die wetenskaplike proses. Literatuur- en artikelevaluering. Voorbereiding van manuskripte en voordrag van seminare. Basiese opleiding in die gebruik van visuele hulpmiddele, ens. in praatjies.

Proefontwerp en ontleding 421 (PGW 421)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BScAgric Plantpatologie BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	BME 120
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Basiese eksperimentele ontwerpe. Meting van en beheer oor eksperimentele fout. Faktoriaal eksperimente en interaksies. Variansie-analise (ANOVA) en interpretasie van data.

Plantproduksie 701 (PGW 701)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Plantproduksie-sisteme. Integrasie van ekologiese, agronomiese, edafiese, klimatologiese en ekonomiese kennis in produksiesisteme in Agronomie/Tuinboukunde/Weidingkunde met die klem op optimum volhoubare verbruik van natuurlike hulpbronne. Gevallestudies.

Wetenskaplike kommunikasie 702 (PGW 702)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde BScHons Grondkunde Omgewingsgrondkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 seminare per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Beginsels van die wetenskaplike proses. Literatuur soektogte en artikel ontleding. Manuskrip voorbereiding en voordrag van seminare. Gebruik van visuele hulpmiddels.

Navorsingsmetodiek 704 (PGW 704)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde BScHons Grondkunde Omgewingsgrondkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Basiese proefontwerp. Meet en beheer van eksperimentele fout. Faktoriaal proewe en interaksies. Analise van variasie (ANOVA) en data vertolking.

Eerste kursus in fisika 114 (PHY 114)

Kwalifikasie	Voorgraads
Modulekrediete	16.00

Programme	BSc Geografie BSc Chemie BSc Fisika BSc Geografie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	'n Kandidaat moet Wiskunde en Fisika met ten minste 60% geslaag het in die Graad 12-eksamen.
Kontaktyd	4 lesings per week, 1 besprekingsklas per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Si-eenhede. Tellende syfers. Golwe: intensiteit, superposisie, interferensie, staande golwe, resonansie, swewinge, Doppler effek. Geometriese optika: weerkaatsing, breking, spieëls, dun lense, instrumente. Fisiese optika: Young-interferensie, koherensie, dun lagies, diffraksie, polarisasie. Hidrostatika en –dinamika: digtheid, druk, Archimedes se beginsel, kontinuiteit, Bernoulli. Warmteleer: temperatuur, spesifieke warmtekapasiteit, uitsetting, hitteoordrag. Vektore. Kinematika van ‘n punt: relatiewe-, projektiel-, en sirkelbeweging. Dinamika: Newton se wette, wrywing. Arbeid: puntmassas, gasse (ideale gaswet), gravitasie, veer, arbeidstempo. Kinetiese energie. Potensiële energie: konserwatiewe kragte, gravitasie, veer. Behoud van energie. Momentumbehoud. Impuls en botsings. Partikelsisteme: massamiddelpunt, Newtons se wette. Rotasie: draaimoment, behoud van hoekmomentum, ewewig, swaartepunt.

Eerste kursus in fisika 124 (PHY 124)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Chemie BSc Fisika BSc Geografie BSc Geologie BSc Meteorologie BSc Verlengde program - Fisiese Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	WTW 114 GS en PHY 114 GS
Kontaktyd	1 praktiese sessie per week, 4 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied

Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

Enkelvoudige harmoniese beweging en pendulums. Coulomb se wet. Elektriese veld: dipole, Gauss se wet. Elektriese potensiaal. Kapasitansie. Elektriese strome: weerstande, resisitiwiteit, Ohm se wet, energie, arbeidstempo, emf, RC-bane. Magnetisme: Hall-effek, Biot-Savart se wet. Faraday en Lenz se wette. LR bane. Wisselstroom: RLC-bane, drywing, transformators. Inleidende konsepte van modern fisika. Kernfisika: radioaktiwiteit.

Fisika vir Biologiese studente 131 (PHY 131)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BPhysio Fisioterapie BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Plantkunde BSc Voeding BSc Voedselwetenskap BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Opvoedkunde Fakulteit Gesondheidswetenskappe Fakulteit Veeartsenykunde
Voorvereistes	'n Kandidaat moet Wiskunde met ten minste 60% geslaag het in die G12-eksamen
Kontaktyd	1 besprekingsklas per week, 4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Eenhede, vektore, kinematika, dinamika, arbeid, ewewig, klank, vloeistowwe, warmte, termodinamiese prosesse, elektriese potensiaal en kapasitansie, direkte en wisselstroom, optika, atoomfisika, X-strale, radioaktiwiteit.

Fisika 133 (PHY 133)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	Soos vir BSc Vierjaarprogram
Kontaktyd	Funderingskursus, 2 besprekingsklasse per week, 2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Heat: temperature and scales, work, energy and heat, calorimetry, specific heat, expansion, heat transfer. Measurements: SI-units, measuring error and uncertainty, (graphs), significant figures, mathematical modelling.One-dimensional kinematics. Geometrical optics: reflection, refraction, dispersion, mirrors, thin lenses.

Algemene fisika 141 (PHY 141)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	PHY131 GS asook 50% minimum vir die praktiese komponent van PHY 131 of TDH
Kontaktyd	2 tutoriale per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie is die anti-semesteraanbod van die PHY 131 Algemene Fisika 131 module. Verwys na PHY 131 vir die inhoudbeskrywing van die module. Studente kan nie vir beide PHY 131 en PHY 141 krediete vir die graad verwerf nie.

Fisika 143 (PHY 143)

Kwalifikasie	Voorgraads
Modulekrediete	8.00

Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	PHY 133
Kontaktyd	Funderingskursus, 2 praktiese sessies per week, 2 besprekingsklasse per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

Module word slegs in Engels aangebied Vectors. Kinematics of a point: relative motion, projectile, circular motion. Dynamics: Newton’s laws, friction. Work: point masses, ideal gas law, springs, power. Energy: kinetic energy, potential energy, conservative forces, spring, conservation of mechanical energy. Hydrostatics and dynamics: density, pressure, Archimedes' law, continuity, Bernouli.

Fisika 144 (PHY 144)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	PHY 133
Kontaktyd	1 praktiese sessie per week, 4 lesings per week, Funderingskursus
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The main topics covered in this module are Mechanics and Thermodynamics. Kinematics: Basic types of motion, one-dimensional motion, two- and three dimensional motion, linear momentum and its conservation, multi-object systems and the centre of mass.
Forces: Types of forces, Newton's Laws of Mechanics and applications, friction.
Energy: Work, heat, conservation of mechanical energy.
Thermodynamics: First law of thermodynamics, empirical gas laws, mechanical model of the ideal gas, energy of the ideal gas, basic thermodynamic processes.

Fisika 153 (PHY 153)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	PHY 143
Kontaktyd	2 besprekingsklasse per week, Funderingskursus, 3 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

System of particles: centre of mass, Newton's laws. Rotation: torque, conservation of momentum, impulse and collision, conservation of angular momentum, equilibrium, centre of gravity. Oscillations. Waves: sound, intensity, superposition, interference, standing waves, resonance, beats, Doppler effect. Physical optics: Young-interference, coherence, thin layers, diffraction, gratings, polarisation.

Fisika 154 (PHY 154)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	PHY 143
Kontaktyd	1 praktiese sessie per week, 4 lesings per week, Funderingskursus
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The main topic in this module is Electricity, Sound, Optics, and Modern Physics.
Static Electricity: Electric charge and force, electric field, the electric energy, electric potential, conservation of electrical energy.
Flow of charge: Capacitors, application of charge flow to nerves.
Sound: Vibrations, waves in unconfined and confined media, applications to human hearing.
Optics: Reflection, refraction, applications to optometry and ophthalmology.
Atomic physics: Atomic models, x-rays.
Nuclear physics: The stable atomic nucleus, radioactivity, nuclear spin and applications to medical diagnostics.

Sterrekunde vir fisici 210 (PHY 210)

Kwalifikasie	Voorgraads
Modulekrediete	24.00
Voorvereistes	PHY 114, PHY 124
Kontaktyd	1 besprekingsklas per week, 4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

Inleiding tot die heelal: afstand en tydskale. Oorsig van die sonnestelsel. Tegnieke van die sterrekunde: teleskope en optika, basiese radio-ontvangstel. Die sonnestelsel, gasreuse, aardplanete, kleinliggame. Ster-evolusie en –afsterwing. Interstellêre medium: gas, stof, molekules en masers. Supernovas en Pulsars, Galaksies en die Melkweg, Galaktiese evolusie en klassifikasie. Kwasars, skynbare beweging bo die spoed van lig, gravitasiekolke. Die Oerknal en ouderdom van die heelal. Uitdying van die heelal. SKA, MeerKAT, SALT, HESS en geskiedenis van die sterrekunde in SA. Ander heersende temas in die sterrekunde.

Golwe, termodinamika en moderne fisika 255 (PHY 255)

Kwalifikasie	Voorgraads
Modulekrediete	24.00
Programme	BSc Geologie BSc Fisika BSc Geologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	[PHY114 en PHY124] of [PHY171] of [PHY143 en PHY153 en PHY163] en [WTW211#] en [WTW218#]
Kontaktyd	4 lesings per week, 1 praktiese sessie per week, 2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika

Aanbiedingstydperk	Semester 1

Module-inhoud

Vibrerende sisteme en golwe (14 lesings)
Eenvoudige harmoniese beweging (EHB). Superposisie (verskillende frekwensies, gelyke frekwensies). Loodregte vibrasies (Lissajousfigure). Gedempte EHB. Gedwonge ossillasies. Resonansie. Q-waarde. Transversale golfbeweging.
Vlakgolfoplossing met die skeiding van veranderlikes-metode. Weerkaatsing en deurlating by ’n grensvlak. Normale en eiemodes. Golfpakkies. Groepsnelheid.
Moderne fisika (30 lesings)
Spesiale relatiwiteit: Galileo- en Lorentz-transformasies. Postulate. Momentum en energie. 4-vektore en tensors. Algemene relatiwiteit. Kwantumfisika. Faling van klassieke fisika. Bohrmodel. Golf-deeltjiedualisme. Schrödingervergelyking. Deelsgewyse konstante potensiale. Tonnelling. X-strale. Laser. Kernfisika. Kernsplyting. Kernsamestelling. Radioaktiwiteit
Warmte en termodinamika (12 lesings)
Warmte. Eerste Wet. Kinetiese gasteorie. Gemiddelde vrye padlengte. Ideale, Clausius-, Van der Waals- en viriaalgasse. Entropie. Tweede Wet. Enjins en yskaste. Derde Wet. Termodinamiese potensiale: Entalpie, Helmholtz en Gibbs vrye energieë, Chemiese potensiaal. Legendre-transformasies (Maxwell-relasies). Fase ekwilibrium. Gibbs se fasereël.
Modellering en simulasies (7 praktiese sessies)
Inleiding tot programmering in ’n hoëvlakstelsel: Konsep van ’n algoritme en die basiese logika van ’n rekenaarprogram. Simboliese manipulasies, grafika, numeriese berekeninge. Toepassings: Selektiewe en verduidelikende voorbeelde.
Foutanalise (7 praktiese sessies)
Eksperimentele onsekerhede, voortplanting van foute, statistiese analise van ewekansige onsekerhede, normaalverdeling, verwerping van data, kleinste kwadraattoepassing, kovariansie en korrelasie

Algemene fisika 263 (PHY 263)

Kwalifikasie	Voorgraads
Modulekrediete	24.00
Programme	BSc Geologie BSc Fisika BSc Geologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	PHY 255 GS en WTW 218 GS en WTW 220# en WTW 248#
Kontaktyd	4 lesings per week, 2 besprekingsklasse per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

Klassieke meganika (28 lesings) Grondbeginsels, energie en hoekmomentum, variasierekene en Lagrange-meganika, konserwatiewe sentraalkragte en tweeliggaamprobleme, verstrooiing, meganika in roterende, verwysingstelsels, veelligaamstelsels Fisiese optika (14 lesings) Maxwell se vergelykings, golfvergelyking en vlakgolfoplossings, koherensie, interferensie, diffraksie, polarisasie Fisika van materiale (14 lesings) Klassifikasie van material, atoombinding, kristallografie, defekte, sterkte van material, fasediagramme, keramieke, polimere, saamgestelde materiaal, frakture, elektriese en magnetiese eienskappe, halfgeleiers, slimmateriale, nanotegnologie. Eksperimente (14 sessies)

Waarnemingsterrekunde 300 (PHY 300)

Kwalifikasie	Voorgraads
Modulekrediete	36.00
Programme	BSc Fisika BSc Fisika BSc Geologie
Voorvereistes	PHY 255 en PHY 263
Kontaktyd	4 lesings per week, 2 besprekingsklasse per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Struktuur van die heelal, navigasie van die hemelruim, bolmeetkunde, optiese, hoë-energie- en radiofisika en –bronne, instrumente, praktiese waarnemingsvaardighede, data-opneming, - ontleding, -vertolking (sein- en beeldprosessering, ruis, kalibrering, foutanalise). Projek: ‘n Geselekteerde projek in óf optiese óf radiosterrekunde wat ‘n formele verslag en aanbieding tot gevolg het.

Deeltjie- en astrodeeltjiefisika 310 (PHY 310)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Fisika BSc Fisika
Voorvereistes	PHY 255 en PHY 263 en PHY 356
Kontaktyd	1 besprekingsklas per week, 1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

Relativistiese kinematika, fundamentele beginsels van elementêre deeltjiefisika, die vier natuurkragte en die Standaardmodel, verder as die Standaardmodel, vroeë heelalkosmologie (inflasie, bariogenese), die Kosmiese Mikrogolfagtergrond, hoë-energie sterrekunde (kosmiese strale, gammastrale en neutrinos), gravitasiegolwe, donker materie (bewyse, candidate, opsporing), donker energie en die Standaard Kosmologiese Model.

Fisikaprojek 353 (PHY 353)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Fisika BSc Fisika
Voorvereistes	TDH
Kontaktyd	3 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*PHY 353 kan nie as plaasvervanger vir ander Fisika-modules op 300-vlak gebruik word vir toelating tot die BSc(Hons) in Fisika nie. Daar word van die student verwag om onder leiding van die dosent 'n projek te voltooi. Die aard van die projek word gesamentlik deur die student, dosent en die departementshoof bepaal.

Elektronika, elektromagnetisme en kwantummeganika 356 (PHY 356)

Kwalifikasie	Voorgraads
Modulekrediete	36.00
Programme	BSc Geologie BSc Fisika BSc Geologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	PHY 255 GS en PHY 263 GS en WTW 211 GS en WTW 218 GS en WTW 248 GS
Kontaktyd	4 lesings per week, 1 praktiese sessie per week, 2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Elektronika: (14 lesings)
Thévenin- en Norton-ekwivalente bane, superposisiebeginsel, RC-, LC- en LRC-bane. Halfgeleierdiode. Bipolêre transistor. Operasionele versterkers. Rekenaarbeheerde instrumentasie.
Elektromagnetisme (21 lesings)
Elektrostatika: Coulomb se wet, Divergensie en curl van E, Gauss se wet, Laplacevergelyking, beeldladingsprobleme, multipooluitbreidings.
Magnetostatika: Lorentzkrag, Biot-Savart se wet, divergensie en curl van magnetiese veldsterkte, Ampère se wet, magnetiese vektorpotensiaal, multipooluitbreidings, randvoorwaardes. Elektrodinamika: Elektromotoriese krag, elektromagnetiese induksie, Maxwellvergelykings, golfvergelyking. Elektriese en magnetiese velde in materie: Polarisasie, elektriese verplasing en Gauss se wet in diëlektrika, lineêre diëlektrika. Magnetisasie (diamagnete, paramagnete, ferromagnete), hulpveld H, Ampère se wet in gemagnetiseerde materiale, lineêre en nie-lineêre media.
Kwantummeganika: (28 lesings)
Die Schrödinger-vergelyking, statistiese interpretasie van die golffunksie, momentum, onsekerheidsbeginsel, die tyd-afhanklike Schrödinger-vergelyking, stasionêre toestande, die oneindige reghoekige potensiaalput, die harmoniese ossilator, vry deeltjie, die delta-funksiepotensiaal, die eindige reghoekige potensiaalput, Hillbert-ruimtes, waarneembares, eiefunksies van ‘n Hermitiese operateur, Dirac-notasie, die Schrödinger-vergelyking in sferiese koördinate, die waterstofatoom, hoekmomentum, spin.

Fisikaprojek 363 (PHY 363)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Fisika BSc Fisika
Voorvereistes	TDH
Kontaktyd	3 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

*PHY 363 kan nie as plaasvervanger vir ander Fisika-modules op 300-vlak gebruik word vir toelating tot die BSc(Hons) in Fisika nie. Daar word van die student verwag om onder leiding van die dosent 'n projek te voltooi. Die aard van die projek word gesamentlik deur die student, dosent en die departementshoof bepaal.

Statistiese meganika, vastetoestantfisika en modellering 364 (PHY 364)

Kwalifikasie	Voorgraads
Modulekrediete	36.00
Programme	BSc Geologie BSc Fisika BSc Geologie

Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	PHY 356 en WTW 211 en WTW 218 en WTW 248 GS
Kontaktyd	2 praktiese sessies per week, 2 besprekingsklasse per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

Statistiese meganika (28 lesings)
Geïsoleerde sisteme in termodinamiese ewewig. Sisteme in ewewig met ’n warmtebad: die kanoniese ensemble, Gibbs se entropieformule, klassieke statistiese meganika, energie-ewewigsteorema, termodinamiese potensiale, paramagnetisme.
Klassieke limiet van ideale gasse: Ononderskeibare karakter van kwantumdeeltjies, toestandsvergelyking van die klassieke ideale gas. Kwantum ideale gasse: swartstraling, die grand kanoniese ensemble, Fermi-Diracverdeling, die vrye-elektrongas in metale, die Bose-Einsteinverdeling, Bose-Einstein-kondensasie.
Vastetoestandfisika (28 lesings)
Kristalstrukture, die resiproke rooster, x-straaldiffraksie, roostervibrasies, die Debye-model, eienskappe van vaste stowwe, die vry-elektronmodel, Pauli-paramagnetisme, elektroniese warmtekapasiteit, die ontspantyd, elektriese geleiding, die klassieke Hall-effek, termiese geleiding in metale, faling van die vry-elektronmodel, die onafhanklike elektronmodel, bandteorie vir vaste stowwe.
Berekeningsfisika en modellering. Beoordeling sal geskied via ’n portfolio van projekverslae. Die onderwerpe vir die projekte sal gekies word uit sub-dissiplines van Fisika.

Wiskundige metodes 701 (PHY 701)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The purpose of this course is twofold: (1) To refresh and systematize your knowledge of mathematics (sequences, series, vector calculus, functions of many variables etc.); (2) To give you working knowledge of mathematical methods that were not (or not sufficiently) covered in the underground courses, such as Fourier series and transforms; Ordinary and partial differential equations; Abstract vector spaces; Operators and their eigenvectors; Complex analysis; Calculus of variations; Integral equations; Group theory; Probability and statistics; Numerical methods.

Klassieke meganika 702 (PHY 702)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Lagrangian dynamics: Lagrange's equations, d'Alembert's principle, energy, applications, the tangent bundle, action, symmetry, conservation, Noether's Theorem, linear oscillations, normal modes.
Hamiltonian dynamics: Hamilton's equations, symplectic notation, phase space, Liouville's Theorem, Poisson brackets, canonical transformations, generating functions, the Hamilton-Jacobi equation. Elementary Lagrangian field theory.

Kwantummeganika 703 (PHY 703)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Origins of quantum mechanics; Mathematical tools; Postulates and quantization; Conservation laws; One-dimensional problems; Linear harmonic oscillator; Three-dimensional problems; Angular momentum; Hydrogen atom; Addition of angular momenta; Spin; Approximate methods (WKB, variational approach, time-independent perturbations); Time-dependent perturbations; Scattering; Partial wave scattering; Identical particles; Hartree-Fock approach; Many-body problems and quantum statistics; Second quantisation; Relativistic equations.

Statistiese fisika 704 (PHY 704)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.

Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Thermodynamic behaviour of an ideal Bose gas: Bose-Einstein functions, the virial expansion, the Riemann zeta-function, Bose-Einstein condensation. Phonons: the field of sound waves, inertial density of the sound field, elementary excitations in liquid helium II. Ideal Fermi systems: thermodynamic behaviour of an ideal Fermi gas, Fermi-Dirac functions and their relation to Bose-Einstein functions, the virial expansion, the Fermi energy, asymptotic expansions at low temperature, magnetic behaviour of an ideal Fermi gas (Pauli paramagnetism, Landau diamagnetism). Quantised fields: free bosonic quantum fields, interacting quantum fields, interacting Hamiltonian, interactions in terms of creation and annihilation operators, imperfect Bose gasses at low temperature, fermionic quantum fields, interacting theory, the ground state of an imperfect Fermi gas. Phase transition in the Ising model: mean field theory, critical exponents.

Elektrodinamika 705 (PHY 705)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Conservation laws in electrodynamics; electromagnetic waves in vacuum, dielectrics, conductors and wave guides; potentials and fields, guage transformations, Liénard-Wiechert potentials; electric and magnetic dipole radiation, radiation by a point charge; relativistic electrodynamics.

Projek en seminaar 706 (PHY 706)

Kwalifikasie	Nagraads
Modulekrediete	25.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A theoretical or an experimental project can be selected. The project must be approved by the head of department. The project must be summarised in the form of a written report and presented at an open seminar.

Veel-deeltjiefisika 708 (PHY 708)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Second quantisation. Coherent states. Single particle behaviour. Hartree-Fock – perturbation – linearisation of operators. Quasi-particles, effective mass and applications: atom physics, electron gas, one dimensional delta function. Collective behaviour. Tamm- Dancoff approximation: linearisation. Time dependent Hartree-Fock. Random phase approximation. Applications: giant dipole resonance, screening in an electron gas, correlation energy in an electron gas, plasma oscillations, zero sound. Canonical transformation – Cooper pairs, BSC theory. Thomas-Fermi theory. Density functional theory. Superconduction. Ginzberg-Landau theory. Zero field finite temperature BCS.

Numeriese fisika 710 (PHY 710)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Numerical nature of physical problems such as atomic structure, electric fields, harmonic oscillators (classic and quantum mechanics), heat conduction, hydrodynamics, Ising model, molecular vibrations, order and chaos, potential scattering, Schrödinger equation, wave equation.

Vastetoestandfisika 711 (PHY 711)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Electronic band structure, vibration properties of solids, electronic properties of defects, electric transport, optical properties, quantum confinement.

Kwantum-optika 712 (PHY 712)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Coherent states of free and forced oscillators. Semi-classical electrodynamics (including time dependent perturbations and stimulated transitions). Mode composition of the electromagnetic field. Properties of laser light. Resonators and modes. Laser types (ruby, Nd-YAG, Carbondioxide, He-Ne, excimer and GaAs).

Elektroniese materiale 713 (PHY 713)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	6 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Structure, electrical and optical properties of semiconductors; semiconductor metal contacts; Ohmic and Schottky contacts; influence of impurities and defects on properties of the contacts; quantum well semiconductor structures.

Analitiese fisika 714 (PHY 714)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Review of surface analytical techniques, surface structure determinations, surface topography techniques, theory of contrast in electron microscopy; electron microscopic surface and interface techniques; scanning tunnelling microscopy; electrical and electro-optical characterisation of semiconductors; determination of defects and impurities in semiconductors; propagation of laser rays; photoluminescence.

Kernvastetoestandfisika 715 (PHY 715)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Mössbauer effect; positron annihilation; perturbed angular correlations; neutron scattering; RBS; channeling; nuclear reaction analyses.

Groepeteorie 716 (PHY 716)

Kwalifikasie	Nagraads
Modulekrediete	10.00

Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to group theory needed in physics. Thirty-two crystallografic point groups; selected groups; full rotation groups; applications such as classification of spectral terms; selection rules; Clebs-Gordon coefficients.

Kwantumveldteorie 171 (PHY 717)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Voorvereistes	Toelating slegs op grond van toelating van die Departementshoof Fisika
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Special relativity. Representation of transformations in quantum physics. Canonical quantisation of free scalar fields. Interactions, scattering and the reduction formula. Path integrals in quantum mechanics; the harmonic oscillator. Free fields. Interacting fields, perturbation theory and Feynman diagrams. Scattering amplitudes and the Feynman rules. Renormalisation: Dimensional analysis, the exact propagator, the exact three point vertex, higher order corrections and perturbation theory to all orders. Symmetry: Continuous symmetries and conserved currents, discrete symmetries. The renormalisation group: Infrared divergences, different renormalisation schemes and asymptotic freeness, the renormalisation group. Spontaneous symmetry breaking: A discrete example, a continous example, the Goldstone boson.

Eksperimentele fisika 718 (PHY 718)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Guided experiments designed to expose students to modern experimental techniques, leading to a report written in the format of a research article.

Kernfisika 719 (PHY 719)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Voorvereistes	Toelating slegs met toestemming van die Departementshoof Fisika
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Quarks, Nucleons, Isobaric Invariance, NN-interaction, Two-nucleeon system, Deuteron, Elements of scattering theory, NN-scattering, Few-body nuclear systems, General properties of medium and heavy nuclei, Nuclear models, Radioactivity, Nuclear reactions, α-, β-, and γ-decays, Nuclear fission, Nuclear fusion, nuclear astrophysics.

Radio astrofisika 720 (PHY 720)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Voorvereistes	Voltooiing van die kernkomponente van die BScHons
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Goals and techniques of modern radio astronomy, studies of galaxies and interstellar medium, radiation mechanisms, neutral hydrogen, astro-chemistry, masers, supernovae, pulsars and transient phenomena, high red-shift universe, quasars. Radio receivers and techniques.

Grondslae van fisika 781 (PHY 781)

Kwalifikasie	Nagraads
Modulekrediete	10.00

Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Conceptual basis of physics: The nature of Laws of Physics, basic concepts and misconceptions. Nature of physics, its history, nature of evidence, paradigms, current views and controversies of the nature of the physics enterprise. Indigenous knowledge in the field of physics, and alternative world views, physics in society. Limits and abuses of the results of Modern Physics.

Huidige tendense in fisika 782 (PHY 782)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Voorvereistes	Voltooiing van kern modules van BSc(Hons)
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A chosen field of physics that is linked to the research specialisations of groups within the Physics Department. Approaches and trends in research advances in new topics in physics. The module follows a format of guided advanced readings, seminars and discussion sessions.

Inleidende gewasbeskerming 251 (PLG 251)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Biotegnologie BSc Biotegnologie BSc Dierkunde BSc Ekologie BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied

Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Ontwikkeling en belang van plantbeskerming. Basiese beginsels in plantbeskerming d.i. epidemie-ontwikkeling van plantsiektes en insekplaagpopulasies, ekologie van plantsiektes en abiotiese faktore wat plantgesondheid beïnvloed soos omgewingsbesoedeling en plaagdoders, voedingstekorte en ekstreme omgewingstoestande. Ekologiese aspekte van plantsiektes, plaaguitbrake en indring van onkruide. Belangrike landbouplae en onkruide. Lewenssiklusse van tipiese siekte-veroorsakende organismes. Basiese beginsels van geïntegreerde plaag- en siektebeheer.

Beginsels van plantpatologie 262 (PLG 262)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Plantkunde BSc Biochemie BSc Biotegnologie BSc Dierkunde BSc Ekologie BSc Genetika BSc Plantkunde BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	MBY 161
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Basiese beginsels van plantpatologie. Die konsep van siekte in plante. Oorsake van plantsiektes. Stadiums in ontwikkeling van plantsiektes. Siektesiklusse. Diagnose van plantsiektes.

Algemene plantpatologie 351 (PLG 351)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Plantkunde BSc Biotegnologie BSc Genetika BSc Mikrobiologie BSc Plantkunde BScAgric Plantpatologie
Voorvereistes	MBY161, MBY261 en PLG262

Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Beginsels en voorbeelde van plantsiektes en hulle sosio-ekonomiese belang. Huidige tendense in plantpatologie soos biosekuriteit, sanitêre en fitosanitêre aspekte in die handel. Risikobepaling en internasionale voedselveiligheidstandaarde. Die gebruik van globale inligtingstelsels vir die bepaling van siekteverspreiding en invloed van aardverwarming. Voedsel-kettinganalise, na-oestegnologie en voedselhandel.

Bestrydingkunde 363 (PLG 363)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Biotegnologie BSc Biotegnologie BSc Genetika BSc Plantkunde BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe
Voorvereistes	PLG251 of PLG262 of TDH. MBY261 is aanbeveel
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Beginsels van bestrydingkunde. Nie-chemiese beheerstrategieë wat biologiese beheer, weerstandbiedendheid, regulatoriese maatreëls, verbouingspraktyke en fisiese metodes insluit. Moderne chemoterapie; eienskappe, werking en toediening van swamdoders, bakterisiede en nematosiede. Beginsels van geïntegreerde siektebeheer.

Gasheerpatogene-interaksie 364 (PLG 364)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Sluit in swam-, bakterie- en virusinteraksies. Fokus op molekulêre en sellulêre gebeurtenisse tydens herkenning, tydens swamontwyking van gasheerverdedigingsmeganismes en tydens simptoomontwikkeling. Onderwerpe wat bespreek word sluit in selbiologie van interaksies, sistemiese weerstand en die rol van patogenese-verwante proteïne en toksiene in patogenese asook basiese beginsels van epidemiologiese teorie en konsepte van toepassing op plantsiektes. Inleiding tot toerusting en tegnieke wat in epidemiologiese navorsing gebruik word, asook praktiese toepassings van epidemiologie in plantsiekte beheer.

Navorsingsprojek 462 (PLG 462)

Kwalifikasie	Voorgraads
Modulekrediete	28.00
Programme	BScAgric Plantpatologie BScAgric Plantpatologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Praktiese navorsingsprojek van beperkte omvang onder leiding van een van die dosente in plantpatologie binne die departement. Enige onderwerp binne die veld van plantpatologie kan geselekteer word.

Epidemiologie van plantsiektes 463 (PLG 463)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BScAgric Plantpatologie BScAgric Plantpatologie
Voorvereistes	PLG 251, PLG 262 en PLG 363
Kontaktyd	2 lesings per week, 1 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie module word slegs in Engels aangebied.

Understanding of how plant disease epidemics occur in nature and how they can be monitored and analysed. In-depth knowledge how of plant diseases cause crop losses, how these losses are quantified, and how losses are predicted. Examples of how epidemiology is used to set the strategy of plant disease control. Use of some statistical procedures for quantifying and comparing epidemics. Impact of climate change on plant disease development. In-depth discussions on plant-pathogen interactions and plant defence mechanisms.

Gevorderde plantsiektebeheer 483 (PLG 483)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BScAgric Plantpatologie BScAgric Plantpatologie
Voorvereistes	PLG 363 of TDH
Kontaktyd	2 besprekingsklasse per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Gevorderde aspekte van chemise en biologiese beheer van plantsiektes sowel as siektebestandheid.

Huidige konsepte in plantpatologie 490 (PLG 490)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BScAgric Plantpatologie BScAgric Plantpatologie
Voorvereistes	Derdejaarstatus of TDH
Kontaktyd	1 seminaar per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Hierdie module behandel die mees resente konsepte in plantpatologie.

Parametriese en nie-parametriese stogastiese prosesse 720 (PNP 720)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskundige Statistiek BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	WST 312
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek

Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to statistical measure theory. Queueing processes: M/M/1; M/M/S; M/G/1 queues and variants; limiting distribution of the queue length and waiting times. Queuing networks. Some stochastic inventory and storage processes.

Volhoubare gewasproduksie en agroklimatologie 251 (PPK 251)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BSc Biotegnologie BSc Biotegnologie BSc Omgewingswetenskappe BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Voorvereistes	BOT 161
Kontaktyd	Prakties tweeweekliks, 3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Invloed van klimaat op verbouingstelsels in Suid-Afrika. Oppervlakte-energiebalans. Hidrologiese siklusse en grond-water-balans. Volhoubare produksie van gewasse. Eenvoudige bestralings- en waterbeperkte modelle. Potensiële opbrengs, opbrengsmikpunt en maksimum ekonomiese opbrengs. Gewasvoeding en kunsmisbestuur. Beginsels van grondbewerking en -bewaring. Klimaatsverandering en die produksie van gewasse – versagting en aanpassing.

Plantproduksie: Onkruiddoders en -beheer 712 (PPR 712)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Onkruide en hulle belang in Suidelike Afrika. Eienskappe en gebruike van onkruiddoders. Onkruiddoders in die grond en die aktiwiteit daarvan in plante.

Agrobosbou 713 (PPR 713)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 lesing per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Agro-ekologiese sones (klimaat en grond); bome vir vrugte, voer, brandstof en/of hout ; tussenverbouing met grane, groente of voergewasse ; bestuur (insluitend aspekte soos saailingproduksie, vestiging, bemesting, plaagbeheer) en gebruik/bemarking.

Verhandeling: Plantpatologie 890 (PPT 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Plantpatologie MSc Plantpatologie MScAgric Plantpatologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Miniverhandeling: Plantbeskerming 892 (PPT 892)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Each candidate must write a mini-dissertation on his/her project in plant protection. The mini-dissertation can be either factor- or strategic research and case studies. The candidate must have at least one paper submitted to a peer-reviewed journal.

Proefskrif: Plantpatologie 990 (PPT 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Plantpatologie PhD Plantpatologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Pluimveevoeding en -produksie 420 (PVK 420)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	VGE 320 en VKU 250
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Gespesialiseerde voeding van pluimvee in verskillende fisiologiese stadiums en produksiestelsels. Bedryfswetenskap en bestuur van produksie- en voedingstelsels in pluimveeproduksie-eenhede. Toegepaste teel van pluimvee. Ontwerp en benutting van toerusting en behuisingsfasiliteite. Produkgehalte en bemarking van pluimveeprodukte. Higiëne en gesondheidsprogramme. Praktiese werk: Die gebruik van rekenaarstelsels vir die bestuur van pluimveevoeding in verskillende produksiestelsels.

Pluimveekunde 800 (PVK 800)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week

Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Specialised study of the management of hatcheries, broiler and layer production units, broiler breeding parent farms, ostriches, cage bird, game bird and waterfowl units, as well as threatened species in conservation programmes. Planning of production units and facilities. Determining ventilation requirements, disease control and biosecurity systems. Product quality, marketing and promotion of birds and their products. Computer aided management systems and product projection. Execution of projects in certain areas of specialisation. Studies aimed at optimising production efficiency and minimising risk.

Regressie-analise 780 (RAL 780)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BComHons Statistiek
Diensmodules	Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 310 en STK 320
Kontaktyd	1 webgebaseerde periode per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Matrix methods in statistics. Simple and multiple regression models. Sums of squares of linear sets. Generalised t- and F-tests. Residual analysis. Diagnostics for leverage, influence and multicolinearity. Indicator variables. Regression approach to analysis of variance. Weighted least squares. Theory is combined with practical work.

Navorsingsprojek 310 (RCH 310)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Derdejaarstatus
Kontaktyd	1 besprekingsklas per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding

Aanbiedingstydperk	Semester 1

Module-inhoud

Navorsingsmetodes en -proses.

Navorsingsprojek 320 (RCH 320)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	RCH 310
Kontaktyd	1 besprekingsklas per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Mensvoeding
Aanbiedingstydperk	Semester 2

Module-inhoud

Literatuurstudie, protokol en statistiek (1 l + 1 x 2u bespreking). Voorbereiding van protokol en voorlegging vir goedkeuring (1 x 2u bespreking).

Sosiale navorsing: Inleiding tot metodologie 210 (RES 210)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BA Tale
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Sielkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Die module is ‘n inleiding tot die verskillende ondersoekmetodes van die sosiale- en geesteswetenskappe. Die doel van hierdie module is om studente in te lei in die navorsingsproses met die doel om hulle toe te rus met die vaardighede om:
• sosiale probleme te identifiseer en navorsingsvrae en -hipoteses te formuleer;
• ‘n basiese begrip van wat die skryf van ’n literatuuroorsig en navorsingsvoorstel behels te ontwikkel;
• kennis te dra van ondersoekmetodes en op ‘n toepaslike metode te kan besluit;
• data te interpreteer en grafies voor te stel; en
• bewus te wees van die noodsaak om eties verantwoordbare navorsing te doen.

Navorsing 261 (RES 261)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	RES 151
Kontaktyd	2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Sielkunde
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

Metodes vir kritiese denke en navorsing Die module fokus op verskillende basiese metodes van ondersoek in die menswetenskappe. Die doel van die module is om studente onder andere toe te rus met vaardighede wat nodig is vir: • seleksie en toepassing van sentrale prosedures en tegnieke; • identifisering en oplos van goed gestruktureerde probleme deur die gebruik van relevante ondersoekmetodes; • kritiese analise en sintese van inligting en die doeltreffende aanbied van sodanige inligting; en • koherente en geloofwaardige kommunikasie van inligting deur die toepaslike gebruik van relevante akademiese konvensies en formate Studente sal ook 'n bewustheid ontwikkel vir eties verantwoordbare navorsing deur middel van verskillende benaderings.

Sosiale navorsing: Metodologiese denke 320 (RES 320)

Kwalifikasie	Voorgraads
Modulekrediete	30.00
Programme	BA
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Res 210
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Sielkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Die module fokus op die aannames en prosesse wat keuses van metodologie in die sosiale- en geesteswetenskappe onderlê. Die doel van hierdie module is om studente met die vaardighede toe te rus om:
ontologiese en epistemologiese debatte te verstaan;
verskillende benaderings tot navorsing in die sosiale- en geesteswetenskappe te identifiseer;
basiese statistiese keuses en analises te kan bespreek; en
elementêre beginsels van kwalitatiewe data-ontleding te kan beskryf.

Stralingsfisika 110 (RFI 110)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BRad Diagnostiek
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Fisika
Aanbiedingstydperk	Jaar

Module-inhoud

Eenhede: omsetting, dimensionele analise. Meganika: momentum, krag, energie, sirkelbeweging, traagheidsmoment, draaimomentum, eenvoudige harmoniese beweging. Elektrostatika: Coulomb se wet, veldsterkte, potensiaal. Gelykstroom: weerstande, Ohm se wet. Kapasitore: kapasitansie, serie- en parallelskakeling, energie. Magnetisme: Krag op bewegende lading, elektriese motor. Elektromagnetiese induksie: Faraday se wet, Lenz se wet, kragopwekkers. Wisselstroom: piek- en wkg-waardes, driefase, gelykrigting, transformators. Elektriese veiligheid. Atoomstruktuur: ionisasie, opwekking. X-strale: Opwekking, absorpsie.

Stralingsfisika 210 (RFI 210)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BRad Diagnostiek
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	RFI 110, MTL 180, RAN 100, FSG 161, FSG 162, RAW 182 en RAW 180
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Afrikaans aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

X-straal-generator: transformator, energieverliese, gelykrigting, kapasitorontladingstelsels, beheer van kVp en mA, hoogspanningskabels. Beeldversterkerbuis: Konstruksie, helderheidswins, koppelstelsels. TV-kamera en TV-monitor: Konstruksie, videosein, skandering, beeldgehalte. Optika: weerkaatsing, breking, totale weerkaatsing, spieëls, lense, dunlensformule, lensfoute, veseloptika, lasers, laserkamera. Rekenaar: basiese hardeware, digitale beginsels en terminologie, datastoring.

Stralingsfisika 211 (RFI 211)

Kwalifikasie	Voorgraads
Modulekrediete	10.00

Programme	BRad Diagnostiek
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	RFI 110, RAW 180, RAN 100, FSG 161, FSG 162, RAW 182 en MTL 180
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Afrikaans aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 2

Module-inhoud

Radioaktiewe verval: halfleeftyd, alfaverval, betaverval, gammaverval. Produksie van isotope: siklotron, kernreaktor. Van de Graaffversneller. Absorpsie: nukleone, alfadeeltjies, betadeeltjies. Dosimetrie: blootstelling, geabsorbeerde dosis, ekwivalente dosis, effektiewe dosis, dosisperke. Stralingsdetektore: flitsteller, Geigerteller, termoluminessente detektore, halfgeleierdetektore. Radiofarmaseutiese middels. Biologiese effekte: somatiese en genetiese effekte.

Stralingsfisika 310 (RFI 310)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BRad Diagnostiek
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	FSG 251, RFI 210, RAW 281, RBG 281, RAN 280, RAW 282, FSG 252, FSG 262, RAW 284 en RFI 211
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Afrikaans aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Rekenaartomografie: RT-generasies. Apparaat: x-straalbuis, kollimators detektors. Beeldrekonstruksie: basiese vergelykings, algoritmes. Beeldeienskappe: veldgrootte, beeldmatrys, voksel, piksel, RT-getal, vensterwydte en vensterhoogte. Beeldgehalte: ruimtelike oplosvermoë, kontrasoplosvermoë, geruis en artefakte, ruimtelike eenvormigheid, en ruimtelike frekwensie. Beeldverwerking: randversterking, pikselverskuiwing, subtraksie. Syferradiografie: x-straalopwekker, analoog-na-syfer- omsetter, lineêre en logaritmiese subtraksie, geruis. Ultraklank: teorie, omsetters, piesoëlektriese kristal, resonansie-frekwensie, wisselwerking met materie, weerkaatsing, breking, akoestiese impedansie. Dopplertegnieke. Magnetiese resonansie: mediese toepassings.

Reproduksieleer 310 (RPL 310)

Kwalifikasie	Voorgraads
Modulekrediete	8.00

Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	DAF 200
Kontaktyd	1 praktiese sessie per week, 1 lesing per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Geslagsfisiologie, spermatogenese, soögenese, die vroulike geslagsiklus. Spesieverskille. Hormonale beheer oor die geslagsfunksies.

Reproduksieleer 320 (RPL 320)

Kwalifikasie	Voorgraads
Modulekrediete	10.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	RPL 310
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Kunsmatige inseminasie. Semenkolleksietegnieke, semen-evaluasie, -verdunning en - bewaring. Embrioversameling, -bewaring en -oorplasing. Ovumversameling en in vitrobevrugting. Hantering van apparaat en praktiese inseminasie, oestrus-observasie en dragtigheidsbepaling.

Small animal medicine and surgery 410 (SAS 410)

Kwalifikasie	Voorgraads
Modulekrediete	21.00
Programme	BVSc
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	9 lesings per week, 2 praktiese sessies per jaar
Onderrigtaal	Module word in Engels aangebied
Departement	Geselskapsdier Kliniese Studies
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie module word slegs in Engels.

Patient assessment; therapeutic and monitoring plans for selected key critical situations; identification, diagnosis and treatment of important cardiovascular, respiratory, kidney, skin, endocrine and eye conditions/diseases; multi-systemic conditions; dentistry; oncology; behaviour-related disorders and treatment, critical care and traumatology in dogs and cats.

Small animal medicine and surgery 420 (SAS 420)

Kwalifikasie	Voorgraads
Modulekrediete	21.00
Programme	BVSc
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	9 lesings per week, 2 praktiese sessies per jaar
Onderrigtaal	Module word in Engels aangebied
Departement	Geselskapsdier Kliniese Studies
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie module word slegs in Engels.

Patient assessment; therapeutic and monitoring plans for selected key critical situations; identification, diagnosis and treatment of important gastrointestinal, liver, pancreas, peritoneal, urogenital, skin, musculoskeletal, nervous system; dentistry in dogs and cats.

Godsdiensonderrig 171 (SCE 171)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Semester 1

Module-inhoud

Prominente godsdienste in Suid-Afrika, wêreldbeskouings wat met hierdie godsdienste saamhang, die kulturele rol van godsdienste, die belang van heilige dae. Mistisisme en die okkulte.

Wetenskaponderwys 201 (SCE 201)

Kwalifikasie	Voorgraads

Modulekrediete	16.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Jaar

Module-inhoud

Inleiding tot wetenskaplike denkpatrone. Inleiding tot wetenskap en wetenskapgeletterdheid. Wetenskapetiek. Die toepassing van die wetenskaplike metode om die ontdekkingsleer te bevorder. Ondersoek van die kennis-konsep. Die leersiklus. Beginsels van kurrikulumontwerp.

Wetenskaponderwys 303 (SCE 303)

Kwalifikasie	Voorgraads
Modulekrediete	36.00
Voorvereistes	CIL 111 GS
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika
Aanbiedingstydperk	Jaar

Module-inhoud

Om die toepassing van uitkomsgebaseerde onderwys (UBO) in die wetenskaponderrig te verstaan. Die toevoeging van wetenskaplike denkwyses in die wetenskap leerplan ter bevordering van paslike intelektuele ontwikkeling. Die ontwerp van leerprogramme deur programorganiseerders op skoolvlak. Makrobeplanning in die natuurwetenskapleerarea. Assessering en implementering van leerprogramme. Provinsiale en nasionale modelle van assessering. Die assessering van leerdervordering in die konteks van spesifieke wetenskapsleerprogramme. Inleiding tot die beginsels van dissipline en motivering. Enkele aspekte van skoolvoorligting en loopbaanbeplanning. Prakties: Praktiese ondevinding met leergeleenthede. Die gebruik van rekenaars as ‘n leerhulpmiddel.

Navorsingmetodes in wetenskaponderwys 881 (SCE 881)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsonderwys (Coursework) MSc Omgewingsonderwys (Coursework)
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Sentrum vir Wetenskapontwikkeling

Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The purpose of this course is to:
- Be exposed to the discipline of Educational Research
- Understand research concepts, principles and methods
- Obtain skills such as: the formulation and definition of a research problem, the use of literature to obtain an in depth understanding of a problem, the design of the research protocol, the interpretation of research results to draw conclusions about a research problem.

Statistiek vir wetenskaponderwys 882 (SCE 882)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Sentrum vir Wetenskapontwikkeling
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The course follows a conceptual approach to the field of statistical principles as applied within educational research. The emphasis lies on understanding selected statistical procedures and the logic underlying statistical deduction. The purpose of the course is to promote statistical literacy as a research tool.

Kurrikulumontwikkeling en -assessering – Wetenskaponderwys 883 (SCE 883)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Sentrum vir Wetenskapontwikkeling
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The course reviews modern thinking in science content and curriculum development in both a South African and an International context. Assessment is treated as an integral part of curriculum design. Special attention is given to the theoretical principles of assessment, with special reference to accuracy and reliability: The application of these elements to standardised as well as teaching developed tests are reviewed. Finally, new forms of assessment are explored.

Tendense in wetenskaponderwys 884 (SCE 884)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Sentrum vir Wetenskapontwikkeling
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The objectives of this course are: to explore and discuss the major approaches currently advocated in science education (e.g. constructivist learning) and as they pertain to the nature of the scientific fields; to explore and discuss some current restructuring proposals underway and the consequences of the above proposals for the classroom teacher; to develop a curriculum or curricular units, strategies for the implementation of the curriculum and evaluation strategies consistent with the goals of the new curriculum and evaluation strategies consistent with the goals of the new curriculum; to explore activities, computer software, computer interfaced laboratories, video recordings and integrated technological systems that will support the new curriculum.

Seminaar: Wetenskaponderw 885 (SCE 885)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 seminaar per week
Onderrigtaal	Module word in Engels aangebied
Departement	Sentrum vir Wetenskapontwikkeling
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The purpose of the seminar is to contribute and learn from the interaction and research of fellow postgraduate students and professionals. At least 5 presentations on recent literature or your own research in science education or in a science speciality are required. The programme contributes both to the development of the underlying knowledge and research project, but also build a team approach to scientific endeavour, develops and demonstrates scientific presentation skills and scientific reporting and writing.

Verhandeling: Wetenskaponderwys 890 (SCE 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Sentrum vir Wetenskapontwikkeling
Aanbiedingstydperk	Jaar

Proefskrif: Wetenskaponderwys 990 (SCE 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Wetenskap- en Wiskundeonderwys PhD Wetenskap- en Wiskundeonderwys
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Sentrum vir Wetenskapontwikkeling
Aanbiedingstydperk	Jaar

Verkenning van die heelal 154 (SCI 154)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Fisika BSc Geografie BSc Meteorologie BSc Verlengde program - Fisiese Wetenskappe
Voorvereistes	Verbode kombinasie SCI 164
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Fisika

Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Students from all faculties are welcome to join us in our exploration of the universe from an earth-bound perspective. We reflect on the whole universe from the sub microscopic to the vast macroscopic and mankind's modest position therein. To what degree is our happiness determined by stars? Echoes from ancient firmaments - the astronomy of old civilisations. The universe is born with a bang. Stars, milky ways and planets are formed. Life is breathed into the landscape on earth, but is there life elsewhere? The architecture of the universe – distance measurements, structure of our solar system and systems of stars. How does it look like on neighbouring planets? Comets and meteorites. Life cycles of stars. Spectacular exploding stars! Exotica like pulsars and black holes.

Steekproefnemingstegnieke 720 (SFT 720)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskundige Statistiek BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BScHons: WST 311, WST 312, WST 321, WST 322; BComHons: STK 310, 320
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

Simple random sampling. Estimation of proportions and sample sizes. *Hierdie inligting is slegs in Engels beskikbaar.

Stratified random sampling. Ratio and regression estimators. Systematic and cluster sampling. Complex survey methodology. Handling of nonresponse.

Grondmeganika 311 (SGM 311)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Geologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	(SWK 210)
Kontaktyd	1 praktiese sessie per week, 2 tutoriale per week, 3 lesings per week

Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Siviele Ingenieurswese
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot grondmeganika. Inleiding tot klei-mineralogie. Massa, volumeverband en fases van grond. Grondwatervloei en permeabiliteit. Beginsel van effektiewe spanning. Suigpannings in versadigde sowel as onversadigde grond. Die Mohr-sirkel en spannings by ‘n punt. Die Mohr-Coulomb sterkte teorie en spannings-vervormings eienskappe van grond. Die Boussinesq-teorie. Konsolidasieteorie en versakking.

Geotegniese ingenieurswese 323 (SGM 323)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	(SGM 311)
Kontaktyd	2 besprekingsklasse per week, 3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Siviele Ingenieurswese
Aanbiedingstydperk	Semester 2

Module-inhoud

Toepassing van konsolidasieteorie. Dravermoë van grond en fondamentontwerp, Terzaghi en algemene metodes. Horisontale spannings in grond en die ontwerp van keermure, Rankine en Coulomb se metodes. Hellingstabiliteit met limiet-toestand ewewigsmetodes, insluitend Bishop se metode van snitte. Inleiding tot terreinondersoek.

Insekdiversiteit: Ekonomiese en ekologiese belang 711 (SIZ 711)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Insect classification and the structuring of diversity; economically and ecologically important insect taxa: apterygote and exopterygote insects - silverfish, mayflies, dragonflies, cockroaches, mantids, termites, earwigs, locusts, stick insects, lice, bugs and thrips; endopterygote insects - lacewings, beetles, flies, fleas, butterflies moths, bees, wasps and ants.

Geïntegreerde insekplaagbestuur 724 (SIZ 724)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The origin of insect pests; their host crops; threshold values; pest status; insect pest management; biological-, cultural- and chemical control of insects; insect herbivores as weed biocontrol agents; insects as vectors in human and animal disease; non-vector problem insects; control methods in veterinary entomology; conservation, agriculture and human health; beneficial insects; beekeeping; silk production; insects as human and animal food; insects and ecosystems; chemicals and the environment; insects and eco-tourism.

Sielkunde 110 (SLK 110)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BPhysio Fisioterapie BSc Mensfisiologie, Genetika en Sielkunde BSc Verlengde program - Biologiese en Landbouwetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 2 besprekingsklasse per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Sielkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

'n Algemene oriëntering tot die sielkunde. Inleiding tot verskillende teoretiese benaderings in en die ontwikkeling van die sielkunde as wetenskap word behandel. Geselekteerde temas uit die alledaagse lewe word bespreek en met sielkundige beginsels geïntegreer. Hierdie module fokus ook op sentrale persoonlikheidsteorieë. 'n Inleiding tot verskillende paradigmatiese benaderings in die sielkunde word gegee.

Sielkunde 120 (SLK 120)

Kwalifikasie	Voorgraads

Modulekrediete	12.00
Programme	BOccTher Arbeidsterapie BSc Mensfisiologie, Genetika en Sielkunde BSc Verlengde program - Biologiese en Landbouwetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 2 besprekingsklasse per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Sielkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Hierdie module is ‘n inleiding ten opsigte van ‘n basiese kennis en begrip van die biologiese basis van menslike gedrag. Die module behels die kernkonsepte en terminologie wat met die biologiese subsisteem verband hou, die reëls en beginsels onderliggend aan biologiese sielkunde en die identifisering van verwantskappe tussen verskillende biologiese sisteme en subsisteme. Verskillende kognitiewe prosesse word bestudeer insluitend persepsie, geheue, denke, intelligensie en kreatiwiteit. Verskeie denkprosesse, soos probleemoplossende, krities-analitiese en integrerende denke word geillustreer.

Sielkunde 210 (SLK 210)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BPhysio Fisioterapie BSc Mensfisiologie, Genetika en Sielkunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	SLK 110, SLK 120(GS)
Kontaktyd	2 besprekingsklasse per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Sielkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

In hierdie module word menslike ontwikkeling vanaf konsepsie tot adolessensie, asook volwassenheid aan die hand van verskillende teoretiese modelle bespreek. Dit sluit in ontwikkelingsveranderinge ten opsigte van kognitiewe, fisieke, emosionele en sosiale funksionering en die konteks van werk. Tradisionele en kontemporêre teorieë oor menslike ontwikkeling in hierdie fases word bestudeer ten einde die kernvraagstukke wat tydens die kinderjare en volwassenheid relevant is, te verstaan en verklaar.

Sielkunde 220 (SLK 220)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BSW Maatskaplike Werk BSc Mensfisiologie, Genetika en Sielkunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Gesondheidswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	SLK 110, SLK 120(GS) en RES 210 word aanbeveel
Kontaktyd	2 besprekingsklasse per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Sielkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

In hierdie module word interpersoonlike en groepprosesse vanuit ‘n sosiaal-sielkundige perspektief bestudeer. Temas wat behandel word, sluit in kommunikasie, prososiale gedrag, sosiale beïnvloeding en oorreding, politieke transformasie, groepgedrag en geweld.

Sielkunde 310 (SLK 310)

Kwalifikasie	Voorgraads
Modulekrediete	30.00
Programme	BSW Maatskaplike Werk BSc Mensfisiologie, Genetika en Sielkunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	SLK 210(GS), SLK 220(GS)
Kontaktyd	2 lesings per week, 2 besprekingsklasse per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Sielkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Identifikasie van abnormale gedrag in kinders aan die hand van kennis van normale kinderontwikkeling; inleiding tot die studie van verskeie modelle met betrekking tot abnormale gedrag; verstaan en toepassing van basiese konsept in kinderpsigopatologie. Die module verskaf ook ‘n inleiding tot psigopatologie en simptomatologie van volwasse abnormale gedrag. Terminologie, definisie van abnormale gedrag, probleme met diagnose, etiketering en mites aangaande abnormale gedrag sal bespreek word. Neurose as ‘n spesifieke geestesversteuring word krities bestudeer vanuit ‘n multidimensionele perspektief, insluitend intrapsigiese, interpersoonlike and sosiaal-kulturele verduidelikings.

Sielkunde 320 (SLK 320)

Kwalifikasie	Voorgraads
Modulekrediete	30.00
Programme	BSW Maatskaplike Werk
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	SLK 210 GS), SLK 220 GS, (RES 320 recommended)
Kontaktyd	2 besprekingsklasse per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Sielkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Die module ondersoek ‘n gemeenskapsielkundige perspektief op menslike ontwikkeling en sielkundige intervensie en verken die bydrae van verskeie perspektiewe in sielkunde op ‘n kritiese wyse. Die module fokus op temas soos definisies van kernkonsepte, -beginsels en -doelwitte van gemeenskapsielkunde, die rol van die gemeenskapsielkundige asook die impak van vroeë denkraamwerke op kontemporêre perspektiewe. Die implikasies van hierdie idees vir praktiese inisiatiewe wat op geestesgesondheid in gemeenskappe fokus, word bespreek. Die module fokus verder op kritiese sielkunde. Kritiese sielkunde is 'n orientasie teenoor sielkunde wat krities staan teenoor die aannames en praktyke van die hoofstroom. Dit poog om magsvraagstukke aan te spreek soos hul manifesteer in hoofstroomsielkunde. Die fokus is op ondersoeke na hoe die praktyke en teorieë van hoofstroomsielkunde bydra tot hierdie magsvraagstukke wat gemarginaliseerde groepe betrek.

Statistiese proseskontrole 780 (SPC 780)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskundige Statistiek BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 310, 320 or WST 311, 312, 321, 322
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied

Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Quality control and improvement. Shewhart, cumulative sum (CUSUM), exponentially weighted moving average (EWMA) and Q control charts. Univariate and multivariate control charts. Determining process and measurement systems capability. Parametric and nonparametric (distribution-free) control charts. Constructing control charts using Microsoft Excel and/or SAS. Obtaining run-length characteristics via simulations, the integral equation approach, other approximate methods and the Markov-chain approach.

Statistiek 110 (STK 110)

Kwalifikasie	Voorgraads
Modulekrediete	13.00
Programme	BAdmin Openbare Bestuur en Internasionale Verhoudinge BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Geoinformatika BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Minstens 5 (60-69%) in Wiskunde in die graad 12-eksamen. Kandidate wat nie kwalifiseer vir STK 110 nie registreer vir STK 113 en STK 123
Kontaktyd	3 lesings per week, 1 praktiese sessies per week, 1 tutoriaal per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

Beskrywende statistiek:
Steekproefneming en die insameling van datafrekwensieverdelings en grafiese voorstellings. Beskrywende maatstawwe van lokaliteit en spreiding. Waarskynlikheidsleer en inferensie:
Inleidende waarskynlikheidsleer en teoretiese verdelings. Steekproefverdelings. Beramingsteorie en hipotesetoetsing van steekproefgemiddeldes en steekproef-verhoudings (een- en tweesteekproefgevalle). Identifisering, gebruik, evaluering en interpretasie van statistiese rekenaarpakkette en statistiese tegnieke.

Statistiek 113 (STK 113)

Kwalifikasie	Voorgraads
Modulekrediete	11.00

Programme	BAdmin Openbare Bestuur en Internasionale Verhoudinge
Diensmodules	Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 tutoriaal per week, 3 lesings per week, 1 praktiese sessies per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

STK 113 en 123 tel op sigself nie as krediet vir graaddoeleindes nie, maar verleen vrystelling van STK 110. Databewerkings en transformasies: Inleidende begrippe: die rol van statistiek, verskillende tipes data en die getallestelsel. Begrippe onderliggend aan lineêre, kwadratiese, eksponensiële, hiperboliese en logaritmiese transformasies van kwantitatiewe data, grafiese voorstellings, oplossing van vergelykings en interpretasie. Bepaling van lineêre vergelykings in praktiese situasies. Eienskappe van logaritmiese funksies. Die verwantskap tussen die eksponensiële en logaritmiese funksies in ekonomiese en verwante probleme. Stelsels van vergelyking in ewewig. Addisionele begrippe van belang by dataverwerking, funksies en inverse funksies, sigma-notasie, faktoriaalnotasie, rye en reekse, ongelykhede (streng, swak, absoluut, voorwaardelik en dubbele) en absolute waardes. Beskrywende statistiek – Eenvariant: Steekproefneming en die insameling van data, frekwensieverdelings en grafiese voorstellings. Beskrywende maatstawwe van lokaliteit en spreiding. Inleidende waarskynlikheidsleer. Identifisering, gebruik, evaluering en interpretasie van statistiese rekenaarpakkette en statistiese tegnieke. Die weeklikse een uur prakties word gedurende die laaste sewe weke van die semester aangebied.

Statistiek 120 (STK 120)

Kwalifikasie	Voorgraads
Modulekrediete	13.00
Programme	BAdmin Openbare Bestuur en Internasionale Verhoudinge BSc Geoinformatika BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 110 GS of beide STK 113 GS en STK 123 GS of albei WST 133 en WST 143 of beide STK 133 en STK 143
Kontaktyd	3 lesings per week, 1 tutoriaal per week, 1 praktiese sessies per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

Meervariante statistiek:
Variansieanalise, kategoriese data-analise, verdelingsvrye metodes, krommepassing, regressie en korrelasie, die ontleding van tydreekse en indekse. Statistiese en ekonomiese toepassings van kwantitatiewe tegnieke: Stelsels van lineêre vergelykings; opstelling, matrikse, oplossing en toepassing. Optimering; lineêre funksies (twee en meer onafhanklike veranderlikes), nie-lineêre funksies (een en twee onafhanklike veranderlikes). Marginale en totale funksies. Stogastiese en deterministiese veranderlikes in statistiese en ekonomiese konteks: produsentesurplus, verbruikersurplus, distribusiefunksies, waarskynlikheidsverdelings en digtheidsfunksies. Identifisering, gebruik, evaluering en interpretasie van statistiese rekenaarpakkette en statistiese tegnieke. Hierdie module word ook as anti-semester tweetalige module aangebied.

Statistiek 121 (STK 121)

Kwalifikasie	Voorgraads
Modulekrediete	13.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 133 en STK 143 of WST 133 en WST 143 of STK 113 GS en STK 123 GS
Kontaktyd	1 praktiese sessies per week, 1 tutoriaal per week, 3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Students can only get credit for one of the following two modules: STK 120 or STK 121.
Multivariate statistics: Analysis of variance, categorical data analysis, distribution-free methods, curve fitting, regression and correlation, the analysis of time series and indices.
Statistical and economic applications of quantitative techniques: Systems of linear equations: drafting, matrices, solving, application. Optimisation: linear functions (two and more independent variables), non-linear functions (one and two independent variables). Marginal and total functions. Stochastic and deterministic variables in statistical and economic context: producers' and consumers' surplus, distribution functions, probability distributions, probability density functions. Identification, use, evaluation, interpretation of statistical computer packages and statistical techniques.

Statistiek 123 (STK 123)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BAdmin Openbare Bestuur en Internasionale Verhoudinge
Diensmodules	Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 113 GS

Kontaktyd	1 tutoriaal per week, 1 praktiese sessies per week, 3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

*STK 113 en 123 tel op sigself nie as krediet vir graaddoeleindes nie, maar verleen vrystelling van STK 110.
Optimeringstegnieke met ekonomiese toepassings:
Datatransformasies en verwantskappe met ekonomiese toepassings: bewerkings en reëls, lineêre, kwadratiese, eksponensiële, hiperboliese en logaritmiese funksies, stelsels van vergelykings in ewewig, stelsels van lineêre ongelykhede, oplossing van lineêre programmeringsprobleme met behulp van die grafiese en hoekpuntmetodes.
Toepassings van differensiasie en integrasie in statisties- en ekonomiesverwante probleme: die limiet van ‘n funksie, kontinuïteit, veranderingstempo, die afgeleide van ‘n funksie, differensiasiereëls, hoërorde- afgeleides, optimeringstegnieke, die oppervlakte onder ‘n kromme en toepassings van bepaalde integrale.
Waarskynlikheidsleer en inferensie:
Inleidende waarskynlikheidsleer en teoretiese verdelings. Steekproefverdelings. Beramingsteorie en hipotesetoetsing van steekproefgemiddeldes en steekproefverhoudings (een- en twee-steekproefgevalle).
Identifisering, gebruik, evaluering en interpretasie van statistiese rekenaarpakkette en statistiese tegnieke.
Die weeklikse een uur prakties word gedurende die laaste sewe weke van die semester aangebied.

Statistiek 161 (STK 161)

Kwalifikasie	Voorgraads
Modulekrediete	6.00
Programme	BSc Konstruksiebestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 110 GS of albei STK 113 GS en STK 123 GS
Kontaktyd	3 lesings per week, 1 praktiese sessies per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Statistiek
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

*Aangebied deur die Departement Statistiek Meervariante statistiek variansie-analise; kategoriese data-analise; verdelingsvrye metodes; krommepassing, regressie en korrelasie; die ontleding van tydreekse en indekse.
Identifisering, gebruik, evaluering en interpretasie van statistiese rekenaarpakkette en statistiese tegnieke.

Statistiek 162 (STK 162)

Kwalifikasie	Voorgraads
Modulekrediete	7.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe

Voorvereistes	STK 110 GS of albei STK 113 GS en STK 123 GS
Kontaktyd	1 praktiese sessies per week, 3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Statistiek
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

Statistiese en ekonomiese toepassings van kwantitatiewe tegnieke Stelsels van lineêre vergelykings: Opstelling, matrikse, oplossing, toepassing. Optimering: Lineêre funksies (twee en meer onafhanklike veranderlikes), nie-lineêre funksies (een en twee onafhanklike veranderlikes). Marginale en totale funksies. Stogastiese en deterministiese veranderlikes in statistiese en ekonomiese verband: verbruikers en produsente surpus, verdelings funksies, waarskynlikheidsverdelings, waarskynlikheidsdigtheidsfunksies. Identifisering, gebruik, evaluering en interpretasie van statistiese rekenaarpakkette en statistiese tegnieke.

Statistiek 210 (STK 210)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BCom Informatika Inligtingstelsels BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 110, STK 120
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

Teltegnieke. Waarskynlikheidsleer: Steekproefruimtes, gebeurtenisse, waarskynlikheidsreëls, voorwaardelike waarskynlikhede, onafhanklike gebeurtenisse en Bayes se stelling. Waarskynlikheidsverdelings en waarskynlikheidsdigtheidsfunksies: kumulatiewe verdelingsfunksies, marginale verdelings, gesamentlike verdelings, voorwaardelike verdelings en onafhanklikheid. Verwagte waardes: Momente, Chebyshev se stelling, momentvoortbringende funksies, produkmomente, momente van linêere kombinasies van stogastiese veranderlikes en voorwaardelike verwagte waardes. Transformasietegnieke van stogastiese veranderlikes. Identifisering, gebruik, evaluering en interpretasie van statistiese rekenaarpakette en statistiese tegnieke.

Statistiek 220 (STK 220)

Kwalifikasie	Voorgraads
Modulekrediete	20.00

Programme	BCom Informatika Inligtingstelsels BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 210 GS
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

Spesiale waarskynlikheidsverdelings: die diskrete uniforme verdeling, Bernoulli-verdeling, binomiaalverdeling, negatief-binomiaal- and geometrieseverdeling, die hypergeometriese verdeling, Poissonverdeling en multinomiaalverdeling. Spesiale waarskynlikheids-digtheidsfunkies: Uniforme verdeling, gamma-, eksponentiaal- and chi-kwadraatverdelings, die betaverdeling, die normaalverdeling en die tweeveranderlike normaalverdeling. Funksies van stogastiese veranderlikes. Steekproefverdelings, puntberaming, intervalberaming en hipotese toetsing. Regressie-analise. Identifisering, gebruik, evaluering en interpretasie van statistiese rekenaarpakkette en statistiese tegnieke in die simulasie van verdelings en statistiese inferensie.

Statistiek 310 (STK 310)

Kwalifikasie	Voorgraads
Modulekrediete	25.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 210, STK 220
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Regression analysis: simple and multiple regression; nonlinear regression; correlation and the use of dummy variables. Multivariate distributions: normal, multinomial and poisson distribution. Linear combinations of normal variables. Analysis of variance and covariance. Regression analysis extensions: heteroscedasticity, serial correlation and lag structures. Applications of matrices, differentiation and integration in the economic and management sciences. Evaluation of simple economic models. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Statistiek 320 (STK 320)

Kwalifikasie	Voorgraads
Modulekrediete	25.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 210, STK 220
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligtig is slegs in Engels beskikbaar.

Only one of the modules WST 321 or STK 320 may be included in any study programme. Stationary and non-stationary univariate time series. Properties of autoregressive moving average (ARMA) and autoregressive integrated moving average (ARIMA) processes. Identification, estimation and diagnostic testing of a time series model. Forecasting. Multivariate time series. Practical statistical modelling and analysis using statistical computer packages. Categorical data analysis. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques. Student seminars.

Die wetenskap van data-ontleding 353 (STK 353)

Kwalifikasie	Voorgraads
Modulekrediete	25.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BSc Aktuariële en Finansiële Wiskunde BSc Wiskundige Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 210, STK 220 of WST 211, WST 221

Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

Steekproefneming: basiese tegnieke in waarskynlikheid-, nie-waarskynlikheid, en hersteekproefnemingsmetodes. Eksperimentele ontwerp: eksperimentele en kontrolegroepe, verskillende datatipes en verwantskappe. Enorme en klein datastelle: bestudering van populêre tendense in die praktyk. Konsultasiepraktyk: etiese oorwegings, studie-ontwerp, data-insameling en –voorstelling, verslagskrywing en aanbieding. Alledaagse toepassing van statistiese sagteware en pakkette op werklike datastelle.

Navorsingsoriëntasie 796 (STK 796)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Programme	BScHons Wiskundige Statistiek BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	Ad Hoc
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A compulsory bootcamp must be attended as part of this module – usually presented during the last week of January each year (details are made available by the department). The bootcamp will cover the basics of research to prepare students for the research component of their degree. The bootcamp should be done in the same year as registration for STK 795/WST 795. Each year of registration for the honours degree will also require the attendance of three departmental seminars. Students should ensure that their attendance is recorded by the postgraduate co-ordinator present at the seminars. The department approves the seminars attended. In addition, students are required to present their STK 795/WST 795 research in the department during the year of registration for these modules.

Capita selecta: Statistiek 880 (STK 880)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	MSc Wiskundige Statistiek (Gedoseer) MSc Wiskundige Statistiek (Gedoseer)

Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 ander kontak per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The module is primarily an article based on and covers the most recent literature that discusses the developments and research in, for example, Shewhart charts, Exponentially Weighted Moving Average (EWMA) charts, Cumulative Sum (CUSUM) charts, Q-charts, Parametric and Nonparametric charts, Univariate and Multivariate charts, Phase I and Phase II control charts, profile monitoring and other research topics.

Navorsingsoriëntasie 899 (STK 899)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Programme	MSc Wiskundige Statistiek (Gedoseer) MSc Wiskundige Statistiek (Gedoseer)
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	Ad Hoc
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A compulsory bootcamp must be attended as part of this module – usually presented during the last week of January each year. Details regarding the venue and specific dates are made available by the department each year. The bootcamp will cover the basics of research to prepare students for the research component of their degree. Students can be exempt from the bootcamp if it was already attended in a previous year or for a previous degree. Each year of registration for the master's degree will also require the attendance of three departmental seminars. Students should ensure that their attendance is recorded by the postgraduate co-ordinator present at the seminars. The department approves the seminars attended. Students are also required to present their mini-dissertation research proposal within the department or at a conference.

Navorsingsoriëntasie 911 (STK 911)

Kwalifikasie	Nagraads
Modulekrediete	0.00

Programme	PhD Wiskundige Statistiek PhD Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	Ad Hoc
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A compulsory bootcamp must be attended as part of this module – usually presented during the last week of January each year. Details regarding the venue and specific dates are made available by the department each year. The bootcamp will cover the basics of research to prepare the student for the research component of their degree. Students can be exempt from the bootcamp if it has already been attended in a previous year or for a previous degree. Each year of registration for the doctoral degree will also require the attendance of three departmental seminars. Students should ensure that their attendance is recorded by the postgraduate co-ordinator present at the seminars. The department approves the seminars attended.

Opmeetkunde 210 (SUR 210)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week, 4 praktiese sessies per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Verstelling en gebruik van die volgende instrumente: waterpas, kompas en teodoliet. Eenvoudige terreinopname en nivellering, tagimetrie. Definisie van opmeting. Koördinaatstelsels en rigtingshoeke. Verbindings en polare. Metodes van puntvasstelling. Trigonometriese hoogtebepaling.

Opmeetkunde 220 (SUR 220)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BSc Geografie BSc Geografie BSc Geoinformatika
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie

Voorvereistes	WTW 114 GS/WTW 134
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Verstelling en gebruik van die volgende instrumente: waterpas, kompas en teodoliet. Eenvoudige terreinopname en nivellering, tagimetrie. Definisie van opmeting. Koördinaatstelsels en rigtingshoeke. Verbindings en polare. Metodes van puntvasstelling. Trigonometriese hoogtebepaling.

Meganika 122 (SWK 122)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Meteorologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WTW 158
Kontaktyd	4 lesings per week, 2 tutoriale per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Siviele Ingenieurswese
Aanbiedingstydperk	Semester 2

Module-inhoud

Ekwivalente kragstelsels, resultante. Newton se wette, eenhede. Inwerking van kragte op partikels. Starre liggame: beginsel van oordraagbaarheid, resultante van parallelle kragte. Vektor- en skalare momente. Verwantskap tussen vektor- en skalare momente. Koppels. Ekwivalente kragstelsels op starre liggame. Resultante van kragte op starre liggame. Ewewig in twee en drie dimensies. Hooke se wet. Vakwerke en raamwerke. Sentroïdes en tweede moment van area. Balke: verspreide kragte, skuifkrag, buigmoment, metode van snitte, verwantskap tussen las, skuifkrag en buigmoment.

Sterkteleer 210 (SWK 210)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Geologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe

Voorvereistes	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie: SWK 122 en WTW 164 OF SWK 122, WTW 161 en WTW 168. Fakulteit Natuur- en Landbouwetenskappe: SWK 122 en WTW 124 OF SWK 122, WTW 126 en WTW 128.
Kontaktyd	4 lesings per week, 2 tutoriale per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Siviele Ingenieurswese
Aanbiedingstydperk	Semester 1

Module-inhoud

Spannings, vervormings en die meganiese eienskappe van materiale: Normaalspanning en skuifspanning, trekspanning en drukspanning, ewewig in skuif, veiligheidsfaktor, ontwerp, skuifvervorming, die spanning/vervorming diagram, Hooke se Wet, Poisson se Verhouding en die skuifspanning/vervorming diagram. Aksiale belastings: Elastiese vervorming, verplasings, staties bepaalbare en staties onbepaalbare strukture en termiese invloed. Torsie: Die torsie van ronde stawe en kragoordrag. Buig van reguit dele asook saamgestelde balke. Dwarsskuif: Skuif in reguit dele asook skuifvloei. Saamgestelde belastings: Dunwandige drukvate asook spannings as gevolg van gekombineerde laste. Spanningstransformasie: Vlakkespanning-transformasie, hoofspannings, maksimum waardes en spanningvariasie in prismatiese balke. Vervormingstransformasie: Vlakvervorming-transformasie, hoofvervormings, maksimum vervormings, rekstrokies en rosette, en die verwantskap tussen E, G en ?. Balkontwerp vanaf sniteienskappe. Defleksie van balke: Die elastiese kromme, integrasie-metode, Macaulay se metode en superposisie.

Toerismebestuur 220 (TBE 220)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Diensmodules	Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	TBE 210 GS
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Afdeling Toerismebestuur
Aanbiedingstydperk	Semester 2

Module-inhoud

Strategiese Toerismebestuur Hierdie module bied twee onderling-verbonde temas aan: Strategiese bestemmingsbemarking en kontemporêre kwessies in toerisme. Strategiese bestemmingsbemarking verken die unieke eienskappe van en benaderings tot die bemarking van toerismebestemmings. Dit voorsien ‘n bestuurs- en operasionele raamwerk vir bestemmingsbemarking waarbinne tendense, praktyke en gevallestudies behandel word. Kontemporêre kwessies in toerisme ondersoek ontwikkelinge in toerisme insluitende volhoubare en ekotoerisme, kultuurtoerisme en sporttoerisme.

Toerismebestuur 310 (TBE 310)

Kwalifikasie	Voorgraads
Modulekrediete	20.00

Diensmodules	Fakulteit Geesteswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	TBE 210 GS
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Afdeling Toerismebestuur
Aanbiedingstydperk	Semester 1

Module-inhoud

Toerisme Industrie Sektorbestuur 1 Hierdie module dek die bestuur van twee industrie sektore: toerisme attraksies (insluitend gebeure) en gasvryheid. Besoekersattraksies (insluitend gebeure) wat die kern van suksesvolle toerisme is word aangespreek op drie vlakke: die sleutelrol van besoekersattraksies/gebeure in die toerisme industrie, die oorhoofse ontwikkelingsproses (volhoubaarheidstudies, finansiële en ontwerp aspekte ens.) wat verband hou met besoekersattraksies/gebeure, en uiteindelik die strategiese bestuur en operasionele aspekte van besoekersattraksies/gebeure. Gasvryheidbestuur dek al die operasionele en bestuursfunksies van die “gastesiklus” van die oomblik wat ‘n potensiële gas ‘n akkommodasie instelling kontak tot en met die tyd wat hy of sy vertrek. ‘n Onderskeiding word gemaak tussen inkomstesentra en ondersteuningsentra. Voedsel en drank bestuur vorm ook ‘n noodsaaklike bestanddeel van hierdie afdeling. Omdat finansiële bestuur en kosteberaming kritiek is tot die sukses van enige gasvryheidsorganisasie word beleid, beginsels en prosedures met betrekking tot die finansiële bedrywighede en finansiële bestuur van sulke instellings ook gedek.

Toerisme en gasvryheidsbestuur 311 (TBE 311)

Kwalifikasie	Voorgraads
Modulekrediete	20.00
Programme	BConSc Gasvryheidsbestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Afdeling Toerismebestuur
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module introduces tourism management from a systems perspective, covering tourism demand and supply as well as the functional and physical links between demand and supply. The environment in which tourism operates is also presented. The sectors within the tourism industry are introduced and special attention is given to hospitality management where the operational and management functions of the "guest cycle" are covered. The policies, principles and procedures relating to the financial operations and management in hospitality establishments are also discussed in this module.

Verantwoordelike ekotoerisme-bestuur 714 (TBE 714)

Kwalifikasie	Nagraads

Modulekrediete	20.00
Programme	BScHons Geografie en Omgewingswetenskap BScHons Geoinformatika BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 ander kontak per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Afdeling Toerismebestuur
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module focuses on managing ecotourism (including the natural and cultural resource base) following eco-principles and guidelines in order to provide a conceptual framework for sustainable/responsible tourism development in response to community needs within the Southern African context. The concepts of ecotourism, alternative tourism, responsible tourism and geotourism are debated. The management of ecotourism is studied from a theoretical perspective addressing issues such as the planning, design and sustainable development of eco-facilities and spaces; co-creation and the experienced tourist; the greening of the environment; and managing sustainable events; against the backdrop of climate change using local, national and international case studies. The aim is to provide students with a holistic perspective of ecotourism and to hone their entrepreneurial view to issues within this arena in order to apply sustainable eco-principles to various situations, ranging from green architectural structures and spaces to sustainable community and pro-poor tourism projects.

Verhandeling: Tuinboukunde 890 (TBK 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MScAgric Tuinboukunde MScAgric Tuinboukunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module involves the development, presentation and approval of a research proposal, the execution of the research project, and the writing up and presentation of the research results. In addition to the dissertation, the student is also expected to compile a concept research paper for publication in a peer-reviewed UP accredited scientific journal.

Proefskrif: Tuinboukunde 990 (TBK 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Tuinboukunde PhD Tuinboukunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module involves the development, presentation and approval of a research proposal, the execution of the research project, and the writing up and presenting of the research results. In addition to the thesis, the student is also expected to publish at least one research paper in a peer-reviewed, UP accredited scientific journal. An oral examination covering Pasture Science and other fields related to the thesis will be conducted after the thesis has been accepted by examiners. A candidate needs to pass both the written thesis and oral examination to qualify for the degree.

Tekstiele: bruikbaarheid, vesels en garings 212 (TKS 212)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week, 1 ppraktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Bruikbaarheidsaspekte: basiese komponente van tekstiele, verbruikersbesluitneming, bruikbaarheidsaspekte wat duursaamheid, gemak, versorging, gesondheid/veiligheid/beskerming en estetiese aspekte insluit. Vesels en garings: Veselstruktuur en -gedrag, insluitende tekstielchemie, veselmorfologie en -vorming, vesel eienskappe, klassifikasie en identifikasie. Garingstruktuur en -gedrag (insluitende gespinde garings, filamentgarings, vervaardiging van eenvoudige garings, mengelgarings, saamgestelde en siergarings).

Tekstiele: Struktuur en afwerking 222 (TKS 222)

Kwalifikasie	Voorgraads

Modulekrediete	10.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	TKS 212 GS
Kontaktyd	1 ppraktiese sessie per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Kleedstofstrukture: Inleiding tot kleedstofstrukture. Weefstowwe, breistowwe, nie-geweefde strukture en saamgestelde strukture. Afwerkings en kleurprosesse: Inleiding tot kleedstofafwerking. Voorbereidende en finale afwerkings. Afwerkings vir spesiale doeleindes: duursaamheid; gemak en beskerming; makliker versorging; estetiese aantreklikheid. Gekleurde en bedrukte tekstiele.

Nuwe ontwikkelings en tekstiele in gebruik 411 (TKS 411)

Kwalifikasie	Voorgraads
Modulekrediete	13.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	TKS 212 en TKS 222
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Nuwe ontwikkelings (kledingtekstiele). Tekstielprodukgebruik en basiese fisiese kwaliteittoetsprosedures. Tekstiele se impak op die omgewing en volhoubaarheid.

Tekstiele: bemarking en vebruikersaspekte 421 (TKS 421)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BConSc Kledingkleinhandelbestuur BConSc Kledingkleinhandelbestuur
Voorvereistes	TKS 411
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap

Aanbiedingstydperk	Semester 2

Module-inhoud

Kledingtekstiele en -produkte vanuit 'n bemarkings- en verbruikersperspektief. Praktiese tekstiel gedragsprobleme en oplossings. ‘n Geskrewe verslag van die resultate word vereis.

Telingsleer 320 (TLR 320)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	GTS 261
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Kariotipering van plaasdiere; ras en spesieverskille en invloed op rasklassifikasie. Invloed van chromosomale afwykings. Fenotipe uitdrukking van gene en geeninteraksies in plaasdiere. Enkelgeen, hoofgeen en polygene. Variasie in eienskappe van ekonomiese belang en statistiese beskrywing. Benutting van genetiese variasie. Teeltwaarde bepaling en familie indeks op enkeleienskappe. Beginsels van teeltstelsels.

Telingsleer 411 (TLR 411)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	TLR 320 en gelyktydig register vir GVK 420, PVK420, KVK420
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Komponente van diereprestasie. Bronne van variasie, bevolkingsparameters en die beraming daarvan. Inleiding tot matriksalgebra vir toepassing in diereteelt. Seleksie-indeks teorie. Statistiese modelle vir teeltwaardebepaling. Toepassing van beraamde teeltwaardes en voorvereistes vir akkuraatheid. Teling en seleksie vir reproduksie en groei. Beginsels van QTLs.

Toegepaste telingsleer 420 (TLR 420)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	TLR 411
Kontaktyd	2 lesings per week, Prakties tweeweekliks
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

ormulering en toepassing van teeltdoelwitte. Diere-aantekeningstelsels en internasionale riglyne vir evaluasie. Spesie-spesifieke teeltsisteme. Ekonomies belangrike eienskappe en die doeltreffendheid daarvan. Kruisteeltstelsels in vleisproduserende plaasdiere. Rasontwikkeling.

Diereteling en genetika 700 (TLR 700)

Kwalifikasie	Nagraads
Modulekrediete	24.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 besprekingsklas per week, 1 ppraktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Qualitative characteristics. Calculation of population criteria and the interpretation in the industry. Specific problems with relation to the selection and breeding of cattle, small stock, pigs and poultry. The application of genetic theory in practice with relation to hereditability of quantitative characteristics. (Theoretical components include TLR 410 and TLR 420)

Diereteling en genetika 801 (TLR 801)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 1 besprekingsklas per week, 1 seminaar per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans

Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Specialised studies in quantitative and molecular animal breeding in various livestock species. Advanced statistical modelling and EBV estimation. Application of genetic theory in practice with relation to heritability of quantitative characteristics. Advanced theory on the role of molecular technology in genetic improvement of farm animals. Experimental designs for QTL and MAS research and biodiversity studies as well as principles of genomic EBVs and GWAS. The study entails seminars, a literature study and discussion of selected topics relating to the industry specialisation programme. Discussion of research methods and results under local conditions. Policies regarding animal breeding.

Verhandeling: Toegepaste mineralogie 890 (TMN 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Geologie
Aanbiedingstydperk	Jaar

Tydreeksanalise 720 (TRA 720)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	STK 310 en STK 320
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

*Verwys na die Engelse weergawe van die Course Catalogue.

Tydreeksanalise 880 (TRA 880)

Kwalifikasie	Nagraads
Modulekrediete	20.00

Programme	MSc Wiskundige Statistiek (Gedoseer) MSc Wiskundige Statistiek (Gedoseer)
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 321 of TRA 720
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Difference equations. Lag operators. Stationary ARMA processes. Maximum likelihood estimation. Spectral analysis. Vector processes. Non-stationary time series. Long-memory processes.

Toegepaste regressie-analise 880 (TRG 880)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	MSc Wiskundige Statistiek (Gedoseer) MSc Wiskundige Statistiek (Gedoseer)
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Regression introduction: Simple and multiple regression. Multicollinearity, Heteroscedasticity, Ridge regression. Logistic regression: Estimation, inference and applications. Non Linear regression: Estimation, inference and applications. Text mining: Topic modelling with applications. Survival regression: Survival models applied in regression. Regression extensions: CART, MARS and Conjoint analysis.

Terreinopname 213 (TRN 213)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Konstruksiebestuur
Voorvereistes	Geen voorvereistes.

Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Algemene opmeting; instrumente; hul hantering en verstelling; opmetingstelsels en eenvoudige berekeninge; hoogtebepaling; uitset van werke; tagimetrie en kartering; skale; planimetrie, oppervlaktes en volumes; konstruksie-opmetings; lugfotografie.

Verhandeling: Toegepaste wiskunde 890 (TWS 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Toegepaste Wiskunde MSc Toegepaste Wiskunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Proefskrif: Toegepaste Wiskunde 990 (TWS 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Wiskundige Wetenskappe PhD Wiskundige Wetenskappe
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Akademiese oriëntasie 102 (UPO 102)

Kwalifikasie	Voorgraads
Modulekrediete	0.00

Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Aktuariële en Finansiële Wiskunde BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Fisika BSc Genetika BSc Geografie BSc Geoinformatika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Meteorologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Toegepaste Wiskunde BSc Voedselwetenskap BSc Wiskunde BSc Wiskundige Statistiek BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Natuur- en Landbouwetenskappe Dekaanskantoor
Aanbiedingstydperk	Jaar

Akademiese oriëntasie 120 (UPO 120)

Kwalifikasie	Voorgraads
Modulekrediete	0.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe

Voorvereistes	Geen voorvereiste.
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Geesteswetenskappe Dekaanskantoor
Aanbiedingstydperk	Jaar

Verbruikersfasilitering 222 (VBF 222)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Kontaktyd	1 lesing per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Verbruikersbesluitneming en verbruikersosialisering; faktore wat verbruikerstevredenheid bepaal. Verbruikersopleiding ; ontwikkelling van verbruikersvaardighede. Bestedingspatrone van die diverse Suid-Afrikaanse verbruikersmark en diverse markkontekste. Verbruikerswese Globalisering.

Navorsingsprojek 400 (VBR 400)

Kwalifikasie	Voorgraads
Modulekrediete	30.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Kledingkleinhandelbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Voorvereistes	BEM 314 en Finalejaarstatus
Kontaktyd	1 praktiese sessies per week, 1 lesing per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

Navorsingsmetodologie. Beplanning, uitvoering en rapportering van 'n navorsingsprojeck in kledingkleinhandelbestuur; voedselkleinhandelnestuur of gasvryheidbestuur.

Verhandeling: Verbruikerswetenskap 890 (VBR 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MConSci MConSci MConSci Interieurwarebestuur MConSci Kledingbestuur MConSci Voedselbestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Jaar

Proefskrif: Verbruikerswetenskap 990 (VBR 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Verbruikerswetenskap Voedselbestuur PhD Verbruikerswetenskap Ontwikkeling PhD Verbruikerswetenskap Voedselbestuur PhD Verbruikerswetenskap Interieurwarebestuur PhD Verbruikerswetenskap Kledingbestuur
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Jaar

Voedseldiensbestuur 321 (VDB 321)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BSc Kulinêre Wetenskap
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	Natuur- en Landbouwetenskappe studente: VDS 322 #
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Beplanning en uitleg van voedseldienseenhede. Keuse en aankoop van grootskaalse apparaat en toerusting. Higiëne en veiligheid in voedseldienste. Bestuursbeginsels soos van toepassing op voedseldiensstelsels. Menslikehulpbronbestuur in voedseldiens-eenhede. Finansiële bestuur in voedseldienste.

Voedseldiensbestuur 420 (VDB 420)

Kwalifikasie	Voorgraads
Modulekrediete	21.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Voorvereistes	VDB 321 GS en ABV 320
Kontaktyd	3 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Die professionele voedseldiensbestuurder se rolle, verantwoordelikhede en eienskappe. Leierskap- en bestuurstyle van toepassing in voedseldienstelsels. Professionaliteit en etiek. Gevorderde voedseldiensstelsel- en produksiebestuurtegnieke en opleidings-fasilitering. Bemarking van voedseldienste.

Voeding 250 (VDG 250)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Voorvereistes	Natuur- en Landbouwetenskappe studente: CMY 127 Gesondheidswetenskappe studente: tweedejaar status
Kontaktyd	Prakties tweeweekliks, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Voeding in konteks: groei, ontwikkeling en samestelling van organismes; metaboliese prosesse en beheer in liggaam; voedingsprosesse. Bestudering van die fundamentele beginsels van nutriëntmetabolisme (insluitend die makro- en mikronutriënte en water) met verwysing na vertering, absorpsie, vervoer, uitskeiding, funksies, effekte van ‘n oormaat en/of tekort, aanbevelings, sowel as voedselbronne. Toepassing word op mens en dier gemaak. Prakties: Eksperimentele werk en probleemgeoriënteerde opdragte.

Voeding 260 (VDG 260)

Kwalifikasie	Voorgraads

Modulekrediete	12.00
Voorvereistes	CMY127
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Nutrition in the context of growth, development and composition of organisms. Metabolic processes and control in the body. Overview of nutritional processes. The study of the fundamental principles of nutrient metabolism (including macro- and micro-nutrients and water) and digestion physiology. Applications are made regarding man and animals.
Practical work: Experimental work and problem orientated tasks.

Voeding 311 (VDG 311)

Kwalifikasie	Voorgraads
Modulekrediete	17.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap BSc Voedselwetenskap
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Die studie van nutriënte en water met betrekking tot die chemiese samestelling, eienskappe, basiese vertering, absorpsie, metabolisme, funksies, voedselbronne en gebreksimptome en toksistisiteit. Energiemetabolisme. Dieetaanbevelings en -riglyne, dieetgidse en maaltydbeplanning. Die gebruik en toepassing van voedselsamestellingtabelle in dieetontledings.

Voeding tydens lewenssiklus 321 (VDG 321)

Kwalifikasie	Voorgraads
Modulekrediete	17.00

Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Voorvereistes	[FSG 110 en FSG 120] en VDG 311
Kontaktyd	1 ppraktiese sessie per week, 3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Die rol van voeding in die lewensiklus van die mens. Die rol van voeding in die voorkoming van lewenstylverwante siektes - osteoperose, kanker, koronêre hartvatsiektes, tandbederf. Vegetarisme. Verskillende toestande van wanvoeding. (Proteïen-energie-wanvoeding en vetsug).

Verhandeling: Voeding 890 (VDG 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Voedingkunde MSc Voedingkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Natuur- en Landbouwetenskappe
Aanbiedingstydperk	Jaar

Proefskrif: Voeding 990 (VDG 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Voedingkunde PhD Voedingkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Natuur- en Landbouwetenskappe
Aanbiedingstydperk	Jaar

Basiese voedsel voorbereiding 111 (VDS 111)

Kwalifikasie	Voorgraads
Modulekrediete	6.00

Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	0.5 praktiese sessie per week, 1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Module 1: Basiese voedselbereiding en voedselbereidingstegnieke. Mise en place, Weeg- en meettegnieke, toerusting en terminologie soos toegepas in voedselbereiding. Geskiedenis van die voedseldiens industrie en hedendaagse sjefs. Basiese voedselkwaliteitskontrole. Module 2:Voedselvoorbereiding beginsels van aftreksels, soppe en souse

Basiese voedselbereiding 121 (VDS 121)

Kwalifikasie	Voorgraads
Modulekrediete	6.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap BSc Verlengde program - Biologiese en Landbouwetenskappe
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	VDS 111
Kontaktyd	1 praktiese sessie per week, 1 lesing per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Module 1: Basiese voedselbereiding en voedselbereidingstegnieke. Mise en place, Weeg- en meettegnieke, toerusting en terminologie soos toegepas in voedselbereiding. Basiese voedselkwaliteitskontrole. Module 2:Voedselvoorbereiding beginsels vanstysels en grane.

Voedselprodukte en -bereiding 210 (VDS 210)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	VDS 121
Kontaktyd	1 ppraktiese sessie per week, 3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Module 1: Die studie van verskillende voedselsisteme in voedselbereiding. Fisiese en chemiese eienskappe van voedsel en die invloed van die samestelling in voedselbereiding. Module 2: Basiese bereidingsmetodes van die volgende: soppe en souse; vrugte en groente; slaaie; bevrore nageregte; gelatine. Module 3: Oorsprong en ontwikkeling van eetgewoontes; faktore wat eetgewoontes en keuses beïnvloed; dinamika van eetgewoontes. Invloed van godsdiens op eetgewoontes. Eetgewoontes van verskillende etniese groepe.

Voedselprodukte en -bereiding 221 (VDS 221)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	VDS 210
Kontaktyd	3 lesings per week, 1 ppraktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Module 1: Die studie van verskillende voedselsisteme in voedselbereiding. Fisiese en chemiese eienskappe van voedsel en die invloed van die samestelling in voedselbereiding. Module 2: Basiese bereidingsmetodes van die volgende: vleis, pluimvee, vis, peule, eiers en melk, stysels, grane; gebak (die hele spektrum); rysmiddels. Module 3: Die invloed van kultuur op eetgewoontes, voedselkeuses en cuisines. Die bestudering van die cuisines van geselekteerde Afrika-, Europese en Oosterse lande.

Verbruikersvoedselnavorsing 310 (VDS 310)

Kwalifikasie	Voorgraads

Modulekrediete	21.00
Programme	BSc Kulinêre Wetenskap BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Voorvereistes	VDS 221
Kontaktyd	3 lesings per week, 1 ppraktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Beplanning, uitvoering en rapportering van verbruikersvoedselnavorsing. Voedselpreservering en -evalueringstegnieke. Voedseleksperimente met nadruk op die funksie van bestanddele en standaardbereidingsmetodes. Toepassing van eksperimentele metodes wat die chemiese en fisiese reaksies van voedsel ten opsigte van verskillende hanterings-, bereidings- en preserveringstegnieke illustreer. Kwaliteitevaluering van voedselprodukte. Kwaliteit - en verbruikersgerigte sintuiglike evaluering van voedselprodukte.

Grootskaalse voedselproduksie en restaurantbestuur 322 (VDS 322)

Kwalifikasie	Voorgraads
Modulekrediete	31.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BSc Kulinêre Wetenskap
Diensmodules	Fakulteit Gesondheidswetenskappe
Voorvereistes	VDS 210 and VDS 221
Kontaktyd	3 praktiese sessies per week, 3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Module 1 en Praktiese werk: Beginsels van grootskaalse voedselbereiding en die praktiese toepassing daarvan in ’n praktiese restaurantsituasie. Restaurantbestuur. Resepformate en toepaslike aanpassings vir grootskaalse voedselbereiding. Werkskedulering en praktiese blootstelling aan die gebruik van grootskaalse toerusting in die praktyk. Module 2: Spyskaartbeplanning vir verskillende voedseldienssisteme en voedseldiensstyle. Module 3: Grootskaalse voedselverkryging, -verbruik en -berging. Praktiese component: Beginsels van grootskaalse voedselvoorbereiding en die praktiese toepassing daarvan in ‘n praktiese restaurant konteks. Resep standardisering en aanpassing vir grootskaalse voedelvoorbereiding. Werkskedulering en die praktiese blootstelling aan grooskaalse kombuis apparaat in ‘n werklike opset.

Voedselveiligheid en higiëne 354 (VDS 354)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BConSc Gasvryheidsbestuur BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Module 1: Algemeneanatonomie en morfologie van bakterieë, viruses en swamme. Basiese voedingsbehoeftes van mikro-organismes en die invloed van omgewingsfatore op groei van microbes. Mikro-organismes as noodsaaklike komponenete van eksoefere: plant-, water-, en grond-ekosisteme. Voedselbederf, voedselvergiftiging en preservering van voedsel deur miro-organismes. Basiese beginsels van ontsmetting, steralisasie en beheer van microbes; tegnieke vir onderdrukking van microbe-groei; steralisasie deur gebruik te maak van hitte, bestraling, filtrasie, chemikalieë, vermindering van getalle. Module 2: voedselveiligheid vanuit n’n leinhandel, kommersiële en institusionele benadering. Veiligheids aspekte met betrekking tot voedsel en voedselpordukte. Beginsels van voedselveiligheid en voedsel hygiene,; aanvaarde vervaardigings-praktyke; HACCP en risiko analise; werknemer veiligheid, hygiene en veiligheid; Verbruikersregte en beskerming, beroepsgesondheid en veiligheid; gesondheis en voedsel wetgewing in Suid-Afrika.

Resepontwikkeling en standaardisering 413 (VDS 413)

Kwalifikasie	Voorgraads
Modulekrediete	30.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BConSc Voedselkleinhandelbestuur BSc Kulinêre Wetenskap
Voorvereistes	VDS 310 of VDS 322
Kontaktyd	3 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Resepontwikkelingsproses en ontwikkeling van geskikte resepte vir ‘n gegewe situasie. Teorie van voedselprodukontwikkeling. Standaardisasie van resepte. Voedselstilering en voedselfotografie.

Fyn kookkuns 414 (VDS 414)

Kwalifikasie	Voorgraads
Modulekrediete	22.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BSc Kulinêre Wetenskap
Voorvereistes	VDS 322
Kontaktyd	2 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Gevorderde voedselbereidings- en aanbiedingstegnieke. Geleentheids- en banket-beplanning.

Verbruikersaspekte van voedsel 417 (VDS 417)

Kwalifikasie	Voorgraads
Modulekrediete	15.00
Programme	BConSc Voedselkleinhandelbestuur BConSc Voedselkleinhandelbestuur
Voorvereistes	BEM 212
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1

Module-inhoud

Module 1: Faktore wat ‘n bydrae lewer tot verbruikersgedrag in terme van voedsel verkryging tot finale verbruik. Bekendstelling aan die 2011 Verbruikersbeskermings- en Voedseletiketerings wetgewing. Verbruikersonderig in terme van verbruikers se sosiale verantwoordlikheid.
Module 2: 'n Suid Afrikaanse perspektief rakende voedselkleinhandelbestuur, gefokus op hoe algemene logistieke geimplementeer word in die huidige voedselvoorsieningskanale vir die Suid-Afrikaanse verbruiker.

Fyn kookkuns 424 (VDS 424)

Kwalifikasie	Voorgraads
Modulekrediete	22.00
Programme	BSc Kulinêre Wetenskap BConSc Gasvryheidsbestuur BSc Kulinêre Wetenskap
Voorvereistes	VDS 414

Kontaktyd	2 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Gevorderde voedselbereiding- en aanbiedingstegnieke van voedselgeregte. Geleentheid- en banketbeplanning.

Voedselhandelswarevoorstelling 427 (VDS 427)

Kwalifikasie	Voorgraads
Modulekrediete	17.00
Programme	BConSc Voedselkleinhandelbestuur BConSc Voedselkleinhandelbestuur
Voorvereistes	VDS 417
Kontaktyd	1 praktiese sessies per week, 1 lesing per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Aspekte van voedsel kleinhandel met betrekking tot die spesifieke voorstelling en algemene winkel uitleg van voedsel produkte. Praktiese toepassing van die beginsels van visuele produk voorstelling van voedsel in die voedsel kleinhandel en breër voedsel industrie.

Voedselverbruik en produk advisering 723 (VDS 723)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Verbruikerswetenskap
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Factors influencing food consumption, consumer behaviour and food choice. Food product advice. Consumer advice, marketing of food products, consumer education.

Veterinary ethology and genetics 202 (VET 202)

Kwalifikasie	Voorgraads

Modulekrediete	18.00
Programme	BVSc
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	81 lesings oor 'n tweeweek tydperk
Onderrigtaal	Module word in Engels aangebied
Departement	Produksiedierstudies
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie module word slegs in Engels aangebied.

The husbandry of and common procedures performed on key domestic species, behavioral principles of key domestic species, handling skills for key domestic animals, aspects of animal welfare.

Animal production systems 213 (VET 213)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BVSc
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 blokke met 'n totaal van 60 lesings
Onderrigtaal	Module word in Engels aangebied
Departement	Produksiedierstudies
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie module word slegs in Engels aangebied.

Introduction to the concepts of animal production systems in South African production environments. Principles and requirements for extensive, semi-intensive and intensive livestock production with reference to large and small stock, poultry and pigs. Principles of communal farming systems in Southern Africa. Game management systems with reference to conservation and game farming. The role of the human in livestock production systems and sustainable production.

Voedingkunde 310 (VGE 310)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BScAgric Veekunde BScAgric Veekunde

Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Basic principles of chemistry, biochemistry of feed constituents, digestion and metabolism in all livestock species. Description of the characteristics of commonly used feedstuffs, such as forages, silage and hay protein and energy concentrates and by-products.

Voedingkunde 320 (VGE 320)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Monogastriese voeding en produksie 411 (VGE 411)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	VGE 320
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Gespesialiseerde voeding van monogastriese diere: pluimvee, varke, perde en geselekteerde varswaterorganismes. Varkproduksie en -bestuur - sog, beer en groeiende varkies. Voedings- en behuisingstelsels. Higiëne en kuddegesondheidsprogramme, produkgehalte en -bemarking. Praktiese werk: Die gebruik van rekenaarstelsels vir die bestuur van die voeding van geselekteerde monogastriese diere.

Dierevoedingkunde 703 (VGE 703)

Kwalifikasie	Nagraads
Modulekrediete	50.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 5 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Advanced study with specialisation in the neutrino of monogastric species for example poultry, dogs and pigs. Advanced study of foregut and hindgut digestive processes and flow dynamics. Manipulation of digestion, end product metabolism, ad libitum and controlled feed intake. Energy, protein, mineral and vitamin requirements and standards for beef and diary cattle, small stock and horses. Appropriate ration formulation. The study embodies lectures, seminars, practical assignments and a research project with the results reported in a research paper. (Theoretical components include VGE 411, VGE 421 and VGE 423.)

Monogastriese voedingkunde 801 (VGE 801)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Advanced study with specialisation in the nutrition of monogastric species for example poultry, dogs, pigs, aquaculture species, pets, cage birds, game birds and waterfowl as well as monogastric species in zoos and game breeding ranches. The study entails research, seminars and practical assignments.

Voedingkunde 802 (VGE 802)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Advanced study of foregut and hindgut digestive processes and flow dynamics. Manipulation of digestion, end product metabolism, ad libitum and controlled feed intake. Energy, protein, mineral and vitamin requirements and standards for beef and dairy cattle, small stock and horses. Appropriate ration formulation. The study entails lectures, seminars, practical assignments and a research project with the results reported in a research paper.

Varkkunde 800 (VKD 800)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Specialised study concerning pig production, considerations when planning pig production units, policy planning and market conditions. Production physiology, housing, nutritional management, breeding practices, diseases and hygiene. Products. Practical scientific and industry orientation through different assignments.

Veekundige farmakologie 411 (VKF 411)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	DFS 320 en VGE 320
Kontaktyd	3 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Die farmakologie, wetgewing, beheer en gebruik van middels vir diereproduksie.

Animal science, breeding and nutrition 223 (VKU 223)

Kwalifikasie	Voorgraads
Modulekrediete	14.00
Programme	BVSc
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe

Voorvereistes	Geen voorvereistes.
Kontaktyd	3 blokke met 'n totaal van 60 lesings
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie module word slegs in Engels aangebied.

Introduction to adaptation physiology with reference to origin and domestication of farm and companion animals. Livestock species, breed development and diversity. Principles of applied animal breeding, quantitative and qualitative inheritance. Trait classification and factors influencing genetic progress in farm animals. Introduction to animal nutrition with the focus on feed intake, digestibility and metabolism of feeds in both monogastric and ruminant animals. Classification of feedstuffs and the nutritive value in the diet for the different farm animal species. An introduction to applied nutrition and feeding of monogastric and ruminant animals, equine and companion animals.

Veekunde 250 (VKU 250)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BScAgric Veekunde BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Veekunde
Voorvereistes	VKU 120 GS of TDH
Kontaktyd	2 lesings per week, 1 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A brief perspective on the South African livestock industry. South African biomes in which animal production is practised. Animal ecological factors that influence regional classification. Introduction to adaptation physiology with reference to origin and domestication of farm and companion animals. Livestock species, breed development and breed characterisation. Basic principles of animal breeding and genetics, animal nutrition. Practical work includes identification and classification of different breeds of livestock.

Veekundige ekologie 260 (VKU 260)

Kwalifikasie	Voorgraads
Modulekrediete	8.00

Programme	BScAgric Veekunde BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Veekunde
Voorvereistes	VKU 250 GS of TDH
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to the concepts of animal production systems in South African production environments. Principles and requirements for extensive, semi-intensive and intensive livestock production with reference to large- and small stock, poultry and pigs. Principles of communal farming systems in Southern Africa. Game management systems with reference to conservation and game farming. The role of the human in livestock production systems and sustainable production.

Navorsingsmetodologie 400 (VKU 400)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	Gelyktydige registrasie GVK 420, TLR 411
Kontaktyd	2 lesings per week, 1 seminaar per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to research methodology. Principles and terminology related to research in animal science. Scientific writing skills and communication. Popular articles, seminars and preparation of scientific manuscripts. Project proposals: approach to problem solving, methodology and appropriate referencing and reporting. Presentation of seminar. Multidisciplinary case studies in a Southern African context.

Veekunde 700 (VKU 700)

Kwalifikasie	Nagraads
Modulekrediete	70.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Afrikaans en Engels word in een klas gebruik

Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The study of animal-environment and genotype-environment interactions and the impact on natural resources. Adaptational mechanisms of breeds and species. The formulation of optimal farming systems with respect to adaption. The determination of biological outputs and the classification of animal breeds and species in terms of biological traits. A study of specific topics by way of literature, seminars, discussions and research assignments. Each student does a research project and compiles a research paper. Research and study assignments are executed taking the academic needs of the candidates into consideration. (Theoretical components GVK 420, KVK 420, PVK 420, VKD 410, VKU 411, VKU 412 and WKE 420.)

Veekunde 801 (VKU 801)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Verhandeling: Veekunde 890 (VKU 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MScAgric Veekunde Diereteling en Genetika MScAgric Veekunde Diereteling en Genetika MScAgric Veekunde Dierevoeding MScAgric Veekunde Produksiefisiologie en Produkkwaliteit MScAgric Veekunde Veeproduksie en ekologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Proefskrif: Veekunde 990 (VKU 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Veekunde PhD Veekunde

Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Vleiskunde 801 (VLE 801)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Advanced study of carcass and meat quality characteristics as influenced by breeding, nutrition, physiology, growth and development as well as treatment and processing technology. Cattle, sheep, goats, pigs, poultry and game. Processing. Saleability, marketing methods, consumer profiles. Organisation and legislation.

Verdelingsvrye metodes 710 (VMT 710)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskundige Statistiek BScHons Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 311, WST 312, WST 321 en WST 322
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A selection of: Nonparametric stochastic processes. Power and asymptotic power of distribution-free procedures. Theory and simulation. Asymptotic relative efficiency. Linear rank tests: Definition, properties and applications. Equal in distribution technique. Counting and ranking statistics. Introduction to one and two sample U-statistics. Permutation and distribution-free rank-like statistics. Multi-sample distribution-free tests, rank correlation and regression. Some nonparametric bootstrap and smoothing methods.

Veekundige ekologie 800 (VNE 800)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The study of animal-environment and genotype-environment interactions and the impact on natural resources. Adaptational mechanisms of breeds and species. The formulation of optimal farming systems with respect to adaptation. The determination of biological outputs and the classification of animal breeds and species in terms of biological traits. Research and study assignments are executed taking the academic needs of the candidates into consideration.

Vleis- en suiwelkunde 420 (VSX 420)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BScAgric Veekunde BScAgric Veekunde
Voorvereistes	DFS 320
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Vleisbedryf. Vleisspesies, karkas- en vleissamestelling, slagproses, vleiskwaliteit en die verbruiker. Suiwelbedryf. Samestelling en voedingswaarde van melk en faktore wat dit beïnvloed. Melkproduksie, melkkwaliteit en verspreiding.

Voedselsamestelling en toegepaste voedingsprogramme 364 (VVW 364)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Voeding BSc Voeding BSc Voedselwetenskap
Voorvereistes	FST 351 en FST 352 of TDH

Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

Skepping, interpretasie en toepassing van voedselsamestellingsdata in voedingsprogramme. Chemiese samestelling van voedsels: bemonstering vir voedselanalise, evaluering van voedselanalisemetodes vir voedselsamestellingsdata. Interpretasie van voedselsamestellingsdata. Voedingsetikettering van voedsel. Gebruik van voedingsdata in voedselformulasies. Dieetaanvullings, verryking en fortifisering van voedsels.

Gevorderde voeding en voedselwetenskappe 720 (VVW 720)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	12 besprekingsklasse
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Discussion classes in advanced level nutrition and food sciences. Problem solving and literature discussion.

Navorsingsprojek 763 (VVW 763)

Kwalifikasie	Nagraads
Modulekrediete	40.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 3 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A short research project on an approved topic in Nutrition and Food Sciences is planned, executed and presented in the form of a written report.

Mikronutriënt-wanvoeding 765 (VVW 765)

Kwalifikasie	Nagraads

Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Voedselwetenskap
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to malnutrition in sub-Saharan Africa. Selected micronutrients (i.e. vitamin A, Fe, iodine, Zn): Their role as micronutrients and their significance in health, deficiency disorders and prevention thereof. Conceptual framework for understanding micronutrient deficiencies. Nutritional epidemiology. Micronutrients in nutritional support of individuals with HIV/aids.

Weidingkunde 213 (WDE 213)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BVSc
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 blokke met 'n totaal van 81 lesings
Onderrigtaal	Module word in Engels aangebied
Departement	Plantproduksie en Grondkunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie module word slegs in Engels.

Basic principles of pasture science: the influence of biotic and abiotic factors on the productivity of different strata and components of natural and planted pastures. This will enable the student to understand the management, production, appropriate and optimal utilisation as well as the conservation of these pastures. These principles can be used to ensure sustainable animal production and health.

One large assignment to be completed during recess in addition to lecture time.

Beginsels van veldbestuur 310 (WDE 310)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BSc Meteorologie BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Die invloed van biotiese en abiotiese faktore op die produktiwiteit van verskillende strata en komponente van natuurlike weidings. Dit sal die student in staat stel om gebruikers, met die nodige motivering, oor die geskikte gebruik van hierdie strata en komponente te adviseer en sal ‘n basis vir verdere navorsing op die weidingsekosisteem verskaf. Die beginsels van veldbestuur en die invloed van bestuurspraktyke op volhoubare diereproduksie vanaf natuurlike weiding. Dit sal die student in staat stel om gebruikers oor veldbestuur en veldbestuursbeginsels te adviseer. Dit sal ook ‘n basis vir verdere navorsing in veldbestuur verskaf.

Aangeplante weiding en voergewasse 320 (WDE 320)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Voorvereistes	WDE 310
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 2

Module-inhoud

Die vestiging en gebruik van aangeplante weidingspesies en voergewasse en die preservering van voer. Dit sal die student in staat stel om gebruikers oor die vestiging en benutting van aangeplante weidingspesies asook boere oor die verbouing, preservering en optimale gebruik van voer te adviseer. Dit sal ook ‘n basis vir verdere navorsing op aangeplante weidings vorm.

Omgewingshulpbronevaluasie en -bestuur 450 (WDE 450)

Kwalifikasie	Voorgraads
Modulekrediete	15.00

Programme	BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Voorvereistes	WDE 320
Kontaktyd	3 praktiese sessies per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The production potential and quality of pastures as influenced by botanical composition, vegetation cover, livestock grazing and browsing potential, soil chemical, physical and biological conditions in addition to other important environmental processes are addressed. Pasture selection for different purposes and the importance of pasture management requirements within a planned livestock fodder flow system are taught. Monitoring pastures (both natural and cultivated) in different biomes of Southern Africa, through different assessment techniques to understand the health, production potential and quality thereof is explained. The different utilisation methods of pastures, as influenced by the livestock factor and their effects on the pastures regrowth potential, in addition to soil quality aspects are important principles that determine the value of pastures. The evaluation of grasses and other vegetation types in terms of adaptation, acceptability and adaptability to environmental and management conditions are important to an integrated and adaptive pasture and livestock production system.

Veldbestuur in natuurlewesisteme 701 (WDE 701)

Kwalifikasie	Nagraads
Modulekrediete	10.00
Programme	BScHons Natuurlewebestuur BScHons Natuurlewebestuur
Voorvereistes	Geen voorvereistes.
Kontaktyd	5 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

Veldevaluasie en gebruik met die klem op aspekte van belang in wildproduksie en geïntegreerde wild-/veeproduksie sisteme.

Omgewingshulpbronassessering- en bestuur 750 (WDE 750)

Kwalifikasie	Nagraads
Modulekrediete	14.00

Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Determining resource potential of land on the basis of botanical composition, vegetation cover, animal grazing and browsing potential, water quality, soil quality, chemical, physical and biological soil degradation, soil erosion and other important environmental processes. These are essential for integrated agricultural land use practices. Evaluation of grasses and other vegetation types in terms of environmental adaptation, acceptability and adaptability to a sustainable utilisation system and the management requirements of an integrated and adaptive management system.

Veldbestuur 781 (WDE 781)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Die ontwikkeling van veldbestuurstrategieë deur integrasie van ekologiese en fisiologiese beginsels met ekonomiese en sosiologiese.

Weidingkunde 782 (WDE 782)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScAgricHons Gewaskunde BScAgricHons Gewaskunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe

Aanbiedingstydperk	Jaar

Module-inhoud

Die identifisering van aangepaste weiding- en voerspesies (insluitend grasse, peulplante, voerbome en droogteverdraagsame gewasse) vir verskillende agro-ekologiese gebiede. Die vestiging, bemesting en besproeiing vereistes van verskillende weidings. Die bestuursvereistes wanneer gebruik word as groen weiding, staande hooi of opgebergde voer.

Geïntegreerde plant- en diereproduksie 783 (WDE 783)

Kwalifikasie	Nagraads
Modulekrediete	14.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Die rol van oesrotasies en rusoes-gewasse in marginale produksie- omstandig-hede om volhoubare produksie te verseker. Die integrasie van weiding en bosbou/ tuinbougewasse (bv. Agro-bosbou) vir die produksie van hout, brandhout, vrugte / neute en lewende hawe-produkte. Verskaffing van voervereistes vir beide kommersiële en kommunale lewende hawe-ondernemings deur die kombinasie van lewende hawe-vereistes en voervloei in 'n proses van ekonomiese optimalisering met die klem op die belang van rekords en maak van aanpassings in die proses van implementering.

Gevorderde kursuswerk 801 (WDE 801)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Enige module en/of werkstuk(ke) op die gevorderde vlak gekies in oorleg met die departementshoof.

Verhandeling: Weidingkunde 890 (WDE 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00

Programme	MScAgric Weidingkunde MScAgric Weidingkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module involves the development, presentation and approval of a research proposal, the execution of the research project, and the writing up and presentation of the research results. In addition to the dissertation, the student is also expected to compile a concept research paper for publication in a peer-reviewed UP accredited scientific journal.

Miniverhandeling: Weidingkunde 891 (WDE 891)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

Elke kandidaat moet 'n verhandeling skryf oor sy/haar navorsingsprojek in Weidingkunde en ten minste 'n konsep artikel voorberei vir publikasie in 'n eweknie-geëvalueerde wetenskaplike tydskrif.

Proefskrif: Weidingkunde 990 (WDE 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Weidingkunde PhD Weidingkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Plant- en Grondwetenskappe
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module involves the development, presentation and approval of a research proposal, the execution of the research project, and the writing up and presenting of the research results. In addition to the thesis, the student is also expected to publish at least one research paper in a peer-reviewed, UP accredited scientific journal. An oral examination covering Pasture Science and other fields related to the thesis will be conducted after the thesis has been accepted by examiners. A candidate needs to pass both the written thesis and oral examination to qualify for the degree.

Verhandeling: Wiskunde 890 (WIS 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Wiskunde MSc Wiskunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Proefskrif: Wiskunde 990 (WIS 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Wiskundige Wetenskappe PhD Wiskundige Wetenskappe
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Atmosferiese struktuur en prosesse 155 (WKD 155)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Chemie BSc Geografie BSc Meteorologie BSc Verlengde program - Fisiese Wetenskappe
Voorvereistes	Ten minste 50% in Wiskunde in graad 12.
Kontaktyd	1 praktiese sessies per week, 4 lesings per week

Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Studente word nie toegelaat om krediete te verdien vir WKD 155 en WKD 164 nie.

Inleiding tot weer en klimaat. Klimaat van Suid-Afrika. Stedelike en plattelandse klimaat. Weerkundige instrumente. Beweging van die aarde. Atmosferiese massa en druk. Energie- en hittebalans. Vog in die atmosfeer. Ontwikkeling van wolke. Klimaatsverandering. ENSO. Elektromagnetiese spektrum en afstandswaarneming. Sinoptiese weerstelsels van Suid-Afrika.

Klimaat en weer van Suider-Afrika 164 (WKD 164)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Chemie BSc Chemie BSc Geografie BSc Geoinformatika BSc Omgewingswetenskappe
Diensmodules	Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

’n Inleiding tot die klimaat en algemene seisoenale sirkulasiepatrone van Suider-Afrika. Basiese weertipes en weerprosesse binne die konteks van Suider-Afrika. Interpretasie van sinoptiese kaarte en sinoptiesestasieverslae. Impak van klimaatsverandering en klimaatsuiterstes op die samelewing.
*BSc (Geografie)-studente en BSc (Omgewingswetenskappe)-studente mag registreer vir WKD 155. Studente word nie toegelaat om krediete te verdien vir WKD 155 en WKD 164 nie.

Programmering in meteorologie 254 (WKD 254)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Meteorologie BSc Meteorologie
Voorvereistes	WKD 261 en WKD 263. Beperk tot BSc (Meteorologie)-studente of TDH
Kontaktyd	1 praktiese sessies per week

Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Verkryging van weerkundige data. Manipulasie van multidimensionele metereologiese datastelle. Ruimtelike voorstelling en interpretasie van weerdata. Inleiding tot statistiese en numeriese metodes. Inleiding tot atmosferiese wolkmodellering.

Fisiese weerkunde 261 (WKD 261)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Geografie BSc Fisika BSc Geografie BSc Geoinformatika BSc Meteorologie BSc Omgewingswetenskappe
Voorvereistes	WTW 114
Kontaktyd	1 tutoriaal per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

Behoudskragte en behoudswette. Basiese termodinamiese wette vir droë en vogtige lug. Die toestandsvergelyking. Adiabatiese prosesse en temperatuurvervaltempos. Die Clausuis-Claperon-vergelyking. Berekening van die natadiabaat.

Inleiding tot dinamiese weerkunde 263 (WKD 263)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Geografie BSc Fisika BSc Geografie BSc Meteorologie
Voorvereistes	WTW 126 en WTW 128 (studente moet terselfdertyd vir WTW 218 ingeskryf wees).
Kontaktyd	4 lesings per week, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie

Aanbiedingstydperk	Kwartaal 2

Module-inhoud

Vektoalgebra, totle en parsiele afgeleides, tweedebewegingswet. Sferiese coordinate. Versenelling in roterende coordinate, fundamentele kragte, momentumvergelyking. Driedimensionele vloeibalans, massabehoud, termodinamiese energievergelyking. Inleiding tot eindigeverskilmetodes. Numeriese estimasie van geostrofiese wind, vortisiteit en divergensie. Adveksie van temperatuur. Ontwikkeling van ‘n tweedimensionele numeriese temperatuuradveksiemodel

Atmosferiese vortisiteit en divergensie 352 (WKD 352)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Fisika BSc Fisika BSc Meteorologie
Voorvereistes	WKD 263 GS en WTW 248 GS
Kontaktyd	4 lesings per week, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

Skaalanalises en vereenvoudiging van die basiese vergelykings. Die geostrofiese, termiese en gradiëntwind. Die vortisiteitsvergelyking en divergensie.

Kwasi-geostofiese analise 361 (WKD 361)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Fisika BSc Fisika BSc Meteorologie
Voorvereistes	WKD 352 GS en WKD 254
Kontaktyd	1 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

Neigings- en omegavergelykings. Model van ’n barokliniese stelsel. Inleiding tot numeriese modelle. Toepassing in sagteware wat weerkundige data vertoon en manupileer.

Grondbeginsels van weervoorspelling 366 (WKD 366)

Kwalifikasie	Voorgraads
Modulekrediete	36.00
Programme	BSc Fisika BSc Fisika BSc Meteorologie
Voorvereistes	WKD 155, WKD 261, WKD 254 (studente moet terselfdertyd vir WKD 361 ingeskryf wees).
Kontaktyd	1 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Weerkundige waarnemings, data kodes. Weertoepassingssagteware en die rekenaar-omgewing vir weerkundige analise en weervoorspelling. Toepassing van afstands-waarneming in weervoorspelling. Bolug-diagramme. Toepassing van numeriese weer-voorspelling. Integrasie van inligting om die huidige toestand van die atmosfeer te beskryf en ‘n toekomstige toestand van die atmosfeer te voorspel.

Seisonale klimaatmodellering 703 (WKD 703)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Meteorologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

Fundamentals of seasonal forecasting. The El Niño/Southern Oscillation. Empirical orthogonal functions. Canonical correlation analysis. Empirical forecast models practical. Sea-surface temperature models. Fully coupled and two-tiered general circulation modelling. Dynamical and empherical downscaling techniques. *Hierdie inligting is slegs in Engels beskikbaar.

Significance testing using Monte Carlo techniques. Modelling pitfalls. User application forecasting. Projections of decadal and multi dacadal climate anomalies.

Numeriese modellering: toepassings 704 (WKD 704)

Kwalifikasie	Nagraads

Modulekrediete	12.00
Programme	BScHons Meteorologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Initial atmospheric state, observation network, data assimilation, initialization, parameterisation, post-processing. Ensemble methods, probability forecasting, forecast verification. Global circulation models, limited-area and mesoscale models, variable resolution models, dispersion models. Seamless prediction. Practical applications.

Dinamiese weerkunde 706 (WKD 706)

Kwalifikasie	Nagraads
Modulekrediete	16.00
Programme	BScHons Meteorologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 praktiese sessie per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Atmospheric oscillations: Linear perturbation theory (shallow water gravity waves, inertia gravity waves, Rossby waves). Baroclinic instability. Two-layer model. Energetics of Baroclinic waves. Zonally averaged circulation. Angular momentum budget. Lorenz energy cycle. Programming in metereology.

Radar Weerkunde 707 (WKD 707)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Meteorologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.

Kontaktyd	1 besprekingsklas per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

Hierdie module word slegs in Engels aangebied.

Basic principles and characteristics of the weather radar. The influence of the atmosphere on the propogation of electro-magnetic waves. Weather radar equation. The influence of attenuation on observations. The measurement of precipation with a radar. Doppler Radar. Convective storm analysis with radar.

Grenslaagweerkunde 719 (WKD 719)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Meteorologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to, and the importance of the boundary layer. Structure of the boundary layer. Transfer of heat (molecular and turbulent). Impacts of the turbulent nature of the boundary layer on the dynamics of atmospheric motions. Closure and boundary layer parameterisation. Applications to air pollution dispersion.

Oorsig van tropiese en midbreedtemeteorologie 731 (WKD 731)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Meteorologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An overview of the weather and climate of the tropics and the mid-latitudes. Air masses. Instability and cloud formation. Weather systems of the tropics and mid-latitudes. Analysis of weather systems by utilising remote sensed data.

Satelietweerkunde 733 (WKD 733)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Meteorologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Overview of the basic principles of satellite imagery. Types of meteorological satellites. Basic principles of radiation. The different images available, their resolution and the advantages and limitations of each image. Image interpretation.

Mesoskaal weerkunde 734 (WKD 734)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Meteorologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An introduction to mesoscale meteorology. Surface mesoscale features, instability, severe storm classification and thunderstorms, flooding and flash flooding events.

Gekeurde temas 736 (WKD 736)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Meteorologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A module on an aspect or aspects of meteorology not covered in the existing options with special emphasis in Cloud microphysics and Basic concepts of numberical modelling.

Navorsingsprojek 763 (WKD 763)

Kwalifikasie	Nagraads
Modulekrediete	35.00
Programme	BScHons Meteorologie BScHons Meteorologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to the philosophy of scientific research. Hypothesis testing. Reporting of scientific research. Identification of an appropriate research project. Compilation of a research proposal. Literature survey. Acquisition and manipulation of information. Introduction to innovative strategy and research management. Preparation of a research report (or paper). Presentation of research findings.

Wolkdinamika 781 (WKD 781)

Kwalifikasie	Nagraads
Modulekrediete	12.00
Programme	BScHons Meteorologie BScHons Meteorologie

Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Geografie, Geoinformatika en Meteorologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Scaling and interpretation of equations of motion for mesoscale processes. The role of stability and other trigger actions on initial cloud formation and the evolution of clouds. Shallow and deep convective processes. Tropical and mid-latitude cloud generation processes and characteristics. Cloud splitting. Parameterisation of radiation and heat in atmospheric models. Microphysics parameterisations in numerical models.

Wildkunde 420 (WKE 420)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Voorvereistes	VGE 320
Kontaktyd	2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Inleidende aspekte van natuurlewebestuur: wildbestuur, habitatbestuur, wildvoeding en die aanhouding van wild in dieretuine.

Wolkunde 800 (WLK 800)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Vee- en Wildkunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Discussions and literature studies on advanced subjects concerning wool and fibre. Factors influencing wool and mohair production. The influence of environment, nutrition and breeding on the chemical and physical composition of wool and mohair. Factors influencing classing, processing and marketing of wool. Discussions and seminars on techniques in quantifying physical and chemical characteristics of wool and mohair, relevant literature and research techniques. Evaluation of variation in skin and fibre.

Miniverhandeling: Natuurlewegesondheid, ekologie en bestuur 890 (WLS 890)

Kwalifikasie	Nagraads
Modulekrediete	90.00
Programme	MSc Natuurlewegesondheid, -ekologie en -bestuur
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	VRM 813
Onderrigtaal	Module word in Engels aangebied
Departement	Produksiedierstudies
Aanbiedingstydperk	Jaar

Wiskundige statistiek 111 (WST 111)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Rekenaarwetenskap BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Minstens 5 (60-69%) in Wiskunde in die graad 12-eksamen
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

Karakterisering van ‘n stel metings: Grafiese en numeriese metodes. Ewekansige steekproefneming. Teorie van waarskynlikheid. Diskrete en kontinue stogastiese veranderlikes. Waarskynlikheidsverdelings. Voortbringende funksies en momente.

Wiskundige statistiek 121 (WST 121)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 111 GS of WST 133, 143 en 153
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

Steekproefverdelings en die sentrale limietstelling. Statistiese inferensie: Punt- en intervalberaming. Hipotesetoetsing met toepassings in een- en tweesteekproefgevalle. Inleidende metodes vir: Lineêre regressie en korrelasie, analise van variansie, kategoriese data-analise en nie-parametriese metodes Identifikasie, gebruik en interpretasie van statistiese rekenaarpakette en statistiese tegnieke.

Wiskundige statistiek 133 (WST 133)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Ten minste 4 (50-59%) in Wiskunde in die Graad 12-eksamen. BSc- en BCom numeriese-stroomstudente moet WTW 133 gelyktydig neem.
Kontaktyd	Funderingskursus, 4 lesings per week, 1 praktiese sessies per week, 2 tutoriale per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Descriptive statistics – Univariate:
The role of Statistics, various types of data. Sampling, probability and non-probability sampling techniques and the collection of data. Frequency, relative and cumulative distributions and graphical representations. Additional concepts relating to data processing: sigma notation, factorial notation. Descriptive measures of location,dispersion and symmetry. Exploratory data analysis.
Probability:
Introductory probability theory and applications. Set theory and probability laws. Introduction to random variables. Assigning probabilities, probability distributions, expected value and variance in general. Specific discrete probability distributions (Uniform, Binomial). Report writing and presentation. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Wiskundige statistiek 143 (WST 143)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	BSc- en BCom numeriese-stroomstudente: WST 133 en WTW 133 en moet gelyktydig saam met WTW 143 geneem word.
Kontaktyd	4 lesings per week, 1 praktiese sessies per week, 2 tutoriale per week, Funderingskursus
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Probability and inference:
Probability theory and theoretical distributions for continuous random variables (Uniform, Normal and t). Sampling distributions (means and proportions). Estimation theory and hypothesis testing of sampling averages and proportions (one- and two-sample cases).
Optimisation techniques with economic applications:
Applications of differentiation in statistic and economic related problems. Integration. Applications of integration in statistic and economic related problems. Systems of equations in equilibrium. The area under a curve and applications of definite integrals in Statistics and Economics. Report writing and presentation. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Wiskundige statistiek 153 (WST 153)

Kwalifikasie	Voorgraads

Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 133 en WST 143 en WTW 143. Moet gelyktydig saam met WTW 153 geneem word.
Kontaktyd	Funderingskursus, 4 lesings per week, 1 praktiese sessies per week, 2 tutoriale per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Probability distributions:
Introductory distribution theory and special statistical distributions (Binomial, Geometric, Hypergeometric, Poisson, Uniform, Normal, Gamma). Generating functions and moments. Bivariate probability distributions. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Wiskundige statistiek 211 (WST 211)

Kwalifikasie	Voorgraads
Modulekrediete	24.00
Programme	BSc Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 111, WST 121, WTW 114 GS en WTW 124 GS
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

Versamelingsleer. Waarskynlikheidsmaatfunksies. Stogastiese veranderlikes. Verdelingsfunksies. Waarskynlikheidsmassafunksies. Digtheidsfunksies. Verwagte waardes. Momente. Momentvoortbringende funksies. Spesiale waarskynlikheidsverdelings: Bernoulli, binomiaal, hipergeometries, geometries, negatiefbinomiaal, Poisson, Poissonproses, diskreetuniform, uniform, gamma, eksponensiaal, Weibull, Pareto, normaal. Gesamentlike verdelings: Multinomiaal, uitgebreide hipergeometries, gesamentlike kontinue verdelings. Randverdelings. Onafhanklike stogastiese veranderlikes. Voorwaardelike verdelings. Kovariansie, korrelasie. Voorwaardelike verwagte waardes. Transformasie van stogastiese veranderlikes: Konvolusieformule. Ordestatistieke. Stogastiese Konvergensie: konvergensie in verdeling. Sentrale-limietstelling. Praktiese toepassings. Praktiese statistiese modellering en analise met gebruikmaking van statistiese rekenaarpakkette en die interpretasie van die berekenings.

Wiskundige statistiek 221 (WST 221)

Kwalifikasie	Voorgraads
Modulekrediete	24.00
Programme	BSc Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 211 GS
Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

Stogastiese konvergensie: Asimptotiese normaalverdelings, konvergensie in waarskynlikheid. Statistieke en steekproefverdelings Chi-kwadraat-verdeling. Verdeling van die steekproefgemiddelde en steekproef variansie vir ewekansige steekproewe uit 'n normaalpopulasie. T-verdeling. F-verdeling. Beta-verdeling. Puntberaming: Metode van momente. Maksimumaanneemlikheidsberamers. Onsydige beremers. Gelykmatige minimum onsydige variansieberamers. Cramer-Rao ongelykheid. Doeltreffendheid. Konsekwentheid. Asimptotiese relatiewe doeltreffendheid. Bayes-beramers. Voldoende statistieke. Volledigheid. Die eksponensiaalklas. Vertrouensintervalle. Toetsing van hipoteses. Betroubaarheid en oorlewingsverdelings. Praktiese toepassings. Praktiese statistiese modellering en analise met behulp van statistiese rekenaarpakette en die interpretasie van die berekenings.

Meerveranderlike analise 311 (WST 311)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 211, WST 221, WTW 211 GS en WTW 218 GS
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

Meervariante statistiese verdelings: Momente van 'n verdeling, momentvoortbringende funksies, onafhanklikheid. Meervariante normaalverdeling: Voorwaardelike verdelings, parsiële en meervoudige korrelasies. Multinomiaal- en meervariante Poissonverdelings: Asimptotiese normaliteit en beraming van parameters. Verdeling van kwadratiese vorme in normaalveranderlikes. Meervariante normaalsteekproewe: Beraming van die gemiddelde vektor-en kovariansiematriks, beraming van korrelasiekoëffisiente, verdeling van die steekproefgemiddelde, steekproefkovariansiematriks en steekproefkorrelasiekoëffisient. Die lineêre model: Modelle van volle rang, kleinste-kwadrate beramers, toetse van hipoteses. Die veralgemeende linnere model: Eksponesiallfamilie, gemiddelde en variansi, skakelfunksies, deviansie en residu-analise, toetsstatistieke, log-lineere en logitmodelle. Praktiese toepassings: Praktiese statistiese modellering en analise deur gebruikmaking van statistiese rekenaarpakkette en interpretasie van die uitvoer.

Stogastiese prosesse 312 (WST 312)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 211, WST 221, WTW 211 GS en WTW 218 GS
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1

Module-inhoud

Definisie van 'n stogastiese proses. Stasionariteit. Kovariansiestasionêr. Markoveienskap. Stogastiese beweging. Brown-beweging. Markov-kettings. Chapman-Kolmogorov-vergelykings. Herhalende en nieherhalende toestande. Eerstebesoektye. Besettingstye. Markov-sprongproses. Poisson-proses. Geboorte- en sterfteprosesse. Struktuur van tydhomogene Markov-sprongprosesse. Toepassings in die versekeringswese. Gebruik van statistiese rekenaarprogramme vir praktiese statistiese modellering, simulasie en ontleding asook interpretasie van die uitvoer.

Tydreeksanalise 321 (WST 321)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 211, WST 221, WTW 211 GS en WTW 218 GS
Kontaktyd	2 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

Stasionêre en niestasionêre eenveranderlike tydreekse. Eienskappe van outo-regressiewe bewegende gemiddelde (ARMA) en geïntegreerde outoregressiewe bewegende gemiddelde (ARIMA) prosesse. Identifisering, beraming en toetsing van 'n tydreeksmodel. Vooruitberaming. Meerveranderlike tydreekse. Gebruik van statistiese rekenaarprogramme vir praktiese statistiese modellering en ontleding.

Aktuariële statistiek 322 (WST 322)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 211, WST 221, WTW 211 GS en WTW 218 GS
Kontaktyd	1 praktiese sessie per week, 2 lesings per week

Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 2

Module-inhoud

Beslissingsteorie. Verliesverdelings. Herversekering. Risikomodelle. Teorie van bankrotskap. Geloofwaardigheidsteorie. Metodes vir vooruitberaming van aantal eise en totale eisbedrag. Gebruik van statistiese rekenaarprogramme vir praktiese statistiese modellering en ontleding.

Navorsingsverslag: Wiskundige statistiek 795 (WST 795)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Wiskundige Statistiek
Voorvereistes	WST 311, WST 312, WST 321 en WST 322
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 en Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Refer to the document: Criteria for the research management process and the assessment of the honours essays, available on the web: www.up.ac.za under the Department of Statistics: postgraduate study.

Kuber ontledings tegnieke 802 (WST 802)

Kwalifikasie	Nagraads
Modulekrediete	20.00
Programme	MSc Wiskundige Statistiek (Gedoseer)
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Reviewing, from a statistical perspective, the cyberinfrastructure ecosystem including distributed computing, multi node and distributed file eco systems. Structured and unstructured data sources, including social media data and image data. Setting up of large data structures for analysis. Algorithms and techniques for computing statistics and statistical models on distributed data. Software to be used include, Hadoop, Map reduce, SAS, SAS Data loader for Hadoop.

Miniverhandeling: Wiskundige statistiek 895 (WST 895)

Kwalifikasie	Nagraads
Modulekrediete	100.00
Programme	MSc Wiskundige Statistiek (Gedoseer) MSc Wiskundige Statistiek (Gedoseer)
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Jaar

Proefskrif: Wiskundige statistiek 990 (WST 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Wiskundige Statistiek PhD Wiskundige Statistiek
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Statistiek
Aanbiedingstydperk	Jaar

Calculus 114 (WTW 114)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BCom Statistiek BSc Aktuariële en Finansiële Wiskunde BSc Chemie BSc Fisika BSc Meteorologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Geesteswetenskappe
Voorvereistes	Verwys na Regulasie 1.2: 'n Kandidaat moet Wiskunde met ten minste 60% geslaag het in die G12-eksamen

Kontaktyd	4 lesings per week, 1 tutoriaal per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie module dien as voorbereiding vir studente met Wiskunde as hoofvak (ingesluit alle studente wat beplan om vir WTW 218 en WTW 220 in te skryf.) Studente sal nie vir meer as een van die volgende modules krediet ontvang vir hul graad nie: WTW 114, WTW 158, WTW 134, WTW 165.
Funksies, limiete en kontinuïteit. Differensiaalrekening van eenveranderlike funksies, tempo van verandering, krommesketsing, toepassings. Die middelwaardestelling, L'Hospital se reël. Die bepaalde en onbepaalde integraal, evaluering van bepaalde integrale met behulp van anti-afgeleides, die substitusiereël.

Diskrete strukture 115 (WTW 115)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Chemie BSc Fisika BSc Toegepaste Wiskunde BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	Verwys na Regulasie 1.2: 'n Kandidaat moet Wiskunde met ten minste 50% geslaag het in die G12-eksamen
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Proposisionele logika: waarheidstabelle, logiese ekwivalensie, implikasie, argumente. Wiskundige induksie en wel-ordeningsbeginsel. Inleiding tot versamelingsleer. Teltegnieke: elementêre waarskynlikheid, vermenigvuldigings- en optellingsreëls, permutasies en kombinasies, binomiaalstelling, insluit-uitsluitreël.

Numeriese analise 123 (WTW 123)

Kwalifikasie	Voorgraads
Modulekrediete	8.00

Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Aktuariële en Finansiële Wiskunde BSc Fisika BSc Meteorologie BSc Toegepaste Wiskunde BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	WTW 114 GS
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Nie-lineêre vergelykings, numeriese integrasie, beginwaardeprobleme vir differensiaalvergelykings, stelsels lineêre vergelykings. Vir elementêre numeriese tegnieke word algoritmes afgelei en geprogrammeer. Foutskattings en konvergensieresultate word behandel.

Wiskunde 124 (WTW 124)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BCom Statistiek BSc Aktuariële en Finansiële Wiskunde BSc Chemie BSc Fisika BSc Meteorologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Voorvereistes	WTW 114
Kontaktyd	4 lesings per week, 1 tutoriaal per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Studente sal nie vir meer as een van die volgende modules krediet ontvang vir hul graad nie: WTW 124, WTW 146, WTW 148 and WTW 164. Hierdie module dien as voorbereiding vir studente met Wiskunde as hoofvak (ingesluit alle student wat beplan om te skryf vir WTW 218, WTW 211 en WTW 220).

Die vektorruimte Rn, vektoralgebra met toepassings op lyne en vlakke, matriksalgebra, stelsels van lineêre vergelykings, determinante, Komplekse getalle en faktorisering van polinome. Integrasietegnieke en toepassings van integrasie. Die formele definisie van ’n limiet. Die hoofstelling van Calculus en toepassings. Vektorfunksies, poolvergelykings en kwadratiese krommes.

Precalculus 133 (WTW 133)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BEd Seniorfase en Verdere Onderwys en Opleiding-onderwys BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Gesondheidswetenskappe
Voorvereistes	BSc- en BCom-studente: Ten minste 3 (40-49%) in Wiskunde in die Graad 12-eksamen en moet gelyktydig saam met WTW 133 geneem
Kontaktyd	Funderingskursus, 1 praktiese sessies per week, 3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Hierdie module word slegs in Engels aangebied op die Mamelodi kampus. Op die Hatfield en Groenkloof kampusse word dit in Engels en Afrikaans aangebied.

Real numbers, elementary set notation, exponents and radicals. Algebraic expressions, fractional expressions, linear and quadratic equations, inequalities. Coordinate geometry: lines, circles. Functions: definition, notation, piecewise defined functions, domain and range, graphs, transformations of functions, symmetry, even and odd functions, combining functions, one-to-one functions and inverses, polynomial functions and zeros. Sequences, summation notation, arithmetic, geometric sequences, infinite geometric series, annuities and instalments. Degrees and radians, unit circle, trigonometric functions, fundamental identities, trigonometric graphs, trigonometric identities, double-angle, half-angle formulae, trigonometric equations, applications.

Wiskunde 134 (WTW 134)

Kwalifikasie	Voorgraads
Modulekrediete	16.00

Programme	BCom Statistiek BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Geografie BSc Geoinformatika BSc Kulinêre Wetenskap BSc Mediese Wetenskappe BSc Mensfisiologie BSc Mensfisiologie, Genetika en Sielkunde BSc Mensgenetika BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Voeding BSc Voedselwetenskap BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Veeartsenykunde
Voorvereistes	Verwys na Regulasie 1.2: 'n Kandidaat moet Wiskunde met ten minste 50% geslaag het in die G12-eksamen
Kontaktyd	1 tutoriaal per week, 4 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

**Studente sal nie vir meer as een van die volgende modules krediet ontvang vir hul graad nie: WTW 134, WTW 165, WTW 114, WTW 158. WTW 134 gee nie toelating tot Wiskunde op 200-vlak nie en is vir studente wat Wiskunde slegs op 100-vlak benodig. WTW 134 word in die tweede semester as WTW 165 aangebied slegs vir studente wat in die eerste semester aansoek gedoen het vir die ongeveer 65 MBChB, of 5-6 BChD plekke wat in die tweede semester beskikbaar word en wat dus ook ingeskryf was vir MGW 112 in die eerste semester van die huidige jaar.*

Funksies, afgeleides, interpretasie van die afgeleide, differensiasiereëls, toepassings van differensiasie, integrasie, interpretasie van die bepaalde integraal, toepassings van integrasie. Matrikse, oplossings van stelsels vergelykings. Alle onderwerpe word in die konteks van toepassings behandel.

Calculus 143 (WTW 143)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BEd Seniorfase en Verdere Onderwys en Opleiding-onderwys BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Gesondheidswetenskappe
Voorvereistes	BSc- en BCom sudente: WST 133 en WTW 133 moet gelyktydig met WTW 143 geneem word
Kontaktyd	3 lesings per week, Funderingskursus, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie module word slegs in Engels aangebied.
Functions: exponential and logarithmic functions, natural exponential and logarithmic functions, exponential and logarithmic laws, exponential and logarithmic equations, compound interest. Limits: concept of a limit, finding limits numerically and graphically, finding limits algebraically, limit laws without proofs, squeeze theorem without proof, one-sided limits, infinite limits, limits at infinity, vertical, horizontal and slant asymptotes, substitution rule, continuity, laws for continuity without proofs. Differentiation: average and instantaneous change, definition of derivative, differentiation rules without proofs, derivatives of polynomials, chain rule for differentiation, derivatives of trigonometric, exponential and logarithmic functions, applications of differentiation: extreme values, critical numbers, monotone functions, first derivative test, optimisation.

Wiskunde 144 (WTW 144)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe
Voorvereistes	WTW 133
Kontaktyd	Funderingskursus, 3 lesings per week, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Functions: Rate of change, exponential functions, the natural logarithm, exponential growth and decay, proportionality, power functions, fitting formulas to data. Rates of change and the derivative: Instantaneous rate of change, the derivative function, interpretations of the derivative, the second derivative.
Differentiation: Formulas and rules, applications, extremes of a function. All topics are studied in the context of applications.

Lineêre algebra 146 (WTW 146)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BCom Statistiek BSc Geoinformatika
Diensmodules	Fakulteit Opvoedkunde
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Studente sal nie vir meer as een van die volgende modules krediet ontvang vir hul graad nie: WTW 124, WTW 146 en WTW 164. Die module WTW 146 is ontwerp vir studente wat Wiskunde op 100 vlak benodig en gee nie toegang tot Wiskunde op 200-vlak nie.

Vektoralgebra, lyne en vlakke, matriksalgebra, oplossings van stelsels vergelykings, determinante. Komplekse getalle en polinoomvergelykings. Alle onderwerpe word in die konteks van toepassings behandel.

Calculus 148 (WTW 148)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BCom Statistiek BSc Geoinformatika
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	WTW 114 GS of WTW 134
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Studente sal nie vir meer as een van die volgende modules krediet ontvang vir hul graad nie: WTW 124, WTW 148, WTW 164. Die module WTW 148 is ontwerp vir studente wat Wiskunde op 100 vlak benodig en gee nie toegang tot Wiskunde op 200-vlak nie.

Integrasietegnieke. Modellering met differensiaalvergelykings. Funksies van meer as een veranderlike, parsiële afgeleides, optimering. Numeriese tegnieke. Alle onderwerpe word in die konteks van toepassings bespreek.

Wiskundige modellering 152 (WTW 152)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Fisika BSc Toegepaste Wiskunde BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Verwys na Regulasie 1.2
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Inleiding tot modellering van dinamiese prosesse met behulp van verskilvergelykings. Krommepassing. Inleiding tot lineêre programmering. Matlab programmering. Toepassings in die praktyk van onder andere finansies, ekonomie en ekologie.

Calculus 153 (WTW 153)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BEd Seniorfase en Verdere Onderwys en Opleiding-onderwys BSc Verlengde program - Fisiese Wetenskappe BSc Verlengde program - Wiskundige Wetenskappe
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	WTW 143
Kontaktyd	Funderingskursus, 3 lesings per week, 1 tutoriaal per week

Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Differential calculus of a single variable with proofs and applications. The mean value theorem, the rule of L'Hospital. Upper and lower sums, definite and indefinite integrals, the fundamental theorem of Calculus, the mean value theorem for integrals, integration techniques, with some proofs.

Wiskunde 154 (WTW 154)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Verlengde program - Biologiese en Landbouwetenskappe
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	WTW 144
Kontaktyd	1 tutoriaal per week, 3 lesings per week, Funderingskursus
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Integration: Accumulated change, the definite integral, anti-derivatives, the definite integral as an area, interpretations of the definite integral.
*Hierdie inligting is slegs in Engels beskikbaar.

Matrices and systems of linear equations: Matrix addition and scalar multiplication, matrix multiplication, systems of linear equations. All topics are studied in the context of applications.

Calculus 158 (WTW 158)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	Verwys na Regulasie 1.2: 'n Kandidaat moet Wiskunde met ten minste 60% geslaag het in die G12-eksamen
Kontaktyd	4 lesings per week, 1 tutoriaal per week

Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie module is ontwerp vir eerstejaar-ingenieurstudente. Studente sal nie vir meer as een van die volgende modules krediet ontvang vir hul graad nie: WTW 158, WTW 114, WTW 134, WTW 165.
Inleiding tot vektoralgebra. Funksies, limiete en kontinuïteit. Differensiaalrekening van eenveranderlike funksies, tempo van verandering, krommesketsing, toepassings. Die middelwaardestelling, L'Hospital se reël. Die onbepaalde integraal, integrasie.

Dinamiese prosesse 162 (WTW 162)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Verlengde program - Wiskundige Wetenskappe BSc Chemie BSc Fisika BSc Toegepaste Wiskunde BSc Verlengde program - Wiskundige Wetenskappe BSc Wiskunde BSc Wiskundige Statistiek
Voorvereistes	WTW 114 GS
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Studente sal nie vir meer as een van die volgende modules krediet ontvang vir hul graad nie: WTW 162 en WTW 264.

Inleiding tot die modellering van dinamiese prosesse met behulp van elementêre differensiaalvergelykings. Oplosmetodes vir eerste-orde differensiaalvergelykings en analise van die eienskappe van oplossings (grafieke). Toepassings in die praktyk.

Wiskunde 164 (WTW 164)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BSc Ingenieurs- en Omgewingsgeologie BSc Geologie BSc Ingenieurs- en Omgewingsgeologie
Voorvereistes	WTW 114 GS of WTW 158 GS

Kontaktyd	1 tutoriaal per week, 4 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie module is ontwerp vir eerstejaar-ingenieurstudente. Studente sal nie vir meer as een van die volgende modules krediet ontvang vir hul graad nie: WTW 146, WTW 148, WTW 124 en 164.

Vektoralgebra met toepassings op lyne en vlakke in die ruimte, matriksalgebra, stelsels van lineêre vergelykings, determinante, komplekse getalle, faktorisering van polinome en keëlsnitte. Integrasietegnieke, oneintlike integrale. Die bepaalde integraal, hoofstelling van Calculus. Toepassings van integrasie. Elementêre magreekse en die stelling van Taylor. Vektorfunksies, ruimtekrommes en booglengtes. Tweedegraadsoppervlakke en meer-veranderlike funksies.

Wiskunde 165 (WTW 165)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BVSc
Voorvereistes	Ten minste 50% vir Wiskunde in die Graad 12- eksamen en MGW 112# of 08130005
Kontaktyd	4 lesings per week, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Studente sal nie vir meer as een van die volgende modules krediet ontvang vir hul graad nie: WTW 134, WTW 165, WTW 114, WTW 158. WTW 165 gee oor die algemeen nie toelating tot Wiskunde op 200-vlak nie en is vir studente wat Wiskunde slegs op 100-vlak benodig. WTW 165 word slegs in die tweede semester en slegs in Engels aangebied vir studente wat in die eerste semester aansoek gedoen het vir die ongeveer 65 MBChB, of 5-6 BChD plekke wat in die tweede semester beskikbaar word en wat dus ook ingeskryf was vir MGW 112 in die eerste semester van die huidige jaar.Funksies, afgeleides, interpretasie van die afgeleide, differensiasiereëls, toepassings van differensiasie, integrasie, interpretasie van die bepaalde integraal, toepassings van integrasie. Matrikse, oplossings van stelselsvergelykings. Alle onderwerpe word in die konteks van toepassings behandel.

Lineêre algebra 211 (WTW 211)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BSc Meteorologie BSc Aktuariële en Finansiële Wiskunde BSc Chemie BSc Fisika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	WTW 124
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Hierdie is ‘n inleiding tot lineêre algebra oor Rn. Matrikse en lineêre vergelykings, lineêre kombinasies en die span van vektore, lineêre onafhanklikheid, deelruimtes, basis en dimensie, eiewaardes, eievektore, gelykvormigheid en diagonalisering van matrikse, lineêre transformasies.

Calculus 218 (WTW 218)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Chemie BSc Aktuariële en Finansiële Wiskunde BSc Chemie BSc Fisika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	WTW 114 en WTW 124
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied

Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Calculus van meerveranderlike funksies, rigtingsafgeleides. Ekstreemwaardes en Lagrangevermenigvuldigers. Meervoudige integrale, pool-, silindriese en bolkoördinate.

Analise 220 (WTW 220)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Meteorologie BSc Aktuariële en Finansiële Wiskunde BSc Chemie BSc Fisika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	WTW 114 en WTW 124, WTW 211 en WTW 218
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Eienskappe van reële getalle. Analise van rye en reekse reële getalle. Magreekse en konvergensiestellings. Die Bolzano-Weierstrass-stelling. Die tussenwaardestelling Analise van reëelwaardige funksies op 'n interval. Die Riemann-integraal: Bestaan en eienskappe van die integraal

Lineêre algebra 221 (WTW 221)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BSc Aktuariële en Finansiële Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Chemie BSc Fisika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	WTW 211 en WTW 218
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Abstrakte vektorruimtes, verandering van basis, martriksvoorstelling van lineêre transformasies, ortogonaliteit, diagonaliseerbaarheid van simmetriese matrikse, enkele toepassings.

Wiskunde 238 (WTW 238)

Kwalifikasie	Voorgraads
Modulekrediete	16.00
Programme	BIng Rekenaaringenieurswese ENGAGE
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	WTW 256 en WTW 258 GS
Kontaktyd	4 lesings per week, 2 tutoriale per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Lineêre algebra, eiewaardes en eievektore met toepassings op stelsels differensiaalvergelykings van eerste en tweede orde. Rye en reekse, konvergensietoetse. Magreekse met toepassings op gewone differensiaalvergelykings met veranderlike koëffisiënte. Fourier-reekse met toepassings op parsiële differensiaalvergelykings soos die potensiaal-, hitte- en golfvergelykings.

Vektoranalise 248 (WTW 248)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BSc Chemie BSc Chemie BSc Fisika BSc Geologie BSc Ingenieurs- en Omgewingsgeologie BSc Meteorologie BSc Toegepaste Wiskunde BSc Wiskunde
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	WTW 218
Kontaktyd	1 besprekingsklas per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Vektore en meetkunde, Calculus van vektorfunksies met toepassings in differensiaal-meetkunde, kinematika en dinamika. Vektoranalise, insluitend vektorvelde, lynintegrale van skalaarvelde en vektorvelde, konserwatiewe vektorvelde, oppervlakke en oppervlakintegrale, die stellings van Green, Gauss en Stokes met toepassings.

Differensiaalvergelykings 256 (WTW 256)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Wiskunde BSc Fisika BSc Wiskunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	WTW 158 en WTW 164
Kontaktyd	2 lesings per week, 1 besprekingsklas per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Teorie en oplosmetodes vir lineêre differensiaalvergelykings asook vir stelsels lineêre differensiaalvergelykings. Teorie en oplosmetodes vir eerste orde nie-lineêre differensiaalvergelykings. Die Laplace-transform met toepassing in differensiaalvergelykings. Toepassing van differensiaalvergelykings op modelleringsprobleme.

Calculus 258 (WTW 258)

Kwalifikasie	Voorgraads
Modulekrediete	8.00

Programme	BSc Wiskunde BSc Wiskunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	WTW 158 en WTW 164
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Calculus van meerveranderlike funksies, rigtingsafgeleides. Ekstreemwaardes. Meervoudige integrale, pool-, silindriese en bolkoördinate. Lynintegrale en die stelling van Green. Oppervlakintegrale en die stellings van Gauss en Stokes.

Numeriese metodes 263 (WTW 263)

Kwalifikasie	Voorgraads
Modulekrediete	8.00
Programme	BSc Wiskunde BSc Wiskunde
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Voorvereistes	WTW 164
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Numeriese integrasie. Numeriese metodes om die oplossing te benader van nie-lineêre vergelykings, stelsels vergelykings (lineêr en nie-lineêr), differensiaalvergelykings en stelsels van differensiaalvergelykings. Direkte metodes om lineêre stelsels vergelykings op te los.

Differensiaalvergelykings 264 (WTW 264)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Wiskundige Statistiek BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe

Voorvereistes	WTW 114 en WTW 124
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

* Studente sal nie vir beide WTW 162 en WTW 264 of beide WTW 264 en WTW 286 krediet ontvang vir hul graad nie.

Teorie en oplosmetodes vir gewone differensiaalvergelykings en beginwaardeprobleme: skeibare en lineêre eerste-orde-vergelykings, lineêre vergelykings van hoër orde, stelsels lineêre vergelykings. Die Laplace-transform.

Diskrete strukture 285 (WTW 285)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Wiskundige Statistiek BSc Chemie BSc Fisika BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde
Voorvereistes	WTW 115
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Opstel en oplos van rekurrensierelasies. Ekwivalensie en parsiële orde relasies. Grafieke: paaie, siklusse, bome, isomorfisme. Grafiekalgoritmes: Kruskal, Prim, Fleury. Eindige staat outomata.

Differensiaalvergelykings 286 (WTW 286)

Kwalifikasie	Voorgraads
Modulekrediete	12.00

Programme	BSc Meteorologie BSc Chemie BSc Fisika BSc Geologie BSc Meteorologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	WTW 114, WTW 124 en WTW 162
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Studente sal nie vir meer as een van die volgende modules krediet ontvang vir hul graad nie: WTW 264, WTW 286.
Teorie en oplosmetodes vir gewone differensiaalvergelykings en beginwaardeprobleme: skeibare en lineêre eerste-orde differensiaalvergelykings, lineêre vergelykings van hoër orde, stelsels lineêre vergelykings. Toepassing op wiskundige modelle. Toepassings van numeriese metodes op nielineêre stelsels.Kwalitatiewe analise van lineêre stelsels.

Analise 310 (WTW 310)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Wiskundige Statistiek BSc Aktuariële en Finansiële Wiskunde BSc Fisika BSc Geologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Geesteswetenskappe
Voorvereistes	WTW 220
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Topologie van eindigdimensionale ruimtes: Oop en geslote versamelings, kompaktheid, samehangendheid en volledigheid. Stellings van Bolzano-Weierstrass en Heine-Borel. Eienskappe van kontinue funksies en toepassings. Teorie van integrasie vir funksies van een reële veranderlike. Rye van funksies.

Komplekse analise 320 (WTW 320)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Aktuariële en Finansiële Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Fisika BSc Geologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	WTW 218 en WTW 220
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Reekse van funksies, magreekse en Taylor-reekse. Komplekse funksies, Cauchy-Riemann-vergelykings, Cauchy se stelling en integraalformules. Laurent-reekse, residustelling en berekening van reële integrale met behulp van residue.

Finansiële ingenieurswese 354 (WTW 354)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Wiskundige Statistiek BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	WST 211, WTW 211 en WTW 218
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Wiskunde en Toegepaste Wiskunde

Aanbiedingstydperk	Semester 1

Module-inhoud

Gemiddelde-variansie portfolioteorie. Mark ekwilibrium modelle soos die markpryswaarderingsmodel. Faktormodelle en arbitrage prysteorie. Beleggingsrisiko-meting. Doelmatige markhipotese. Stogastiese modelle van sekuriteitspryse.

Finansiële ingenieurswese 364 (WTW 364)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Wiskundige Statistiek BSc Aktuariële en Finansiële Wiskunde BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Voorvereistes	WST 211, WTW 124, WTW 218 en WTW 286/264
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Diskrete tyd finansiële modelle: ''Arbitrage'' en verskansing; die binomiaalmodel. Konitnue tyd finansiële modelle: Die Black-Scholes formule; die prys van opsies en ander afgeleide finansiële instrumente; rentekoersmodelle; numeriese metodes.

Algebra 381 (WTW 381)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Wiskundige Statistiek BSc Geologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Geesteswetenskappe
Voorvereistes	WTW 114 en WTW 211
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Wiskunde en Toegepaste Wiskunde

Aanbiedingstydperk	Semester 1

Module-inhoud

Groepteorie: Definisie, voorbeelde, elementêre eienskappe, ondergroepe, permutasiegroepe, isomorfie, orde, sikliese groepe, homomorfismes, faktorgroepe. Ringteorie: Definisie, voorbeelde, elementêre eienskappe, ideale, homomorfismes, faktorringe, polinoomringe, faktorisering van polinome. Liggaamsuitbreidings, toepassings op liniaal-en-passerkonstruksies.

Dinamiese stelsels 382 (WTW 382)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Aktuariële en Finansiële Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Fisika BSc Geologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Opvoedkunde Fakulteit Ekonomiese en Bestuurswetenskappe
Voorvereistes	WTW 218 en WTW 286/264
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Matrikseksponensiaalfunksies: Homogene en nie-homogene lineêre stelsels, differensiaal-vergelykings. Kwalitatiewe analise van stelsels: fasebeelde, stabiliteit, linearisering, energiemetode en Liapunov se metode. Inleiding tot chaotiese stelsels. Toepassing op werklikheidsprobleme.

Numeriese analise 383 (WTW 383)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Aktuariële en Finansiële Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Chemie BSc Fisika BSc Geologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek

Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Ekonomiese en Bestuurswetenskappe Fakulteit Geesteswetenskappe
Voorvereistes	WTW 114, WTW 123 WTW 124 en WTW 211
Kontaktyd	1 praktiese sessie per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Direkte metodes vir die numeriese oplossing van stelsels lineêre vergelykings, omspillingstrategieë. Iteratiewe metodes vir die oplos van stelsels lineêre vergelykings en eiewaardeprobleme. Iteratiewe metodes vir die oplos van stelsels nie-lineêre vergelykings. Inleiding tot optimering. Algoritmes vir die betrokke numeriese metodes word afgelei en geïmplementeer in rekenaarprogramme. Berekeningskompleksiteit word ondersoek. Foutafskattings en konvergensiestellings word bewys.

Parsiële differensiaalvergelykings 386 (WTW 386)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Aktuariële en Finansiële Wiskunde BSc Aktuariële en Finansiële Wiskunde BSc Fisika BSc Geologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	WTW 218 en WTW 286/264
Kontaktyd	2 lesings per week, 1 tutoriaal per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

Behoudwette en modellering. Fourieranalise. Hittevergelyking, golfvergelyking en Laplace se vergelyking. Oplosmetodes insluitend Fourier-reekse. Energie- en ander kwalitatiewe metodes.

Kontinuummeganika 387 (WTW 387)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Wiskundige Statistiek BSc Fisika BSc Geologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	WTW 248 en WTW 286/264
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Kinematika van 'n kontinuum: Konfigurasies, ruimtelike en materiële beskrywing van beweging. Behoudwette. Analise van spanning, vervorming en deformasietempo. Lineêre samestellingsvergelykings. Toepassings: Vibrasie van balke, ewewigsprobleme in elastisiteit en spesiale gevalle van vloeistofbeweging.

Meetkunde 389 (WTW 389)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Wiskundige Statistiek BSc Chemie BSc Fisika BSc Geologie BSc Toegepaste Wiskunde BSc Wiskunde BSc Wiskundige Statistiek
Diensmodules	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie Fakulteit Opvoedkunde Fakulteit Geesteswetenskappe
Voorvereistes	WTW 211
Kontaktyd	1 tutoriaal per week, 2 lesings per week
Onderrigtaal	Afrikaans en Engels word in een klas gebruik
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

Aksiomatiese ontwikkeling van neutrale, Euklidiese en hiperboliese meetkunde. Gebruikmaking van modelle van meetkundes om aan te toon dat die parallel postulaat onafhanklik is van die ander Euklidiese postulate.

Funksionaalanalise 710 (WTW 710)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Toegepaste Wiskunde BScHons Toegepaste Wiskunde BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise BScHons Wiskunde van Finansies
Voorvereistes	Reële analise op derdejaarvlak
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An introduction to the basic mathematical objects of linear functional analysis will be presented. These include metric spaces, Hilbert spaces and Banach spaces. Subspaces, linear operators and functionals will be discussed in detail. The fundamental theorems for normed spaces: The Hahn-Banach theorem, Banach-Steinhaus theorem, open mapping theorem and closed graph theorem. Hilbert space theory: Riesz' theorem, the basics of projections and orthonormal sets.

Moderne portefeuljeteorie 712 (WTW 712)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese
Voorvereistes	Registrasie word vir WTW 732 vereis
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An introduction to Markowitz portfolio theory and the capital asset pricing model. Analysis of the deficiencies in these methods. *Hierdie inligting is slegs in Engels beskikbaar.

Sensitivity based risk management. Standard methods for Value-at-Risk calculations. RiskMetrics, delta-normal methods, Monte Carlo simulations, back and stress testing.

Axiomatic set theory and mathematical logic 724 (WTW 724)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Axiomatic set theory, ordinals, transfinite induction and recursion, ordinal arithmetic, the axiom of choice, cardinal arithmetic, the continuum hypothesis. Propositional and first order logic. The completeness and compactness theorems. Decidability, Gödel’s incompleteness theorems.

Spesiale temas 727 (WTW 727)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise
Voorvereistes	WTW 710, WTW 731, WTW 734 en WTW 724.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A selection of special topics will be presented that reflects the expertise of researchers in the Department. The presentation of a specific topic is contingent on student numbers. Consult the website of the Department of Mathematics and Applied Mathematics for more details.

Algebra 731 (WTW 731)

Kwalifikasie	Nagraads
Modulekrediete	15.00

Programme	BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise
Voorvereistes	Algebra op derdejaarvlak
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The following topics will be covered: Galois theory and solving equations by radicals, introduction to the theory of R-modules, direct sums and products, projectivity and injectivity, finitely generated modules over Euclidean domains, primary factorisation, applications to Jordan and rational canonical forms of matrices.

Wiskundige modelle van finansiële ingenieurswese 732 (WTW 732)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese BScHons Wiskunde van Finansies
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to markets and instruments. Futures and options trading strategies, exotic options, arbitrage relationships, binomial option pricing method, mean variance hedging, volatility and the Greeks, volatility smiles, Black-Scholes PDE and solutions, derivative disasters.

Numeriese analise 733 (WTW 733)

Kwalifikasie	Nagraads
Modulekrediete	15.00

Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese BScHons Toegepaste Wiskunde BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise BScHons Wiskunde van Finansies
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An analysis as well as an implementation (including computer programs) of methods are covered. Numerical linear algebra: Direct and iterative methods for linear systems and matrix eigenvalue problems: Iterative methods for nonlinear systems of equations. Finite difference method for partial differential equations: Linear elliptic, parabolic, hyperbolic and eigenvalue problems. Introduction to nonlinear problems. Numerical stability, error estimates and convergence are dealt with.

Maatteorie en waarskynlikheid 734 (WTW 734)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Toegepaste Wiskunde BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise BScHons Wiskunde van Finansies
Voorvereistes	Reële analise op derdejaarvlak
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Measure and integration theory: The Caratheodory extension procedure for measures defined on a ring, measurable functions, integration with respect to a measure on a σ-ring, in particular the Lebesgue integral, convergence theorems and Fubini's theorem.
Probability theory: Measure theoretic modelling, random variables, expectation values and independence, the Borel-Cantelli lemmas, the law of large numbers. L^1-theory, L^2-theory and the geometry of Hilbert space, Fourier series and the Fourier transform as an operator on L^2, applications of Fourier analysis to random walks, the central limit theorem.

Main principles of analysis in application 735 (WTW 735)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese BScHons Toegepaste Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise
Voorvereistes	Calculus at 2nd-year level (eg WTW 218) and one 3rd-year level module on analysis or applications of analysis (eg WTW 310, WTW 382, WTW 383 or WTW 386)
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Study of main principles of analysis in the context of their applications to modelling, differential equations and numerical computation. Specific principles to be considered are those related to mathematical biology, continuum mechanics and mathematical physics as presented in the modules WTW 772, WTW 787 and WTW 776, respectively.

Wiskundige optimering 750 (WTW 750)

Kwalifikasie	Nagraads
Modulekrediete	15.00

Programme	BScHons Wiskunde van Finansies BScHons Finansiële Ingenieurswese BScHons Toegepaste Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise BScHons Wiskunde van Finansies
Voorvereistes	Meervariant-Calculus op 2de-jaarsvlak; Lineêre Algebra op 2de-jaarsvlak
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Classical optimisation: Necessary and sufficient conditions for local minima. Equality constraints and Lagrange multipliers. Inequality constraints and the Kuhn-Tucker conditions. Application of saddle point theorems to the solutions of the dual problem. One-dimensional search techniques. Gradient methods for unconstrained optimisation. Quadratically terminating search algorithms. The conjugate gradient method. Fletcher-Reeves. Second order variable metric methods: DFP and BFCS. Boundary following and penalty function methods for constrained problems. Modern multiplier methods and sequential quadratic programming methods. Practical design optimisation project.

Wiskundige modelle van finansiële ingenieurswese 762 (WTW 762)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese BScHons Wiskunde van Finansies
Voorvereistes	WTW 732 of WTW 364
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Exotic options, arbitrage relationships, Black-Scholes PDE and solutions, hedging and the Miller-Modigliani theory, static hedging, numerical methods, interest rate derivatives, BDT model, Vasicek and Hull-White models, complete markets, stochastic differential equations, equivalent Martingale measures.

Eindige-elementmetode 763 (WTW 763)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese BScHons Toegepaste Wiskunde BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise BScHons Wiskunde van Finansies
Voorvereistes	WTW 733 word ten sterkste aanbeveel
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An analysis as well as an implementation (including computer programs) of methods is covered. Introduction to the theory of Sobolev spaces. Variational and weak formulation of elliptic, parabolic, hyperbolic and eigenvalue problems. Finite element approximation of problems in variational form, interpolation theory in Sobolev spaces, convergence and error estimates.

Stogastiese calculus 764 (WTW 764)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Toegepaste Wiskunde BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise BScHons Wiskunde van Finansies
Voorvereistes	WTW 734 of WTW 735
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Mathematical modelling of Random walk. Conditional expectation and Martingales. Brownian motion and other Lévy processes. Stochastic integration. Ito's Lemma. Stochastic differential equations. Application to finance.

Wiskundige metodes en modelle 772 (WTW 772)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskunde van Finansies BScHons Toegepaste Wiskunde BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise BScHons Wiskunde van Finansies
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module aims at using advanced undergraduate mathematics and rigorously applying mathematical methods to concrete problems in various areas of natural science and engineering.
The module will be taught by several lecturers from UP, industry and public sector. The content of the module may vary from year to year and is determined by relevant focus areas within the Department. The list of areas from which topics to be covered will be selected, includes: Systems of differential equations; dynamical systems; discrete structures; Fourier analysis; methods of optimisation; numerical methods; mathematical models in biology, finance, physics, etc.

Parsiële differensiaalvergelykings van wiskundige fisika 776 (WTW 776)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskunde van Finansies BScHons Toegepaste Wiskunde BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise BScHons Wiskunde van Finansies
Voorvereistes	WTW 710 of WTW 735

Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Field-theoretic and material models of mathematical physics. The Friedrichs-Sobolev spaces. Energy methods and Hilbert spaces, weak solutions – existence and uniqueness. Separation of variables, Laplace transform, eigenvalue problems and eigenfunction expansions. The regularity theorems for elliptic forms (without proofs) and their applications. Weak solutions for the heat/diffusion and related equations.

Kontinuummeganika 787 (WTW 787)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Toegepaste Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Analysis of spatial versus material description of motion. Conservation laws. Derivation of stress tensors. Analysis of finite strain and rate of deformation tensors. Stress and strain invariants. Energy. Linear and nonlinear constitutive equations. Applications to boundary value problems in elasticity and fluid mechanics.

Topologie 790 (WTW 790)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	BScHons Wiskunde BScHons Wiskunde
Voorvereistes	Reële analise op derdejaarvlak
Kontaktyd	2 lesings per week
Onderrigtaal	Module word in Engels aangebied

Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

General topology: Concepts such as convergence, compactness, connectedness, separation axioms and continuity are introduced in topological spaces. Their basic properties are treated. Important topologies like the product topology and the quotient topology are discussed.
Algebraic topology: Homotopy, the fundamental group, covering spaces, homotopy type.

Projek 792 (WTW 792)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Finansiële Ingenieurswese BScHons Finansiële Ingenieurswese BScHons Wiskunde van Finansies
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Module-inhoud

Raadpleeg Departement.

Projek 795 (WTW 795)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Programme	BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Toegepaste Wiskunde BScHons Wiskunde BScHons Wiskunde en Wiskundeonderwys Algebra en Analise BScHons Wiskunde en Wiskundeonderwys Differensiaalvergelykings en Modellering BScHons Wiskunde en Wiskundeonderwys Toegepaste Analise BScHons Wiskunde van Finansies
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Module-inhoud

Raadpleeg Departement.

Konvergensieruimtes 812 (WTW 812)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Topologie, Maatteorie en Funksionaalanalise op honneursvlak
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Filters. Convergence of filters, sequences and nets in a topological space. Convergence structures, basic properties and constructs. Continuous convergence, c-embedded convergence spaces. Order convergence on lattices and posets. Convergence vector spaces and completions. Continuous convergence and duality on locally convex spaces. The Hahn-Banach theorem in convergence spaces.

Wiskundige morfologie 820 (WTW 820)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Metingsteorie en Funksionele Analise op honneursvlak
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Mathematical morphology – a theory for the analysis of special structures and a powerful methodology for the extraction of useful information from images. Morphological operators and their properties: erosion, dilation, opening, closing, granulometries. Applications to noise removal, filtering, extraction of features, edge detection, etc. LULU operators - properties and applications. Partial differential equations for morphological operators.

Wiskundige berekeningsfinansies 831 (WTW 831)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Finansiële Ingenieurswese op honneursvlak
Kontaktyd	1 lesing per week

Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Stochastic Calculus: Multidimensional Itô formula, correlated Wiener processes, the infinitesimal operator, SDE's, PDE's, the Kolmogorov equations, martingales, stochastic integral representations and Gisanov's theorem. The martingale approach to arbitrage theory. Bonds and interest rates: Martingale models, standard models, the Heath-Jarrow-Morton framework. Monte Carlo methods. Finite difference methods.

Gevorderde metodes van finansiële ingenieurswese 832 (WTW 832)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Finansiële Ingenieurswese op honneursvlak
Kontaktyd	3 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the head of the department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Interest rate derivatives. Stochastic volatility models. Models to improve on the flaws in the Black-Scholes model. Principles of deal structuring. Principles of mathematical models. Specialised methods for interest rate and exotic derivatives. Application of numerical methods to relevant practical problems.

Kwantitatiewe risikobestuur 833 (WTW 833)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Finansiële Ingenieurswese op honneursvlak
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the head of the department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Risk in perspective. Traditional RiskMetrics. Methods to calculate VaR. Designing scenario analyses and stress analysis. Risk measures based on loss distributions. Aggregate risk measures which include coherent risk measures. Extreme value theory. Correlation, copulas and dependence. Credit risk management.

Homogenisering van parsiële differensiaalvergelykings 836 (WTW 836)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Funksionaalanalise, Maatteorie en waarskynlikheid , Parsiële differensiaalvergelykings op honneursvlak
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Review of functional analysis, Sobolev spaces and variational problems; rapidly oscillating function; periodic composite materials; homogenisation of elliptic problems; multiple scale method; two-scale convergence and applications.

Spesiale funksies en benaderingsteorie 840 (WTW 840)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Complex Analysis at 3rd-year level; Advanced Calculus and Ordinary Differential equations (ODEs)
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
The Gamma and Beta functions, the hypergeometric function, orthogonal polynomials and their properties, classical orthogonal polynomials such as Chebychev, Hermite, Laguerre, Ultraspherical and Jacobi polynomials, Padé approximation, applications of zeros of orthogonal polynomials to convergence of Padé approximants.

Stogastiese parsiële differensiaalvergelykings 846 (WTW 846)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Functional analysis, Measure theory, Partial differential equations at honours level. Knowledge of Probability theory is advised but not required
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Generalities on probability theory (random variables, conditional expectations); Martingales; stochastic integrals; Markov processes; existence and uniqueness results for ordinary stochastic differential equations; Sobolev spaces, Aubin-Dubinsky-Simon compactness theorem; convergence of probability measures: Prokhorov and Skorokhod theorems; existence and uniqueness of solutions of stochastic parabolic equations in divergence form: The Galerkin scheme; idea of renormalization group theory in turbulent flows modelled by Navier-Stokes equations with random forcing.

Wiskundige epidemiologie 850 (WTW 850)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Dynamical systems, Ordinary differential equations (ODEs)
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
The spread of infections is modelled via dynamical systems defined by sets of differential equations. Compartmental models of the spread of contagious infection (e.g. MSEIR) and models of vector borne diseases are considered. Methods of analysis of the local and global asymptotic stability of the disease free and endemic equilibria and their characterization in terms of the basic reproduction number. Reliable numerical simulations and sensitivity analysis with respect to the parameters of the models.

Inleiding tot kategorieë en gerwe 851 (WTW 851)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
The language of categories; limits; additive and abelian categories; abelian sheaves; cohomology of sheaves; homotopy and fundamental groupoid.

Tralieteorie 855 (WTW 855)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Algebra at 3rd-year level
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
The following topics will be studies: Ordered sets; down-sets of ordered sets; lattices and complete lattices; modular, distributive and Boolean lattices (as algebras and as ordered sets); the representation of lattices by collections of sets; the lattice of congruences of a lattice; complete partially ordered sets and fixed point theorems and maximality principles.

Eindige element analise 863 (WTW 863)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Finite element method and Functional analysis at honours level
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Finite element interpolation theory. Finite element approximation of elliptic boundary value problems and eigenvalue problems. Finite element approximation of parabolic and hyperbolic initial value problems. Applications in a project.

Grafiekteorie 865 (WTW 865)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Discrete structures at 3rd-year level
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
The basics (including a variety of topics); matchings; connectivity; planarity; colourings and generalised colourings and hereditary properties of graphs.

Hiperboliese stelsels differensiaalvergelykings 866 (WTW 866)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Partial differential equations at 3rd-year and hons level; Advanced calculus and Linear algebra
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Systems of first order partial differential equations and their relationship to wave phenomena. The course will show that the traditional wave equation is over-rated as study material. More detailed contents: Hyperbolicity of first order systems (linear and nonlinear); characteristic curves and surfaces; domains of influence and dependence; well-posedness of initial and boundary value problems; shock phenomena; numerical calculation of solutions; application to the equations of compressible gas dynamics and Maxwell's equations for electromagnetism.

Differensiaalmeetkunde 869 (WTW 869)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Linear algebra, Differential and Integral calculus, Partial differential equations at hons level
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Differentiable manifolds; multilinear algebra; exterior differential calculus; integration of differential forms and De Rham cohomology; connections on frame bundles; Riemannian manifolds and submanifolds; second fundamental form; harmonic mappings between Riemannian manifolds.

Sobolev ruimtes 880 (WTW 880)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Maatteorie, Differensiaalvergelykings en Funksionaalanalise
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of Department of Mathematics and Applied Mathematics about the availability of this master’s course in a particular year.
Mathematics about the availability of this masters module in a particular year.The module focuses on the Hilbertion Sobolev spaces as well as to their applications to elliptic boundary value problems. Topics to be discussed include: Distributions; Sobolev spaces of positive and negative integer orders; Sobolev spaces of traces; Embeddings of Sobolev spaces; Boundary value problems.

Abstrakte analise 881 (WTW 881)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Maatteorie en Funksionaalanalise op honneursvlak
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Capita selecta from the following: Duality theory. Weak and Weak* topologies. The Krein- Milman theorem. The Stone-Weierstrass theorem. Fixed point theorems. Banach Algebras and the Gelfand transform. C*-algebras and their representations. Semigroups of operators. Functional analysis applied to probability theory and stochastics.

Gevorderde maatteorie 884 (WTW 884)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Maatteorie en Funksionaalanalise op honneursvlak
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Lebesgue integral in a general measure space: Basic properties, convergence theorems, convergence in measure. Lebesgue spaces: Completeness, approximation by continuous functions. Complex measures: Absolute continuity, Random-Nikodym Theorem, representation of bounded linear functionals on Lebesgue spaces, Riesz Representation Theorem for bounded linear functionals on the space of continuous functions on a locally convergent Hausdorff space where X is a locally compact Hausdorff space. Applications to probability.

Wiskunde 886 (WTW 886)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Refer to the Department regarding the module content.

Dinamiese stelsels 887 (WTW 887)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Funksionaalanalise, Parsiële Differensiaalvergelykings en Eindige Elementmetode op honneursvlak
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Finite dimensional dynamical systems: Autonomous and non-autonomous systems of differential equations, dynamical systems, linear and nonlinear systems, existence and uniqueness of solutions, extension of solutions, maximal solution and maximal interval of existence, phase space and phase portrait. Stability theory for equilibria and periodic orbits using linear approximation, Liapunov's method and other energy methods and discrete dynamical systems (Poincarè map). Introduction to strange attractors. Application to mechanics and population models. Infinite dimensional dynamical systems: Semigroups, first and second order abstract differential equations, Sobolev spaces, finite dimensional approximation. Application to heat conduction and mechanical vibration. Examples of nonlinear systems.

Spesiale onderwerpe in wiskunde 888 (WTW 888)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.
Content will vary from time to time depending on the availability of expertise in the Department.

Wiskunde 889 (WTW 889)

Kwalifikasie	Nagraads
Modulekrediete	0.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.
Refer to the Department regarding the module content.

Verhandeling: Wiskunde van Finansies 892 (WTW 892)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Wiskunde van Finansies MSc Wiskunde van Finansies
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Verhandeling: Wiskunde-Onderwys 893 (WTW 893)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Wiskunde-Onderwys MSc Wiskunde-Onderwys
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Verhandeling: Finansiële Ingenieurswese 894 (WTW 894)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Finansiële Ingenieurswese MSc Finansiële Ingenieurswese
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Doktoraal Mondeling 990 (WTW 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Proefskrrif: Wiskunde-Onderwys 993 (WTW 993)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Wetenskap- en Wiskundeonderwys PhD Wetenskap- en Wiskundeonderwys
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Wiskunde en Toegepaste Wiskunde
Aanbiedingstydperk	Jaar

Diereverskeidenheid 161 (ZEN 161)

Kwalifikasie	Voorgraads
Modulekrediete	8.00

Programme	BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Biochemie BSc Biologiese Wetenskappe BSc Biotegnologie BSc Chemie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mensfisiologie BSc Mensgenetika BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde BSc Verlengde program - Biologiese en Landbouwetenskappe BSc Voedselwetenskap BScAgric Landbou-ekonomie en Agribesigheidsbestuur BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe BScAgric Veekunde
Diensmodules	Fakulteit Opvoedkunde Fakulteit Veeartsenykunde
Voorvereistes	MLB 111 GS of TDH
Kontaktyd	Prakties tweeweekliks, 2 lesings per week
Onderrigtaal	Aparte klasse vir Engels en Afrikaans
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Diere-klassifikasie, filogenie, organisasie en terminologie. Evolusie van die verskillende diere-filums, morfologiese eienskappe en lewensiklusse van parasitiese en nie-parasitiese diere. Struktuur en funksie van voortplanting, respirasie, uitskeiding, bloedsomloop en verteringsisteme.

Invertebraatbiologie 251 (ZEN 251)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mensfisiologie BSc Biotegnologie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mensfisiologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde

Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	ZEN 161 GS of TDH
Kontaktyd	4 lesings per week, 1 praktiese sessie per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

Oorsprong en omvang van moderne invertebraatverskeidenheid; parasiete van die mens en huisdiere; biologie en mediese belangrikheid van die arachnide; insekgewoontes; die invloed van die omgewing op inseklewensiklusse; insekfitofagie, predasie en parasitisme; chemiese, visuele en ouditoriese kommunikasie by insekte; varswaterinvertebrate en hul gebruik as biologiese indikatore.

Afrika-vertebrate 261 (ZEN 261)

Kwalifikasie	Voorgraads
Modulekrediete	12.00
Programme	BSc Mensfisiologie BSc Biotegnologie BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Mensfisiologie BSc Mikrobiologie BSc Omgewingswetenskappe BSc Plantkunde
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	ZEN 161 GS of TDH
Kontaktyd	1 praktiese sessie per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

Inleiding tot algemene vertebraatverskeidenheid; verskeidenheid van Afrika-vertebrate; vertebraatstruktuur en –funksie; evolusie van vertebrate; verwantskappe van vertebrate; akwatiese vertebrate; terrestriële ektoterme; terrestriële endoterme; vertebraatkenmerke; klassifikasie; strukturele aanpassings; gewoontes; habitatte; bewaringsprobleme; invloed van mense op ander vertebrate.

Bevolkingsekologie 351 (ZEN 351)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Plantkunde BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Omgewingswetenskappe BSc Plantkunde
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

Wetenskaplike benadering tot ekologie; evolusie en ekologie; die individu en die omgewing; bevolkingseienskappe en demografie; kompetisie; predasie; plant-herbivoor-interaksies; regulering van bevolkings; bevolkingsmanipulasie.

Soogdierkunde 352 (ZEN 352)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Plantkunde BSc Dierkunde BSc Genetika BSc Plantkunde
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

Oorsprong en eienskappe van soogdiere: evolusie van Afrika-soogdiere; struktuur en funksie: huid, ondersteuning en beweging; voedsel en voeding; omgewingsaanpassings; voortplanting; gedrag; ekologie en biogeografie; sosiale gedrag; ouersorg en paringsisteme; gemeenskapsekologie; soögeografie. Spesiale onderwerpe: parasiete en siektes, domestikering en huisdiere; bewaring.

Gemeenskapsekologie 353 (ZEN 353)

Kwalifikasie	Voorgraads

Modulekrediete	18.00
Programme	BSc Plantkunde BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika BSc Omgewingswetenskappe BSc Plantkunde
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	ZEN 351 (50%) (Note: Prerequisite not applicable to students enrolled for a dual major in Zoology and Plant Science)
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The scientific approach; characteristics of the community; the community as a superorganism; community changes; competition as a factor determining community structure; disturbance as a determinant of community structure; community stability; macroecological environmental gradients and communities. A field trip will be conducted during the September vacation to the Sani Pass region of the Maloti-Drakensberg Mountains.

Evolusionêre fisiologie 354 (ZEN 354)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Plantkunde BSc Dierkunde BSc Entomologie BSc Genetika BSc Plantkunde
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

Hierdie module fokus op die integrering van fisiologiese sisteme in die konteks van dierevorm en -funksie, en die maniere hoe evolusie die fisiologiese prosesse wat die vloei van energie, water en nutriënte tussen diere en hulle omgewing dryf. Onderwerpe wat behandel word sluit in: (i) sirkulasie, gas-uitruiling en uitskeiding; (ii) voedingsekologie; (iii) osmoregulering en termoregulering; en (iv) voortplantingsfisiologie. Die hooffokus van die module is om die belangrikste bronne van fisiologiese verskeidenheid, naamlik die effek van skaal, filogenetiese traagheid, aanpassing en fenotipiese buigsaamheid te verstaan en te kan toepas om die fisiologiese prosesse op sellulêre vlak en makrofisiologiese patrone op globale skaal konseptueel met mekaar te kan verbind.

Insekdiversiteit 355 (ZEN 355)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Plantkunde BSc Entomologie BSc Genetika BSc Mikrobiologie BSc Plantkunde
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	ZEN 251 GS of TDH
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 1

Module-inhoud

Omvang en belang van insekverskeidenheid. Funksionele insekmorfologie. Die basiese beginsels van taksonomie en klassifikasie van taksa binne die Insecta. Insekordes en ekonomies en ekologies belangrike suider-Afrikaanse insekfamilies. Identifikasie van insekordes en families deur kenmerkende eienskappe te gebruik. Algemene biologiese en gedragseienskappe van elke groep. Groepering van insekte in soortgelyke lewenstyle en gewoontes.

Fisiologiese prosesse 361 (ZEN 361)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Genetika BSc Dierkunde BSc Ekologie BSc Entomologie BSc Genetika
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	Geen voorvereistes.

Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

Hierdie module fokus op die maniere hoe diere die buite- en binne-omgewing kan aanvoel en daarop reageer. Onderwerpe wat behandel word sluit in: (i) die strukture en funksie van biologiese membrane; (ii) neurone en senuwee-stelsels; (iii) aanvoeling van die omgewing; (iv) kliere, hormone en die regulering van ontwikkeling en groei; (v) spiere en beweging; en (vi) die prikkelling en beheer van gedrag. Die implikasies vir hierdie fisiologiese prosesse vir bewaring en bestuur van diere word beklemtoon. 'n Vergelykende benadering word deurgaans deur die module gevolg om die ooreenstemming tussen groepe te beklemtoon asook hoe die verskillende filogenetiese lyne soortgelyke fisiologiese funksies bekom het vanaf verskeie strukturele aanpassing.

Evolusie en filogenie 362 (ZEN 362)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Entomologie BSc Dierkunde BSc Ekologie BSc Entomologie
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 3

Module-inhoud

Evolusie as 'n proses en patroon, belangrike kragte in evolusie, seleksie, drywing, algemene bevolkingsgenetika. Bevolkingsdifferensiasie, oorgang, subspesies en spesies, aanpassing as 'n belangrike krag in evolusie en die panglossiese paradigma, molekulêre evolusie. Filogeografie, filogenetiese rekonstruksie. Evolusionêre biogeografie. Aanpassing, Darwinformulering, onmiddellike en uiteindelike oorsake, genetiese en ontwikkelingsbeperkings, optimaliteit. Fenotipiese modelle, die vergelykende metode, konvergerende evolusie. Evolusie van komplekse biologiese sisteme, oorsprong van lewe en geslag, makro-evolusie, puntekwilibrium, menslike evolusie. Vlakke van seleksie. Spesieskonsep.

Gedragsekologie 363 (ZEN 363)

Kwalifikasie	Voorgraads
Modulekrediete	18.00

Programme	BSc Genetika BSc Dierkunde BSc Genetika BSc Omgewingswetenskappe
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 lesings per week, 2 praktiese sessies per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

Die geskiedenis van gedragsekologie. ‘n Oorsaaklike, ontwikkelings-, evolusionêre en aanpassingsbenadering. Sensoriese sisteme en kommunikasie. Geslagtelike seleksie, keuse van maats en spermkompetisie. Seleksie van naverwante en saamleef van groepe. Spesiale verwysing na sosiale insekte. Menslike bewaringsekologie. Filogenetiese basis van gedragsanalise. Bewaringsimplikasies van gedragsekologie.

Bewaringsekologie 364 (ZEN 364)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Plantkunde BSc Dierkunde BSc Ekologie BSc Entomologie BSc Omgewingswetenskappe BSc Plantkunde
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

This module is intended to provide students with the skills and knowledge that are essential for the conservation of biodiversity. The module focuses on conservation theory and practice (e.g. endangered species, habitat loss, overexploitation, climate change), and has a practical component. The students will be actively involved in planning and executing field projects, and will be responsible for analysing and presenting the results. The students will gain valuable theoretical and practical experience in the field of conservation ecology by being exposed to a number of different taxa.

Toegepaste entomologie 365 (ZEN 365)

Kwalifikasie	Voorgraads
Modulekrediete	18.00
Programme	BSc Mikrobiologie BSc Entomologie BSc Genetika BSc Mikrobiologie BSc Plantkunde BScAgric Plantpatologie BScAgric Toegepaste Plant- en Grondwetenskappe
Diensmodules	Fakulteit Opvoedkunde
Voorvereistes	Geen voorvereistes.
Kontaktyd	2 praktiese sessies per week, 4 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Kwartaal 4

Module-inhoud

*Dit word sterk aanbeveel dat studente eers ZEN 355, Insekdiversiteit 355 geslaag het. Impak van insekte op die ekonomie menslike gesondeid en welsyn. Beskerming van gewasse teen beskading deur insekherbivore deur middel van monitoring, voorspelling en die toepasing van beginsels van geïntegreerde plaagbeeer; epidemiologie en modern ontwikkelings in die beheer van insekvektore van mens- en dieresiektes; gebruik van insekte by forensiese ondersoeke; ekologiese en ekonomiese belang van insekbestuiwers en hoe hulle tans bedreig word. Lesings sal aangevul word deur praktiese blootstelling wat studente sal bekwaam in die ontwerp, uitvoer, analise, interpretasie en verslagdoening van toegepaste entomologiese navorsing.

Navorsingsprojek 701 (ZEN 701)

Kwalifikasie	Nagraads
Modulekrediete	68.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Verwys asseblief na die Engelse weergawe van die Modulekatalogus vir die inhoud van hierdie module.

Sistematiese evolusie en Bio-Geografie 703 (ZEN 703)

Kwalifikasie	Nagraads

Modulekrediete	13.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	20 lesings per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The object of this module is to introduce students to several contemporary problem areas in systematics, evolutionary theory and biogeography, and to use this as a basis for exploring current approaches and methods in systematics.

Ekologiese en ewolusionêre fisiologie 704 (ZEN 704)

Kwalifikasie	Nagraads
Modulekrediete	13.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Fisiologiese prosesse onderliggend aan ekologiese- en gedragspatrone. Drie algemene onderwerpe word gedek: (i) die fisiologiese basis en betekenisvolheid van biologiese ritmes, en die invloed van omgewingsveranderlikes soos daglengte, (ii) die fisiologiese meganismes wat toelaat dat diere op gespesialiseerde diëte soos verdunde nektar voed, en (iii) die stel navorsingswerktuie wat ontleding van natuurlik-teenwoordige stabiele isotoop verhoudinge aan fisioloë en ekoloë verskaf.

Ekologie 705 (ZEN 705)

Kwalifikasie	Nagraads
Modulekrediete	13.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie

Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Die module spits op kragte wat bevolkings- en gemeenskapspatrone en prosesse oor tydelike en ruimtelike skale heen dryf. Aandag word gegee aan die wetenskaplike toepassing van ekologiese en makro-ekologiese beginsels wat verband hou met kort- en langtermyn bevolkings- en gemeenskapsreaksie tot omgewingsverandering. Groepbesprekings gebaseer op huidige literatuur verskaf geleenthede om teoretiese beginsels tot probleemoplossing aan te wend.

Geïntegreerde plaagbestuur in Afrika 707 (ZEN 707)

Kwalifikasie	Nagraads
Modulekrediete	13.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 besprekingsklas per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Uitbrake van peste en die toepassing van integreerde pestebestuur deur van verskillende beheermaatreëls gebruik te maak; filosofie van IPB; sosio-ekonomiese implikasies; politiek en wetgewing; pestemodelle; besluitnemings-werktuie en tegnieke.

Soogdierekologie 710 (ZEN 710)

Kwalifikasie	Nagraads
Modulekrediete	13.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie

Aanbiedingstydperk	Semester 2

Module-inhoud

Hedendaagse knelpunte in soogdierekologie; die brandpunt sal op die hedendaagse begrip op individuele, bevolking, gemeenskap en ekosisteem-vlakke wees.

Gedragsekologie 712 (ZEN 712)

Kwalifikasie	Nagraads
Modulekrediete	13.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 2

Module-inhoud

Die aanwending van ekologiese en ewolusionêre prosesse om die voorkoms en aanpassingsbetekenisvolheid van gedragspatrone te verduidelik. Empiriese, vergelykende ontledings wat gedrag met die omgewing in verband bring sal aangespreek word, insluitend die gebruik van gedragsprosesse om ekologiese patrone te voorspel.

Wetenskaplike Kommunikasie 713 (ZEN 713)

Kwalifikasie	Nagraads
Modulekrediete	13.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Basic skills in philosophy of science; research planning; scientific writing; scientific public speaking; an essay, two oral presentations, prescribed reading and an oral exam.

Insek-plant interaksies 782 (ZEN 782)

Kwalifikasie	Nagraads

Modulekrediete	13.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 2

Module-inhoud

'n Oorsig van die komplekse wêreld van insek-plant interaksies. Insekte en plante het saam voorgekom en mede-ontwikkel op hierdie planeet vir ten minste 400 miljoen jaar, en in verskeie eko-stelsels is insekte die primêre verbruikers van plantweefsel. Die verskillende strategieë wat op die grens tussen herbivorie en plantverdediging ontwikkel sal ondersoek word, met behulp van gevallestudies en die toepassing van verenigende teorie waar moontlik.

Wêreld klimaatsverandering en biodiversiteit 783 (ZEN 783)

Kwalifikasie	Nagraads
Modulekrediete	13.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week, 3 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 1

Module-inhoud

Die module het ten doel om studente te voorsien van 'n begrip van wêreld klimaatsverandering en die impak daarvan op die bewaring van biodiversiteit.

Contemporary research techniques 784 (ZEN 784)

Kwalifikasie	Nagraads
Modulekrediete	13.00
Programme	BScHons Entomologie BScHons Dierkunde BScHons Entomologie
Voorvereistes	Geen voorvereistes.

Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Stable isotope ecology – applications of stable isotope-based techniques in zoological research, including (i) tracking animal movements, (ii) dietary reconstruction, (iii) delineation of trophic levels, (iv) tracing nutrient allocation to reproduction, (v) forensic applications, and (vi) doubly-labelled water and water tracer applications. Stress hormones – the spectrum of stress molecules, how they are regulated, what their impacts are, and how they are measured to reflect acute and chronic stress. Photogrammetry – (i) appropriate equipment for photogrammetry, (ii) photographic techniques for photogrammetric use, (iii) photogrammetry software, (iv) building three-dimensional models, (v) measuring models. Applications of molecular biology to conservation genetics, infectious disease epidemiology and ecology, forensics (host and pathogen-based) and diagnostics.

Bewaringsbeplanning en -monitering 808 (ZEN 808)

Kwalifikasie	Nagraads
Modulekrediete	15.00
Programme	MSc Omgewingsekologie (Gedoseer) MSc Omgewingsekologie (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Biodiversity survey techniques; data and information management; data assessment; principles of data extrapolation; inventories; biodiversity risk assessment (PHVA, small and declining population paradigms, prioritisation); principles of reserve selection; surrogacy; reserve design; integrated land-use planning. Landscape theories and models (hierarchy, percolation, metapopulation, source-sink); scaling patterns and processes across landscapes (patches, corridors, mosaics and flows); emerging patterns and processes; principles of landscape dynamics; principles of landscape conservation, management and design (transformation, fragmentation); methods in landscape ecology (numerical and spatial data processing, fractal geometry approach, GIS, remote sensing, GPS, spatially explicit population models).
Skills: GradSect, Access, Excel, Visual Basic, GIS (Arc View) reserve selection algorithms.

Biogeografie en makro-ekologie 809 (ZEN 809)

Kwalifikasie	Nagraads

Modulekrediete	15.00
Programme	MA Omgewing en Samelewing (Gedoseer) MSc Omgewingsekologie (Gedoseer)
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Biogeographic consequences of plate tectonics, Pleistocene southern African climatic, geological, edaphic and geomorphological patterns. Reconstructing biogeographic histories (speciation, extinction, dispersal, vicariance, endemism, provincialism and disjunction); phytogeographical patterns, biomes, vegetation types. Methodological issues in macro-ecology; patterns of body size, abundance and energetics; geographic range sizes; species dynamics in landscapes; implications of macro-ecological patterns to ecology; biogeography and evolution; macro-ecological perspectives on conservation: species richness, hierarchical diversity, hotspots, spatial and temporal patterns in diversity (genetic, taxonomic, functional); causal mechanisms, species diversity, biodiversity and global change.

Bewaring en ontwikkeling 811 (ZEN 811)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An international perspective on human resource utilisation and its global effects. The problems of implementing conservation measures in the face of human development. Conservation as an economic process.

Bevolkings en gemeenskappe: Ruimte- en tydsvariasie 872 (ZEN 872)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	4 besprekingsklasse per week

Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Demography with emphasis on forces affecting population growth rate and regulation; competition and facilitation within and between populations; risk and risk assessment; temporal trends and extinction; management, harvesting and control with emphasis on illustrating principles using studies conducted in Africa. Structure, composition and function of communities with emphasis on factors affecting resilience, resistance and persistence; temporal variability with emphasis on the influences of foodwebs structure and environmental variability; spatial pattern analysis; species-abundance relations; species affinities; community classification.

Bewaring in praktyk 875 (ZEN 875)

Kwalifikasie	Nagraads
Modulekrediete	30.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 ander kontak per week, 4 besprekingsklasse per week
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Conceptual issues in the management of small populations; captive propagation; control of invasive species; control of problem populations; restoration of species and communities; conservation education, and involvement of local communities in conservation programmes; monitoring techniques and data handling; design and interpretation of laboratory and field experiments to solve ecological and conservation problems.

Navorsingsprojek 891 (ZEN 891)

Kwalifikasie	Nagraads
Modulekrediete	120.00
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Research projects may be based either on fieldwork, laboratory work, experiments or the analysis of existing data sets. This decision must be taken in consultation with the candidate's designated project supervisor. The choice of project topic will be determined to a very large extent by the time available for data collection and analysis.
Students should select and approach a potential supervisor based on their own interests and that of the supervisors. A list of projects may be made available, although the students may choose their own project as long as a supervisor agrees to it. Joint supervision of projects by more than one person at the University, or one person from outside the University, is also possible.
The purpose of the research project is to provide students with a thorough grounding in the planning, execution, analysis and scientific writing stages of a research project. Students must complete the background reading, design the objectives and perform the observations and/or experiments pertaining to the chosen project, as well as the analysis and compilation of the results and discussion in the form of a scientific publication. The project should be formatted for submission to a scientific journal.

Verhandeling: Dierkunde 890 (ZOO 890)

Kwalifikasie	Nagraads
Modulekrediete	180.00
Programme	MSc Dierkunde MSc Dierkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Proefskrif: Dierkunde 990 (ZOO 990)

Kwalifikasie	Nagraads
Modulekrediete	360.00
Programme	PhD Dierkunde PhD Dierkunde
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Departement	Dierkunde en Entomologie
Aanbiedingstydperk	Jaar

Die inligting wat hier verskyn, is onderhewig aan verandering en kan na die publikasie van hierdie inligting gewysig word.. Die Algemene Regulasies (G Regulasies) is op alle fakulteite van die Universiteit van Pretoria van toepassing. Dit word vereis dat elke student volkome vertroud met hierdie regulasies sowel as met die inligting vervat in die Algemene Reëls sal wees.

Onkunde betrefffende hierdie regulasies en reels sal nie as ‘n verskoning by oortreding daarvan aangebied kan word nie.