FACULTIES OF THE UNIVERSITY OF PRETORIA

HUMANITIES NATURAL AND AGRICULTURAL SCIENCES LAW THEOLOGY ECONOMIC AND MANAGEMENT SCIENCES VETERINARY SCIENCE EDUCATION HEALTH SCIENCES ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY

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ISBN 1-86854-612-8

FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

School of Biological Sciences

- Anatomy
- Biochemistry
- Botany
- Genetics
- Microbiology and Plant Pathology
- Physiology
- Zoology and Entomology

School of Physical Sciences

- Chemistry
- Geology
- Geography, Geoinformatics and Meteorology
- Physics
- Gold Fields Computer Centre for Education (Discovery Centre@Tuks)

School of Agricultural and Food Sciences

- Agriculture Economics, Extension and Rural Development
- Animal and Wildlife Sciences
- Consumer Science
- Food Science
- Plant Production and Soil Science

School of Mathematical Sciences

- Insurance and Actuarial Science
- Mathematics and Applied Mathematics
- Statistics

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Extraordinary Professor

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Department of Animal and Wildlife Sciences

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Department of Consumer Science

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Senior Lecturer
Senior Lecturer
Lecturer
Lecturer
Lecturer
Lecturer
Lecturer

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Postgraduate School of Agriculture and Rural Developmer	nt
Machethe, C.L., BSc(Agric)(Hons) (University of Fort Hare) MSc(Agric) (University of the North) M.S. PhD (Michigan State University)	Professor / Director:
Perret, S., D.E.A., (Agronomy) PhD(Agronomy)(Montpellier France)	Associate Professor
South African Institute for Agricultural Extension	
Düvel, G.H., Dip Agric (Cedara) BSc(Agric) MInstAgrar DInstAgrar(Pret) PrSciNat	Director
School of Mathematical Sciences Lubuma, J.M-S., MSc PhD(Univ of Louvain, Belgium)	Professor Chairperson
Department of Statistics	
Crowther NAS BSc(Hons)(HOES) MSc(HPE)	
DSc(UOFS)	Professor (Head)
Stoker, D.J., MSc(PU for CHE) MSc(Stell)	(,
Math et Phys Dr (Amsterdam)	Honorary Proefessor
Steyn, H.S., MSc(UOFS) PhD(Edin) DSc(Pret) DSc(hc)	
(Unisa) DSc(hc)(UOFS) PhD(hc)(RAU) DCom(hc)	
(Pret)(OVDS)	Extraordinary Professor
Groeneveld, H. L., BSc(Agric)(Hons) MSc(Agric)(UUFS)	Drofossor
Smit C E MSc DSc/Prot) PrSciNat	Professor
Van Zul, G. L.L. BCom(Hons)(Stell) Din Stat(Ovon)	FIDIESSOI
PhD(North Carolina)	Professor
Boraine H MSc PhD(Pret)	Senior Lecturer
Grimbeek R.I. BSc(Hons) MSc(Pret)	Senior Lecturer
Kanfer, F.H.J., MSc PhD(PU for CHE).	Senior Lecturer
Louw, E.M., MSc PhD(Pret)	Senior Lecturer
Millard, S.M., BCom(Hons) MCom(Pret)	Senior Lecturer
Swanepoel, A., BSc(Hons) MSc(UPE)	Senior Lecturer
Bodenstein, L.E., BCom(Hons) MCom(Pret)	Lecturer
Crafford, G., BSc(Hons) MSc(Pret)	Lecturer
De Villiers, C.M., BSc(Hons) MSc(Pret)	Lecturer

Lecturer
Lecturer
Lecturer
Lecturer
Junior Lecturer
Junior Lecurer
Junior Lecturer

Department of Insurance and Actuarial Science

Ströh, A., MSc PhD(Pret)	Professor (Acting Head)
Du Plessis, H.L.M., BSc(Wits) FIA	Associate Professor
Sauer, J.J.C., BCom(Hons)(Pret) FIA	. Lecturer

Department of Mathematics and Applied Mathematics

Lubuma, J.M-S., MSc PhD (Univ of Louvain, Belgium) Delbaen, F.E., PhD(Free Univ Brussels) Diestel, J., BS(Dayton) PhD(Cath Univ of America) Rosinger, E.E., MSc Dr Sc(Bucharest) Sauer, N., MSc(Pret) PhD(Unisa) Engelbrecht, J.C., MSc(Pret) DSc(PU for CHE) Penning, F.D., MSc DSc(Pret) Pretorius, L.M., MSc DSc(Pret) Schoeman, M.J., MSc(Pret) Dr Sc T Wet(Delft) L.Akad.(SA) Ströh, A., MSc PhD(Pret)	Professor (Head) Extraordinary Professor Honorary Professor Emeritus Professor Professor Professor Professor Professor Professor Professor
Swart, J., BSC(Hons) MSC(PU for CHE) DrPhil(Zurich)	Professor
Janse van Rensburg, N.F., BSc(Pret) BSc(Hons)(Unisa)	
MSc DSc(Pret) HED	Associate Professor
Maré, E., MSc(Wits) PhD(UOFS)	Associate Professor
Anguelov, R., MSc(Sofia) PhD(Unisa)	Senior Lecturer
Duvenhage, R. de V., MSc PhD(Pret)	Senior Lecturer
Greybe, W.G., MSc DSc(Pret)	Senior Lecturer
Harding, A.F., MSc DSc(Pret) HNED	Senior Lecturer
Jordaan, K.H., BSc(Hons)(Wits) HED MSc(Pret) PhD (Wits)	Senior Lecturer
Le Roux, C., MSc(Cape Town) PhD(Pret)	Senior Lecturer
Möller, M.P., BSc(Hons)(Comp. Science) BSc(Hons)(Maths)	
MSc(Pret)	Senior Lecturer
Mureithi, E.W., MSc(Univ of Kenyatta)	
PhD (Univ of South Wales)	Senior Lecturer
Mutangadura, S.A., BSc(Hons) PhD(London)	Senior Lecturer
Theron, F., MSc DSc(Pret) HED	Senior Lecturer
Labuschagne, A., BSc(Hons) MSc(PU for CHE) DTE	Lecturer
Maepa, S.M., STD(Setotolwane College of Educ.) BSc(Hons)	
(Univ of North) MSc(Univ of Lancaster) PhD(Pret)	Lecturer
Mostert, L., BSc(Hons) MSc(PU for CHE)	Lecturer
Van Zyl, A.J., BSc(Hons) MSc(Pret)	Lecturer
Verwey, A., BSc(Hons) MSc(Pret)	Lecturer
Foundation Year Programme in Mathematics and the Basi	c Sciences (UPFY)

Smith, U.L., BSc MSc CCE (Utrecht)	Director
Botha, A., BSc(PU for CHE) HED BSC(Hons)(UP)	Chemistry Lecturer
De Beer, J.J.J., BSc (Ed)(RAU) BSc(Hons) MEd(RAU)	-
PhD(Vista)	Biology Lecturer

De Beer, N., BSc BSc(Hons)(Wits) HED(Unisa)	Chemistry Lecturer
MSc(UWC)	Mathematics Lecturer
Golpalraj,G.R.,BSc MSc(Entomology)(Madurai Kamaraj	Dialogy Locturor
Hoon K BSc MSc(PU for CHE) HED(POK)	Physics Lecturer
Jansen, C.S., BA BBibl(Hons) HED BEd(Unisa) MA(Stell)	ESS Lecturer
Kiviet, A.M., BSc(Hons)(Fort Hare) MSc(Michigan State	
University) HED(Unitra) BEd DEd (Unisa) MEd(Columbia, USA)	Biology Lecturer
Moji, C., BSc(Uniqwa) BSc(Hons)(Unin) MSc PhD(Natal)	Physics Lecturer
Naidoo, M., BSc(Unisa) BSc(Hons) MSc(PU for CHE)	Mathematics Lecturer
Naudé, K., BA BA(Hons)(Pret) Mphill(Stell)	ESS Lecturer
Ramatsetse. P., BSc BSc(Hons) MSc(Unin)	Chemistry Lecturer
Ranooe, R., BSc BSc(Hons)(Wits) MSc(UOFS)	Mathematics Lecturer
Tshifaro, T.J., BSc BSc(Hons)(Vista)	Technician
Student Administration	
Beresford, M.E., Mrs	Head: Student

Kotze, S	

Head: Student Administration Faculty Manager

GENERAL INFORMATION

Admission

Any person who wishes to register at the University for the first time, or after an interruption of studies, should apply or reapply for admission. Application for admission to all undergraduate modules closes on 30 September.

Selection

A selection procedure takes place prior to admission to the following degree programmes in the Faculty of Natural and Agricultural Sciences:

(a) All undergraduate programmes

Note: BSc: Veterinary Biology:

A first round selection process for the degree BSc: Veterinary Biology will take place at the end of the second year of study provided a candidate had passed the prescribed modules. Students not selected at the end of the second year will be able to continue in their third year with any one of a number of different degree options including a three-year BSc degree with options in either Animal Sciences, Botany, Biotechnology, Entomology, Genetics, Microbiology, Zoology, or alternatively a fouryear BSc(Agric) in Animal Science. However, it may be necessary to register for additional outstanding prescribed modules.

A final selection of candidates who will be admitted to the BVSc programme will be made at the end of the third year in terms of rules G.1.3, G.1.4 and G.62, based on academic merit, an interview and according to available capacity. Students not selected at the end of the third year of study or who do not wish to continue with the BVSc degree, will be able to apply for admission to continue with an honours degree in Anatomy, Physiology or an honours degree in one of the Biological or Agricultural Sciences after completion of a number of specified additional third year modules in that discipline.

(b) Postgraduate programmes:

BSc(Hons) with specialization in Chemistry. Applications close on 30 November. BSc(Hons) Mathematical Statistics: Admissions test compulsory for admission. BSc(Hons) Wildlife Management: Applications close on 8 September.

MSc(Agric) Animal Science (all specializations): Applications close on 30 October.

MInstAgrar Animal Production Management: Applications close on 30 October.

Statement of symbols

When registering at this University for the first time, a candidate has to submit a record of symbols obtained for each subject in the Grade 12 examination.

Matriculation certificate

All undergraduate candidates who enrol at the University of Pretoria for the first time, must show their original matriculation certificate at the Student Administration of their faculty before the end of the first semester.

Medium of instruction

In conducting its business, the University uses two official languages, namely Afrikaans and English. In formal education, the medium of instruction is either Afrikaans or English, or both of these languages, provided that there is a demand and that it is academically and economically justifiable. However, it remains the student's

responsibility to ascertain on an annual basis in which language a module and any further level of that module is presented. In respect of administrative and other services, a student has the right to choose whether the University should communicate with him or her in Afrikaans or English.

Bursaries and loans

Particulars of bursaries and loans are available on request.

Accommodation

Applications for accommodation in university residences for a particular year should be submitted as from April 1 of the preceding year. Applications will be considered as long as vacancies exist, and prospective students are advised to apply well in advance.

Please note that admission to the University does not automatically mean that lodging will also be available.

Welcoming day and academic information week

Details of the welcoming day to which all parents are cordially invited, and the subsequent academic information week during which all new first-year students **must** be present, are obtainable from the Dean of Students, University of Pretoria, Pretoria, 0002.

Prescribed books

Lists of prescribed books are not available. The appropriate lecturers will supply information regarding prescribed books to students at the commencement of lectures.

Amendment of regulations and fees

The University retains the right to amend the regulations and to change module fees without prior notification.

NB: The University of Pretoria started phasing in a new system of education and learning during 2000, which meets the requirements set out in the SAQA guidelines (South African Qualifications Authority) and in the NQF (National Qualification Framework). This entails the implementation of training programmes that will be outcomes-based and market-orientated. This system was implemented in the Faculty during 2001.

Should a student who registered before 2001, wish to change over to the new programme, permission may be obtained in consultation with the programme manager for the new programme. For certain programmes it will be essential that the student change over to the new programme on the recommendation of the programme manager. However, the student will have to meet all the requirements for the new qualification.

Presentation of a module or a programme

The Faculty reserves the right not to offer a particular module or programme if there is insufficient resources to do so, or if an insufficient number of qualified students present themselves.

Foundation Year Programme in Mathematics and the Basic Sciences (Code 02181001) (UPFY)

The Foundation Year Programme in Mathematics and the Basic Sciences (UPFY) is a one-year programme offered to designated students who wish to register for a science degree or science-based study at the University of Pretoria but who do not meet the entrance requirements for these studies.

(a) Admission

Admission of students is based on an admission test that will take place January 2006. In the selection procedure the quality of prior education of the individual candidates is also considered. Students eligible to write the admission test:

- (i) must belong to the group of designated students
- (ii) must have obtained at least an F(SG) or G(HG) in the Grade 12 Mathematics examination
- (iii) must have obtained at least an F(SG) or G(HG) in the Grade 12 Physical Science examination and/or must have obtained at least an F(SG) or G(HG) in the Grade 12 Biology examination

(b) Modules

FBI 001Foundation module in Biology 001FCM 001Foundation module in Chemistry 001FES 001Foundation module in English and Study Skills 001FPH 001Foundation module in Physics 001FPM 001Foundation module in Mathematics 001CIL 111Computer literacy 111All modules are compulsory.

(c) Rules and regulations

Consult the UPFY Handbook for the rules and regulation pertaining to the programme. For instances not covered by the UPFY regulations, the Faculty or University regulations shall apply.

(d) UPFY Pass

A UPFY Pass is issued if:

- 1. The student obtains a final mark of 60% in at least four of the following modules: FBI 001, FCM 001, FPH 001, FPM 001, and FES 001 and a final mark of 50% in the remaining module.
- 2. The student passes the term examination of the Computer Literacy module CIL 111.

(e) Admission to undergraduate study

The UPFY Pass gives access to all undergraduate programmes offered by the Faculty.

Definition of terms

Familiarise yourself with the following terms. They are used generally in all faculties.

academic year: the duration of the academic year which is determined by the University Council

core module: a compulsory module for a specific study programme or package **module code**: consists of an equal number of capitals and digits, which indicate the name of the module, the year of study, the period of study and the level of the module **credits**: a number of credits are allocated to each module. These represent the quantity of work and the extent of the module **curriculum**: a series of modules grouped together from different subjects over a specified period of time and in a certain sequence according to the regulations **elective module**: a module that forms part of a study programme and which may be chosen by the students on condition that sufficient module credits on a specific level is obtained, as is required for the qualification for which the student is registered

examination mark: the mark a student obtains for an examination in a module, including practical and clinical examinations where applicable. If necessary, the examination mark is finalised after ancillary examinations have been completed

extended study programme: a study programme for a degree or diploma which is completed according to the regulations over a longer period than the minimum duration of the particular degree or diploma

final mark: the mark calculated on the basis of the semester/year mark and the examination mark a student obtained in a particular module according to a formula which is determined from time to time in the regulations for each module with the proviso that should no semester/year mark be required in a module, the examination mark serves as the final mark

fundamental module: a module that is regarded as the academic basis of the learning activities in a specific programme or package

GS: a combined mark (semester/year mark plus examination mark) of at least 40% required for admission to a specific prescribed module

level of a module or **year level**: the academic level of a module which is indicated in the module code: this is an indication of the complexity of a module; the year level is indicated by the first digit of the module code (thus, PHY 131 is a module in Physics at level 1)

learning hours : This refers to the notional number of hours students should spend to master the learning content of a particular module or programme. The total number of learning hours for a module consists of the time needed for lectures, practicals, self-study and any other activity required by the training programme. Learning hours for modules are calculated on the basis of 40 working hours per week x 28 weeks = 1120 + 80 additional hours for evaluation = 1200. For undergraduate modules, the total number of learning hours per module are calculated using the formula number of credits (per module) x 10.

module: a defined part of a subject deemed to be an independent learning unit to which a module code is being allocated; a module is normally offered over seven weeks. **registration**: the process a candidate is required to complete to be admitted as a student of the University or for admission to a module

regulation for admission: a regulation drawn up by the Dean of a faculty regarding the admission of students to the faculty. It includes a provision regarding the selection process

semester module: a module that extends over one semester

semester/year mark: the mark a student obtains during the course of a semester or a year for tests, class-work, practical work or any other work in a particular module as approved by regulation

subject: a demarcated field of study of which one module or more may be chosen for a study programme

syllabus: the division of the study material for a specific module, according to the regulations

weighted average: the weighted average is composed of the marks for the various modules, weighted with the credits of each module as a fraction of the total number of credits for the semester or year

year module: a module that extends over one year (two semesters)

REGULATIONS AND CURRICULA

The rules for degrees, diplomas and certificates here published are subject to change and may be amended prior to the commencement of the academic year in 2006.

1. Admission to undergraduate study

1.1 General

- (a) To register for a first bachelor's degree at the University, a candidate must, in addition to the required Grade 12 certificate with university exemption, comply with the specific admission requirements for particular modules and fields of study as prescribed in the admission regulations and the faculty regulations.
- (b) Candidates are advised to write the admissions test of the University of Pretoria.
- (c) Applicants are notified in writing of provisional admission. Admission to the Faculty of Natural- and Agricultural Sciences is based on the final matriculation examination results. In the case of the BSc: Extended Programme candidates may be considered for admission based on the final matriculation examination results and the results of the compulsory admissions test.
- (d) The following persons may also be considered for admission:
 - A candidate who is in possession of a certificate that is deemed by the University to be equivalent to the required Grade 12 certificate with university exemption.
 - (ii) A candidate who has a UPFY Pass.
 - (iii) A candidate who is a graduate from another tertiary institution or has been granted the status of a graduate of such an institution.
 - (iv) A candidate who passes an entrance examination, as is prescribed by the University from time to time.

Note: A conditional exemption certificate does not grant admission to bachelor's study. However, in certain circumstances some of the faculties do accept a conditional exemption on the basis of mature age. Candidates are advised to contact the specific faculty administration in this regard.

- (e) The Senate may limit the number of students allowed to register for a module, in which case the Dean concerned may, at his own discretion, select from the students who qualify for admission those who may be admitted.
- (f) Subject to faculty regulations and the stipulations of General Regulations G.1.3 and G.62, a candidate will only be admitted to postgraduate bachelor's degree studies, if he or she is already in possession of a recognised bachelor's degree.
- (g) National Senior Certificate (from 2009)

To be admitted to any undergraduate field of study in the Faculty of Natural and Agricultural Sciences, candidates who wrote the final Grade 12 exam for the National Senior Certificate must comply with the following subject requirements:

- English of Afrikaans
- Mathematics and Physical Sciences
- Life Orientation.

1.2 Requirements for specific modules

(a) i) A candidate who has passed the Grade 12 examination with an Mscore of at least 15 and at least 50% (D) in Mathematics in higher grade may register for COS 130.

- A candidate who has passed the Grade 12 examination with an M-score of at least 15 and at least 50% (D) in Mathematics at higher grade, as well as
 - obtained at least 50%(D) in Computer Science, obtains admission to the module COS 110 in Computer SCience OR
 - (2) passed COS 130 (either in the previous year or during summer school), obtains admission to the module COS 130 in Copmuter Science
- (b) passed the Grade 12 examination in Mathematics with at least 40% at higher grade or at least 50% at standard grade, will be admitted to the modules GLY 151, 152, 161 and 162 in Geology;
- (c) passed the Grade 12 examination in Mathematics with at least 40% (E) at higher grade or 50% (D) at standard grade, or passed Geography with at least 50% at higher grade, will be admitted to GGY 132, 153, 155, 162, 164 and 165 in Geography;
- (d) passed the Grade 12 examination in Mathematics and Physical Science at higher grade with at least 50%, will be admitted to the module CMY 117, 127 and 151 in Chemistry and PHY 131 and 171 in Physics;
- (e) passed the Grade 12 examination in Mathematics with at least 50% at higher grade, will be admitted to WTW 134 and 60% at higher grade for WTW114 and WTW 158 in Mathematics, and to WST 111 in Mathematical Statistics (For the programme in Actuarial and Financial Mathematics, 60% in Mathematics higher grade is required);
- (f) passed the Grade 12 examination in Mathematics as well as in Physical Science with at least 50% at higher grade, will be admitted to Molecular and Cell Biology and a module in the subjects Zoology and Entomology, Genetics, Microbiology or Botany;
- (g) passed the Grade 12 examination in Mathematics with at least 40% at higher grade or at least 50% at standard grade (or at least 50% in Statistics 113 and 123), will be admitted to (i) a module in the subjects Banking, Informatics (excluding INF 153,154, 163, 164 and 253, 263) or Statistics and (ii) modules in Economics, Marketing Management Financial Management and Financial Accounting on 200 level;
- (h) obtained at least 60% in Accounting on higher grade in the Grade 12 examination, may enrol immediately for INF 181, a subject covering computer applications in accounting and offered for the duration of the first semester (14 weeks). All other students who have obtained at least 40% in FRK 111, must enrol for INF 181 in the second semester (14 weeks). Modules FRK 111 and FRK 121 will only be recognised for degree purposes once the student has also passed INF 181.
- (i) passed the Grade 12 examination in Mathematics with at least 50% (D) at higher grade or 60% (C) at standard grade will be admitted to Informatics 153, 154, 163, 164, 253 and 263 (*at least 50% must be obtained in each module).
 Please note: (i) ... the Grade 12 examination... refers to the final

(i) ...the Grade 12 examination... refers to the final matriculation examination.
(ii) A student who takes a module presented by another faculty must take note of the admission requirements of that module, subminima required in examination papers, supplementary examinations, etc.

2. Registration for a particular year of study

At the beginning of an academic year, a student registers for all the modules he or she intends taking in that particular year (whether these be firstsemester, second-semester or year modules). Changes to the chosen module of study may be made at the beginning of the second semester/third quarter with the Dean's approval. A student may also only register for modules that will fit in on the lecture, test and examination timetables. Should a student be prepared to attend one module after hours to avoid clashes on the timetables, the approval of the Dean is not required. (This will only be possible if the subject in question is offered full-time and extramurally). A student is allowed to register for the next year of study only if at least the equivalent of four semester modules have been passed in a particularyear of study – also applicable to the Extended Programmes.

2.1 Extended Programme (Mathematical Sciences) (02130003) Extended Programme (Biological and Natural Sciences) (02130004)

- (a) These programmes are followed by students who, as a result of exceptional circumstances, will benefit from an extended programme.
- (b) Students who wish to follow the Extended Programme will be subjected to an admissions test and will be considered for admission by the Admissions Committee.
- (c) Applications for admission to the Extended Programme should be submitted before 30 September each year. Details are obtainable from the Faculty Administration.
- (d) The rules and regulations applicable to the normal study programmes apply mutatis mutandis to the Extended Programmes, with exceptions as indicated in the regulations pertaining to the Extended Programmes.
- (e) Students who are admitted to the Extended Programme register for one of the Extended Programmes.

3. Module credits for unregistered students

There are students who attend lectures, write tests and examinations and in this manner earn "marks", but have either not registered for modules or even as students at all. These marks will not be communicated to any student before he/she has provided proof of registration. A student cannot obtain any credits in a specific academic year for a module "passed" in this manner during a previous academic year and for which he/she was not registered. This arrangement applies even where the student is prepared to pay the tuition fees.

4. Examination admission and pass requirements

Students who are registered for a module in this faculty are entitled to write the examination in that module. A final mark of at least 50% is required to pass the module.

4.1 Subminima in examinations

A subminimum of 40% is required in the examination in each module. The year or semester mark of a module is obtained through continuous assessment of a student's performance during the module. It is a prerequisite that a student must satisfactorily complete the practical component of the module (if applicable). The method by which the year/semester mark will be obtained, is published in the study guide of the module.

4.2 Examinations

The examinations for first-semester modules and the first- and second-quarter modules take place in May/June, while all other examinations (second-semester modules, third- and fourth-quarter modules and year modules) take place in October/November.

The final mark for the module/modules is a combination of the year or semester mark and the examination mark, with the proviso that a module/modules can only be passed if a subminimum of 40% is obtained in the examination and the practical component (if applicable) of the module/modules has been satisfactorily completed. A final mark of at least 50% is required to pass a module/modules. The year or semester mark must fall within a range of 40%-60% and the examination mark must fall within a range of 40%-60% of the final mark. Deviations from this rule can be approved by the Dean. The formula that is used to determine the final mark will be specified in the study guide of the module.

4.3 Ancillary examinations

After completion of an examination and before the examination results are published, the examiners may decide to summon a student for an ancillary examination on particular aspects of the work in that module with a view to determining:

- whether a candidate who does not comply with the requirements to pass a module could achieve a final pass mark; or
- whether a candidate, who does not comply with the requirements for a pass with distinction, will be able to improve his or her final mark.

It is, therefore, possible that, depending on the importance a lecturer attaches to continious evaluation, no supplementary examinations may be awarded in a certain module.

If ancillary examinations are awarded in a module, the guidelines indicationg the basis for such consideration, have to be published in the study guide of the module.

4.4 Re-marking of examination papers (also consult Reg G.14)

After an examination, departments give feedback to students about the framework that was used by the examiners during the examination. The way in which feedback is given, is determined by the departmental heads. Students may apply for re-marking of an examination paper after perusal and within 14 calendar days after commencement of lectures in the next semester. The prescribed fee has to be paid. The paper will then be re-marked by an examiner appointed by the head of the department.

4.5 **Supplementary examinations**

- (a) Supplementary examinations in first-semester modules take place after the May/June examinations, while those in second-semester and year modules take place after the October/November examinations.
- (b) To pass a supplementary examination, a student must obtain a minimum of 50%.
- (c) The highest final percentage a student can obtain in a supplementary examination is 50%.
- (d) Special supplementary examinations are not arranged for students who are unable to write the examinations at the times and venues scheduled for supplementary examinations. (Also consult Reg.G12)

4.6 **Computer and information literacy** (CIL 111, CIL 121)

It is a requirement for all new first-year students to register for two modules in Computer and Information Literacy. Students may write an exemption test for CIL 111 only.

4.7 Academic literacy (EOT 110 and EOT 120)

All new first-year students are required to write a language profiency test. Based on the results of the test, a student will be enrolled in language development modules that have to be passed before the degree will be awarded. All students who pass the Academic Literacy Test have to enrol for modules of equal value to make up the credits from the following: FIL 110, FIL 155 or other language modules: AFT 110, AFR 110, ENG 110, ENG 120, EOT 161, EOT 162, EOT 164, SEP 110, STW 110, ZUL 110 or MTL 181.

DEGREES AND DIPLOMAS CONFERRED AND AWARDED IN THE FACULTY

The following degrees and diplomas are presented in the Faculty (minimum period of study is given in brackets):

(a) Bachelor's degrees:

- (i) Baccalaureus Scientiae BSc (3 years)
- (ii) Baccalaureus Scientiae Agriculturae BSc(Agric) (4 years)
- (iii) Baccalaureus Institutionis Agrariae BInstAgrar (4 years)
- (iv) Baccalaureus Secundae Educationis (Scientiae) BSecEd(Sci)
 - (4 years)
- (vii) Baccalaureus in Consumer Science BConsSc (4 years)

(b) Honours degrees: (1 year)

- (i) Baccalaureus Scientiae Honores BSc(Hons)
- (ii) Baccalaureus Institutionis Agrariae Honores BInstAgrar(Hons)

(c) Master's degrees: (1 year)

- (i) Magister Scientiae MSc
- (ii) Magister Scientiae Agriculturae MSc(Agric)
- (iii) Magister Institutionis Agrariae MInstAgrar
- (vi) Magister in Consumer Science MConsSc

(d) **Doctoral degrees**:

- (i) Philosophiae Doctor PhD (1 year)
- (ii) Doctor Scientiae DSc

(e) Diplomas:

- Postgraduate Diploma in Earth Science Management and Practice -(2 years)
- (ii) Postgraduate Diploma in Geographical Information Systems (1 year)
- (iii) Postgraduate Diploma in Environment and Society (1 year)
- (iv) Advanced Diploma in Extension and Rural Development (1 year)

BACCALAUREUS DEGREES

GENERAL INFORMATION FOR DEGREES IN THE FACULTY

General Regulations G.1 to G.15 are applicable to a bachelor's degree.

Sc.1 Admission requirements

(i) Baccalaureus Scientiae (BSc)

- Study programmes in Physical Sciences: A Matriculation certificate with university exemption, with at least 50% (D-symbol) in English or Afrikaans, 60% (C-symbol) Mathematics and 50% (D-symbol) Physical Science at higher grade and an adjusted Mscore of at least 24.
- All study programmes in Biological Sciences: A Matriculation certificate with university exemption, with at least 50% (D-symbol) in English or Afrikaans, Mathematics and Physical Science at higher grade and an adjusted M-score of at least 24.
- Study programmes in Mathematical Sciences: A Matriculation certificate with university exemption, with at least 50% (D-symbol) in English or Afrikaans, 60% (C-symbol) Mathematics at higher grade and an adjusted M-score of 21.
- An adjusted M-score is calculated as follows :

Symbols	Higher grade	Standard grade
A symbol (80% and higher)	5	3
B symbol (70% to 79%)	4	2
C symbol (60% to 69%)	3	1
D symbol (50% to 59%)	2	0
E symbol (40% to 49%)	1	0

All study programmes <u>excluding</u> programmes in Mathematical Sciences:

The value for Mathematics is doubled as well as the highest value for either Physical Science or Biology.

Study programmes in Mathematical Sciences:

The value for Mathematics is doubled.

In the case of seven or more subjects, the six best symbols are taken into account with due allowance for the requirements of specific programmes.

(ii) Extended Programme: Mathematics (Code 02130003)

• A Grade 12 certificate with university exemption, with at least 40% (Esymbol) in English or Afrikaans and Mathematics at higher grade or 50% (D-symbol) at standard grade, with an adjusted M-score of at least 12, can be considered for admission to the extended programme. (An admissions test is compulsory for final admission.)

- (iii) Extended Programme: Biological and Natural Sciences (Code 02130004)
 - A Grade 12 certificate with university exemption, with at least 40% (E-symbol) in English or Afrikaans, Mathematics and Physical Science at higher grade or 50% (D-symbol) at standard grade, with an adjusted M-score of at least 12, can be considered for admission to the extended programme. (An admissions test is compulsory for final admission.)

(iv) Baccalaureus Scientiae Agriculturae (BSc(Agric))

• Selection for the BSc(Agric) degree programme is based on an adjusted M score, which is calculated as follows :

Symbols	Higher grade	Standard grade
A symbol (80% and higher)	5	3
B symbol (70% to 79%)	4	2
C symbol (60% to 69%)	3	1
D symbol (50% to 59%)	2	0
E symbol (40% to 49%)	1	0

The value for Mathematics is doubled as well as the highest value for either Physical Science or Biology.

In the case of seven or more subjects, the six best symbols are taken into account with due allowance for the requirements of specific programmes.

- Candidates who have obtained a Matriculation certificate with university exemption, and at least a D-symbol at higher grade in English or Afrikaans, Mathematics and Physical Science, with an adjusted minimum M-score of 24, qualify for admission to the BSc(Agric) four-year programme.
- Candidates who have obtained at least an E-symbol at higher grade or a D-symbol at standard grade in English or Afrikaans, Mathematics and Physical Science, with an adjusted M-score of at least 12, can be considered for admission to the extended programme. (An admissions test is compulsory).
- Baccalaureus Institutionis Agrariae (BInstAgrar) <u>PLEASE NOTE:</u> A moratorium has been placed on the intake of new students for 2005 as well as 2006.
 - Selection for the BInstAgrar degree programme is based on an adjusted M-score which is calculated as follows :

Symbols	Higher grade	Standard grade
A symbol (80% and higher)	5	3
B symbol (70% to 79%)	4	2
C symbol (60% to 69%)	3	1
D symbol (50% to 59%)	2	0
E symbol (40% to 49%)	1	0

The value for Mathematics is doubled as well as the highest value for either Physical Science or Biology.

In the case of seven or more subjects, the six best symbols are taken into account, with due allowance for the requirements of specific programmes.

- Candidates who have obtained at least an E-symbol at higher grade or a D-symbol at standard grade in two of the following subjects Mathematics, Physical Science and Biology, and who have obtained at least an E symbol at higher grade or a D-symbol at standard grade in English, with an adjusted M-score of 12, qualify for admission to the BInstAgrar degree.
- Candidates who do not obtain the required M-score, may be referred by the Dean for an admissions test. The Dean will then decide whether a student can be admitted.

(vi) Baccalaureus in Consumer Science (BConsSc)

(a) The curriculum of the BConsumer Science degree programme offers the following possibilities:

Clothing Management: Retail Management

Food Management Retail Management and Hospitality Management

Interior Merchandise Management: Retail Management Admission requirements:

Clothing Management, Food Management and Interior Merchandise:

<u>Matriculation exemption</u> with at least 40% in Mathematics on higher grade and 50% at standard grade. (Physical Science is strongly recommended). A normal M-score of 18 is also required.

(b) The curriculum of the BConsumer Science(Ed) degree programme offers the following possibilities:

Consumer Studies or Hospitality Studies

Admission requirements:

Consumer Studies:

<u>Matriculation exemption</u> with at least 40% on higher grade and 50% at standard grade in Mathematics.

Hospitality Studies:

Matriculation exemption with at least 40% on higher grade and 50% at standard grade in Mathematics. A normal M-score of 18 is also required.

(vii) Baccalaureus Secundae Educationis (Scientiae)(BSecEd(Sci)) See Sc.7.2

Admission requirements of specific modules is set out in Par. 1.2

Sc.2 Duration

- BSc
 - The minimum duration of study is three years full-time study.
- BSc(Agric), BInstAgrar, BConsSc, BSecEd(Sci)

The minimum duration of study is four years full-time study

Sc.3 Study programmes

The curricula are compiled from the study programmes in Sc. 7 or an alternative study programme as approved by the Dean.

Sc.4 Compilation of the curriculum

• BSc

A student must obtain at least 440 module credits to comply with the requirements for a BSc degree programme. At least 144 credits must be obtained at 300/400 level, or otherwise indicated by programme syllabi. The minimum module credits needed to comply with degree requirements is set out at the end of each study programme. A maximum of 176 credits will be recognised at 100 level. A student may, in consultation with the Dean, follow modules not indicated in BSc three-year study programmes to the equivalent of a maximum of 36 module credits. The credits allotted per semester to each elective module should be regarded as a guideline only and not as an instruction. It is, however, important that the total number of prescribed elective module credits are completed during the course of the study programme. The Dean may, on the recommendation of the head of department, approve deviations in this regard.

A student may not register for more than 110 module credits per semester, unless it is with the permission of the Dean.

Students who are already in possession of a bachelor's degree, will not receive credit for more than half the credits passed previously for that degree. No credits at the final year or 300- and 400 level will be approved.

• BSc(Medical Science)(Anatomy and Integrated Physiology)

- (i) As from 2004 the BSc(MedSci) degree is presented in this Faculty.
- (ii) Old and new curriculum

Students already following the degree programme who wish to change to the new curriculum, will have to complete any modules they may have outstanding according to the new curriculum. Such cases will be handled on an *ad hoc* basis.

<u>NB</u>: Due to the limited facilities, only 72 students can be admitted. Only candidates who have applied for admission by 30 September and who indicated this programme as a first choice, are provisionally admitted pending Gr.12 final results.

Promotion requirements:

A student will be promoted to the following year of study if less than 50 credits need to be carried over, unless the Dean on the recommendation of the head of department decides otherwise. A student who does not comply with the requirements for promotion to the following year of study, retains the credit for the modules already passed and may be admitted by the Dean, on recommendation of the head of department, to modules of the following year of study to a maximum of 50 credits, provided that it will fit in with both the lecture and examination timetable.

BSc: Extended programme

Two extended programmes are available: Mathematical Sciences (02130003) and Biological and Natural Sciences(02130004).

Students who do not comply with the normal entrance requirements for study in the Faculty of Natural and Agricultural Sciences, may nevertheless be admitted to the Faculty by being placed on the Extended Programme. Generally the Extended Programme means that first study year in Mathematics, Physics and Chemistry is extended to take two years. Bridging modules in Biology and life skills are also available. After completing the Extended Programme successfully, students join the second year of the normal BSc programme to complete their degrees. The possibility of switching over to other faculties such as Engineering, Built Environment and Information Technology and Health Sciences, after one or two years in the Extended Programme, exists. This depends on selection rules and other conditions stipulated by the other faculties.

Applications for admission to the Extended Programme must be submitted annually before 30 September. All students considered for the Extended Program must have written an admissions test. Information in this regard is available at the Client Services Centre. In addition all rules and regulations applicable to the normal study programmes, apply mutatis mutandis to the Extended Programme, with exceptions stated in the regulations for the Extended Programme. For instance, students in the Extended Programme must have a grade 12 Certificate with university exemption.

An admissions committee considers applications for the Extended Programme annually. Regarding subject choices, admitted students are individually placed on the Extended Programme according to their prospective field of study. Students may NOT change this placement without the permission of the Chairperson of admissions committee.

- a).Minimum admission requirements.
 - Extended Programme: Mathematics (02130003)
 - i. A grade 12 certificate with university exemption and an adjusted M-score of 12
 - ii. Afrikaans or English: 40%(E-symbol) higher grade or 50%(D-symbol) standard grade.
 - iii. Mathematics: 40%(E-symbol) higher grade or 50%(D-symbol) standard grade.

NB: To be considered for admission to the Extended Programme the admissions test is compulsory.

Extended Programme: Biological and Natural sciences (02130004)

- i. A grade 12 certificate with university exemption and an adjusted M-score of 12
- iii. Afrikaans or English: 40%(E-symbol) higher grade or 50%(D-symbol) standard grade.
- iii. Mathematics: 40%(E-symbol) higher grade or 50%(D-symbol) standard grade.
- iv. Physical Science: 40%(E-symbol) higher grade or 50%(D-symbol) standard grade.

NB: To be considered for admission to the Extended Programme the admissions test is compulsory.

b). Syllabus

The following available modules are combined with other first year BSc modules as determined by the admissions committee. CMY101 First module in chemistry (Equivalent a BSc: First semester prescribed module: CMY117) CMY102 General chemistry, year module (Equivalent a BSc: Second semester prescribed module: CMY127) PHY101 General Physics, year module (Equivalent module: a BSc: First semester prescribed module PHY131 and section of PHY171) PHY102 Mechanics and Electricity, year module. (Equivalent module: section of a BSc: First year Physics PHY171) (NB: Both PHY101 and PHY102 must be passed for exemption from PHY171to be credited towards a BSc). WTW101 Mathematics 101, year module. (Equivalent a BSc: First semester prescribed module WTW114) WTW138 Calculus 138 semester module (Equivalent module WTW128) BLG150 Introductory plant biology, semester module.

BLG160 Introductory animal biology, semester module.

(BLG150 and BLG160 are preparatory modules for those without adequate school Biology, but who want to study in a biological field. Credits for these modules are given towards a BSc provided regulation Sc.4 is complied with.)

SCI152 Computer and problem solving skills 52, semester module.

- SCI153 Academic skills, quarter module
- SCI162 Computer and problem solving skills 162, semester module.
- SCI163 Basic research skills, quarter module.

COS130 Computer science, semester module

(COS130 may not be taken if a student obtained a D-symbol at higher grade in Computer Studies in grade 12. If a student passed at standard grade, COS 130 may be taken.)

NB: Students may register for an extended module (e.g 101 module code) only once.

Compulsory modules:

CIL111, CIL121. Computer and information literacy modules, 4 + 4 credits. EOT 110, 120 Academic literacy, 6 + 6 credits.

Note:

1) <u>Prohibited combination</u>: Students may not register for SCI152 and SCI162 as well as CIL111.

Students who complete SCI152 and SCI162 successfully, are exempted from registering for CIL111.

2) All new students must register for the academic literacy modules (EOT's), except if they passed the compulsory academic literacy test, in which case they may select other modules from the list below to make up the 12 credits.

FIL 110, FIL 155 or other language modules: AFT 110, AFR 110, ENG 110, ENG 120, EOT 161, EOT 162, EOT 164, SEP 110, STW 110, ZUL 110 or MTL 181.

Academic progress requirements:

It is expected from students accepted into the Extended Programme to finish a complete corresponding BSc first year within the two years of enrolment in the Extended Programme.

Students who do not show progress during the first semester of the first year will be referred to the admissions committee of the Faculty. Students registered for the Extended Program should obtain at least 76 credits (including core modules) during their first year. Failing to achieve this will lead to reconsideration of their admission by the admissions committee. Readmission will depend strongly on the student's ability to cope successfully with the science core modules WTW 101, PHY 101, CMY 101, BLG 150, BLG 160, COS 130, CMY 102 and MLB 111.

The criteria for exclusion from the Extended Program are the same as for the mainstream courses. Please refer to the general regulation G3 in this regard.

• BSc(Agric)

The minimum module credits needed to comply with degree requirements is set out at the end of each study programme.

Students must register for elective modules in consultation with the head of department who must ensure that the modules do not clash on the set time table.

The Dean may, in exceptional cases and on recommendation of the head of department, approve deviations from the prescribed curriculum.

Promotion requirements:

A student will be promoted to the following year of study if less than 50 credits need to be carried over, unless the Dean on the recommendation of the head of department decides otherwise. A student who does not comply with the requirements for promotion to the following year of study, retains the credit for the modules already passed and may be admitted by the Dean, on recommendation of the head of department, to modules of the following year of study to a maximum of 50 credits, provided that it will fit in with both the lecture and examination timetable.

BInstAgrar

The minimum number of credits needed to comply with degree requirements is set out at the end of each study programme.

Students must register for elective modules in consultation with the head of department who must ensure that the modules do not clash on the set time table.

Promotion requirements:

A student will be promoted to the following year of study if less than 44 credits need to be carried over, unless the Dean on the recommendation of the head of department decides otherwise. A student who does not comply with the requirements for promotion to the following year of study, retains the credit for the modules already passed and may be admitted by the Dean, on recommendation of the head of department, to modules of the

following year of study to a maximum of 44 credits, provided that it will fit in with both the lecture and examination timetable.

- BConsSc
 - Promotion requirements:

i) All the degrees in Consumer Science

A student who did not pass all the prescribed modules of a particular year of study, has to register for the outstanding modules first. With the approval of the head of the department, modules of the following year of study may be taken in advance only if no timetable clashes occur; all the requirements and prerequisites have been met and not more than a specified number of credits per semester are taken. The credits of the semester of which modules are repeated, are taken as a guideline for the calculation of the number of modules permitted.

- aa) A student registers for the second year when at least 80% of the first-year module credits have been passed.
- bb) A student registers for the third year when at least 85% of the module credits of the previous years have been passed.
- cc) A student registers for the fourth year when at least 95% of the module credits of the previous years have been passed.
- BSecEd(Sci)
 See Sc.7.2
- Sc.5 Special examinations in the Faculty of Natural and Agricultural Sciences A student who requires a maximum of two modules and not more than 36 credits outstanding to comply with all the requirements for the degree, may be admitted by the Dean, on the recommendation of the head of department, to special examinations in modules failed, provided that this will enable him or her to comply with all the degree requirements. A student who has obtained a final mark of less than 40% in any one of the relevant modules, or who has previously been admitted to a special examination, does not qualify for this concession.

Sc.6 Degree with distinction

BSc

A student obtains his or her degree with distinction if all prescribed modules at 300 level (or higher) are passed in one academic year with a weighted average of at least 75%, and obtain at least 65% in each of the relevant modules.

• BSc(Food Management)

A student obtains his or her degree with distinction if a weighted average of at least 75% is obtained in the following modules: Marketing Management 781 Foods 413, 423 Food Service Management 410, 411 Food Science and Technology 411

• BSc(Agric)

The BSc(Agric) degree is conferred with distinction if a student obtains a weighted average of at least 75% in the modules of the major subjects in

the third and the fourth year of study, with a weighted average of at least 65 % in the other modules of the third and the fourth year of study.

BInstAgrar

The BInstAgrar degree is conferred with distinction on a student who obtains a weighted average of at least 75% in the modules of the major subjects in the third and the fourth year of study, as well as a weighted average of at least 65% in the other modules of the third and the fourth year of study.

BConsSc

A student obtains his or her degree with distinction if a weighted average of at least 75% is obtained in the following modules:

(i) Clothing Management:

Clothing Retail Management:

A combination equivalent to six semester modules Marketing Management 311 and 321 Clothing 410 and 420 Clothing Production 321, 411 Project: Clothing and Textiles 402 Textiles 421

(ii) Food Management:

Food Retail Management: A combination equivalent to six semester modules: Marketing Management 311 and 321 Food Service Management 410 Foods 310, 354, 322, 413, 415, 423, 425, 426

Hospitality Management:

A combination equivalent to six semester modules Tourism Management 310 Business Management 311 Project Hospitality Management 410, 420 Foods 322, 413, 414, 424 Food Service Management 410

(iii) Interior Merchandise Management: Interior Retail Management:

A combination equivalent to six semester modules: Marketing Management 311 and 321 Interior Planning 322, 410 Interior Production 310 Interior Merchandise 311 Interior Project 481 Consumer Facilitation 411
(iv) **Ed**:

Consumer Studies:

The degree is conferred with distinction on a student who obtains a weighted average of at least 75% in the following modules: Subject Didactics: Consumer Studies 400 Professional Portfolio 400 Interior Merchandise 311 Interior Planning 320 Nutrition 321 Foods 322

Hospitality Studies:

The degree is conferred with distinction on a student who obtains a weighted average of at least 75% in the following modules: Subject Didactics: Hospitality Studies 400 Professional Portfolio 400 and any other four of the following: Food Service Management 321 Nutrition 311 Foods 322 Foods 414 Foods 424 Tourism Management 310

Sc.7 STUDY PROGRAMMES

The curriculum is composed of one of the following study programmes. The Dean may, on the recommendation of the programme manager, approve deviations in this regard.

Sc.7.1 GENERAL INFORMATION

- (i) Study programmes in the Department of Geology: Students will be informed timeously of compulsory excursions that could take place during the vacations. The attendance of excursions for first-year students is compulsory, while excursions of longer duration are compulsory for senior students.
- (ii) Students who have passed all their modules after the first two years (within a period of two years) of the BinstAgrar(Rural Development Management) with an average mark of 60% and, who would like to specialise in Agricultural Economics, can apply to the Head of Department to be admitted to the third year of the BSc(Agric): Agricultural Economics/Agribusiness Management degree programme. This **only applies** to students who are registered for the BinstAgrar: Rural Development Management degree programme.
- (iii) Where elective modules are not specified, these may be chosen from any modules appearing in the Syllabus.

(iv) List of codes

Dept = Department in which the modules is offered Faculty of Natural and Agricultural Sciences

- BCM = Department of Biochemistry
- BOT = Department of Botany
- CMY = Department of Chemistry
- FLG = Department of Physiology
- FSK = Department of Physics
- GGY = Department of Geography, Geoinformatics and Meteorology
- GLY = Department of Geology
- GTS = Department of Genetics
- LEK = Department of Agricultural Economics, Extension and Rural Development
- MBY = Department of Microbiology and Plant Pathology
- PGW = Department of Plant Production and Soil Science
- SCE = Centre for Science, Mathematics and Technology Education
- SCI = Gold Fields Computer Centre for Education
- SEF = Centre for Science, Mathematics and Technology Education
- VBR = Department of Consumer Science
- VDW = Department of Food Science
- VKU = Department of Animal and Wildlife Sciences
- VWT = Department of Insurance and Actuarial Sciences
- WST = Department of Mathematical Statistics
- WTW = Department of Mathematics and Applied Mathematics
- ZEN = Department of Zoology and Entomology

Faculty of Economic and Management Sciences

- BDO = Department of Human Resource Management
- BEM = Department of Marketing and Communication Management
- EKN = Department of Economics
- FRK = Department of Accounting and Financial Management
- INF = Department of Informatics
- OBS = Department of Business Management
- TBE = Department of Tourism Management

Faculty of Humanities

- EOT = Unit for Development of Language Skills
- VKK = Department of Visual Arts
- MTL = Department of Ancient Languages
- KGK = Department of Visual Arts
- SLK = Department of Psychology
- SOC = Department of Sociology

Faculty of Engineering, Built Environment and Information Technology

- CIR = Department of Chemical Engineering
- COS = Department of Computer Science
- IGB = Department of Engineering Management
- LBI = Department of Civil and Biosystems Engineering
- MIT = Department of Mechanical and Aeronautical Engineering
- SWK = Department of Civil and Biosystems Engineering

Faculty of Health Sciences

- ANA = Department of Anatomy
- FAR = Department of Pharmacology

Faculty of Veterinary Sciences

ANA = Department of Anatomy and Physiology

PAS = Department of Production Animal Studies

Ipw/ppw: lectures per week/ practicals per week (e.g.: 3+1 = 3 lectures and 1 practical per week)

Quarter: The quarter in which the specific module is presented.

J1 = the whole year (year module: extends over two semesters)

- S1 =the first semester (K1 + K2)
- S2 = the second semester (K3 + K4)
- K1 = first quarter
- K2 = second quarter
- K3 = third quarter
- K4 = fourth quarter

Credits: Credit value of a module.

TDH: Approval from the head of department is required to register for the module.

Par 1.2: Refers to the admission requirements for specific modules that appear at the beginning of this publication

Field of study	Dept	Code
BSc Actuarial & Financial Mathematics	WTW	02133388

First year,	first semester				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
COS130	INTRODUCTTO_PROGRAMMING_130 Prerequisite/s: [Par 1.2]	S1	4	1	16
EKN113	ECONOMICS_113 Prerequisite/s: Reg 1.2(f)	S1	3	0	15
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
FBS110	FINANCIAL_MANAGEMENT_110 Prerequisite/s: [Par 1.2]	S1	3	0	10
WST111	MATHEMATICAL_STATISTICS_111 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for compulsory modules in the first/second terms 22/22 3/3 41.5/41.					41.5/41.5
Students who passed Computer studies HG at grade 12-level, may be exempted from COS130.					

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
EKN123	ECONOMICS_123 Prerequisite/s: [EKN113 GS] and Par 1.2(f)	S2	3	0	15
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
FBS120	FINANCIAL_MANAGEMENT_120 Prerequisite/s: [Par 1.2]	S2	3	0	10
WST121	MATHEMATICAL_STATISTICS_121 Prerequisite/s: [WST111 GS]	S2	4	1	16
WTW123	NUMERICAL_ANALYSIS_123 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8

WTW126 LINEAR_ALGEBRA_126 Prerequisite/s: [Par 1.2]	S2	2	1	8	
WTW128 CALCULUS_128 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8	
Totals for compulsory modules in the third/fourth terms		20/20	4/4	37.5/37.5	
Compulsory credits = (158) Elective credits = (0)					

Second year, first semester:					
Code	Name	Trm	lpw	ppw	Crdt
IAS211	ACTUARIAL_MATHEMATICS_211 Prerequisite/s: [WTW114 60%] and [WTW128 60%]	S1	2	1	12
INF214	INFORMATICS_214 Prerequisite/s: [CIL111] and [CIL121]	S1	3	1	14
WST211	MATHEMATICAL_STATISTICS_211 Prerequisite/s: [WST111] and [WST121] and [WTW114 GS or WTW101 GS] and [WTW126 GS or WTW102 GS] and [WTW128 GS or WTW102 GS]	S1	4	2	24
WTW211	LINEAR_ALGEBRA_211 Prerequisite/s: [WTW126]	S1	2	1	12
WTW218	CALCULUS_218 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S1	2	1	12
Totals for o	compulsory modules in the first/second terms		13/13	6/6	37/37

Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
IAS221	ACTUARIAL_MATHEMATICS_221 Prerequisite/s: [IAS211 GS]	S2	2	1	12
WST221	MATHEMATICAL_STATISTICS_221 Prerequisite/s: [WST211 GS]	S2	4	2	24
WTW220	ANALYSIS_220 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S2	2	1	12
WTW221	LINEAR_ALGEBRA_221 Prerequisite/s: [WTW211]	S2	2	1	12
WTW286	DIFFERENTIAL_EQUATIONS_286 Prerequisite/s: [WTW114 or WTW101] and [WTW126] and [WTW128]	S2	2	1	12
Г	otals for compulsory modules in the third/fourth terms		12/12	6/6	36/36
Electives:	Electives: IAS261 (if presented), IAS262 (if presented), IAS282				
Compulso	Compulsory credits = (146) Elective credits = (0)				

Third year	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
	MULTIVARIATE_ANALYSIS_311				
WST311	Prerequisite/s: [WST211] and [WST221] and [WTW211	S1	2	1	18
	GS] and [WTW218 GS]				
WTW310	ANALYSIS_310 Prerequisite/s: [WTW220]	S1	2	1	18
	FINANCIAL_ENGINEERING_354 Prerequisite/s:	61	2	4	10
VVIVV354	[WST211] and [WTW211] and [WTW218]	31	2	1	10
Totals for o	compulsory modules in the first/second terms		6/6	3/3	27/27

Third year	r, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
WST321	TIME_SERIES_ANALYSIS_321 Prerequisite/s: [WST211] and [WST221] and [WST311 GS] and [WTW211 GS] and [WTW218 GS]	S2	2	1	18
WTW364	FINANCIAL_ENGINEERING_364 Prerequisite/s: [WST211] and [WTW126] and [WTW218] and [WTW286]	S2	2	1	18
Totals for o	compulsory modules in the third/fourth terms		4/4	2/2	18/18

Electives: IAS351, IAS352, IAS361(if presented), IAS362(if presented), IAS 382, WST312, WST322, WTW320, WTW382, WTW383, WTW386. All 72 elective credits must be on 3rd year level.

Compulsory credits = (90) Elective credits at 300 level = (72) A minimum of (466) credits is required to obtain the degree.

Field of study	Dept	Code
BSc Animal Science	VKU	03134002

First year, f	ïrst semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for co	mpulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	62	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	52	4		10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
CTS161	INTRODUCTORY_GENETICS_161	62	_	0.5	8
613101	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (0)					

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
DAF200	ANIMAL_ANATOMY&PHYSIOLOGY_200 Prerequisite/s: [CMY127] or [TDH]	J1	4	1	18
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12
VDG250	NUTRITION_250 Prerequisite/s: [CMY127] or [CMY102]	S1	3	0.5	12
VKU210	ANIMAL_SCIENCE_210	S1	1	0.5	6
Totals for o	compulsory modules in the first/second terms		16/16	7/7	42/42

Second year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		

BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
DAF200	ANIMAL_ANATOMY&PHYSIOLOGY_200 Prerequisite/s: [CMY127] or [TDH]	J1	4	1	18		
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12		
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12		
VKU220	ANIMAL_SCIENCE_220 Prerequisite/s: [VKU210]	S2	2	0.5	12		
Totals for compulsory modules in the third/fourth terms			14/14	4/4	39/39		
Compulsory credits = (162) Elective credits = (0)							

Third yea	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM355	IMMUNOBIOLOGY_355 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262]	S1	1	0.5	9
DAN310	ANIMAL_ANATOMY_310 Prerequisite/s: [DAF200]	S1	1	0.5	8
DFS311	ANIMAL_PHYSIOLOGY_311 Prerequisite/s: [DAF200]	S1	2	0	10
GTS352	GENOMES_352 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18
RPL310	REPRODUCTION_SCIENCE_310 Prerequisite/s: [DAF200]	S1	1	0.5	8
VGE301	NUTRITION_SCIENCE_301 Prerequisite/s: [BCM261] and [BCM262] and [DAF200] and [VDG250] and [VKU220]	J1	3	0.5	16
VKU412	RESEARCH_METHODOLOGY_412 Prerequisite/s: [TDH]	S1	1	0	8
WDE250	PRINCIPLES_OF_VELD_MANAGM250	S1	2	0.5	12
Totals for	compulsory modules in the first/second terms		13/13	3.5/3.5	44.5/44.5

Third year	, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
BCM363	XENO_BIOCHEMISTRY_363	K4	1	0	5	
DFS320	GROWTH_PHYSIOLOGY_320 Prerequisite/s: [DAN310] and [DFS311]	S2	2	0.5	10	
GTS361	HUMAN_GENETICS_361 Prerequisite/s: [GTS352 GS] or [TDH]	S2	2	1	18	
TLR320	ANIMAL_BREEDING_320 Prerequisite/s: [GTS261]	S2	2	0.5	10	
VGE301	NUTRITION_SCIENCE_301 Prerequisite/s: [BCM261] and [BCM262] and [DAF200] and [VDG250] and [VKU220]	J1	3	0.5	16	
VKU361	ANIMAL_ECOLOGY_361 Prerequisite/s: [VKU210] and [VKU220]	S2	2	0	8	
VKU362	ANIMAL_SCIBIOTECHNOLOGY_362 Prerequisite/s: [GTS226]	S2	1	0.5	8	
Totals for o	compulsory modules in the third/fourth terms		12/13	3/3	35/40	
Compulsory credits = (164) Elective credits = (0)						
A minimu	m of (474) credits is required to obtain the degree.					

Field of study	Dept	Code
BSc Applied Mathematics	WTW	02133252

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4

EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6			
COS130	INTRODUCTTO_PROGRAMMING_130 Prerequisite/s: [Par 1.2]	S1	4	1	16			
WST111	MATHEMATICAL_STATISTICS_111 Prerequisite/s: [Par 1.2]	S1	4	1	16			
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16			
WTW115	DISCRETE_STRUCTURES_115 Prerequisite/s: [Par 1.2]	S1	2	1	8			
WTW152	MATHEMATICAL_MODELLING_152 Prerequisite/s: [Par 1.2]	S1	2	1	8			
Totals for compulsory modules in the first/second terms				4/4	29/29			
Students w	Students who passed Computer studies HG at grade 12 level, may be exempted from COS130.							

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
WST121	MATHEMATICAL_STATISTICS_121 Prerequisite/s: [WST111 GS]	S2	4	1	16
WTW123	NUMERICAL_ANALYSIS_123 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8
WTW126	LINEAR_ALGEBRA_126 Prerequisite/s: [Par 1.2]	S2	2	1	8
WTW128	CALCULUS_128 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8
WTW162	DYNAMICAL_PROCESSES_162 Prerequisite/s: [WTW114 GS or WTW101 GS] and [WTW152 GS]	S2	2	1	8
Totals for o	compulsory modules in the third/fourth terms		20/20	6/6	37/37
Compulso	ry credits = (132) Elective credits = (20)				

Second year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
WTW211	LINEAR_ALGEBRA_211 Prerequisite/s: [WTW126]	S1	2	1	12		
WTW218	CALCULUS_218 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S1	2	1	12		
Totals for o	compulsory modules in the first/second terms		4/4	2/2	12/12		

Second year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
WTW220	ANALYSIS_220 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S2	2	1	12		
WTW221	LINEAR_ALGEBRA_221 Prerequisite/s: [WTW211]	S2	2	1	12		
WTW285	DISCRETE_STRUCTURES_285 Prerequisite/s: [WTW115]	S2	2	1	12		
WTW286	DIFFERENTIAL_EQUATIONS_286 Prerequisite/s: [WTW114 or WTW101] and [WTW126] and [WTW128]	S2	2	1	12		
Totals for o	compulsory modules in the third/fourth terms		8/8	4/4	24/24		
Compulsory credits = (72) Elective credits = (72)							

Third year	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
WTW310	ANALYSIS_310 Prerequisite/s: [WTW220]	S1	2	1	18
WTW382	DYNAMICAL_SYSTEMS_382 Prerequisite/s: [WTW220] and [WTW286]	S1	2	1	18
WTW386	PARTIAL_DIFF_EQUATIONS_386 Prerequisite/s: [WTW218] and [WTW286]	S1	2	1	18
Totals for o	compulsory modules in the first/second terms		6/6	3/3	27/27

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
WTW383	NUMERICAL_ANALYSIS_383 Prerequisite/s: [WTW114 or WTW101] and [WTW128] and [WTW211]	S2	2	1	18	
WTW385	DISCRETE_STRUCTURES_385 Prerequisite/s: [WTW126] and [WTW285]	S2	2	1	18	
Т	otals for compulsory modules in the third/fourth terms		4/4	2/2	18/18	
A minimum of 136 credits at 100 to 300 level can be chosen from any WTW, IAS, PHY, CMY, COS or WST modules. The remainder of the electives at 100 to 300 level can be chosen from any other modules in the syllabi of this faculty.						
Compulso	ry credits = (90) Elective credits at 300-level = (54)					

A minimum of (440) credits is required to obtain the degree.

Field of study	Dept	Code
BSc Biochemistry	BCM	03133001

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (0)					

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM271	BIOCHEMISTRY_PRACTICAL_271 Prerequisite/s: [BCM251 #] and [BCM252 #] and [BCM261 #] and [BCM262 #] and [CMY283 #] and [CMY284 #]	J1	0	1	6
CMY282	PHYSICAL_CHEMISTRY_282 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K1	4	1	12
CMY284	ORGANIC_CHEMISTRY_284 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K2	4	1	12
Totals for o	compulsory modules in the first/second terms		8/8	3/3	27/27

Second year, second semester:					
Code	Name	Trm	lpw	ppw	Crdt
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BCM271	BIOCHEMISTRY_PRACTICAL_271 Prerequisite/s: [BCM251 #] and [BCM252 #] and [BCM261 #] and [BCM262 #] and [CMY283 #] and [CMY284 #]	J1	0	1	6
CMY283	ANALYTICAL_CHEMISTRY_283 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	К3	4	1	12
CMY285	INORGANIC_CHEMISTRY_285 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K4	4	1	12
Totals for compulsory modules in the third/fourth terms 8/8 3/3 27/27					
Electives can be chosen from Genetics, Microbiology, Human Physiology, Botany or Zoology.					
Compulso	ry credits = (108) Elective credits = (48)				

Third year	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM351	BIOCHEMISTRY_OF_PROTEINS_351 Prerequisite/s: [BCM251]	K1	2	1	9
BCM352	PROTEOME_ANALYSIS_352 Prerequisite/s: [BCM251] and [BCM351 GS]	K2	2	1	9
BCM354	BIOCHEMOF_NUCLEIC_ACIDS_354 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262]	S1	1	0.5	9
BCM355	IMMUNOBIOLOGY_355 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262]	S1	1	0.5	9
Totals for o	compulsory modules in the first/second terms		4/4	2/2	18/18

Third year, second semester:					
Code	Name	Trm	lpw	ppw	Crdt
BCM362	NUTRITIONAL_BIOCHEMISTRY_362	K3	1	0	4
BCM363	XENO_BIOCHEMISTRY_363	K4	1	0	5
BCM364	BUILDING_THE_CELL_364	S2	1	0.5	9
BCM365	IMMUNOBIOCHEMISTRY_365	62	2 1	0.5	9
BCIVI303	Prerequisite/s: [BCM355 GS]	32			
BCM366	ENZYMOLOGY_366	S2	1	1	9
Totals for o	compulsory modules in the third/fourth terms		4/4	2/2	17.5/18.5
Electives of	can be chosen from Chemistry, Genetics, Microbiology, Hi	uman	Physiol	ogy, Bot	tany or
Zoology.					
Compulsory credits = (72) Elective credits at 300-level = (72)					
A minimu	m of (448) credits is required to obtain the degree.				

Field of study	Dept	Code
BSc Biological Sciences	ADM	03130001

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year, second semester:					
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMY127	GENERAL_CHEMISTRY_127	S2	4	1	16
	Prerequisite/s: [CMY117 GS or CMY101]				
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37

Generic first-year modules in Biological Sciences.

Students who are going to apply for the 20-30 MBChD, or the 2-3 BChD places, that become available in the second term, may enroll for FIL155, MGW112 and MTL181 instead of WTW134 under the condition that, should they not be selected and want to continue with BSc, WTW158 or WTW134 be taken in the second semester.

Students who wish to apply for selection to the third year of the BSc: Veterinary Biology and who comply with the required Gr.12 admission requirements, can register for BSc: Veterinary Biology in the first year. Refer to BSc: Veterinary Biology for the selection criteria.

Compulsory credits = (148) Elective credits = (0)

Field of study	Dept	Code
BSc Biotechnology	GTS	03133052

First year,	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMY127	GENERAL_CHEMISTRY_127	S2	4	1	16
0111121	Prerequisite/s: [CMY117 GS or CMY101]	02	7		10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161	\$2	\$2 2	0.5	8
010101	Prerequisite/s: [MLB111 GS] or [TDH]	52	2	0.5	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (4)					

Second year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12		

BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BOT251	SA_FLORA_&_VEGETATION_251 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	12
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12
ZEN251	INVERTEBRATE_BIOLOGY_251	K1	4	1	12
Totals for compulsory modules in the first/second terms			14/10	7/6	42/30

Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12
ZEN261	AFRICAN_VERTEBRATES_261	K3	4	1	12
Totals for o	compulsory modules in the third/fourth terms		14/10	4.5/3.5	42/30
Compulso	ry credits = (144) Elective credits = (0)				

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM351	BIOCHEMISTRY_OF_PROTEINS_351 Prerequisite/s: [BCM251]	K1	2	1	9
BCM354	BIOCHEMOF_NUCLEIC_ACIDS_354 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262]	S1	1	0.5	9
GTS352	GENOMES_352 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18
Totals for o	compulsory modules in the first/second terms		5/3	2.5/1.5	22.5/13.5

Third year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
MBY364	GENE.MANIPULATION/MICROBES.364 Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	S2	2	1	18
Totals for c	compulsory modules in the third/fourth terms	•	2/2	1/1	9/9
Electives c	an be chosen from the following list of modules: BOT352, E	SOT35	53, BC)T354, E	3OT361,
BCM352, E	3CM353, BCM365, BCM362, BCM364, GTS351, GTS353, G	STS36	61, GT	S366, 0	GTS363,
MBY351, N	/IBY352, MBY353, MBY361, MBY362, MBY363, PLG351, F	PLG36	31, PL	.G363, Z	ZEN364,
ZEN365 o	r in consultation with one of the Heads of Department i	n the	Scho	ol of B	iological
Sciences.	In order to focus the Biotechnology degree in a specific of	liscipl	ine it	is nece	ssary to
ensure that	t at least three of the electives fall within the same discipline.				
Compulsory credits = (54) Elective credits at 300 level = (90)					
A minimum of (440) credits is required to obtain the degree.					

Field of study	Dept	Code
BSc Botany	BOT	03133091

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	\$2	4	1	16
GIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32	4	1	10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161	\$2	2	0.5	0
613101	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	0
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (4)					

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	NTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BOT251	SA_FLORA_&_VEGETATION_251 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	12
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12
ZEN251	INVERTEBRATE_BIOLOGY_251	K1	4	1	12
Totals for o	compulsory modules in the first/second terms		14/10	7/6	42/30

Second y	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12
GLY161	HISTORICAL_GEOLOGY_161 Prerequisite/s: [Par 1.2]	K3	4	1	8
GLY162	ENVIRONMENTAL_GEOLOGY_162 Prerequisite/s: [Par 1.2]	K4	4	1	8
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12

ZEN261 AFRICAN_VERTEBRATES_261	K3	4	1	12		
Totals for compulsory modules in the third/fourth terms		14/10	4.5/3.5	38/26		
Compulsory credits = (136) Elective credits = (8)						

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BOT356	PLANT_ECOPHYSIOLOGY_356 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	18
BOT357	CROP_BIOTECHNOLOGY_357 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	18
BOT358	PLANT_ECOLOGY_358 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	18
Totals for o	compulsory modules in the first/second terms		6/6	3/3	27/27

Third year	; second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BOT365	PHYTOMEDICINE_365 Prerequisite/s: [BOT161] or [TDH]	S2	2	1	18
BOT366	PLANT_DIVERSITY_366 Prerequisite/s: [BOT161] or [TDH]	S2	2	0	10
BOT367	PRACT_PLANT_IDENTIFICATION_367 Prerequisite/s: [BOT161] or [TDH]	S2	0	1	10
Totals for o	compulsory modules in the third/fourth terms		4/4	2/2	19/19
Plant Ecology students: ZEN364(18) and suitable elective modules.					
Compulsory credits = (54) Elective credits at 300-level = (90)					
A minimum of (440) credits is required to obtain the degree.					

Field of study	Dept	Code	
BSc Chemistry	CMY	02133172	

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
PHY171	FIRST_COURSE_IN_PHYSICS_171 Prerequisite/s: [Par 1.2]	J1	4	1	16
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		16/16	3/3	29/29

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
PHY171	FIRST_COURSE_IN_PHYSICS_171 Prerequisite/s: [Par 1.2]	J1	4	1	16
WTW126	LINEAR_ALGEBRA_126 Prerequisite/s: [Par 1.2]	S2	2	1	8
WTW128	CALCULUS_128 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8
Totals for o	compulsory modules in the third/fourth terms		16/16	4/4	29/29
Compulsory credits = (116) Elective credits = (36)					

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
CMY282	PHYSICAL_CHEMISTRY_282 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K1	4	1	12	
CMY284	ORGANIC_CHEMISTRY_284 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K2	4	1	12	
Totals for c	compulsory modules in the first/second terms		4/4	1/1	12/12	

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Second year, second semester:

Code	Name	Trm	lpw	ppw	Crdt	
CMY283	ANALYTICAL_CHEMISTRY_283 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K3	4	1	12	
CMY285	INORGANIC_CHEMISTRY_285 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K4	4	1	12	
Totals for compulsory modules in the third/fourth terms			4/4	1/1	12/12	
Electives can be chosen from modules in the following departments: Geography, Geoinformatics and Meteorology, Geology, Biochemistry, Zoology and Entomology, Physics, Botany, Computer Science, Mathematics and Applied Mathematics.						
Compulsory credits = (48) Elective credits = (96)						

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CMY383	ANALYTICAL_CHEMISTRY_383 Prerequisite/s: [CMY282] and [CMY283] and [CMY284] and [CMY285]	K2	4	1	18
CMY385	INORGANIC_CHEMISTRY_385 Prerequisite/s: [CMY282] and [CMY283] and [CMY284] and [CMY285]	K1	4	1	18
Totals for o	compulsory modules in the first/second terms		4/4	1/1	18/18

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
CMY382	PHYSICAL_CHEMISTRY_382 Prerequisite/s: [CMY282] and [CMY283] and [CMY284] and [CMY285]	K4	4	1	18	
CMY384	ORGANIC_CHEMISTRY_384 Prerequisite/s: [CMY282] and [CMY283] and [CMY284] and [CMY285]	К3	4	1	18	
Totals for compulsory modules in the third/fourth terms			4/4	1/1	18/18	
Compulsory credits = (72) Elective credits at 300-level = (72)						
A minimum of (440) credits is required to obtain the degree.						

Field of study	Dept	Code
BSc Earth Sciences	GGY	02133012

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
GI Y151	INTRODUCTORY_GEOLOGY_151	К1	4	1	8
GETTOT	Prerequisite/s: [Par 1.2]			•	Ŭ
GLY152	PHYSICAL_GEOLOGY_152 Prerequisite/s: [Par 1.2]	K2	4	1	8
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for c	compulsory modules in the first/second terms		16/16	3/3	29/29
WTW 134	can be taken instead of WTW 114.				

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	\$2	4	1	16
0111127	Prerequisite/s: [CMY117 GS or CMY101]	02	-		10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GGY162	REMOTE_SENSING_162 Prerequisite/s: [Par 1.2]	S2	0	1	4
GGY164	PHYSICAL_GEOGRAPHY_OF_SA_164	K4	4	0	6
COV165	PRINCIPLES:_PHYSICAL_GEOGR.165	K3	4	0	6
001103	Prerequisite/s: [Par 1.2]	NJ	4	0	0
GLY161	HISTORICAL_GEOLOGY_161 Prerequisite/s: [Par 1.2]	K3	4	1	8
CI V162	ENVIRONMENTAL_GEOLOGY_162	KA	4	1	Q
GLTTOZ	Prerequisite/s: [Par 1.2]	1/4	4	1	0
Totals for o	Totals for compulsory modules in the third/fourth terms 16/16 3/3 29/29				
Electives can be chosen from modules in the following departments: Geography, Geoinformatics					
and Meteorology, Geology, Plant Production and Soil Science, Physics, Zoology and Entomology,					
Chemistry, Botany, Mathematics and Applied Mathematics, Computer Science.					
Compulsory credits = (116) Elective credits = (36)					

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GGY252	PROCESS_GEOMORPHOLOGY_252	K2	4	2	12	
GGY283	INTRODUCTORY_GIS_283	S1	2	1	12	
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12	
Totals for compulsory modules in the first/second terms			5/9	2/4	12/24	

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

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GIS220	GEOGRAPHIC_DATA_ANALYSIS_220	S2	3	1	12	
GMA220	REMOTE_SENSING_220	S2	3	1	16	
Totals for compulsory modules in the third/fourth terms			6/6	2/2	14/14	
Compulsory credits = (64) Elective credits = (80)						

Third year	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GKD350	SOIL_CLASSIF.&_SURVEYING_350 Prerequisite/s: [GKD250 GS]	S1	2	1	14
Totals for o	compulsory modules in the first/second terms		2/2	1/1	7/7

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GGY361	ENVIRONM.GEOMORPHOLOGY_361	K3	4	2	18	
GGY364	ENVIRONMENTAL_MODELLING_364	К4	4	2	18	
001001	Prerequisite/s: [GGY283]		-	2	10	
GI\$320	SIS320 SPATIAL_ANALYSIS_320	\$2	3	1	24	
613320	Prerequisite/s: [GIS310] or [TDH]	02				
	ENVIRONMENTAL_MANAGEMENT_460	\$2	4	1	26	
OKD400	Prerequisite/s: [GKD250] and [GKD350]	02				
GMA320	REMOTE_SENSING_320	S2	3	1	24	
Totals for o	compulsory modules in the third/fourth terms		14/14	5/5	55/55	
Electives can be chosen from modules in the following departments: Geography, Geoinformatics						
and Meteorology, Geology, Plant Production and Soil Science, Chemistry, Botany, Physics,						
Zoology ar	nd Entomology, Mathematics and Applied Mathematics, Com	puter	Science			

Compulsory credits = (124) Elective credits at 300 level = (20) A minimum of (440) credits is required to obtain the degree.

Field of study	Dept	Code
BSc Ecology	ZEN	03133031

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year, second semester:					
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	62	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32			10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161	02	2	0.5	8
613101	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (0)					

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM251	NTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
BOT251	SA_FLORA_&_VEGETATION_251 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	12	
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12	
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12	
ZEN251	INVERTEBRATE_BIOLOGY_251	K1	4	1	12	
Totals for compulsory modules in the first/second terms			14/10	7/6	42/30	

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12	
GLY161	HISTORICAL_GEOLOGY_161 Prerequisite/s: [Par 1.2]	K3	4	1	8	
GLY162	ENVIRONMENTAL_GEOLOGY_162 Prerequisite/s: [Par 1.2]	K4	4	1	8	
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12	

MBY261 GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12		
ZEN261 AFRICAN_VERTEBRATES_261	K3	4	1	12		
Totals for compulsory modules in the third/fourth terms		14/10	4.5/3.5	38/26		
Compulsory credits = (136) Elective credits = (10)						

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BOT356	PLANT_ECOPHYSIOLOGY_356 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	18		
BOT358	PLANT_ECOLOGY_358 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	18		
ZEN351	POPULATION_ECOLOGY_351	K1	4	2	18		
ZEN353	COMMUNITY_ECOLOGY_353	K2	4	2	18		
Totals for o	compulsory modules in the first/second terms		8/8	4/4	36/36		

Third year	; second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BOT266	PLANT_DIVERSITY_366	\$2	2	0	10
DO1300	Prerequisite/s: [BOT161] or [TDH]	52	2	0	10
BOT367	PRACT_PLANT_IDENTIFICATION_367	\$2	0	1	10
B01307	Prerequisite/s: [BOT161] or [TDH]	52			
ZEN361	ECOPHYSIOLOGY_361	K3	4	2	18
ZEN362	EVOLUTION_AND_PHYLOGENY_362	K3	4	2	18
ZEN364	CONSERVATION_ECOLOGY_364	K4	4	2	18
Totals for o	compulsory modules in the third/fourth terms		10/6	5/3	46/28
Compulso	ry credits = (146) Elective credits = (0)				
A minimu	m of (440) credits is required to obtain the degree.				

Field of study	Dept	Code
BSc Entomology	ZEN	03133041

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8

ZEN161 ANIMAL_DIVERSITY_161	S2	2	0.5	8		
Totals for compulsory modules in the third/fourth terms		20/20	4/4	37/37		
Compulsory credits = (1482) Elective credits = (0)						

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
BOT251	SA_FLORA_&_VEGETATION_251 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	12	
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12	
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12	
ZEN251	INVERTEBRATE_BIOLOGY_251	K1	4	1	12	
Totals for o	compulsory modules in the first/second terms		14/10	7/6	42/30	

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12	
GLY161	HISTORICAL_GEOLOGY_161 Prerequisite/s: [Par 1.2]	КЗ	4	1	8	
GLY162	ENVIRONMENTAL_GEOLOGY_162 Prerequisite/s: [Par 1.2]	K4	4	1	8	
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12	
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12	
ZEN261	AFRICAN_VERTEBRATES_261	K3	4	1	12	
Totals for o	compulsory modules in the third/fourth terms		14/10	4.5/3.5	38/26	
Compulsory credits = (136) Elective credits = (12						

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
ZEN351	POPULATION_ECOLOGY_351	K1	4	2	18	
ZEN353	COMMUNITY_ECOLOGY_353	K2	4	2	18	
ZEN354	PHYSIOLOGY_354	K2	4	2	18	
ZEN355	INSECT_DIVERSITY_355	K1	4	2	18	
Totals for o	compulsory modules in the first/second terms		8/8	4/4	36/36	

Third year	r, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
ZEN361	ECOPHYSIOLOGY_361	K3	4	2	18
ZEN362	EVOLUTION_AND_PHYLOGENY_362	K3	4	2	18
ZEN364	CONSERVATION_ECOLOGY_364	K4	4	2	18
ZEN365	INSECT_PEST_MANAGEMENT_365	K4	4	2	18
Totals for o	compulsory modules in the third/fourth terms		8/8	4/4	36/36
Compulso	ory credits = (144) Elective credits = (0)				
A minimu	m of (440) credits is required to obtain the degree.				

Field of study	Dept	Code
BSc Environmental and Engineering Geology	GLY	02133042

First year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
CIL111	COMPUTER_LITERACY_111	S1	2	0	4		
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16		
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6		
CI V151	INTRODUCTORY_GEOLOGY_151	K1	4	1	Q		
OLITION	Prerequisite/s: [Par 1.2]	IX I	-		0		
GLY152	PHYSICAL_GEOLOGY_152 Prerequisite/s: [Par 1.2]	K2	4	1	8		
WTW158	CALCULUS_158 Prerequisite/s: [Par 1.2]	S1	4	1	16		
Totals for o	compulsory modules in the first/second terms		16/16	3/3	29/29		

First year,	second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
GLY161	HISTORICAL_GEOLOGY_161 Prerequisite/s: [Par 1.2]	K3	4	1	8	
GLY162	ENVIRONMENTAL_GEOLOGY_162 Prerequisite/s: [Par 1.2]	K4	4	1	8	
SWK122	MECHANICS_122 Prerequisite/s: [WTW158]	S2	4	0	16	
Totals for o	compulsory modules in the third/fourth terms		16/16	2/2	29/29	
Compulsory credits = (116) Elective credits = (36)						

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GLY251	CRYSTAL_OPTICS_&_CRYS.CHEM.251 Prerequisite/s: [CMY117 GS] and [GLY151 and 2 of GLY152, GLY161, GLY162.]	K1	4	2	12
GLY252	MINERALOGY_252 Prerequisite/s: [GLY251 GS]	K2	4	2	12
GLY253	SEDIMENTOLOGY_253 Prerequisite/s: [3 of GLY151, GLY152, GLY161, GLY162.]	K2	4	2	12
GLY254	STRUCTURAL_GEOLOGY_254 Prerequisite/s: [3 of GLY151, GLY152, GLY161, GLY162.]	K1	4	2	12
SWK210	STRENGTH_OF_MATERIALS_210	S1	3	2	16
Totals for o	compulsory modules in the first/second terms		11/11	6/6	32/32

Second ye	ear, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
GLY261	IGNEOUS_PETROLOGY_261 Prerequisite/s: [GLY252]	K3	4	2	12	
GLY262	METAMORPHIC_PETROLOGY_262 Prerequisite/s: [GLY252]	K4	4	2	12	
GLY264	INTRODUCTION_TO_GEOPHYSICS_264 Prerequisite/s: [GLY151] and [GLY152] and [WTW114]	К3	4	2	12	
GLY265	GROUNDWATER_265 Prerequisite/s: [GLY152 TDH]	K4	4	2	12	
Totals for o	compulsory modules in the third/fourth terms		8/8	4/4	24/24	
Compulsory credits = (112) Elective credits = (28)						

Third year	; first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GLY352	ORE_FORMATION_352 Prerequisite/s: [GLY261]	K1	4	2	18
GLY362	GEOSTAT.&_ORE_RESERVCALC.362	K2	4	2	18

SGM311 SOIL_MECHANICS_311	S1	3	1	16
Totals for compulsory modules in the first/second terms		7/7	3/3	26/26

Third year	r, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
GLY361	ORE_DEPOSITS_361	K3	4	2	18
GLY363	ENGINEERING_GEOLOGY_363 Prerequisite/s: [GLY152] and [GLY265 TDH]	K4	4	2	18
PSZ311	ROCK_MECHANICS_311 Prerequisite/s: [SWK210] or [SWK220]	S2	3	1	16
Totals for o	compulsory modules in the third/fourth terms		7/7	3/3	26/26

Electives for the first to third year can be chosen from the following departments: Geography, Geoinformatics and Meteorology, Geology, Plant Production and Soil Science, Chemistry, Botany, Mathematics and Applied Mathematics, Physics, Computer Science, Mining Engineering and Civil and Biosystems Engineering. Compulsory credits = (104) Elective credits at 300 level = (44)

A minimum of (440) credits is required to obtain the degree.

Field of study	Dept	Code
BSc Environmental Sciences	GGY	02133361

First year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
CIL111	COMPUTER_LITERACY_111	S1	2	0	4		
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16		
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6		
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16		
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16		
Totals for o	compulsory modules in the first/second terms		16/16	3/3	29/29		
WTW 134 can be taken instead of WTW 114.							

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	\$2	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32			10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GGY162	REMOTE_SENSING_162 Prerequisite/s: [Par 1.2]	S2	0	1	4
GGY164	PHYSICAL_GEOGRAPHY_OF_SA_164	K4	4	0	6
CCV165	PRINCIPLES:_PHYSICAL_GEOGR.165	1/2	4	0	6
GGT105	Prerequisite/s: [Par 1.2]	КJ	4	0	0
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37

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

Compulsory credits = (132) Elective credits = (20)

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BOT251	SA_FLORA_&_VEGETATION_251 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	12

GGY252	PROCESS_GEOMORPHOLOGY_252	K2	4	2	12
GGY283	INTRODUCTORY_GIS_283	S1	2	1	12
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12
ZEN251	INVERTEBRATE_BIOLOGY_251	K1	4	1	12
Totals for compulsory modules in the first/second terms		11/11	4/5	30/30	

Second year,	second	semester:
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Code	Name	Trm	lpw	ppw	Crdt	
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12	
ZEN261	AFRICAN_VERTEBRATES_261	K3	4	1	12	
Totals for compulsory modules in the third/fourth terms 6/2 2/1 18/6				18/6		
No compulsory modules in the fourth quarter. Electives can be chosen from the following departments: Geography, Geoinformatics and Meteorology, Physics, Geology, Plant Production and Soil Science, Chemistry, Botany, Mathematics and Applied Mathematics, Zoology and Entomology, Anthropology and Archaeology and Computer Science.						
Compulsory credits = (84) Elective credits = (60)						

Third year	; first semester:				
Code	Name	Trm	lpw	ppw	Crdt
Totals for o	compulsory modules in the first/second terms		0/0	0/0	0/0
No compu	sory modules.				

Third year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
GGY361	ENVIRONM.GEOMORPHOLOGY_361	K3	4	2	18
GGY364	ENVIRONM.GEOMORPHOLOGY_364 Prerequisite/s: [GGY283]	K4	4	2	18
Totals for o	compulsory modules in the third/fourth terms		4/4	2/2	18/18
Electives of	can be chosen from modules in the departments: Geogi	raphy	, Geoint	iorma	tics and
Meteorolog	gy, Geology, Plant Production and Soil Science, Phy	/sics,	Chemi	stry,	Botany,
Mathemati	cs and Applied Mathematics, Zoology and Entomology, Antl	hropo	logy and	Arch	aeology
and Comp	uter Science.				
Compulsory credits = (36) Elective credits at 300 level = (108)					
A minimu	n of (440) credits is required to obtain the degree.				

Field of study	Dept	Code
BSc Exploration Geophysics	GLY	02133192

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
COS130	INTRODUCTTO_PROGRAMMING_130 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
GLY151	INTRODUCTORY_GEOLOGY_151 Prerequisite/s: [Par 1.2]	K1	4	1	8
GLY152	PHYSICAL_GEOLOGY_152 Prerequisite/s: [Par 1.2]	K2	4	1	8
PHY171	FIRST_COURSE_IN_PHYSICS_171 Prerequisite/s: [Par 1.2]	J1	4	1	16
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
CIL121	INFORMATION_LITERACY_121	S2	2	0	4		
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6		
GLY161	HISTORICAL_GEOLOGY_161 Prerequisite/s: [Par 1.2]	K3	4	1	8		
GLY162	ENVIRONMENTAL_GEOLOGY_162 Prerequisite/s: [Par 1.2]	K4	4	1	8		
PHY171	FIRST_COURSE_IN_PHYSICS_171 Prerequisite/s: [Par 1.2]	J1	4	1	16		
WTW123	NUMERICAL_ANALYSIS_123 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8		
WTW126	LINEAR_ALGEBRA_126 Prerequisite/s: [Par 1.2]	S2	2	1	8		
WTW128	CALCULUS_128 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8		
Totals for compulsory modules in the third/fourth terms 18/18 5/5 33/33							
Electives can be chosen from modules in the following departments: Geography, Geoinformatics and Meteorology, Geology, Plant Production and Soil Science, Chemistry, Botany, Mathematics and Applied Mathematics, Physics and Computer Science.							
Compulso	ory credits = (140) Elective credits = (12)						

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GLY253	SEDIMENTOLOGY_253 Prerequisite/s: [3 of GLY151, GLY152, GLY161, GLY162.]	K2	4	2	12	
GLY254	STRUCTURAL_GEOLOGY_254 Prerequisite/s: [3 of GLY151, GLY152, GLY161, GLY162.]	K1	4	2	12	
PHY253	SIMULATUSING_MATHEMATICA_253 Prerequisite/s: [PHY171 or PHY101 and PHY102] and [WTW211 #] and [WTW218 #]	K1	0	1	6	
PHY254	GENERAL_PHYSICS_253 Prerequisite/s: [PHY171 or PHY101 and PHY102] and [PHY253 #] and [WTW211 #] and [WTW218 #]	S1	4	2	24	
WTW211	LINEAR_ALGEBRA_211 Prerequisite/s: [WTW126]	S1	2	1	12	
WTW218	CALCULUS_218 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S1	2	1	12	
Totals for o	compulsory modules in the first/second terms		12/12	7/6	42/36	

Second ye	ear, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
GLY264	INTRODUCTION_TO_GEOPHYSICS_264 Prerequisite/s: [GLY151] and [GLY152] and [WTW114]	К3	4	2	12	
GLY265	GROUNDWATER_265 Prerequisite/s: [GLY152 TDH]	K4	4	2	12	
PHY263	GENERAL_PHYSICS_263 Prerequisite/s: [PHY253 GS] and [PHY254 GS] and [WTW211 GS] and [WTW218 GS] and [WTW220 #] and [WTW221 #]	S2	4	2	24	
	Totals for compulsory modules in the third/fourth terms		8/8	4/4	24/24	
Electives can be chosen from the following departments: Geography, Geoinformatics and Meteorology, Geology, Plant Production and Soil Science, Chemistry, Botany, Mathematics and Applied Mathematics, Physics and Computer Science. Compulsory credits = (126) Elective credits = (18)						

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GLY352	ORE_FORMATION_352 Prerequisite/s: [GLY261]	K1	4	2	18
GLY362	GEOSTAT.&_ORE_RESERVCALC.362	K2	4	2	18

PHY361	ELECTROMAGNET_&_ELECTRONIC_361 Prerequisite/s: [PHY251] and [PHY252]	K3	4	2	18
Totals for o	compulsory modules in the first/second terms		8/4	4/2	36/18

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GLY361	ORE_DEPOSITS_361	K3	4	2	18	
WTW383	NUMERICAL_ANALYSIS_383 Prerequisite/s: [WTW114 or WTW101] and [WTW128] and [WTW211]	S2	2	1	18	
Totals for o	compulsory modules in the third/fourth terms		6/2	3/1	27/9	
Electives	can be chosen from the following departments: Geog	raphy	, Geoin	forma	atics and	
Meteorology, Geology, Plant Production and Soil Science, Chemistry, Botany, Mathematics and						
Applied Mathematics, Physics and Computer Science.						
Compulsory credits = (90) Elective credits at 300 level = (54)						
A minimum of (440) credits is required to obtain the degree.						

Field of study	Dept	Code
BSc Food Management	VBR	02133384

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
FSG110	PHYSIOLOGY_110	S1	3	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
OBS110	BUSINESS_MANAGEMENT_110	S1	3	0	10
VDS111	FOODS_111	S1	2	1	10
Totals for o	compulsory modules in the first/second terms		20/20	3/3	34/34

First year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	62	2 4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32			10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
FSG120	PHYSIOLOGY_120 Prerequisite/s: [FSG110 GS]	S2	3	0	6
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
OBS120	BUSINESS_MANAGEMENT_120	S2	3	0	10
Totals for	compulsory modules in the third/fourth terms		20/20	2.5/2.5	33/33
Compulsory credits = (134) Elective credits = (0)					

Second year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12		
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12		
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12		
OBS210	BUSINESS_MANAGEMENT_210	S1	3	0	16		
VDS210	FOODS_210 Prerequisite/s: [VDS111 or #]	S1	3	1	18		
Totals for o	compulsory modules in the first/second terms		12/12	4/4	35/35		

Second year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
FST260	PRIN/FOOD_PROC&_PRESERV260 Prerequisite/s: [CMY117] and [CMY127] and [MBY161] and [PHY131] and [WTW134] or [TDH]	S2	2	1	12		
KEP220	CULTURAL_EATING_PATTERNS_220	S2	3	0	12		
VDS221	FOODS_221 Prerequisite/s: [VDS210]	S2	3	1	18		
Totals for o	compulsory modules in the third/fourth terms		12/12	3/3	33/33		
Compulsory credits = (136) Elective credits = (0)							

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
FST351	FOOD_CHEMISTRY-(1)_351 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262] or [TDH]	S1	2	1	18
FST352	FOOD_CHEMISTRY-(2)_352 Prerequisite/s: [BCM251] or [TDH] and [BCM252] or [TDH] and [BCM261] or [TDH] and [BCM262] or [TDH]	S1	2	1	18
VDG311	NUTRITION_311 Prerequisite/s: [FSG110] and [FSG120 or VDG220]	S1	3	1	17
VDS310	FOODS_310 Prerequisite/s: [VDS210] and [VDS221]	S1	3	1	21
Totals for o	compulsory modules in the first/second terms		10/10	4/4	37/37

Third year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
VDB321	FOOD_SERVICE_MANAGEMENT_321 Prerequisite/s: [VDS322 #]	S2	3	0.5	18		
VDG321	NUTRITION_321 Prerequisite/s: [VDG311]	S2	3	1	17		
VDS322	LARGE_SCALE_PLANNING&_PREP.322 Prerequisite/s: [KEP261 or KEP220] and [VDS221]	S2	3	3	29		
Totals for	compulsory modules in the third/fourth terms		9/9	4.5/4.5	32/32		
Compulsory credits = (138) Elective credits = (0)							

Fourth ye	ar, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
FST411	SENSORY_ANAL.&QUAL.MAN.SYS.411 Prerequisite/s: [FST260] and [FST351] and [FST352] or [TDH]	S1	2	1	20
PGB400	PROJECT:_HOSPITALITY_MANAG.400	J1	4	0	10
VDB410	FOOD_SERVICE_MANAGEMENT_410 Prerequisite/s: [ABV320] and [VDB321]	S1	3	1	24
VDS413	FOODS_413 Prerequisite/s: [VDS310 or VDS322]	S1	3	2	30
Totals for o	compulsory modules in the first/second terms		12/12	4/4	42/42

Fourth yea	ar, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
BEM781	MARKETING_MANAGEMENT_781	S2	3	0	15	
MBY362	FOOD_MICROBIOLOGY_362 Prerequisite/s: [MBY251]	S2	2	1	18	
VDS423	FOODS_423	S2	3	0	15	
VDS426	FOOD_RESEARCH_PROJECT_426 Prerequisite/s: [PGB400 #] and [VDS310]	S2	1	2	18	
Totals for o	compulsory modules in the third/fourth terms		9/9	3/3	33/33	
Compulsory credits = (150) Elective credits = (0)						
A minimum of (558) credits is required to obtain the degree.						

Field of study	Dept	Code
BSc Food Science	VDW	03134011

First year,	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year	, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
BME120	BIOMETRY_120	S2	4	1	16	
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8	
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8	
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37	
Compulsory credits = (144) Elective credits = (4)						

Second y	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
FST250	INTRO/FOOD_SCIENCE_&_TECH250 Prerequisite/s: [CMY117] and [CMY127] and [MBY161] and [PHY131] and [WTW134] or [TDH]	S1	2	1	12
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12
VDG250	NUTRITION_250 Prerequisite/s: [CMY127] or [CMY102]	S1	3	0.5	12
Totals for	compulsory modules in the first/second terms		11/11	4.5/4.5	30/30

Second ye	ear, second semester:						
Code	Name	Trm	lpw	ppw	Crdt		
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
FST260	PRIN/FOOD_PROC&_PRESERV260 Prerequisite/s: [CMY117] and [CMY127] and [MBY161] and [PHY131] and [WTW134] or [TDH]	S2	2	1	12		
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12		
Totals for o	compulsory modules in the third/fourth terms		8/8	3/3	24/24		
Compulso	Compulsory credits = (108) Elective credits = (36)						

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
FST350	INTEGRATED_FOOD_SCIENCE_350 Prerequisite/s: [FST250] and [FST260] or [TDH]	J1	2	0	9		
FST351	FOOD_CHEMISTRY-(1)_351 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262] or [TDH]	S1	2	1	18		
FST352	FOOD_CHEMISTRY-(2)_352 Prerequisite/s: [BCM251] or [TDH] and [BCM252] or [TDH] and [BCM261] or [TDH] and [BCM262] or [TDH]	S1	2	1	18		
FST353	FOOD_ENGINEERING_353 Prerequisite/s: [CMY117] and [CMY127] and [FST260] and [PHY131] and [WTW134] or [TDH]	S1	3	0.5	18		
Totals for	compulsory modules in the first/second terms		9/9	2.5/2.5	31.5/31.5		

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
FST350	INTEGRATED_FOOD_SCIENCE_350 Prerequisite/s: [FST250] and [FST260] or [TDH]	J1	2	0	9	
FST360	PLANT_FOOD_SCIENCE_360 Prerequisite/s: [FST250] and [FST260] and [FST351] and [FST352] or [TDH]	S2	2	1	18	
FST361	ANIMAL_FOOD_SCIENCE_361 Prerequisite/s: [FST250] and [FST260] and [FST351] and [FST352] or [TDH]	S2	2	1	18	
MBY362	FOOD_MICROBIOLOGY_362 Prerequisite/s: [MBY251]	S2	2	1	18	
Totals for o	Totals for compulsory modules in the third/fourth terms 8/8 3/3 31.5/31.					
Compulsory credits = (126) Elective credits at 300 level = (18)						
A minimum of (440) credits is required to obtain the degree.						

Field of study	Dept	Code
BSc Genetics	GTS	03133051

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	62	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32			10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161	\$2	2	0.5	8
010101	Prerequisite/s: [MLB111 GS] or [TDH]	52	2	0.0	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (4)					

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
BOT251	SA_FLORA_&_VEGETATION_251 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	12	
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12	
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12	
ZEN251	INVERTEBRATE_BIOLOGY_251	K1	4	1	12	
Totals for o	compulsory modules in the first/second terms		14/10	7/6	42/30	

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Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12	
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12	
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12	
ZEN261	AFRICAN_VERTEBRATES_261	K3	4	1	12	
Totals for compulsory modules in the third/fourth terms			14/10	4.5/3.5	42/30	
Compulsory credits = (144) Elective credits = (0)						

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GT\$351	EUKARYOTIC_GENE_CON.&_DEVL.351	S1	2	1	18
013331	Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	31	2	1	
CT6252	GENOMES_352	Q1	2	1	19
013332	Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	31			10
GT\$353	ADVPOPULATION_GENETICS_353	Q1	2	1	19
013333	Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	31	2	1	10
Totals for c	compulsory modules in the first/second terms		6/6	3/3	27/27

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GTS361	HUMAN_GENETICS_361	62	2	1	19	
013301	Prerequisite/s: [GTS352 GS] or [TDH]	52	2	-	10	
CTS363	EVOLUTIO&_PHYLO-GENETICS_363	62	2	1	19	
G15363	Prerequisite/s: [GTS353 GS] or [TDH]	32	2		10	
	PLANT_GENETICS_&_BIOTECHN366 Prerequisite/s:					
GTS366	[GTS251 GS] and [GTS261 GS] or [TDH] and [GTS351 GS	S2	2	1	18	
	is recommended] and [GTS352 GS is recommended]					
Totals for o	Totals for compulsory modules in the third/fourth terms 6/6 3/3 27/27					
Electives can be chosen from the following list of third-year modules: BCM351, BCM352,						
BCM354, E	BCM354, BCM355, BCM364, BCM365, BCM366, MBY351, MBY352, MBY353, MBY361,					

MBY362, MBY363, MBY364, PLG351, PLG361, PLG362, PLG363, ZEN351, ZEN352, ZEN353, ZEN354, ZEN355, ZEN361, ZEN362, ZEN363, ZEN364, ZEN365,

ZEN354, ZEN355, ZEN361, ZEN362, ZEN363, ZEN364, ZEN365. Compulsory credits = (108) Elective credits at 300 level = (36)

A minimum of (440) credits is required to obtain the degree.

Field of study	Dept	Code
BSc Geography	GGY	02133385

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
GGY132	CARTOGRAPHIC_SKILLS_132 Prerequisite/s: [Par 1.2]	S1	0	1	4
GGY153	GEOGRAPHY_OF_CITIES_153 Prerequisite/s: [Par 1.2]	K2	4	0	6
GGY155	HUMAN_GEOGRAPHY_OF_SADC_155	K1	4	0	6
GMC110	CARTOGRAPHY_110 Prerequisite/s: [GGY132]	S1	3	0	8
WKD151	ATMOSPHERIC_PROCESSES_151	K1	4	0.6	8
WKD152	ATMOSPHERIC_CIRC.&_CLIMATE_152	K2	4	0.6	8
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		19/19	2.6/2.6	33/33
WTW 134	can be taken instead of WTW 114.				

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GGY162	REMOTE_SENSING_162 Prerequisite/s: [Par 1.2]	S2	0	1	4
GGY164	PHYSICAL_GEOGRAPHY_OF_SA_164	K4	4	0	6
CCV165	PRINCIPLES:_PHYSICAL_GEOGR.165	K3	4	0	6
001105	Prerequisite/s: [Par 1.2]	N3	4	0	0
Totals for c	compulsory modules in the third/fourth terms		8/8	1/1	13/13
Electives c	an be chosen from modules in the following departments: Ge	eogra	phy, Geo	oinfori	matics
and Meteor	rology, Plant Production and Soil Science, Chemistry, Botany	y, Phy	sics, Zo	ology	and
Entomology, Geology, Mathematics and Applied Mathematics, Computer Science, Anthropology					
and Archaeology, Economics, History, Psychology, Sociology, Political Sciences.					
Compulsory credits = (92) Elective credits = (60)					

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GGY252	PROCESS_GEOMORPHOLOGY_252	K2	4	2	12
GGY283	INTRODUCTORY_GIS_283	S1	2	1	12
Totals for o	compulsory modules in the first/second terms		2/6	1/3	6/18

Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
GGY263	URBAN_MODELLING_263	K3	4	2	12
GGY264	URBAN_SOCIAL_MORPHOLOGY_264	K4	4	2	12
GIS220	GEOGRAPHIC_DATA_ANALYSIS_220	S2	3	1	12
GMA220	REMOTE_SENSING_220	S2	3	1	16
Totals for o	compulsory modules in the third/fourth terms		10/10	4/4	26/26

Electives can be chosen from modules in the following departments: Geography, Geoinformatics and Meteorology, Plant Production and Soil Science, Chemistry, Botany, Physics, Zoology and Entomology, Geology, Mathematics and Applied Mathematics, Computer Science, Anthropology and Archaeology, Economics, History, Psychology, Sociology, Political Sciences. Compulsory credits = (76) Elective credits = (68)

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GGY353	URBAN_DEVELOPMENT_STUDIES_353	K2	4	2	18	
GGY354	DEVELOPMENT_GEOGRAPHY_354	K1	4	2	18	
GIS310	GEOGRAPHIC_INFORMATION_SYS.310	C1	3	1	24	
	Prerequisite/s: [GGY283] or [TDH]	51				
Totals for o	compulsory modules in the first/second terms		7/7	3/3	30/30	

Third year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
GGY361	ENVIRONM.GEOMORPHOLOGY_361	K3	4	2	18		
GGY364	ENVIRONMENTAL_MODELLING_364 Prerequisite/s: [GGY283]	K4	4	2	18		
GIS320	SPATIAL_ANALYSIS_320 Prerequisite/s: [GIS310] or [TDH]	S2	3	1	24		
GMA320	REMOTE_SENSING_320	S2	3	1	24		
Totals for compulsory modules in the third/fourth terms			10/10	4/4	42/42		
Compulsory credits = (144) Elective credits = (0)							
A minimu	A minimum of (440) credits is required to obtain the degree						

Field of study	Dept	Code
BSc Geoinformatics	GGY	02133383

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
GGY132	CARTOGRAPHIC_SKILLS_132 Prerequisite/s: [Par 1.2]	S1	0	1	4
GGY153	GEOGRAPHY_OF_CITIES_153 Prerequisite/s: [Par 1.2]	K2	4	0	6
GGY155	HUMAN_GEOGRAPHY_OF_SADC_155	K1	4	0	6
GMC110	CARTOGRAPHY_110 Prerequisite/s: [GGY132]	S1	3	0	8
INF112	INFORMATICS_112 Prerequisite/s: [Par 1.2]	S1	3	0	10
INF153	INFORMATICS_153 Prerequisite/s: [Par 1.2]	S1	2	0	5
INF154	INFORMATICS_154 Prerequisite/s: [Par 1.2]	S1	1	2	5
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		21/21	4/4	35/35

First year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
GGY162	REMOTE_SENSING_162 Prerequisite/s: [Par 1.2]	S2	0	1	4	
GGY164	PHYSICAL_GEOGRAPHY_OF_SA_164	K4	4	0	6	
GGY165	PRINCIPLES:_PHYSICAL_GEOGR.165 rerequisite/s: [Par 1.2]	К3	4	0	6	
INF163	INFORMATICS_163 Prerequisite/s: [INF153 GS] and [Par 1.2]	S2	2	0	5	

Compulsory credits = (122) Elective credits = (30)						
Totals for compulsory modules in the third/fourth terms		15/15	5/5	26/26		
WTW128 CALCULUS_128 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8		
WTW126 LINEAR_ALGEBRA_126 Prerequisite/s: [Par 1.2]	S2	2	1	8		
INF164 INFORMATICS_164 Prerequisite/s: [INF154 GS] and [Par 1.2]	S2	1	2	5		

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GGY283	INTRODUCTORY_GIS_283	S1	2	1	12	
GMC210	CARTOGRAPHY_210 Prerequisite/s: [GMC110]	S1	3	1	12	
INF214	INFORMATICS_214 Prerequisite/s: [[CIL111] and [CIL121]	S1	3	1	14	
WST111	MATHEMATICAL_STATISTICS_111 Prerequisite/s: [Par 1.2]	S1	4	1	16	
Totals for compulsory modules in the first/second terms			12/12	4/4	27/27	

Second ye	ear, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
GIS220	GEOGRAPHIC_DATA_ANALYSIS_220	S2	3	1	12	
GMA220	REMOTE_SENSING_220	S2	3	1	16	
INF261	INFORMATICS_261 Prerequisite/s: [INF214 GS]	K3	3	2	7	
SUR220	SURVEYING_220 Prerequisite/s: [WTW114 GS]	S2	3	1	16	
WST121	MATHEMATICAL_STATISTICS_121 Prerequisite/s: [WST111 GS]	S2	4	1	16	
Totals for o	compulsory modules in the third/fourth terms		16/16	6/6	37/37	
Compulsory credits = (121) Elective credits = (23)						

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
GIS310	GEOGRAPHIC_INFORMATION_SYS.310 Prerequisite/s: [GGY283] or [TDH]	S1	3	1	24		
GMC310	CARTOGRAPHY_310 Prerequisite/s: [GMC210]	S1	3	1	24		
Totals for compulsory modules in the first/second terms			6/6	2/2	24/24		

Third year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
GIS320	SPATIAL_ANALYSIS_320 Prerequisite/s: [GIS310] or [TDH]	S2	3	1	24
GMA320	REMOTE_SENSING_320	S2	3	1	24
GMT320	PROJECT:_GEOMATICS_320 Prerequisite/s: [GIS310] or [TDH]	S2	3	1	24
Totals for compulsory modules in the third/fourth terms			9/9	3/3	36/36
Compulsory credits = (120) Elective credits on 300-level = (24)					
A minimum of (440) credits is required to obtain the degree.					

Field of study	Dept	Code
BSc Geology	GLY	02133022

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16

EOT110 ACADEMIC_LITERACY(1)_110	S1	2	0	6
GLY151 INTRODUCTORY_GEOLOGY_151 Prerequisite/s: [Par 1.2]	K1	4	1	8
GLY152 PHYSICAL_GEOLOGY_152 Prerequisite/s: [Par 1.2]	K2	4	1	8
WTW114 CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for compulsory modules in the first/second terms		16/16	3/3	29/29

First year, second semester:

, ,							
Code	Name	Trm	lpw	ppw	Crdt		
CIL121	INFORMATION_LITERACY_121	S2	2	0	4		
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16		
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6		
GLY161	HISTORICAL_GEOLOGY_161 Prerequisite/s: [Par 1.2]	K3	4	1	8		
GLY162	ENVIRONMENTAL_GEOLOGY_162 Prerequisite/s: [Par 1.2]	K4	4	1	8		
Totals for compulsory modules in the third/fourth terms			12/12	2/2	21/21		

Electives can be chosen from modules in the following departments: Geography, Geoinformatics and Meteorology, Geology, Plant Production and Soil Science, Chemistry, Botany, Mathematics and Applied Mathematics, Physics, Computer Science, Mining Engineering and Civil and Biosystems Engineering.

Compulsory credits = (100) Elective credits = (52)

Second year, first semester:					
GLY251	CRYSTAL_OPTICS_&_CRYS.CHEM.251 Prerequisite/s: [CMY117 GS] and [GLY151 and 2 of GLY152, GLY161, GLY162.]	K1	4	2	12
GLY252	MINERALOGY_252 Prerequisite/s: [GLY251 GS]	K2	4	2	12
GLY253	SEDIMENTOLOGY_253 Prerequisite/s: [3 of GLY151, GLY152, GLY161, GLY162,]	K2	4	2	12
GLY254	STRUCTURAL_GEOLOGY_254 Prerequisite/s: [3 of GLY151, GLY152, GLY161, GLY162.]	K1	4	2	12
Totals for o	compulsory modules in the first/second terms		8/8	4/4	24/24

Second year, second semester:					
Code	Name	Trm	lpw	ppw	Crdt
GLY261	IGNEOUS_PETROLOGY_261 Prerequisite/s: [GLY252]	K3	4	2	12
GLY262	METAMORPHIC_PETROLOGY_262 Prerequisite/s: [GLY252]	K4	4	2	12
GLY264	INTRODUCTION_TO_GEOPHYSICS_264 Prerequisite/s: [GLY151] and [GLY152] and [WTW114]	К3	4	2	12
GLY265	GROUNDWATER_265 Prerequisite/s: [GLY152 TDH]	K4	4	2	12
Totals for o	compulsory modules in the third/fourth terms		8/8	4/4	24/24

Electives can be chosen from modules in the following departments: Geography, Geoinformatics and Meteorology, Geology, Plant Production and Soil Science, Chemistry, Botany, Mathematics and Applied Mathematics, Physics, Computer Science, Mining Engineering and Civil and Biosysems Engineering.

Compulsory credits = (96) Elective credits = (48)

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
GLY352	ORE_FORMATION_352 Prerequisite/s: [GLY261]	K1	4	2	18		
GLY362	GEOSTAT.&_ORE_RESERVCALC.362	K2	4	2	18		
Totals for o	compulsory modules in the first/second terms		4/4	2/2	18/18		

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GLY361	ORE_DEPOSITS_361	K3	4	2	18	
GLY363	ENGINEERING_GEOLOGY_363 Prerequisite/s: [GLY152] and [GLY265 TDH]	K4	4	2	18	
Totals for o	compulsory modules in the third/fourth terms		4/4	2/2	18/18	
Electives can be chosen from modules in the following departments: Geography, Geoinformatics and Meteorology, Geology, Plant Production and Soil Science, Chemistry, Botany, Mathematics and Applied Mathematics, Physics, Computer Science, Mining Engineering and Civil and Biosystems Engineering.						
Compulsory credits = (72) Elective credits at 300-level = (72)						
A minimum of (440) credits is required to obtain the degree.						

(minimum of (440) creates is required to obtain the degree.

Field of study	Dept	Code
BSc Human Genetics	GTS	03134031

First year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
CIL111	COMPUTER_LITERACY_111	S1	2	0	4		
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16		
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6		
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16		
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16		
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16		
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37		

First year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BME120	BIOMETRY_120	S2	4	1	16		
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8		
CIL121	INFORMATION_LITERACY_121	S2	2	0	4		
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16		
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6		
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8		
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8		
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8		
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37		
Compulso	Compulsory credits = (148) Elective credits = (0)						

Second y	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
FLG211	INTRODUCTORY_&_NEUROPHYS.211 Prerequisite/s: [CMY117 GS] and [MLB111 GS] and [PHY171 GS or PHY131 GS]	S1	2	1	16
FLG212	CIRCULATORY_PHYSIOLOGY_212 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS] and [PHY171 GS or PHY131 GS]	S1	2	1	16
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12

MBY251 GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12
Totals for compulsory modules in the first/second terms		12/12	7/7	40/40

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
FLG221	LUNG/RENAL_PHYS,ACID/TEMP221 Prerequisite/s: [FLG211] and [FLG212]	S2	2	1	16	
FLG222	DIGEST.,ENDOCR.&_REPROD/SYS222 Prerequisite/s: [FLG211] and [FLG212]	S2	2	1	16	
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12	
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
Totals for compulsory modules in the third/fourth terms 10/10 3.5/3.5 34					34/34	
Compulso	Compulsory credits = (148) Elective credits = (0)					

Third year	r, first semester:					
Code	Name	Trm	lpw	ppw	Crdt	
BCM351	BIOCHEMISTRY_OF_PROTEINS_351 Prerequisite/s: [BCM251]	K1	2	1	9	
BCM354	BIOCHEMOF_NUCLEIC_ACIDS_354 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262]	S1	1	0.5	9	
BCM355	IMMUNOBIOLOGY_355 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262]	S1	1	0.5	9	
GTS351	EUKARYOTIC_GENE_CON.&_DEVL.351 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18	
GTS352	GENOMES_352 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18	
GTS353	ADVPOPULATION_GENETICS_353 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18	
Totals for compulsory modules in the first/second terms 10/8 5/4 45/36						
Electives to be chosen from the following list of third-year subjects: BCM352, BCM365, BCM366, BCM364, FAR381, FAR382, MBY351, MBY353, MBY364, MBY363.						

Third year	r, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
GTS361	HUMAN_GENETICS_361 Prerequisite/s: [GTS352 GS] or [TDH]	S2	2	1	18	
GTS363	EVOLUTIO&_PHYLO-GENETICS_363 Prerequisite/s: [GTS353 GS] or [TDH]	S2	2	1	18	
GTS365	APPLIED_MEDICAL_GENETICS_365 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S2	2	1	18	
	Totals for compulsory modules in the third/fourth terms		6/6	3/3	27/27	
Compulsory credits = (135) Elective credits = (18)						
A minimu	A minimum of (453) credits is required to obtain the degree.					

Field of study	Dept	Code
BSc Human Physiology	FLG	03134021

First year	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totala for	ampulate madulas in the first/accord terms		20/20	4/4	27/27

 Totals for compulsory modules in the first/second terms
 20/20
 4/4
 37/37

 Students who are going to apply for the 20-30 MBChB, or the 2-3 BChD places, that become available in the second term, may enroll for FIL155(6), MGW112(6) and MTL181(6) instead of WTW134 under the condition that, should they not be selected and want to continue with BSc, WTW158 or WTW134 be taken in the second semester.

First year	, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
BME120	BIOMETRY_120	S2	4	1	16	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8	
Totals for	compulsory modules in the third/fourth terms		14/14	2.5/2.5	25/25	
Electives can be chosen from ANA121(4), ANA126(4), MBY161(8) or WTW152(8). Students who						
did not take WTW134 in the first semester are reminded to enroll for it in the second semester.						
Compulso	Compulsory credits = (124) Elective credits = (28)					

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
FLG211	INTRODUCTORY_&_NEUROPHYS.211 Prerequisite/s: [CMY117 GS] and [MLB111 GS] and [PHY171 GS or PHY131 GS]	S1	2	1	16	
FLG212	CIRCULATORY_PHYSIOLOGY_212 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS] and [PHY171 GS or PHY131 GS]	S1	2	1	16	
Totals for o	compulsory modules in the first/second terms		8/8	3/3	28/28	

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
FLG221	LUNG/RENAL_PHYS,ACID/TEMP221 Prerequisite/s: [FLG211] and [FLG212]	S2	2	1	16	

FLG222 DIGEST.,ENDOCR.&_REPROD/SYS222 Prerequisite/s: [FLG211] and [FLG212]	S2	2	1	16			
Totals for compulsory modules in the third/fourth terms		8/8	3/3	28/28			
Electives can be chosen from Chemistry 283 and 284, Genetics, Microbiology, Botany or Zoology.							
Compulsory credits = (112) Elective credits = (24)							

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
ANA316	HISTOLOGY_TECHNIQUES_316 Prerequisite/s: IANA2261	S1	2	2	16		
FLG311	[BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262 GS] and [FLG221] and [FLG222]	S1	1	1	14		
FLG312	DEVELOPMENTAL_PHYSIOLOGY_312 Prerequisite/s: [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262 GS] and [FLG221] and [FLG222]	S1	1	0	9		
FLG313	RESEARCH_METH.&_LIT.STUDY_313 Prerequisite/s: [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262 GS] and [FLG221] and [FLG222]	S1	1	1	14		
FLG314	IMMUNOLOGY_314 Prerequisite/s: [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262 GS] and [FLG221] and [FLG222]	S1	1	0	9		
Totals for o	compulsory modules in the first/second terms		6/6	4/4	31/31		

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
FLG322	INDUSTRIAL_PHYSIOLOGY_322 Prerequisite/s: [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262 GS] and [FLG221] and [FLG222]	S2	1	1	14	
FLG324	EXERCISE_PHYSIOLOGY_324 Prerequisite/s: [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262 GS] and [FLG221] and [FLG222]	S2	1	1	14	
FLG325	NUTRITION_PHYSIOLOGY_325 Prerequisite/s: [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262 GS] and [FLG221] and [FLG222]	S2	1	0	9	
FLG328	PATHOPHYSIOLOGY_328 Prerequisite/s: [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262 GS] and [FLG221] and [FLG222]	S2	1	0	9	
FLG329	INTEGRATED_HUMAN_PHYSIOL329 Prerequisite/s: [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262 GS] and [FLG221] and [FLG222]	S2	0	1	9	
Totals for	compulsory modules in the third/fourth terms		4/4	3/3	27.5/27.5	
Electives can be chosen from Chemistry 383 and 384, Physiology 326 (with special permission) or						
Genetics or Biochemistry or Microbiology, or Botany or Zoology, or Pharmacology.						
Compulsory credits = (117) Elective credits = (35)						
A minimum of (440) credits is required to obtain the degree.						

Field of study	Dept	Code
BSc Human Physiology, Genetics and Psychology	FLG	02133392

First year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
CIL111	COMPUTER_LITERACY_111	S1	2	0	4		
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16		

EOT110 ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111 MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131 GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
SLK110 PSYCHOLOGY_110	S1	2	1	12
WTW134 MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for compulsory modules in the first/second terms		22/22	5/5	13/13

 Totals for compulsory modules in the first/second terms
 22/22
 5/5
 43/43

 Students who are going to apply for the 20-30 MBChB, or the 2-3 BChD places, that become available in the second term, may enroll for FIL155(6), MGW112(6) and MTL181(6) instead of WTW134 under the condition that, should they not be selected and want to continue with BSc, WTW158 or WTW134 be taken in the second semester.

First year	, second semester:				
BME120	BIOMETRY_120	S2	4	1	16
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	\$2	4	1	16
0111127	Prerequisite/s: [CMY117 GS or CMY101]	32			
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161	S2	2	0.5	8
013101	Prerequisite/s: [MLB111 GS] or [TDH]				
SLK120	PSYCHOLOGY_120	S2	2	1	12
Totals for compulsory modules in the third/fourth terms 16/16 3.5/3.5 3					31/31
Electives can be chosen from ANA121, BME120 or WTW152. Students who did not take WTW134					
in the first	semester are reminded to enroll for it in the second semest	er.			
Compulsory credits = (148) Elective credits = (0)					

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
FLG211	INTRODUCTORY_&_NEUROPHYS.211 Prerequisite/s: [CMY117 GS] and [MLB111 GS] and [PHY171 GS or PHY131 GS]	S1	2	1	16	
FLG212	CIRCULATORY_PHYSIOLOGY_212 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS] and [PHY171 GS or PHY131 GS]	S1	2	1	16	
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12	
SLK251	PERSONOLOGY_251	K1	2	0	10	
SLK253	DEVELOPMENT_PSYCHOLOGY_253	K2	2	0	10	
Totals for compulsory modules in the first/second terms 12/12 5/5 44/44					44/44	

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
FLG221	LUNG/RENAL_PHYS,ACID/TEMP221 Prerequisite/s: [FLG211] and [FLG212]	S2	2	1	16	
FLG222	DIGEST.,ENDOCR.&_REPROD/SYS222 Prerequisite/s: [FLG211] and [FLG212]	S2	2	1	16	
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12	
SLK252	CHILDHOOD_DEVELOPMENT_252	K2	2	0	10	
SLK254	SOCIAL_PSYCHOLOGY_254	K3	2	0	10	
Totals for compulsory modules in the third/fourth terms
 12/12
 3.5/3.5/44/44

 Students who wish to apply for BSc(Hons): Genetics, will be required to register for additional undergraduate Genetics modules.
 3.5/3.5/44/44

Compulsory credits = (176) Elective credits = (0)

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
FLG314	IMMUNOLOGY_314 Prerequisite/s: [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262 GS] and [FLG221] and [FLG222]	S1	1	0	9	
GTS351	EUKARYOTIC_GENE_CON.&_DEVL.351 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18	
GTS352	GENOMES_352 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18	
SLK351	COMMUNITY_PSYCHOLOGY_351	K1	2	0	15	
SLK362	CHILD_PSYCOPATHOLOGY_362	K2	2	0	15	
Totals for o	compulsory modules in the first/second terms		7/7	2/2	37.5/37.5	

Third year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
FLG325	NUTRITION_PHYSIOLOGY_325 Prerequisite/s: [BCM251 GS] and [BCM252 GS] and [BCM261 GS] and [BCM262	S2	1	0	9		
	GS] and [FLG221] and [FLG222]						
	HIGHER_NEUROLOGICAL_FUNCT.327 Prerequisite/s:						
FLG327	[BCM251 GS] and [BCM252 GS] and [BCM261 GS] and	S2	0	2	20		
	[BCM262 GS] and [FLG221] and [FLG222]						
_	PATHOPHYSIOLOGY_328 Prerequisite/s: [BCM251 GS]	~~		•	•		
FLG328	and [BCM252 GS] and [BCM261 GS] and [BCM262 GS]	S2	1	0	9		
GTS361	[TDH]	S2	2	1	18		
SLK352	ABNORMAL_BEHAVIOUR_352	K3	2	0	15		
SLK353	CRITICAL_PERSPECTIVES_353	K4	2	0	15		
Totals for compulsory modules in the third/fourth terms 6/6 3/3 43/43					43/43		
Compulsory credits = (161) Elective credits = (0)							
A minimum of (485) credits is required to obtain the degree.							

Field of study	Dept	Code
BSc Mathematical Statistics	WST	02133273

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
WST111	MATHEMATICAL_STATISTICS_111	S1	4	1	16
	Prerequisite/s: [Par 1.2]				
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		12/12	2/2	21/21

First year,	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6

WST121 MATHEMATICAL_STATISTICS_121 Prerequisite/s: [WST111 GS]	S2	4	1	16		
WTW126 LINEAR_ALGEBRA_126 Prerequisite/s: [Par 1.2]	S2	2	1	8		
WTW128 CALCULUS_128 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8		
Totals for compulsory modules in the third/fourth terms		12/12	3/3	21/21		
Students in Mathematical Statistics who also want to be trained for the Insurance Industry						

Students in Mathematical Statistics who also want to be trained for the Insurance Industry, Econometrics or Banking, normally choose: EKN113, 123(30) or EKN110, 120 (20)

EKN113, 123(30) or EKN110, 120 (20) FBS110, 120(20) or FRK111, 152, 121, 181(25) COS130(16) or COS110(16)

Other students choose modules from any other subject/faculty according to their own specific requirements.

Compulsory credits = (84) Elective credits = (68)

Second year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
WST211	MATHEMATICAL_STATISTICS_211 Prerequisite/s: [WST111] and [WST121] and [WTW114 GS or WTW101 GS] and [WTW126 GS or WTW102 GS] and [WTW128 GS or WTW102 GS]	S1	4	2	24		
WTW211	LINEAR_ALGEBRA_211 Prerequisite/s: [WTW126]	S1	2	1	12		
WTW218	CALCULUS_218 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S1	2	1	12		
Totals for o	compulsory modules in the first/second terms		8/8	4/4	24/24		

Second ye	ear, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
WOTOOA	MATHEMATICAL_STATISTICS_221	62	4	2	24	
W31221	Prerequisite/s: [WST211 GS]	32	4	2	24	
WTW220	ANALYSIS_220	60	2 2	1	10	
VV I VV220	Prerequisite/s: [WTW114 or WTW101] and [WTW128]	32			12	
WTW221	LINEAR_ALGEBRA_221 Prerequisite/s: [WTW211]	S2	2	1	12	
Totals for o	Totals for compulsory modules in the third/fourth terms 8/8 4/4 24				24/24	
Insurance Industry students normally choose: IAS211, 221, 261 en 262(48); Econometrics						
students normally choose: EKN214, 224 and STK281(42); Other students choose modules from						
any other subject/faculty according to their own specific requirements.						
Compulsory credits = (96) Elective credits = (48)						

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
WST311	MULTIVARIATE_ANALYSIS_311 Prerequisite/s: [WST211] and [WST221] and [WTW211 GS] and [WTW218 GS]	S1	2	1	18		
WST312	STOCHASTIC_PROCESSES_312 Prerequisite/s: [WST211] and [WTW211 GS] and [WTW218 GS]	S1	2	1	18		
Totals for o	compulsory modules in the first/second terms		4/4	2/2	18/18		

Third year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
WST321	TIME_SERIES_ANALYSIS_321 Prerequisite/s: [WST211] and [WST221] and [WST311 GS] and [WTW211 GS] and [WTW218 GS]	S2	2	1	18		
WST322	ACTUARIAL_STATISTICS_322 Prerequisite/s: [WST211] and [WST221] and [WTW211 GS] and [WTW218 GS]	S2	2	1	18		
Totals for o	compulsory modules in the third/fourth terms		4/4	2/2	18/18		

Insurance Industry students normally choose: IAS351, 352, 361 en 362(72); Econometrics students normally choose: EKN310, 320 and 314(60); Other students choose modules from any other subject/faculty according to their own specific requirements.

Important: Elective modules to be selected in order to comply with the required minimum credits per level, provided there are no clashes on the class, test and examination time tables.

Compulsory credits = (72) Elective credits at 300-level= (72)

A minimum of (440) credits is required to obtain the degree.

Field of study	Dept	Code
BSc Mathematics	WTW	02133262

First year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
CIL111	COMPUTER_LITERACY_111	S1	2	0	4		
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6		
WST111	MATHEMATICAL_STATISTICS_111 Prerequisite/s: [Par 1.2]	S1	4	1	16		
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16		
WTW115	DISCRETE_STRUCTURES_115 Prerequisite/s: [Par 1.2]	S1	2	1	8		
•	Totals for compulsory modules in the first/second terms		14/14	3/3	25/25		

First year,	second semester:						
Code	Name	Trm	lpw	ppw	Crdt		
CIL121	INFORMATION_LITERACY_121	S2	2	0	4		
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6		
WST121	MATHEMATICAL_STATISTICS_121 Prerequisite/s: [WST111 GS]	S2	4	1	16		
WTW123	NUMERICAL_ANALYSIS_123 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8		
WTW126	LINEAR_ALGEBRA_126 Prerequisite/s: [Par 1.2]	S2	2	1	8		
WTW128	CALCULUS_128 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8		
Totals for o	compulsory modules in the third/fourth terms		14/14	4/4	25/25		
Compulso	Compulsory credits = (100) Elective credits = (52)						

Second year, first semester:									
Code	Name	Trm	lpw	ppw	Crdt				
WTW211	LINEAR_ALGEBRA_211 Prerequisite/s: [WTW126]	S1	2	1	12				
WTW218	CALCULUS_218 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S1	2	1	12				
Totals for o	compulsory modules in the first/second terms		4/4	2/2	12/12				

Second year, second semester:								
Code	Name	Trm	lpw	ppw	Crdt			
WTW220	ANALYSIS_220 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S2	2	1	12			
WTW221	LINEAR_ALGEBRA_221 Prerequisite/s: [WTW211]	S2	2	1	12			
WTW286	DIFFERENTIAL_EQUATIONS_286 Prerequisite/s: [WTW114 or WTW101] and [WTW126] and [WTW128]	S2	2	1	12			
Totals for o	compulsory modules in the third/fourth terms		6/6	3/3	18/18			
Compulsory credits = (60) Elective credits = (84)								

Third year, first semester:								
Code	Name	Trm	lpw	ppw	Crdt			
WTW310	ANALYSIS_310 Prerequisite/s: [WTW220]	S1	2	1	18			
WTW381	ALGEBRA_381 Prerequisite/s: [WTW114 or WTW101] and [WTW211]	S1	2	1	18			
Totals for o	compulsory modules in the first/second terms		4/4	2/2	18/18			

Third year, second semester:								
Code	Name	Trm	lpw	ppw	Crdt			
WTW320	ANALYSIS_320 Prerequisite/s: [WTW218] and [WTW310]	S2	2	1	18			
WTW389	GEOMETRY_389 Prerequisite/s: [WTW211]	S2	2	1	18			
Totals for compulsory modules in the third/fourth terms 4/4 2/2 18/1				18/18				
A minimum	n of 138 credits at 100 to 300 level can be chosen from any	WTW	, IAS, PI	HY, C	OS,			
WST or FII	modules. The remainder of the electives at 100 to 300 level	el can	be chos	sen fro	om any			
other modu	other modules in the syllabi of this faculty.							
Compulsory credits = (72) Elective credits at 300-level = (72)								
A minimum of (440) credits is required to obtain the degree.								

Field of study	Dept	Code
BCo Modical Sciences		02424020

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	BSc Medical Sciences	FLG	03	03134020		
						-
First yea	r, first semester:					
Code	Name		Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111		S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s:	[Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110		S1	2	0	6
FIL155	SCIENCE_AND_WORLD_VIEWS_155		K1	1	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111		S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [P	ar 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2	2]	S1	4	1	16
Totals for	compulsory modules in the first/second terms			21/20	4/4	43/37
Students	who are going to apply for the 20-30 MBChD, c	or the 2-3 BCh	D pla	ces, tha	t becc	ome
available in the second term, may enroll for FIL155, MGW112 and MTL181 instead of WTW134						
under the	condition that, should they not be selected and	I want to conti	nue v	vith BSc	, WTV	V158 or
WTW134	be taken in the second semester.					

First year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
ANA121	INTR.:_HUMAN_ANAT.&_EMBRIOL121 Prerequisite/s: [MLB111 GS]	S2	1	1	4
ANA122	HUMAN_OSTEOLOGY_122	S2	1	1	4
ANA126	BASIC_HUMAN_HISTOLOGY_126 Prerequisite/s: [CMY117 GS] and [MLB111]	S2	1	1	4
BME120	BIOMETRY_120	S2	4	1	16
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
Totals for (compulsory modules in the third/fourth terms		19/19	6/6	35/35

Students who are going to apply for the 20-30 MBChD, or the 2-3 BChD places, that become available in the second term, may enroll for FIL155, MGW112 and MTL181 instead of WTW134 under the condition that, should they not be selected and want to continue with BSc, WTW158 or WTW134 be taken in the second semester.

Compulsory credits = (150) Elective credits = (0)

Second year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
ANA214	HUMAN_CELL_&_DEVELOPM.BIOL.214 Prerequisite/s: [ANA121] and [ANA126]	S1	2	1	12		
ANA215	PALEO-ANTHROPOLOGY_215	S1	2	1	10		
ANA217	HUMAN_ANATOMY_217 Prerequisite/s: [ANA121] and [ANA122]	S1	2	1	16		
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12		
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12		
FLG211	INTRODUCTORY_&_NEUROPHYS.211 Prerequisite/s: [CMY117 GS] and [MLB111 GS] and [PHY171 GS or PHY131 GS]	S1	2	1	16		
FLG212	CIRCULATORY_PHYSIOLOGY_212 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS] and [PHY171 GS or PHY131 GS]	S1	2	1	16		
Totals for o	compulsory modules in the first/second terms		14/14	6/6	47/47		

Second ye	ear, second semester:						
Code	Name	Trm	lpw	ppw	Crdt		
ANA226	HUMAN_HISTOLOGY_226 Prerequisite/s: [ANA126]	S2	1	1	10		
ANA227	HUMAN_ANATOMY_227 Prerequisite/s: [ANA217 GS]	S2	0	0	16		
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
FLG221	LUNG/RENAL_PHYS,ACID/TEMP221 Prerequisite/s: [FLG211] and [FLG212]	S2	2	1	16		
FLG222	DIGEST.,ENDOCR.&_REPROD/SYS222 Prerequisite/s: [FLG211] and [FLG212]	S2	2	1	16		
Totals for o	compulsory modules in the third/fourth terms		9/9	4/4	41/41		
Compulsory credits = (176) Elective credits = (0)							

Third year	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
ANIA315	FORENSIC_ANTHROPOLOGY_315	Q1	2	1	16
ANAS 15	Prerequisite/s: [ANA122] and [ANA215]	31	2	1	10
***^NIA316	HISTOLOGY_TECHNIQUES_316	Q1	2	2	16
ANA3 IO	Prerequisite/s: [ANA226]	31	2	2	10
٦	Fotals for compulsory modules in the first/second terms		4/4	3/3	16/16
Students for	blowing the degree programme according to the old curricul	um, n	nust note	e stipu	ulations
of Sci.4 (ii)					
Any first-se	mester, third-year Physiology modules and/or **Pharmacol	ogy 3	81, with	a min	imum of
37 credits.					

Third year	r, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
ANA324	HUMAN_CELL_&_DEVEL.BIOLOGY_324 Prerequisite/s: [ANA214] and [ANA226]	S2	2	1	14

ANA327	COMPARATIVE_ANATOMY_327 Prerequisite/s: [ANA121] and [ANA122] and [ANA217] and [ANA227]	S2	1	1	14
ANA328	APPL.RESEARCH_TECHNIQUES_328 Prerequisite/s: [ANA315] and [ANA316]	S2	0	1	8
	Totals for compulsory modules in the third/fourth terms		3/3	3/3	18/18

Any first-semester, third year Physiology modules and/or Pharmacology 382, with minimum of 39 credits.

** FLG311 must be taken by students who choose Pharmacology.

****ANA226 is required for all students with Anatomy as main subject.

**FAR 383 must be taken by students who choose FAR384.

NOTE: (i) (FLG327) Higher Neurological Functions 327 may only be taken by students with Psychology as major subject.

(iii) (FLG326) Research Project 326 must preferable be taken after a module in research methodology, e.g (FLG313) Research Methodology and Literature Studies 313, and the approval of the department which must be obtained at the commencement of the first semester. Compulsory credits = (68) Elective credits at 300-level = (76)

A minimum of (470) credits is required to obtain the degree.

Field of study	Dept	Code
BSc Meteorology	GLY	02133312

First year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
CIL111	COMPUTER_LITERACY_111	S1	2	0	4	
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6	
PHY171	FIRST_COURSE_IN_PHYSICS_171 Prerequisite/s: [Par 1.2]	J1	4	1	16	
WKD151	ATMOSPHERIC_PROCESSES_151	K1	4	0.6	8	
WKD152	ATMOSPHERIC_CIRC.&_CLIMATE_152	K2	4	0.6	8	
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16	
Totals for	compulsory modules in the first/second terms		16/16	2.6/2.6	29/29	

First year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
PHY171	FIRST_COURSE_IN_PHYSICS_171 Prerequisite/s: [Par 1.2]	J1	4	1	16	
WKD161	PHYSICAL_&_MESOSCALE_METEO.161	K3	4	0.6	8	
WKD162	DYNAM.&_NUMERMETEOROLOGY_162	K4	4	0.6	8	
WKD163	WEATHER_FORECASTING_PRIN163	K4	4	0	8	
WTW128	CALCULUS_128 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8	
Totals for o	compulsory modules in the third/fourth terms		14/18	2.6/2.6	25/33	
Compulsory credits = (116) Elective credits = (28)						

Second year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
WKD250	WEATHER_FORECASTING_250	S1	5	0	24		
WKD253	COMMUNITY_PROJECT_253	S1	3	0	12		
WTW218	CALCULUS_218 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S1	2	1	12		
Totals for o	compulsory modules in the first/second terms		10/10	1/1	24/24		

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
WKD261	PHYSICAL_METEOROLOGY_261	K3	4	0	12	
WKD262	CLIMATE_DATA_MANIPULATION_262	K4	0	1	12	
WTW126	LINEAR_ALGEBRA_126 Prerequisite/s: [Par 1.2]	S2	2	1	8	
Totals for c	compulsory modules in the third/fourth terms		6/3	1/1	16/16	
Compulsory credits = (80) Elective credits = (72)						

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
WKD351	ATMOSPHERIC_BALANCE_LAWS_351	K1	4	0.6	18	
WKD352	ATMOSPVORTIC&DIVERGENC.352	K2	4	0.6	18	
	Totals for compulsory modules in the first/second terms		4/4	0.6/0.6	18/18	

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
WKD360	RESEARCH_PROJECT_360	S2	0	2	36	
WKD361	QUASI-GEOSTROPHIC_ANALYSIS_361	K3	4	0	18	
WKD362	CLOUD_&_BOUNDARY_LAYER_DYN.362	K4	4	0	18	
	Totals for compulsory modules in the third/fourth terms		9/9	2/2	36/36	
Electives for the first to third year can be abagen from medules in the following departments:						

Electives for the first to third year can be chosen from modules in the following departments: Geography, Geoinformatics and Meteorology, Geology, Plant Production and Soil Science, Chemistry, Botany, Mathematics and Applied Mathematics, Physics, Computer Science. Compulsory credits = (108) Elective credits at 300-level = (36) A minimum of (440) credits is required to obtain the degree.

Field of study	Dept	Code
BSc Microbiology	MBY	03133071

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for compulsory modules in the first/second terms			20/20	4/4	37/37

First year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	62	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32	4		10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161	62	2	0.5	8
013101	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (4)					

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
BOT251	SA_FLORA_&_VEGETATION_251 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	12	
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12	
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12	
ZEN251	INVERTEBRATE_BIOLOGY_251	K1	4	1	12	
Totals for o	compulsory modules in the first/second terms		14/10	7/6	42/30	

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Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12
ZEN261	AFRICAN_VERTEBRATES_261	K3	4	1	12
Totals for o	compulsory modules in the third/fourth terms		14/10	4.5/3.5	42/30
Compulsory credits = (144) Elective credits = (0)					

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
MBY351	STRUCT.&_DIVERS.OF_VIRUSES_351 Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	S1	2	1	18	
MBY352	ENVIRONMENTAL_MICROBIOLOGY_352 Prerequisite/s: [MBY161]	S1	2	1	18	
MBY353	VERTIBRATE-MICROBE_INTERAC.353	S1	2	1	18	
PLG351	GENERAL_PLANT PATHOLOGY_351 Prerequisite/s: [MBY161] and [MBY261] or [TDH]	S1	2	1	18	
Totals for o	compulsory modules in the first/second terms		8/8	4/4	36/36	
PLG351 may be replaced by GTS352 or BCM351 and BCM355.						

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
MBY361	INDUSTRIAL_MICROBIOLOGY_361 Prerequisite/s: [BCM251] and [MBY251]	S2	2	1	18	
MBY362	FOOD_MICROBIOLOGY_362 Prerequisite/s: [MBY251]	S2	2	1	18	
MBY363	MOLECBIOL.OF_PROKARYOTES_363 Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	S2	2	1	18	
MBY364	GENE.MANIPULATION/MICROBES.364 Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	S2	2	1	18	
Totals for o	compulsory modules in the third/fourth terms		8/8	4/4	36/36	
MBY361 may be replaced with PLG364.						
Compulsory credits = (144) Elective credits = (0)						
A minimu	n of (440) credits is required to obtain the degree.					

Field of study	Dept	Code
BSc Nutrition and Food Science	VDW	03134012

First year,	first	semester:
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Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
FSG110	PHYSIOLOGY_110	S1	3	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
VDS111	FOODS_111	S1	2	1	10
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		25/25	5/5	45/45

First year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	62	4	1	16
GIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32	4		10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
FSG120	PHYSIOLOGY_120 Prerequisite/s: [FSG110 GS]	S2	3	0	6
GTS161	INTRODUCTORY_GENETICS_161	62	2	0.5	Q
013101	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	0
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		19/19	3/3	32/32
Compulsory credits = (154) Elective credits = (0)					

Second y	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
FST250	INTRO/FOOD_SCIENCE_&_TECH250 Prerequisite/s: [CMY117] and [CMY127] and [MBY161] and [PHY131] and [WTW134] or [TDH]	S1	2	1	12
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12
VDG311	NUTRITION_311 Prerequisite/s: [FSG110] and [FSG120 or VDG220]	S1	3	1	17
VDS210	FOODS_210 Prerequisite/s: [VDS111 or #]	S1	3	1	18
Totals for	compulsory modules in the first/second terms		14/14	6/6	41.5/41.5

Second year, second semester:					
Code	Name	Trm	lpw	ppw	Crdt
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
FST260	PRIN/FOOD_PROC&_PRESERV260 Prerequisite/s: [CMY117] and [CMY127] and [MBY161] and [PHY131] and [WTW134] or [TDH]	S2	2	1	12
KEP220	CULTURAL_EATING_PATTERNS_220	S2	3	0	12

VDG321 NUTRITION_321 Prerequisite/s: [VDG311]	S2	3	1	17	
VDS221 FOODS_221 Prerequisite/s: [VDS210]	S2	3	1	18	
Totals for compulsory modules in the third/fourth terms		15/15	4/4	41.5/41.5	
Compulsory credits = (166) Elective credits = (0)					

Third year	Third year, first semester:					
Code	Name	Trm	lpw	ppw	Crdt	
FST350	INTEGRATED_FOOD_SCIENCE_350 Prerequisite/s: [FST250] and [FST260] or [TDH]	J1	2	0	9	
FST351	FOOD_CHEMISTRY-(1)_351 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262] or [TDH]	S1	2	1	18	
FST352	FOOD_CHEMISTRY-(2)_352 Prerequisite/s: [BCM251] or [TDH] and [BCM252] or [TDH] and [BCM261] or [TDH] and [BCM262] or [TDH]	S1	2	1	18	
VDS310	FOODS_310 Prerequisite/s: [VDS210] and [VDS221]	S1	3	1	21	
VVW350	COM.NUTRITION_&PUBL.HEALTH_350 Prerequisite/s: [HNT210] or [TDH] and [VDG250] and [VDG321]	S1	3	1	21	
	Totals for compulsory modules in the first/second terms		12/12	4/4	43.5/43.5	

Third year	r, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
FST350	INTEGRATED_FOOD_SCIENCE_350 Prerequisite/s: [FST250] and [FST260] or [TDH]	J1	2	0	9	
MBY362	FOOD_MICROBIOLOGY_362 Prerequisite/s: [MBY251]	S2	2	1	18	
VVW361	LEGIS&LABEL/ANI&HUMAN_FOOD_361 Prerequisite/s: [FST351] and [FST352] or [TDH]	S2	2	1	18	
VVW363	FOOD,_NUTRITION_AND_HEALTH_363 Prerequisite/s: [HNT210] or [TDH] and [VDG250] and [VDG321]	S2	3	1	21	
	Totals for compulsory modules in the third/fourth terms		9/9	3/3	33/33	
Compulsory credits = (153) Elective credits = (0)						
A minimu	A minimum of (473) credits is required to obtain the degree.					

Field of study	Dept	Code
BSc Physics	PHY	02133202

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
PHY171	FIRST_COURSE_IN_PHYSICS_171 Prerequisite/s: [Par 1.2]	J1	4	1	16
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		12/12	2/2	21/21
CMY117,1 Mathemati Statistics, e	27 are recommended. Additional electives can be chosen fr cs, Meteorology, Geology, Geography, IT, Mathematical ect.	om:			

First year,	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
PHY171	FIRST_COURSE_IN_PHYSICS_171 Prerequisite/s: [Par 1.2]	J1	4	1	16
WTW126	LINEAR_ALGEBRA_126 Prerequisite/s: [Par 1.2]	S2	2	1	8

WTW128 CALCULUS_128 Prerequisite/s: [WTW114 GS or WTW101 GS]	S2	2	1	8		
Totals for compulsory modules in the third/fourth terms		12/12	3/3	21/21		
CMY117,127 are recommended. Additional electives can be chosen from: Mathematics,						
Meteorology, Geology, Geography, IT, Mathematical Statistics, ect.						
Compulsory credits = (84 Elective credits = (68)						

Second y	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
PHY253	SIMULATUSING_MATHEMATICA_253 Prerequisite/s: [PHY171 or PHY101 and PHY102] and [WTW211 #] and [WTW218 #]	K1	0	1	6
PHY254	GENERAL_PHYSICS_254 Prerequisite/s: [PHY171 or PHY101 and PHY102] and [PHY253 #] and [WTW211 #] and [WTW218 #]	S1	4	2	24
WTW211	LINEAR_ALGEBRA_211 Prerequisite/s: [WTW126]	S1	2	1	12
WTW218	CALCULUS_218 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S1	2	1	12
	Totals for compulsory modules in the first/second terms		8/8	5/4	30/24
Additional electives can be chosen from Mathematics, Meteorology, Geology, Geography, Mathematical Statistics, IT, etc.					

Second year. second semester:

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
PHY263	GENERAL_PHYSICS_263 Prerequisite/s: [PHY253 GS] and [PHY254 GS] and [WTW211 GS] and [WTW218 GS] and [WTW220 #] and [WTW221 #]	S2	4	2	24	
WTW220	ANALYSIS_220 Prerequisite/s: [WTW114 or WTW101] and [WTW128]	S2	2	1	12	
WTW221	LINEAR_ALGEBRA_221 Prerequisite/s: [WTW211]	S2	2	1	12	
	Totals for compulsory modules in the third/fourth terms		8/8	4/4	24/24	
Additional electives can be chosen from Mathematics, Meteorology, Geology, Geography, Mathematical Statistics. IT. etc.						
Compulsory credits = (102) Elective credits = (42)						

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
PHY354	ELECTRONICS_&_ELECTROMAGN354 Prerequisite/s: [PHY254 GS] and [WTW218 GS]	K1	4	2	18	
PHY355	QUANTUM_MECHAN.&_MODELLING_355 Prerequisite/s: [PHY253 GS] and [PHY254 GS] and [PHY263 GS] and [WTW221 GS]	K2	4	2	18	
Totals for o	compulsory modules in the first/second terms		4/4	2/2	18/18	

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
PHY364	GENERAL_PHYSICS_364 Prerequisite/s: [PHY253 GS] and [PHY254 GS] and [PHY263 GS] and [PHY353 GS] and [PHY355 GS] and [WTW221 GS]	S2	4	2	36	
	Totals for compulsory modules in the third/fourth terms		4/4	2/2	18/18	
Compulsory credits = (72) Elective credits at 300-level = (72)						
A minimum of (440) credits is required to obtain the degree.						

Field of study	Dept	Code
BSc Plant Pathology	MBY	03134001

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV107	GENERAL_CHEMISTRY_127	62	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	52	4		10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
CTS161	INTRODUCTORY_GENETICS_161	62	0	0.5	0
613101	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	0
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (0)					

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BOT251	SA_FLORA_&_VEGETATION_251 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	12
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12
ZEN251	INVERTEBRATE_BIOLOGY_251	K1	4	1	12
	Totals for compulsory modules in the first/second terms		14/10	7/6	42/30

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12	
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12	
GTS366	PLANT_GENETICS_&_BIOTECHN366 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH] and [GTS351 GS is recommended] and [GTS352 GS is recommended]	S2	2	1	18	

MBY261 GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12		
Totals for compulsory modules in the third/fourth terms		12/12	4.5/4.5	39/39		
ZEN261 may be selected instead of GTS366						
Compulsory credits = (150) Elective credits = (0)						

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BOT352	PLANT_STRUCTURE_&_FUNCTION_352	S1	2	1	18	
MBY351	STRUCT.&_DIVERS.OF_VIRUSES_351 Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	S1	2	1	18	
MBY352	ENVIRONMENTAL_MICROBIOLOGY_352 Prerequisite/s: [MBY161]	S1	2	1	18	
PLG351	GENERAL_PLANT PATHOLOGY_351 Prerequisite/s: [MBY161] and [MBY261] or [TDH]	S1	2	1	18	
Totals for o	compulsory modules in the first/second terms		8/8	4/4	36/36	

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
MBY363	MOLECBIOL.OF_PROKARYOTES_363 Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	S2	2	1	18	
MBY364	GENE.MANIPULATION/MICROBES.364 Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	S2	2	1	18	
PLG363	PLANT_DISEASE_CONTROL_363	S2	2	1	18	
PLG364	HOST_PATHOGEN_INTERACTIONS_364	S2	2	1	18	
	Totals for compulsory modules in the third/fourth terms		8/8	4/4	36/36	
Compulsory credits = (144) Elective credits = (0)						
A minimum of (442) credits is required to obtain the degree.						

Field of study	Dept	Code
BSc Soil Science	PGW	03133061

First year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
CIL111	COMPUTER_LITERACY_111	S1	2	0	4		
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16		
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6		
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16		
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16		
WTW114	CALCULUS_114 Prerequisite/s: [Par 1.2]	S1	4	1	16		
Totals for o	compulsory modules in the first/second terms		20/20	4/4	3737		

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	S2	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]			-	10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
WTW126	LINEAR_ALGEBRA_126 Prerequisite/s: [Par 1.2]	S2	2	1	8
WTW/100	CALCULUS_128	S2	2		8
VV I VV I ZO	Prerequisite/s: [WTW114 GS or WTW101 GS]			I	
Totals for o	compulsory modules in the third/fourth terms		16/16	4/4	29/29

Electives can be chosen from the following: GTS161, ZEN161, AGC161, FBS120, GGY162, 164. Compulsory credits = (132) Elective credits = (20)

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
CMY282	PHYSICAL_CHEMISTRY_282 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K1	4	1	12	
CMY284	ORGANIC_CHEMISTRY_284 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K2	4	1	12	
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12	
GLY151	INTRODUCTORY_GEOLOGY_151 Prerequisite/s: [Par 1.2]	K1	4	1	8	
GLY152	PHYSICAL_GEOLOGY_152 Prerequisite/s: [Par 1.2]	K2	4	1	8	
Totals for c	compulsory modules in the first/second terms		11/11	3/3	26/26	

Second year, second semester:						
Code N	lame	Trm	lpw	ppw	Crdt	
BME120 B	IOMETRY_120	S2	4	1	16	
CMY283 A	NALYTICAL_CHEMISTRY_283 Prerequisite/s: [CMY117 r CMY101] and [CMY127 or CMY102]	К3	4	1	12	
CMY285 C	NORGANIC_CHEMISTRY_285 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K4	4	1	12	
GKD260 P	iOIL_FERTIL.&_PLANT_NUTRIT.260 Prerequisite/s: [GKD250 GS]	S2	3	1	12	
GLY161 H	IISTORICAL_GEOLOGY_161 Prerequisite/s: [Par 1.2]	K3	4	1	8	
GLY162 E	NVIRONMENTAL_GEOLOGY_162 Prerequisite/s: [Par	K4	4	1	8	
Totals for compulsory modules in the third/fourth terms 15/15 4/4 34/34						
Electives: Any module(s) in the Faculty of Natural and Agricultural Sciences after consultation with						
the heads of department.						
Compulsory	y credits = (120) Elective credits = (24)					

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
GKD350	SOIL_CLASSIF.&_SURVEYING_350 Prerequisite/s: [GKD250 GS]	S1	2	1	14		
GKD351	SOIL_PHYSICS_351 Prerequisite/s: [GKD250]	S1	1	0.5	10		
Totals for o	compulsory modules in the first/second terms		3/3	1.5/1.5	12/12		

Third year,	second semester:					
Code N	Jame	Trm	lpw	ppw	Crdt	
GKD320 S	SOIL_CHEMISTRY_320 Prerequisite/s: [GKD250]	S2	2	1	14	
GKD461 S	SOIL_MINEROL.&SOIL_GENESIS_461	S2	2	1	14	
Totals for co	ompulsory modules in the third/fourth terms		4/4	2/2	14/14	
Electives: Any module(s) in the Faculty of Natural and Agricultural Sciences after consultation with						
the heads of department.						
Compulsory credits = (52) Elective credits at 300-level = (92)						
A minimum of (440) credits is required to obtain the degree.						

Field of study	Dept	Code
BSc Veterinary Biology	GTS	03134003

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulso	ory credits = (148) Elective credits = (0)				

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12
VDG250	NUTRITION_250 Prerequisite/s: [CMY127] or [CMY102]	S1	3	0.5	12
VKU210	ANIMAL_SCIENCE_210	S1	1	0.5	6
Totals for c	compulsory modules in the first/second terms		12/12	6/6	33/33
Electives c	an be chosen from BOT251 or ZEN251 or DAF200				

Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12
VKU220	ANIMAL_SCIENCE_220 Prerequisite/s: [VKU210]	S2	2	0.5	12

VKU222 ANIMAL_SCIENCE_222	S2	2	0	6
Totals for compulsory modules in the third/fourth terms		12/12	3/3	33/33

A first-round selection process for the degree BSc: Veterinary Biology will take place at the end of the second year of study provided a candidate had passed the prescribed modules.

Students not selected at the end of the second year will be able to continue in their third year with any one of a number of different degree options including a three year BSc degree with options in either Animal Sciences, Botany, Biotechnology, Entomology, Genetics, Microbiology, Zoology, or alternatively a BSc(Agric) in Animal Science. However, it may be necessary to register for additional outstanding prescribed modules.

Electives to be chosen from the following list of second-year subjects: BOT261 and ZEN261... Compulsory credits = (132) Elective credits = (24)

Third year	; first semester:				
Code	Name	Trm	lpw	ppw	Crdt
PAS300	PROD.ANIM.BEHAV.HAND.&WELF_300 Prerequisite/s: [Only students selected for BSc(Veterinary Biology)III]	J1	1	1	6
BCM355	IMMUNOBIOLOGY_355 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262]	S1	1	0.5	9
MBY354	VETERINARY_VIROLOGY_354 Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	S1	2	0	9
VAP300	VET.ANATOMY_&_PHYSIOLOGY_300 Prerequisite/s: [Only students selected for BSc(Veterinary Biology)III]	J1	10	2	36
WDE250	PRINCIPLES_OF_VELD_MANAGM250	S1	2	0.5	12
Totals for o	compulsory modules in the first/second terms		16/16	4/4	36/36

Third year	r, second semester:						
Code	Name	Trm	lpw	ppw	Crdt		
PAS300	PROD.ANIM.BEHAV.HAND.&WELF_300 Prerequisite/s: [Only students selected for BSc(Veterinary Biology)III]	J1	1	1	6		
APZ325	LIVESTOCK_BREEDING_325 Prerequisite/s: [GTS261]	S2	2	0	10		
GTS364	VETERINARY_GENETICS_364	S2	2	0	9		
VAP300	VET.ANATOMY_&_PHYSIOLOGY_300 Prerequisite/s: [Only students selected for BSc(Veterinary Biology)III]	J1	10	2	36		
VKU320	ANIMAL_SCIENCE_320 Prerequisite/s: [VKU210] and [VKU220] and [WDE250]	S2	3	1	12		
VKU361	ANIMAL_ECOLOGY_361 Prerequisite/s: [VKU210] and [VKU220]	S2	2	0	8		
Totals for	Totals for compulsory modules in the third/fourth terms 20/20 4/4 40.5/40.						
A final sel	A final selection of candidates who will be admitted to the BVSc programme will be made at the						

A final selection of cariotates who will be admitted to the BVSC programme will be made at the end of the third year, based on academic merit and according to available capacity. Students not selected at the end of the third year of study or who do not wish to continue with the BVSC degree, will be able to apply for admission to continue with an honours degree in Anatomy, Physiology or an honours degree in one of the Biological or Agricultural Sciences programmes after completion of a number of specified additional third-year modules in that discipline.

Compulsory credits = (153) Elective credits = (0)

A minimum of (457) credits is required to obtain the degree.

Field of study	Dept	Code
BSc Zoology	ZEN	03133021

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	S2	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]		4		
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161	62	0	0.5	8
013101	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulso	ry credits = (148) Elective credits = (0)				

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BOT251	SA_FLORA_&_VEGETATION_251 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	12
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12
ZEN251	INVERTEBRATE_BIOLOGY_251	K1	4	1	12
	Totals for compulsory modules in the first/second terms		14/10	7/6	42/30

Second y	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12
GLY161	HISTORICAL_GEOLOGY_161 Prerequisite/s: [Par 1.2]	K3	4	1	8
GLY162	ENVIRONMENTAL_GEOLOGY_162 Prerequisite/s: [Par 1.2]	K4	4	1	8
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12
ZEN261	AFRICAN_VERTEBRATES_261	K3	4	1	12
	Totals for compulsory modules in the third/fourth terms		14/10	4.5/3.5	38/26
Compulso	pry credits = (136) Elective credits = (12)				

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
ZEN351	POPULATION_ECOLOGY_351	K1	4	2	18		
ZEN352	MAMMALOGY_352	K1	4	2	18		
ZEN353	COMMUNITY_ECOLOGY_353	K2	4	2	18		
ZEN354	PHYSIOLOGY_354	K2	4	2	18		
Totals for o	compulsory modules in the first/second terms		8/8	4/4	36/36		

Third year	; second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
ZEN361	ECOPHYSIOLOGY_361	K3	4	2	18	
ZEN362	EVOLUTION_AND_PHYLOGENY_362	K3	4	2	18	
ZEN363	BEHAVIOURAL_ECOLOGY_363	K4	4	2	18	
ZEN364	CONSERVATION_ECOLOGY_364	K4	4	2	18	
Totals for o	compulsory modules in the third/fourth terms		8/8	4/4	36/36	
Compulsory credits = (144) Elective credits = (0)						
A minimu	A minimum of (440) credits is required to obtain the degree.					

Field of study	Dept	Code
BSc(Agric) Agricultural Economics/ Agribusiness Management	LEK	03130050

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Cr
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
FRK111	FINANCIAL_ACCOUNTING_111 Prerequisite/s: [Par.1.2]	S1	4	0	10
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	3/3	34/34

First year,	second semester:					
Code	Name	Trm	lpw	ppw	Cr	
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
FRK121	FINANCIAL_ACCOUNTING_121 Prerequisite/s: [FRK111 GS]	S2	4	0	12	
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8	
LIR421	AGRICULTURAL_ENGINEERING_421	S2	3	1	8	
Totals for o	compulsory modules in the third/fourth terms		19/19	3/3	31/31	
Compulsory credits = (130) Elective credits = (2)						

Second year, first semester:								
Code	Name	Trm	lpw	ppw	Cr			
EKN110	ECONOMICS_110	S1	3	0	10			
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12			

HSC260	CROP_PROPAGATION_260 Prerequisite/s: [BOT161 or BLG150]	S2	2	0.5	12
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12
STK110	STATISTICS_110 Prerequisite/s: [Reg1.2(j)]	S1	3	1	13
VKU210	ANIMAL_SCIENCE_210	S1	1	0.5	6
Totals for	compulsory modules in the first/second terms		17/17	3.5/3.5	38.5/38.5

Second ye	ear, second semester:					
Code	Name	Trm	lpw	ppw	Cr	
EKN120	ECONOMICS_120 Prerequisite/s: [EKN110 GS or EKN113GS] and Reg 1.2(f)	S2	3	0	10	
LBU260	AGROCLIMATOLOGY_260	S2	2	0.5	12	
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12	
OBS120	BUSINESS_MANAGEMENT_120	S2	3	0	10	
STK120	STATISTICS_120 Prerequisite/s: [STK110 GS]	S2	3	1	13	
VKU220	ANIMAL_SCIENCE_220 Prerequisite/s: [VKU210]	S2	2	0.5	12	
Totals for o	compulsory modules in the third/fourth terms		16/16	2/2	34.5/34.5	
Compulsory credits = (146) Elective credits = (0)						

Third year	, first semester:					
Code	Name	Trm	lpw	ppw	Crdt	
ABR351	LABOUR_LAW_351	K1	3	0	10	
BER210	BUSINESS_LAW_210	S1	3	0	16	
	ECONOMICS_214					
EKN214	Prerequisite/s: [EKN110GS] and [EKN120 of EKN113GS]	S1	3	0	16	
	and [EKN123] and [STK110GS] and [STK120GS]					
	INTRO/FOOD_SCIENCE_&_TECH250					
FST250	Prerequisite/s: [CMY117] and [CMY127] and [MBY161] and	S1	2	1	12	
	[PHY131] and [WTW134] or [TDH]					
	AGRICULTURAL_ECONOMICS_310 Prerequisite/s:	Q1	3	0	12	
LERGIO	[LEK251 or EKN110] and [LEK252 or EKN120]	31	5	0	12	
STK210	STATISTICS_210 Prerequisite/s: [STK110] and [STK120]	S1	3	1	20	
Totals for o	compulsory modules in the first/second terms		17/14	2/2	48/38	
EKN215 a	EKN215 and PLG251 are recommended as part of the electives.					

Third year, second semester:								
Code	Name	Trm	lpw	ppw	Crdt			
AGV421	COMMUNICATION_421	S2	2	0	20			
EKN224	ECONOMICS_224 Prerequisite/s: [EKN110 or EKN113] and [STK110] and [EKN214GS]	S2	3	0	16			
LEK320	AGRICULTURAL_ECONOMICS_320 Prerequisite/s: [LEK220] and [LEK251] and [LEK252]	S2	3	2	18			
STK281	STATISTICS_281 Prerequisite/s: [STK110] and [STK120]	S2	3	1	10			
Totals for o	compulsory modules in the third/fourth terms		11/11	3/3	32/32			
Compulso	Compulsory credits = (150) Elective credits = (37)							

Fourth year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
EKN314	ECONOMICS_314 Prerequisite/s: [EKN214] and [EKN224] and [STK120]	S1	3	0	20		
LEK415	AGRICULTURAL_ECONOMICS_415 Prerequisite/s: [EKN110] and [LEK220] and [WTW134]	S1	3	1	18		

LEK451	AGRI.DEMAND_&_SUPP.ANALYSIS451 Prerequisite/s: [LEK220] and [LEK252] and [STK281]	K1	3	2	12
LEK452	COMMODITY_PRICE_ANALYSIS_452 Prerequisite/s: [LEK220] and [LEK252] and [LEK451] and [STK281]	K2	3	2	12
Totals for compulsory modules in the first/second terms				3/3	31/31

Fourth yea	ar, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
LEK421	AGRICULTURAL_ECONOMICS_421 Prerequisite/s: [LEK451] and [STK210] and [STK281]	S2	3	2	24	
LEK424	RESOURCE_ECONOMICS_424 Prerequisite/s: [LEK251] and [LEK252]	S1	3	0	10	
Totals for o	compulsory modules in the third/fourth terms		6/6	2/2	17/17	
Elective modules can be chosen from the following: STK310, STK320, WDE320, PLG251, EKN325, ARD480 and any modules from Animal and Wildlife Sciences that do not clash on the lecture, practical or examination timetable.						
Compulsory credits = (96) Elective credits = (48)						
A minimum of (609) credits is required to obtain the degree.						

Field of study	Dept	Code
BSc(Agric) Animal Science	VKU	03130140

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (0)					

Second year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12		
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12		

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DAF200	ANIMAL_ANATOMY&PHYSIOLOGY_200 Prerequisite/s: [CMY127] or [TDH]	J1	4	1	18
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12
VDG250	NUTRITION_250 Prerequisite/s: [CMY127] or [CMY102]	S1	3	0.5	12
VKU210	ANIMAL_SCIENCE_210	S1	1	0.5	6
Totals for o	compulsory modules in the first/second terms		22/19	6.5/6.5	54/48

Second year, second semester:

occond year, second semester.							
Code	Name	Trm	lpw	ppw	Crdt		
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
DAF200	ANIMAL_ANATOMY&PHYSIOLOGY_200 Prerequisite/s: [CMY127] or [TDH]	J1	4	1	18		
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12		
LBU260	AGROCLIMATOLOGY_260	S2	2	0.5	12		
VKU220	ANIMAL_SCIENCE_220 Prerequisite/s: [VKU210]	S2	2	0.5	12		
Totals for o	compulsory modules in the third/fourth terms		14/14	3.5/3.5	39/39		
Compulsory credits = (180) Elective credits = (0)							

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BME210	BIOMETRY_210 Prerequisite/s: [BME120]	S1	4	1	24		
DAN310	ANIMAL_ANATOMY_310 Prerequisite/s: [DAF200]	S1	1	0.5	8		
DFS311	ANIMAL_PHYSIOLOGY_311 Prerequisite/s: [DAF200]	S1	2	0	10		
RPL310	REPRODUCTION_SCIENCE_310 Prerequisite/s: [DAF200]	S1	1	0.5	8		
VGE301	NUTRITION_SCIENCE_301 Prerequisite/s: [BCM261] and [BCM262] and [DAF200] and [VDG250] and [VKU220]	J1	3	0.5	16		
WDE250	PRINCIPLES_OF_VELD_MANAGM250	S1	2	0.5	12		
Totals for o	compulsory modules in the first/second terms		13/13	3/3	39/39		

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
DFS320	GROWTH_PHYSIOLOGY_320 Prerequisite/s: [DAN310] and [DFS311]	S2	2	0.5	10	
RPL320	REPRODUCTION_SCIENCE_320 Prerequisite/s: [RPL310]	S2	2	0.5	10	
TLR320	ANIMAL_BREEDING_320 Prerequisite/s: [GTS261]	S2	2	0.5	10	
VGE301	NUTRITION_SCIENCE_301 Prerequisite/s: [BCM261] and [BCM262] and [DAF200] and [VDG250] and [VKU220]	J1	3	0.5	16	
VKU361	ANIMAL_ECOLOGY_361 Prerequisite/s: [VKU210] and [VKU220]	S2	2	0	8	
VKU362	ANIMAL_SCIBIOTECHNOLOGY_362 Prerequisite/s: [GTS226]	S2	1	0.5	8	
WDE320	PLANTED_PAST&FODDERCROPS320 Prerequisite/s: [WDE210 or WDE310]	S2	2	0.5	14	
Totals for o	Totals for compulsory modules in the third/fourth terms 14/14 3/3 38/38					
Compulsory credits = (154) Elective credits = (0)						

Fourth year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
TLR411	ANIMAL_BREEDING_411 Prerequisite/s: [TLR320]	S1	2	0.5	12		
VGE411	NUTRITION_SCIENCE_411 Prerequisite/s: [VGE301]	S1	4	0.5	18		
VKD410	PIG_SCIENCE_410 Prerequisite/s: [LEK210] and [VGE301] and [VKU220]	S1	1	0.5	8		
VKF411	ANIMAL_SCI.PHARMACOLOGY_411 Prerequisite/s: [DFS320] and [VGE301]	S1	3	0	12		
VKU411	SEMINAR_411 Prerequisite/s: [TDH]	S1	1	0	8		
VKU412	RESEARCH_METHODOLOGY_412 Prerequisite/s: [TDH]	S1	1	0	8		
WLK410	WOOL_SCIENCE_410 Prerequisite/s: [TLR320] and [VGE301]	S1	1	0.5	8		
Totals for o	compulsory modules in the first/second terms		13/13	2/2	37/37		

Fourth year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GVK420	LARGE_STOCK_SCIENCE_420 Prerequisite/s: [LEK210] and [RPL320] and [VGE301] and [VKU210]	S1	2	0.5	12	
KVK420	SMALL_STOCK_SCIENCE_420 Prerequisite/s: [LEK210] and [RPL320] and [VGE301] and [VKU220]	S2	2	0.5	12	
PVK420	POULTRY_SCIENCE_420 Prerequisite/s: [LEK210] and [VGE301] and [VKU220]	S2	2	0.5	12	
TLR420	ANIMAL_BREEDING_420 Prerequisite/s: [TLR411]	S2	2	0.5	12	
VGE421	NUTRITION_SCIENCE_421 Prerequisite/s: [VGE301]	S2	3	0	16	
VGE423	NUTRITION_SCIENCE_423 Prerequisite/s: [VGE301]	S1	3	0	16	
VSX420	MEAT_AND_DAIRY_SCIENCE_420 Prerequisite/s: [DFS320]	S2	2	0	10	
WKE420	WILDLIFE_SCIENCE_420 Prerequisite/s: [VGE301] and [VKU361] or [TDH]	S2	2	0	10	
Totals for compulsory modules in the third/fourth terms18/182/250/50						
Compulsory credits = (169) Elective credits = (0)						
A minimu	m of (651) credits is required to obtain the degree.					

Field of study	Dept	Code
BSc(Agric) Animal Science/Animal Genetics	VKU	03130251

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMY127	GENERAL_CHEMISTRY_127	S2	4	1	16
	Prerequisite/s: [CMY117 GS or CMY101]				10

EOT120 ACADEMIC_LITERACY(2)_120	S2	2	0	6	
GTS161 INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8	
MBY161 INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8	
ZEN161 ANIMAL_DIVERSITY_161	S2	2	0.5	8	
Totals for compulsory modules in the third/fourth terms		20/20	4/4	37/37	
Compulsory credits = (148) Elective credits = (0)					

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
DAF200	ANIMAL_ANATOMY&PHYSIOLOGY_200 Prerequisite/s: [CMY127] or [TDH]	J1	4	1	18
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12
VDG250	NUTRITION_250 Prerequisite/s: [CMY127] or [CMY102]	S1	3	0.5	12
VKU210	ANIMAL_SCIENCE_210	S1	1	0.5	6
Totals for o	compulsory modules in the first/second terms		16/16	5.5/5.5	42/42

Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
DAF200	ANIMAL_ANATOMY&PHYSIOLOGY_200 Prerequisite/s: [CMY127] or [TDH]	J1	4	1	18
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12
LBU260	AGROCLIMATOLOGY_260	S2	2	0.5	12
VKU220	ANIMAL_SCIENCE_220 Prerequisite/s: [VKU210]	S2	2	0.5	12
Totals for compulsory modules in the third/fourth terms			14/14	3.5/3.5	39/39
Compulsory credits = (162) Elective credits = (0)					

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME210	BIOMETRY_210 Prerequisite/s: [BME120]	S1	4	1	24
DAN310	ANIMAL_ANATOMY_310 Prerequisite/s: [DAF200]	S1	1	0.5	8
DFS311	ANIMAL_PHYSIOLOGY_311 Prerequisite/s: [DAF200]	S1	2	0	10
GT\$352	GENOMES_352	S 1	2	1	18
010002	Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	01	2		10
DDI 310	REPRODUCTION_SCIENCE_310	Q1	1	0.5	0
RFL310	Prerequisite/s: [DAF200]	51	1	0.5	0
	NUTRITION_SCIENCE_301 Prerequisite/s: [BCM261] and	11	3	0.5	16
VGESUI	[BCM262] and [DAF200] and [VDG250] and [VKU220]	JI	5	0.5	10
Totals for a	compulsory modules in the first/second terms		13/13	3.5/3.5	42/42

Third year	r, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
DFS320	GROWTH_PHYSIOLOGY_320 Prerequisite/s: [DAN310] and [DFS311]	S2	2	0.5	10

GTS361	HUMAN_GENETICS_361 Prerequisite/s: [GTS352 GS] or [TDH]	S2	2	1	18
RPL320	REPRODUCTION_SCIENCE_320 Prerequisite/s: [RPL310]	S2	2	0.5	10
TLR320	ANIMAL_BREEDING_320 Prerequisite/s: [GTS261]	S2	2	0.5	10
VGE301	NUTRITION_SCIENCE_301 Prerequisite/s: [BCM261] and [BCM262] and [DAF200] and [VDG250] and [VKU220]	J1	3	0.5	16
VKU361	ANIMAL_ECOLOGY_361 Prerequisite/s: [VKU210] and [VKU220]	S2	2	0	8
VKU362	ANIMAL_SCIBIOTECHNOLOGY_362 Prerequisite/s: [GTS226]	S2	1	0.5	8
Totals for compulsory modules in the third/fourth terms 14/14 3.5/3.5 40/40					
Compulsory credits = (164) Elective credits = (0)					

Fourth yea	ar, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GTS353	ADVPOPULATION_GENETICS_353 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6
TLR411	ANIMAL_BREEDING_411 Prerequisite/s: [TLR320]	S1	2	0.5	12
VKD410	PIG_SCIENCE_410 Prerequisite/s: [LEK210] and [VGE301] and [VKU220]	S1	1	0.5	8
VKF411	ANIMAL_SCI.PHARMACOLOGY_411 Prerequisite/s: [DFS320] and [VGE301]	S1	3	0	12
VKU411	SEMINAR_411 Prerequisite/s: [TDH]	S1	1	0	8
VKU412	RESEARCH_METHODOLOGY_412 Prerequisite/s: [TDH]	S1	1	0	8
Totals for o	compulsory modules in the first/second terms		13/13	2/2	39/39

Fourth yea	ar, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
GTS363	EVOLUTIO&_PHYLO-GENETICS_363 Prerequisite/s: [GTS353 GS] or [TDH]	S2	2	1	18
GVK420	LARGE_STOCK_SCIENCE_420 Prerequisite/s: [LEK210] and [RPL320] and [VGE301] and [VKU210]	S1	2	0.5	12
KVK420	SMALL_STOCK_SCIENCE_420 Prerequisite/s: [LEK210] and [RPL320] and [VGE301] and [VKU220]	S2	2	0.5	12
LEK320	AGRICULTURAL_ECONOMICS_320 Prerequisite/s: [LEK220] and [LEK251] and [LEK252]	S2	3	2	18
PVK420	POULTRY_SCIENCE_420 Prerequisite/s: [LEK210] and [VGE301] and [VKU220]	S2	2	0.5	12
TLR420	ANIMAL_BREEDING_420 Prerequisite/s: [TLR411]	S2	2	0.5	12
WKE420	WILDLIFE_SCIENCE_420 Prerequisite/s: [VGE301] and [VKU361] or [TDH]	S2	2	0	10
Totals for compulsory modules in the third/fourth terms 15/15 5/5 47/4				47/47	
Compulsory credits = (158) Elective credits = (0)					
A minimu	m of (632) credits is required to obtain the degree.				

Field of study	Dept	Code
BSc(Agric) Animal Science/Pasture Science	VKU	03130250

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for c	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	62	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32	4		10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161	62	2	0.5	8
013101	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulso	ory credits = (148) Elective credits = (0)				

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BOT251	SA_FLORA_&_VEGETATION_251 Prerequisite/s: [BOT161] or [TDH]	S1	2	1	12
DAF200	ANIMAL_ANATOMY&PHYSIOLOGY_200 Prerequisite/s: [CMY127] or [TDH]	J1	4	1	18
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12
VDG250	NUTRITION_250 Prerequisite/s: [CMY127] or [CMY102]	S1	3	0.5	12
VKU210	ANIMAL_SCIENCE_210	S1	1	0.5	6
Totals for o	compulsory modules in the first/second terms		16/16	4.5/4.5	42/42

Second year, second semester:					
Code	Name	Trm	lpw	ppw	Crdt
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12
DAF200	ANIMAL_ANATOMY&PHYSIOLOGY_200 Prerequisite/s: [CMY127] or [TDH]	J1	4	1	18
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12

LBU260 AGROCLIMATOLOGY_260	S2	2	0.5	12	
VKU220 ANIMAL_SCIENCE_220 Prerequisite/s: [VKU210]	S2	2	0.5	12	
Totals for compulsory modules in the third/fourth terms		16/16	4.5/4.5	45/45	
Compulsory credits = (174) Elective credits = (0)					

Third year	; first semester:				
Code	Name	Trm	lpw	ppw	Crdt
DAN310	ANIMAL_ANATOMY_310 Prerequisite/s: [DAF200]	S1	1	0.5	8
DFS311	ANIMAL_PHYSIOLOGY_311 Prerequisite/s: [DAF200]	S1	2	0	10
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6
RPL310	REPRODUCTION_SCIENCE_310 Prerequisite/s: [DAF200]	S1	1	0.5	8
VGE301	NUTRITION_SCIENCE_301 Prerequisite/s: [BCM261] and [BCM262] and [DAF200] and [VDG250] and [VKU220]	J1	3	0.5	16
WDE250	PRINCIPLES_OF_VELD_MANAGM250	S1	2	0.5	12
Totals for o	compulsory modules in the first/second terms		15/15	3/3	39/39

Third yea	r, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
DFS320	GROWTH_PHYSIOLOGY_320 Prerequisite/s: [DAN310] and [DFS311]	S2	2	0.5	10
GKD260	SOIL_FERTIL.&_PLANT_NUTRIT.260 Prerequisite/s: [GKD250 GS]	S2	3	1	12
RPL320	REPRODUCTION_SCIENCE_320 Prerequisite/s: [RPL310]	S2	2	0.5	10
TLR320	ANIMAL_BREEDING_320 Prerequisite/s: [GTS261]	S2	2	0.5	10
VGE301	NUTRITION_SCIENCE_301 Prerequisite/s: [BCM261] and [BCM262] and [DAF200] and [VDG250] and [VKU220]	J1	3	0.5	16
WDE320	PLANTED_PAST&FODDERCROPS320 Prerequisite/s: [WDE210 or WDE310]	S2	2	0.5	14
Totals for	compulsory modules in the third/fourth terms		14/14	3.5/3.5	36/36
Compulsory credits = (150) Elective credits = (0)					

Fourth ye	ar, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME210	BIOMETRY_210 Prerequisite/s: [BME120]	S1	4	1	24
GKD350	SOIL_CLASSIF.&_SURVEYING_350 Prerequisite/s: [GKD250 GS]	S1	2	1	14
LBU410	LAND_USE_PLANNING_410 Prerequisite/s: [GKD250]	S1	3	1	14
VGE411	NUTRITION_SCIENCE_411 Prerequisite/s: [VGE301]	S1	4	0.5	18
VKU411	SEMINAR_411 Prerequisite/s: [TDH]	S1	1	0	8
VKU412	RESEARCH_METHODOLOGY_412 Prerequisite/s: [TDH]	S1	1	0	8
WDE450	EVALUAT.OF_RANGE_&_FORAGES_450	S1	3	0	14
	Totals for compulsory modules in the first/second terms		18/18	3.5/3.5	50/50

Fourth yea	ar, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
APS461	CROP_PHYSIOLOGY_461 Prerequisite/s: [GKD250] and [GKD260] and [HSC260] and [PGW350]	S2	2	0.5	14
GVK420	LARGE_STOCK_SCIENCE_420 Prerequisite/s: [LEK210] and [RPL320] and [VGE301] and [VKU210]	S1	2	0.5	12
KVK420	SMALL_STOCK_SCIENCE_420 Prerequisite/s: [LEK210] and [RPL320] and [VGE301] and [VKU220]	S2	2	0.5	12
LIR421	AGRICULTURAL_ENGINEERING_421	S2	3	1	8

VGE421	NUTRITION_SCIENCE_421 Prerequisite/s: [VGE301]	S2	3	0	16
VGE423	NUTRITION_SCIENCE_423 Prerequisite/s: [VGE301]	S1	3	0	16
VSX420	MEAT_AND_DAIRY_SCIENCE_420 Prerequisite/s: [DFS320]	S2	2	0	10
WKE420	WILDLIFE_SCIENCE_420 Prerequisite/s: [VGE301] and [VKU361] or [TDH]	S2	2	0	10
Totals for compulsory modules in the third/fourth terms 19/19 2.5/2.5 49/-				49/49	
Compulsory credits = (198) Elective credits = (0)					
A minimum of (670) credits is required to obtain the degree.					

Field of study	Dept	Code
BSc(Agric) Food Science and Technology	VDW	03130370

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	62	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32	4		10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161	62	2	0.5	8
013101	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (0)					

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
FST250	INTRO/FOOD_SCIENCE_&_TECH250 Prerequisite/s: [CMY117] and [CMY127] and [MBY161] and [PHY131] and [WTW134] or [TDH]	S1	2	1	12
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12
VDG250	NUTRITION_250 Prerequisite/s: [CMY127] or [CMY102]	S1	3	0.5	12
Totals for o	compulsory modules in the first/second terms		14/14	4.5/4.5	36/36

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12	
FST260	PRIN/FOOD_PROC&_PRESERV260 Prerequisite/s: [CMY117] and [CMY127] and [MBY161] and [PHY131] and [WTW134] or [TDH]	S2	2	1	12	
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12	
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12	
Totals for o	compulsory modules in the third/fourth terms		11/11	3/3	30/30	
Compulsory credits = (132) Elective credits = (12)						

Third yea	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
FST350	INTEGRATED_FOOD_SCIENCE_350 Prerequisite/s: [FST250] and [FST260] or [TDH]	J1	2	0	9
FST351	FOOD_CHEMISTRY-(1)_351 Prerequisite/s: [BCM251] and [BCM252] and [BCM261] and [BCM262] or [TDH]	S1	2	1	18
FST352	FOOD_CHEMISTRY-(2)_352 Prerequisite/s: [BCM251] or [TDH] and [BCM252] or [TDH] and [BCM261] or [TDH] and [BCM262] or [TDH]	S1	2	1	18
FST353	FOOD_ENGINEERING_353 Prerequisite/s: [CMY117] and [CMY127] and [FST260] and [PHY131] and [WTW134] or [TDH]	S1	3	0.5	18
-	Totals for compulsory modules in the first/second terms		9/9	2.5/2.5	31.5/ 31.5

Third yea	ar, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
FST350	INTEGRATED_FOOD_SCIENCE_350 Prerequisite/s: [FST250] and [FST260] or [TDH]	J1	2	0	9
FST360	PLANT_FOOD_SCIENCE_360 Prerequisite/s: [FST250] and [FST260] and [FST351] and [FST352] or [TDH]	S2	2	1	18
FST361	ANIMAL_FOOD_SCIENCE_361 Prerequisite/s: [FST250] and [FST260] and [FST351] and [FST352] or [TDH]	S2	2	1	18
LEK320	AGRICULTURAL_ECONOMICS_320 Prerequisite/s: [LEK220] and [LEK251] and [LEK252]	S2	3	2	18
MBY362	FOOD_MICROBIOLOGY_362 Prerequisite/s: [MBY251]	S2	2	1	18
Totals for	compulsory modules in the third/fourth terms		11/11	5/5	40.5/ 40.5
Compuls	ory credits = (144) Elective credits = (0)				

Fourth ye	ar, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
FST400	RESEARCH_METHODOLOGY_&_SEM.400 Prerequisite/s: [Third-year status] or [TDH]	J1	2	1	10
FST401	ANIMAL_FOOD_TECHNOLOGY_401 Prerequisite/s: [FST361] or [TDH]	J1	2	1	10
FST402	PLANT_FOOD_TECHNOLOGIES_402 Prerequisite/s: [FST360] or [TDH]	J1	2	1	10
FST410	PRODUCT_DEVELOPMENT_410 Prerequisite/s: [FST260] and [FST351] and [FST352] or [TDH]	S1	2	1	20

FST411	SENSORY_ANAL.&QUAL.MAN.SYS.411 Prerequisite/s: [FST260] and [FST351] and [FST352] or [TDH]	S1	2	1	20
FST463	RESEARCH_PROJECT_463 Prerequisite/s: [Third-year status in Food Science or TDH]	J1	1	1.5	20
Totals for o	compulsory modules in the first/second terms		11/11	6.5/6.5	45/45

Fourth ye	ar, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
FST400	RESEARCH_METHODOLOGY_&_SEM.400 Prerequisite/s: [Third-year status] or [TDH]	J1	2	1	10
FST401	ANIMAL_FOOD_TECHNOLOGY_401 Prerequisite/s: [FST361] or [TDH]	J1	2	1	10
FST402	PLANT_FOOD_TECHNOLOGIES_402 Prerequisite/s: [FST360] or [TDH]	J1	2	1	10
FST420	ADVANCED_FOOD_SCIENCE_420 Prerequisite/s: [Third-year status] or [TDH]	S2	2	0	20
FST463	RESEARCH_PROJECT_463 Prerequisite/s: [Third-year status in Food Science or TDH]	J1	1	1.5	20
Totals for	compulsory modules in the third/fourth terms		9/9	4.5/4.5	35/35
Compulso	ory credits = (160) Elective credits = (0)				
A minimu	m of (600) credits is required to obtain the degree.				

BSc(Agric) Genetics: Plant Breeding	GTS	03130301

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
BME120	BIOMETRY_120	S2	4	1	16	
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
CMV127	GENERAL_CHEMISTRY_127	62	4	1	16	
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32	4		10	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
GTS161	INTRODUCTORY_GENETICS_161	62	2	0.5	8	
013101	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5		
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8	
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8	
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37	
Compulsory credits = (148) Elective credits = (4)						

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BCM252	CARBOHYDRATE_METABOLISM_252 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12

GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6
PLG251	INTRODUCTCROP_PROTECTION_251	S1	2	1	12
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
Totals for o	compulsory modules in the first/second terms		14/14	5/5	36/36

Second year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BCM261	LIPID_&_NITROGEN_METABOLIS.261 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
BCM262	BIOCHEMISTRY_IN_PERSPECT262 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S2	2	0.5	12		
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12		
HSC260	CROP_PROPAGATION_260 Prerequisite/s: [BOT161 or BLG150]	S2	2	0.5	12		
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12		
PLG261	EPIDEMIOLOGY_261	S2	2	1	8		
Totals for o	compulsory modules in the third/fourth terms		13/13	3/3	34/34		
Compulsory credits = (140) Elective credits = (0)							

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GTS351	EUKARYOTIC_GENE_CON.&_DEVL.351 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18	
GTS352	GENOMES_352 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18	
GTS353	ADVPOPULATION_GENETICS_353 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH]	S1	2	1	18	
PLG351	GENERAL_PLANT PATHOLOGY_351 Prerequisite/s: [MBY161] and [MBY261] or [TDH]	S1	2	1	18	
Totals for compulsory modules in the first/second terms			8/8	4/4	36/36	

Third year	, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
GTS363	EVOLUTIO&_PHYLO-GENETICS_363 Prerequisite/s: [GTS353 GS] or [TDH]	S2	2	1	18	
GTS366	PLANT_GENETICS_&_BIOTECHN366 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH] and [GTS351 GS is recommended] and [GTS352 GS is recommended]	S2	2	1	18	
PLG364	HOST_PATHOGEN_INTERACTIONS_364	S2	2	1	18	
ZEN365	INSECT_PEST_MANAGEMENT_365	K4	4	2	18	
Totals for compulsory modules in the third/fourth terms			6/10	3/5	27/45	
Compulsory credits = (144) Elective credits = (0)						

Fourth year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
AGR313	PRIMARY_FOOD_CROPS_313 Prerequisite/s: [HSC260] and [PPK251]	S1	2	0.5	14		
BME210	BIOMETRY_210 Prerequisite/s: [BME120]	S1	4	1	24		

GTS451 SEMINAR_&_TECHNIQUES_COURSE451	S 1	2	05	18
Prerequisite/s: [GTS352 GS] or [TDH]		2	0.5	10
ADVANCED PLANTBREEDING 452	04	•	0 5	40
GTS452 Prerequisite/s: [GTS362 GS] or [TDH]	51	2	0.5	18
HSC351 NURSERY_MANAGEMENT_351	S1	2	0.5	14
Totals for compulsory modules in the first/second terms		12/12	3/3	44/44

Fourth year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
AGR361	INDUSTRIAL_CROPS_361 Prerequisite/s: [HSC260] and [PPK251]	S2	2	0.5	14		
GTS461	PLANTBREEDING_STRATEGIES_461 Prerequisite/s: [GTS452 GS] or [TDH]	S2	2	0.5	18		
GTS462	APPLICATIONS_IN_PLANTBREED.462 Prerequisite/s: [GTS452 GS] or [TDH]	S2	1	1	18		
PLG461	NURSERY_&_SEED_PATHOLOGY_461	S2	1	0.5	10		
WDE461	TURFGRASS_MANAGEMENT_461	S2	2	0.5	14		
Totals for o	compulsory modules in the third/fourth terms		8/8	3/3	37/37		
Compulsory credits = (162) Elective credits = (2)							
A minimum of (600) credits is required to obtain the degree.							

Field of study	Dept	Code
BSc(Agric) Plant Pathology	MBY	03130321

First year, first semester:								
Code	Name	Trm	lpw	ppw	Crdt			
CIL111	COMPUTER_LITERACY_111	S1	2	0	4			
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16			
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6			
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16			
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16			
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16			
Totals for compulsory modules in the first/second terms				4/4	37/37			

First year,	, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
BME120	BIOMETRY_120	S2	4	1	16	
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
CMV127	GENERAL_CHEMISTRY_127	62	4	1	16	
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32	4	1	10	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
CTS161	INTRODUCTORY_GENETICS_161	62	2	0.5	0	
GISIOI	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	0	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8	
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8	
Totals for o	compulsory modules in the third/fourth terms		20/20	4/4	37/37	
Compulsory credits = (148) Elective credits = (0)						

Second year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12		

GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12		
GTS251	GENE_&_CHROMOSOME_ORGANIZ251 Prerequisite/s: [GTS161 GS] or [TDH]	S1	2	2	12		
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6		
PLG251	INTRODUCTCROP_PROTECTION_251	S1	2	1	12		
ZEN355	INSECT_DIVERSITY_355	K1	4	2	18		
Totals for compulsory modules in the first/second terms 16/9 6.5/4.5 48/24							
Plant Protection focus: GTS251 may be replaced by LEK252 and SCI153.							

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Second year, second semester:

Code	Name	Trm	lpw	ppw	Crdt	
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12	
GKD260	SOIL_FERTIL.&_PLANT_NUTRIT.260 Prerequisite/s: [GKD250 GS]	S2	3	1	12	
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12	
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12	
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12	
PLG261	EPIDEMIOLOGY_261	S2	2	1	8	
Totals for o	Totals for compulsory modules in the third/fourth terms 14/14 4.5/4.5 34/34					
Plant Protection focus: GTS261 may be replaced by HSC261 and an additional elective(s) of 6 credits.						
Compulso	ory credits = (140) Elective credits = (0)					

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BOT352	PLANT_STRUCTURE_&_FUNCTION_352	S1	2	1	18	
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251	S1	2	2	12	
WID1201	Prerequisite/s: [MBY161 GS]	01	~	2	12	
MRV351	STRUCT.&_DIVERS.OF_VIRUSES_351	S1	2	1	18	
WID 1001	Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	01	2		10	
PI C351	GENERAL_PLANT PATHOLOGY_351	S 1	2	1	18	
I LOSSI	Prerequisite/s: [MBY161] and [MBY261] or [TDH]	01	2	1		
PPK251	SUSTAINABLE_PRODUCTION_SYS.251	Q1	2	0.5	12	
	Prerequisite/s: [BOT161 or BLG150]	31	2	0.5	12	
Totals for	compulsory modules in the first/second terms		10/10	5.5/5.5	39/39	

Third year	, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
GTS366	PLANT_GENETICS_&_BIOTECHN366 Prerequisite/s: [GTS251 GS] and [GTS261 GS] or [TDH] and [GTS351 GS is recommended] and [GTS352 GS is recommended]	S2	2	1	18	
MBY364	GENE.MANIPULATION/MICROBES.364 Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	S2	2	1	18	
PLG363	PLANT_DISEASE_CONTROL_363	S2	2	1	18	
PLG364	HOST_PATHOGEN_INTERACTIONS_364	S2	2	1	18	
	Totals for compulsory modules in the third/fourth terms			4/4	36/36	
Plant Protection focus: MBY364 and GTS366 may be replaced by AGR361 and BOT361 and an						
additional elective of 4 credits.						
Compulso	ory credits = (150) Elective credits = (0)					

Fourth year, first semester:					
Code	Name	Trm	lpw	ppw	Crdt
BME210	BIOMETRY_210 Prerequisite/s: [BME120]	S1	4	1	24
HSC260	CROP_PROPAGATION_260 Prerequisite/s: [BOT161 or BLG150]	S2	2	0.5	12
MBY352	ENVIRONMENTAL_MICROBIOLOGY_352 Prerequisite/s: [MBY161]	S1	2	1	18
OKW413	WEED_SCIENCE_413 Prerequisite/s: [PPK251]	S1	2	0.5	14
PGW400	SEMINAR_400	J1	3	0	10
PLG462	RESEARCH_PROJECT_462	J1	1	1	10
Totals for o	compulsory modules in the first/second terms		14/14	4/4	44/44

Fourth year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
LKM262	AGRICULTURAL_CLIMATOLOGY_262	S2	2	0.5	12	
MBY363	MOLECBIOL.OF_PROKARYOTES_363 Prerequisite/s: [BCM251] and [CMY127] and [MBY161]	S2	2	1	18	
PGW361	EXPERIMENTAL_DESIGN_&_ANAL.361 Prerequisite/s: [BME120]	S2	2	0.5	14	
PGW400	SEMINAR_400	J1	3	0	10	
PLG461	NURSERY_&_SEED_PATHOLOGY_461	S2	1	0.5	10	
PLG462	RESEARCH_PROJECT_462	J1	1	1	10	
ZEN365	INSECT_PEST_MANAGEMENT_365	K4	4	2	18	
Totals for o	compulsory modules in the third/fourth terms		11/15	3.5/5.5	37/55	
Compulsory credits = (180) Elective credits = (0)						
A minimu	m of (618) credits is required to obtain the degree.					

Field of study	Dept	Code
BSc(Agric) Plant Production	PGW	03130161

First year	, first semester:					
Students who want to enroll for the main subjects: Agronomy, Horticulture or Pasture Science,						
must regis	ter for the BSc(Agric) Plant Production degree.					
Code	Name	Trm	lpw	ppw	Crdt	
CIL111	COMPUTER_LITERACY_111	S1	2	0	4	
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16	
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6	
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16	
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16	
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16	
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37	

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMV127	GENERAL_CHEMISTRY_127	62	4	1	16
CIVIT 127	Prerequisite/s: [CMY117 GS or CMY101]	32			
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
CT9161	INTRODUCTORY_GENETICS_161	62	2	0.5	0
GISIOI	Prerequisite/s: [MLB111 GS] or [TDH]	32	2	0.5	0
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8
ZEN161	ANIMAL_DIVERSITY_161	S2	2	0.5	8

Totals for compulsory modules in the third/fourth terms	20/20	4/4	37/37
Compulsory credits = (148) Elective credits = (0)			

Second year, first semester:					
Code	Name	Trm	lpw	ppw	Crdt
BCM251	NTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12
BME210	BIOMETRY_210 Prerequisite/s: [BME120]	S1	4	1	24
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6
PLG251	INTRODUCTCROP_PROTECTION_251	S1	2	1	12
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12
Totals for o	compulsory modules in the first/second terms		16/16	4/4	42/42

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12	
GKD260	SOIL_FERTIL.&_PLANT_NUTRIT.260 Prerequisite/s: [GKD250 GS]	S2	3	1	12	
GTS261	GENETIC_ANAL&_MANIPULA261 Prerequisite/s: [GTS161 GS] or [TDH]	S2	2	0.5	12	
HSC260	CROP_PROPAGATION_260 Prerequisite/s: [BOT161 or BLG150]	S2	2	0.5	12	
LBU260	AGROCLIMATOLOGY_260	S2	2	0.5	12	
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12	
Totals for o	compulsory modules in the third/fourth terms		14/14	3.5/3.5	36/36	
Compulso	Compulsory credits = (156) Elective credits = (0)					

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GKD350	SOIL_CLASSIF.&_SURVEYING_350 Prerequisite/s: [GKD250 GS]	S1	2	1	14	
GKD351	SOIL_PHYSICS_351 Prerequisite/s: [GKD250]	S1	1	0.5	10	
HSC351	NURSERY_MANAGEMENT_351	S1	2	0.5	14	
PGW350	SOIL_WATER_RELA.&_IRRIGAT350 Prerequisite/s: [GKD250]	S1	2	0.5	16	
WDE310	PRINCIPLES_OF_VELD_MANAGE_310	S1	2	0.5	12	
Totals for compulsory modules in the first/second terms9/93/333/33						
Electives: Students interested in Pasture Science enrol for VKU210 (6) and VKU211 (6) or AGR313 (14) and Students interested in Agronomy/Horticulture enrol for AGR313 (14).						

Third year, second semester:					
Code	Name	Trm	lpw	ppw	Crdt
AGR361	INDUSTRIAL_CROPS_361 Prerequisite/s: [HSC260] and [PPK251]	S2	2	0.5	14
PLG363	PLANT_DISEASE_CONTROL_363	S2	2	1	18
ZEN365	INSECT_PEST_MANAGEMENT_365	K4	4	2	18
	Totals for compulsory modules in the third/fourth terms		4/8	1.5/3.5	16/34

Electives: Students interested in Pasture Science enrol for VKU220 (12) and WDE320 (14); students interested in Agronomy enrol for HSC320 (26) or WDE320 (14) and any other subject to the value of not less than 12 credits which fits into the timetable, after permission was granted by the Head of Department; and students interested in Horticulture enrol for HSC320 (26). **Compulsory credits = (116) Elective credits = (38)**

Fourth year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
LBU410	LAND_USE_PLANNING_410 Prerequisite/s: [GKD250]	S1	3	1	14	
LKM450	ENVIRONMENTAL_BIOPHYSICS_450 Prerequisite/s: [WTW134]	S1	2	0.5	16	
OKW413	WEED_SCIENCE_413 Prerequisite/s: [PPK251]	S1	2	0.5	14	
PGW400	SEMINAR_400	J1	3	0	10	
Totals for o	compulsory modules in the first/second terms		10/10	2/2	27/27	
Electives: S	Students enrol for WDE450 (14) or HSC490 (14).					

Fourth ye	Fourth year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt		
APS461	CROP_PHYSIOLOGY_461 Prerequisite/s: [GKD250] and [GKD260] and [HSC260] and [PGW350]	S2	2	0.5	14		
GKD460	ENVIRONMENTAL_MANAGEMENT_460 Prerequisite/s: [GKD250] and [GKD350]	S2	4	1	26		
LIR421	AGRICULTURAL_ENGINEERING_421	S2	3	1	8		
PGW400	SEMINAR_400	J1	3	0	10		
PGW421	RESEARCH_METHODOLOGY_421 Prerequisite/s: [BME120]	S2	2	0.5	14		
Totals for a	compulsory modules in the third/fourth terms		14/14	3/3	36/36		
Electives:	Students enrol for WDE461 (14), PLG461 (10) or any other	modu	le that fi	ts into	the		
timetable,	after permission was granted by the Head of Department.						
Compulso	ory credits = (126) Elective credits = (24)						
A minimu	m of (608) credits is required to obtain the degree.						

Field of study	Dept	Code
BSc(Agric) Soil Science	PGW	03130290

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
CMY117	GENERAL_CHEMISTRY_117 Prerequisite/s: [Par 1.2]	S1	4	1	16
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
MLB111	MOLECULAR_&_CELL_BIOLOGY_111	S1	4	1	16
PHY131	GENERAL_PHYSICS_131 Prerequisite/s: [Par 1.2]	S1	4	1	16
WTW134	MATHEMATICS_134 Prerequisite/s: [Par 1.2]	S1	4	1	16
Totals for o	compulsory modules in the first/second terms		20/20	4/4	37/37

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
BOT161	PLANT_BIOLOGY_161	S2	2	0.5	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
CMY127	GENERAL_CHEMISTRY_127 Prerequisite/s: [CMY117 GS or CMY101]	S2	4	1	16
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
GTS161	INTRODUCTORY_GENETICS_161 Prerequisite/s: [MLB111 GS] or [TDH]	S2	2	0.5	8

MBY161 INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8	
ZEN161 ANIMAL_DIVERSITY_161	S2	2	0.5	8	
Totals for compulsory modules in the third/fourth terms		20/20	4/4	37/37	
Compulsory credits = (148) Elective credits = (0)					

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BCM251	INTROTO_PROT&_ENZYMES_251 Prerequisite/s: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]	S1	2	0.5	12	
CMY282	PHYSICAL_CHEMISTRY_282 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K1	4	1	12	
CMY284	ORGANIC_CHEMISTRY_284 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K2	4	1	12	
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12	
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6	
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6	
PLG251	INTRODUCTCROP_PROTECTION_251	S1	2	1	12	
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12	
Totals for o	compulsory modules in the first/second terms		16/16	4/4	42/42	

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BOT261	PLANT_BIOCHEMEVOLUTION_261 Prerequisite/s: [BOT161] and [CMY117] and [CMY127] or [TDH]	S2	2	1	12	
CMY283	ANALYTICAL_CHEMISTRY_283 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K3	4	1	12	
CMY285	INORGANIC_CHEMISTRY_285 Prerequisite/s: [CMY117 or CMY101] and [CMY127 or CMY102]	K4	4	1	12	
GKD260	SOIL_FERTIL.&_PLANT_NUTRIT.260 Prerequisite/s: [GKD250 GS]	S2	3	1	12	
HSC260	CROP_PROPAGATION_260 Prerequisite/s: [BOT161 or BLG150]	S2	2	0.5	12	
LBU260	AGROCLIMATOLOGY_260	S2	2	0.5	12	
Totals for o	compulsory modules in the third/fourth terms		13/13	4/4	36/36	
Compulsory credits = (156) Elective credits = (0)						

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GKD350	SOIL_CLASSIF.&_SURVEYING_350 Prerequisite/s: [GKD250 GS]	S1	2	1	14	
GKD351	SOIL_PHYSICS_351 Prerequisite/s: [GKD250]	S1	1	0.5	10	
GLY151	INTRODUCTORY_GEOLOGY_151 Prerequisite/s: [Par 1.2]	K1	4	1	8	
GLY152	PHYSICAL_GEOLOGY_152 Prerequisite/s: [Par 1.2]	K2	4	1	8	
PGW350	SOIL_WATER_RELA.&_IRRIGAT350 Prerequisite/s: [GKD250]	S1	2	0.5	16	
WDE310	PRINCIPLES_OF_VELD_MANAGE_310	S1	2	0.5	12	
Totals for o	compulsory modules in the first/second terms		11/11	3.5/3.5	34/34	

Third yea	r, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
AGR361	INDUSTRIAL_CROPS_361 Prerequisite/s: [HSC260] and [PPK251]	S2	2	0.5	14	
GKD320	SOIL_CHEMISTRY_320 Prerequisite/s: [GKD250]	S2	2	1	14	
GLY161 HISTORICAL_GEOLOGY_161 Prerequisite/s: [Par 1.2]	K3	4	1	8		
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GLY162 ENVIRONMENTAL_GEOLOGY_162	K4	4	1	8		
Prerequisite/s: [Par 1.2]			•	•		
FRUIT_PRODUCTION_320	62	4	1	26		
Prerequisite/s: [HSC260] and [PPK251]	32	4		20		
Totals for compulsory modules in the third/fourth terms		12/12	3.5/3.5	35/35		
Compulsory credits = (138) Elective credits = (0)						

Fourth year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BME210	BIOMETRY_210 Prerequisite/s: [BME120]	S1	4	1	24	
LBU410	LAND_USE_PLANNING_410 Prerequisite/s: [GKD250]	S1	3	1	14	
LKM450	ENVIRONMENTAL_BIOPHYSICS_450 Prerequisite/s: [WTW134]	S1	2	0.5	16	
OKW413	WEED_SCIENCE_413 Prerequisite/s: [PPK251]	S1	2	0.5	14	
PGW400	SEMINAR_400	J1	3	0	10	
Totals for o	compulsory modules in the first/second terms		14/14	3/3	39/39	

Fourth year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
APS461	CROP_PHYSIOLOGY_461 Prerequisite/s: [GKD250] and [GKD260] and [HSC260] and [PGW350]	S2	2	0.5	14		
GKD460	ENVIRONMENTAL_MANAGEMENT_460 Prerequisite/s: [GKD250] and [GKD350]	S2	4	1	26		
GKD461	SOIL_MINEROL.&SOIL_GENESIS_461	S2	2	1	14		
LBU420	PROJECT:LAND_USE_PLANNING_420 Prerequisite/s: [LBU410]	S2	3	1	14		
PGW400	SEMINAR_400	J1	3	0	10		
PGW421	RESEARCH_METHODOLOGY_421 Prerequisite/s: [BME120]	S2	2	0.5	14		
Totals for compulsory modules in the third/fourth terms 16/16 4/4 46/46					46/46		
Compulsory credits = (170) Elective credits = (0)							
A minimu	A minimum of (612) credits is required to obtain the degree.						

Field of study	Dept	Code
BInstAgrar Crop Protection	MBY	03136062

First year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BLG150	INTRODUCTORY_PLANT_BIOLOGY_150 Prerequisite/s: [This module may not be taken by students registered for a BSc degree, with the exception of students on the extended programme]	S1	3	1	16	
CIL111	COMPUTER_LITERACY_111	S1	2	0	4	
EKN110	ECONOMICS_110	S1	3	0	10	
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6	
SCI150	NATURAL_SCIENCE_150	S1	6	1	12	
WTW101	MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8	
Totals for o	compulsory modules in the first/second terms		20/20	3/3	28/28	

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
AGC161	INTRODUCTORY_AGRICULTURE_161	S2	2	0.5	8
BLG160	INTRODUCTORY_ANIMAL_BIOL.160	S2	3	1	16

CIL121 INFORMATION_LITERACY_121	S2	2	0	4			
EOT120 ACADEMIC_LITERACY(2)_120	S2	2	0	6			
MBY161 INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8			
SCI160 NATURAL_SCIENCE_160 Prerequisite/s: [SCI150]	S2	6	1	12			
WTW101 MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8			
Totals for compulsory modules in the third/fourth terms		21/21	4/4	31/31			
STK110 can be taken instead of WTW101. Students who do not comply with the admission							
requirements for STK110 should register for STK113 and STK123.							
Compulsory credits = (122) Elective credits = (0)							

Second year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12	
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6	
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6	
MBY251	GROWTH_DIVERS.&CONTROL/BAC.251 Prerequisite/s: [MBY161 GS]	S1	2	2	12	
PLG251	INTRODUCTCROP_PROTECTION_251	S1	2	1	12	
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12	
SCI153	ACADEMIC_PROFICIENCY_153	K1	1	0	6	
Totals for o	compulsory modules in the first/second terms		12/12	5.5/4.5	36/30	

Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
GTS124	GENETICS_124	S2	4	1	16
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12
MBY261	GROWTH_ACT.&_CONTROL/FUNGI_261 Prerequisite/s: [MBY161]	S2	2	1	12
PLG261	EPIDEMIOLOGY_261	S2	2	1	8
SEM161	SEMINAR_161	K3	3	0	4
Totals for o	compulsory modules in the third/fourth terms		18/15	4/4	36/32
Compulsory credits = (134) Elective credits = (0)					

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
AGR313	PRIMARY_FOOD_CROPS_313 Prerequisite/s: [HSC260] and [PPK251]	S1	2	0.5	14	
HSC351	NURSERY_MANAGEMENT_351	S1	2	0.5	14	
MBY352	ENVIRONMENTAL_MICROBIOLOGY_352 Prerequisite/s: [MBY161]	S1	2	1	18	
PLG351	GENERAL_PLANT PATHOLOGY_351 Prerequisite/s: [MBY161] and [MBY261] or [TDH]	S1	2	1	18	
ZEN355	INSECT_DIVERSITY_355	K1	4	2	18	
Totals for o	compulsory modules in the first/second terms		12/8	5/3	50/32	

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
GKD260	SOIL_FERTIL.&_PLANT_NUTRIT.260 Prerequisite/s: [GKD250 GS]	S2	3	1	12	
LKM262	AGRICULTURAL_CLIMATOLOGY_262	S2	2	0.5	12	
PGW361	EXPERIMENTAL_DESIGN_&_ANAL.361 Prerequisite/s: [BME120]	S2	2	0.5	14	

PLG364 HOST_PATHOGEN_INTERACTIONS_364	S2	2	1	18		
ZEN365 INSECT_PEST_MANAGEMENT_365	K4	4	2	18		
Totals for compulsory modules in the third/fourth terms		9/13	3/5	28/46		
Compulsory credits = (156) Elective credits = (6)						

Fourth year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
AGV410	AGRARIAN_EXTENSION_410	S1	2	0	20		
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20		
OKW413	WEED_SCIENCE_413 Prerequisite/s: [PPK251]	S1	2	0.5	14		
PGW400	SEMINAR_400	J1	3	0	10		
PLG462	RESEARCH_PROJECT_462	J1	1	1	10		
Totals for (compulsory modules in the first/second terms		10/10	1.5/1.5	37/37		
Possible e	Possible elective modules credits (14).						

Fourth year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
AGV421	COMMUNICATION_421	S2	2	0	20		
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20		
PGW400	SEMINAR_400	J1	3	0	10		
PLG363	PLANT_DISEASE_CONTROL_363	S2	2	1	18		
PLG461	NURSERY_&_SEED_PATHOLOGY_461	S2	1	0.5	10		
PLG462	RESEARCH_PROJECT_462	J1	1	1	10		
Totals for o	compulsory modules in the third/fourth terms		11/11	2.5/2.5	44/44		
Compulso	ory credits = (162) Elective credits = (14)						
A minimu	A minimum of (594) credits is required to obtain the degree.						

Field of study	Dept	Code
BInstAgrar Food Production and Processing	VDW	03136072

First year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BLG150	INTRODUCTORY_PLANT_BIOLOGY_150 Prerequisite/s: [This module may not be taken by students registered for a BSc degree, with the exception of students on the extended programme]	S1	3	1	16		
CIL111	COMPUTER_LITERACY_111	S1	2	0	4		
EKN110	ECONOMICS_110	S1	3	0	10		
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6		
SCI150	NATURAL_SCIENCE_150	S1	6	1	12		
WTW101	MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8		
Totals for o	compulsory modules in the first/second terms		20/20	3/3	28/28		

First year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
AGC161	INTRODUCTORY_AGRICULTURE_161	S2	2	0.5	8		
BLG160	INTRODUCTORY_ANIMAL_BIOL.160	S2	3	1	16		
CIL121	INFORMATION_LITERACY_121	S2	2	0	4		
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6		
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8		
SCI160	NATURAL_SCIENCE_160 Prerequisite/s: [SCI150]	S2	6	1	12		
WTW101	MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8		
Totals for o	compulsory modules in the third/fourth terms		21/21	4/4	31/31		

STK110 can be taken instead of WTW101. Students not complying with minimum requirements for STK110 must register for STK113 and STK123. Compulsory credits = (118) Elective credits = (0)

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6
OBS156	BUSINESS_MANAGEMENT_156	K2	3	0	5
PLG251	INTRODUCTCROP_PROTECTION_251	S1	2	1	12
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12
VKU210	ANIMAL_SCIENCE_210	S1	1	0.5	6
Totals for a	compulsory modules in the first/second terms		13/16	3.5/3.5	33/38

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BME120	BIOMETRY_120	S2	4	1	16	
HSC260	CROP_PROPAGATION_260 Prerequisite/s: [BOT161 or BLG150]	S2	2	0.5	12	
KEP220	CULTURAL_EATING_PATTERNS_220	S2	3	0	12	
LBU260	AGROCLIMATOLOGY_260	S2	2	0.5	12	
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12	
SEM180	SEMINAR_180	S2	2	0	6	
VKU220	ANIMAL_SCIENCE_220 Prerequisite/s: [VKU210]	S2	2	0.5	12	
Totals for compulsory modules in the third/fourth terms 16/16 2/2				35/35		
Compulsory credits = (141) Elective credits = (0)						

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
AGR313	PRIMARY_FOOD_CROPS_313 Prerequisite/s: [HSC260] and [PPK251]	S1	2	0.5	14		
AGV410	AGRARIAN_EXTENSION_410	S1	2	0	20		
LIR410	AGRICULTURAL_ENGINEERING_410	S1	2	2	8		
OBS311	ENTREPRENEURSHIP_311	S1	3	0	20		
Totals for o	compulsory modules in the first/second terms		9/9	2.5/2.5	31/31		

Third year	; second semester:						
Code	Name	Trm	lpw	ppw	Crdt		
AGV421	COMMUNICATION_421	S2	2	0	20		
APZ321	LIVESTOCK_PRODUCTION_321 Prerequisite/s: [TDH]	S2	2	0	10		
LEK320	AGRICULTURAL_ECONOMICS_320 Prerequisite/s: [LEK220] and [LEK251] and [LEK252]	S2	3	2	18		
LIR421	AGRICULTURAL_ENGINEERING_421	S2	3	1	8		
OBS321	ENTREPRENEURSHIP_321	S2	3	0	20		
Totals for o	compulsory modules in the third/fourth terms		13/13	3/3	38/38		
Compulsory credits = (138) Elective credits = (0)							

Fourth year, first semester:								
Code	Name	Trm	lpw	ppw	Crdt			
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20			
ARD482	RESOURCES_AND_DEVELOPMENT_482	S1	3	0	20			

FPP451	CHEM/MICROBIOL_ASPEC/FOOD_451 Prerequisite/s: [Third-year status or TDH]	S1	2	1	20
FPP452	FOOD_PROC.EQUIP/OPERATIONS_452 Prerequisite/s: [Third-year status or TDH]	S1	3	0.5	20
Totals for o	compulsory modules in the first/second terms		10/10	1.5/1.5	40/40

Fourth yea	ar, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20	
FPP461	APPRO.FOOD_PRES.VATION_TECH461 Prerequisite/s: [FPP451 GS] and [FPP452 GS] or [TDH]	S2	2	0.5	20	
FPP462	APPRO.FOOD_PROCESTECHNO462 Prerequisite/s: [FPP451 GS] and [FPP452 GS] or [TDH]	S2	2	0.5	20	
FPP463	PROJECT_463 Prerequisite/s: [FPP451 GS] and [FPP452 GS] or [TDH]	S2	2	0.5	20	
Totals for o	compulsory modules in the third/fourth terms		6/6	1/1	40/40	
Compulsory credits = (160) Elective credits = (0)						
A minimum of (561) credits is required to obtain the degree.						

Field of study	Dept	Code
BInstAgrar Land-use Planning	PGW	03136051

First year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BLG150	INTRODUCTORY_PLANT_BIOLOGY_150 Prerequisite/s: [This module may not be taken by students registered for a BSc degree, with the exception of students on the extended programme]	S1	3	1	16	
CIL111	COMPUTER_LITERACY_111	S1	2	0	4	
EKN110	ECONOMICS_110	S1	3	0	10	
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6	
SCI150	NATURAL_SCIENCE_150	S1	6	1	12	
WTW101	MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8	
Totals for o	compulsory modules in the first/second terms		20/20	3/3	28/28	

First year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
AGC161	INTRODUCTORY_AGRICULTURE_161	S2	2	0.5	8		
BLG160	INTRODUCTORY_ANIMAL_BIOL.160	S2	3	1	16		
CIL121	INFORMATION_LITERACY_121	S2	2	0	4		
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6		
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8		
SCI160	NATURAL_SCIENCE_160 Prerequisite/s: [SCI150]	S2	6	1	12		
WTW101	MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8		
Totals for c	compulsory modules in the third/fourth terms		21/21	4/4	31/31		
STK110 can be taken instead of WTW101. Students who do not comply with the admission							
requirements for STK110 should register for STK113 and STK123.							
Compulsory credits = (118) Elective credits = (0)							

Second year, first semester:					
Code	Name	Trm	lpw	ppw	Crdt
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12

LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6
PLG251	INTRODUCTCROP_PROTECTION_251	S1	2	1	12
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12
VKU210	ANIMAL_SCIENCE_210	S1	1	0.5	6
WDE210	VELD_MANAGEMENT_PRACTICES_210 Prerequisite/s: [PPK251#]	S1	2	0.5	12
Totals for o	compulsory modules in the first/second terms		15/15	4/4	39/39

Second ye	Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt		
BME120	BIOMETRY_120	S2	4	1	16		
GKD260	SOIL_FERTIL.&_PLANT_NUTRIT.260 Prerequisite/s: [GKD250 GS]	S2	3	1	12		
HSC260	CROP_PROPAGATION_260 Prerequisite/s: [BOT161 or BLG150]	S2	2	0.5	12		
LBU260	AGROCLIMATOLOGY_260	S2	2	0.5	12		
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12		
SEM180	SEMINAR_180	S2	2	0	6		
VKU220	ANIMAL_SCIENCE_220 Prerequisite/s: [VKU210]	S2	2	0.5	12		
Totals for o	16/16	3/3	35/35				
Compulsory credits = (148) Elective credits = (0)							

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
AGR313	PRIMARY_FOOD_CROPS_313 Prerequisite/s: [HSC260] and [PPK251]	S1	2	0.5	14
AGV410	AGRARIAN_EXTENSION_410	S1	2	0	20
GKD350	SOIL_CLASSIF.&_SURVEYING_350 Prerequisite/s: [GKD250 GS]	S1	2	1	14
PLG351	GENERAL_PLANT PATHOLOGY_351 Prerequisite/s: [MBY161] and [MBY261] or [TDH]	S1	2	1	18
Totals for compulsory modules in the first/second terms				2.5/2.5	33/33

Third year	r, second semester:						
Code	Name	Trm	lpw	ppw	Crdt		
AGR361	INDUSTRIAL_CROPS_361	S2	2	0.5	14		
71011001	Prerequisite/s: [HSC260] and [PPK251]	02	2	0.0	14		
AGV421	COMMUNICATION_421	S2	2	0	20		
Totals for compulsory modules in the third/fourth terms 4/4 0.5/0.5 17/17							
Electives:	Electives: Any module(s) in the Faculty of Natural and Agricultural Sciences after consultation with						
the heads of department.							
Compulsory credits = (100) Elective credits = (35)							

Fourth year, first semester:					
Code	Name	Trm	lpw	ppw	Crdt
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20
ARD482	RESOURCES_AND_DEVELOPMENT_482	S1	3	0	20
LBU410	LAND_USE_PLANNING_410 Prerequisite/s: [GKD250]	S1	3	1	14
Totals for o	compulsory modules in the first/second terms		8/8	1/1	27/27

Fourth year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20		
GKD460	ENVIRONMENTAL_MANAGEMENT_460	\$2	4	1	26		
GKD400	Prerequisite/s: [GKD250] and [GKD350]	52	4	1	20		
CKD480	RESOURCE_SURVEYS_480	62	3	1	14		
GKD400	Prerequisite/s: [GKD250] and [GKD350]	52	5	1	14		
L BI 1420	PROJECT:LAND_USE_PLANNING_420	62	3	1	14		
LB0420	Prerequisite/s: [LBU410]	32	5	I	14		
WDE460	PRODSYS_V1:INT/PLA&ANIMPRO_460	S2	2	0.5	12		
Totals for a	compulsory modules in the third/fourth terms		14/14	3.5/3.5	43/43		
Electives: Any module(s) in the Faculty of Natural and Agricultural Sciences after consultation with							
the heads of department.							
Compulsory credits = (140) Elective credits = (20)							
A minimu	A minimum of (561) credits is required to obtain the degree						

Field of study	Dept	Code
BInstAgrar Plant Production	PGW	03136063

First year,	first semester:				
Students w	ho want to enroll for the main subjects: Agronomy, Horticultu	ure or	Pasture	Scier	nce,
should regi	ster for the BInstAgrar Plant Production degree.				
Code	Name	Trm	lpw	ppw	Crd

Code	Name	Trm	lpw	ppw	Crdt
BLG150	INTRODUCTORY_PLANT_BIOLOGY_150 Prerequisite/s: [This module may not be taken by students registered for a BSc degree, with the exception of students on the extended programme]	S1	3	1	16
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
EKN110	ECONOMICS_110	S1	3	0	10
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
SCI150	NATURAL_SCIENCE_150	S1	6	1	12
WTW101	MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8
Totals for compulsory modules in the first/second terms		20/20	3/3	28/28	

First year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
AGC161	INTRODUCTORY_AGRICULTURE_161	S2	2	0.5	8	
BLG160	INTRODUCTORY_ANIMAL_BIOL.160	S2	3	1	16	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8	
SCI160	NATURAL_SCIENCE_160 Prerequisite/s: [SCI150]	S2	6	1	12	
WTW101	MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8	
Totals for o	compulsory modules in the third/fourth terms		21/21	4/4	31/31	
STK110 can be taken instead of WTW101. Students not complying with minimum requirements for						
STK110 must register for STK113 and STK123.						
Compulsory credits = (118) Elective credits = (0)						

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6

PLG251 INTRODUCTCROP_PROTECTION_251	S1	2	1	12
PPK251 SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12
VKU210 ANIMAL_SCIENCE_210	S1	1	0.5	6
WDE210 VELD_MANAGEMENT_PRACTICES_210 Prerequisite/s: [PPK251 #]	S1	2	0.5	12
Totals for compulsory modules in the first/second terms		15/15	4/4	39/39

Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16
GKD260	SOIL_FERTIL.&_PLANT_NUTRIT.260 Prerequisite/s: [GKD250 GS]	S2	3	1	12
HSC260	CROP_PROPAGATION_260 Prerequisite/s: [BOT161 or BLG150]	S2	2	0.5	12
LBU260	AGROCLIMATOLOGY_260	S2	2	0.5	12
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12
SEM180	SEMINAR_180	S2	2	0	6
VKU220	ANIMAL_SCIENCE_220 Prerequisite/s: [VKU210]	S2	2	0.5	12
Totals for compulsory modules in the third/fourth terms			16/16	3/3	35/35
Compulsory credits = (148) Elective credits = (0)					

Third year	; first semester:				
Code	Name	Trm	lpw	ppw	Crdt
AGV410	AGRARIAN_EXTENSION_410	S1	2	0	20
GKD350	SOIL_CLASSIF.&_SURVEYING_350 Prerequisite/s: [GKD250 GS]	S1	2	1	14
ZEN355	INSECT_DIVERSITY_355	K1	4	2	18
Totals for o	compulsory modules in the first/second terms		8/4	3/1	35/17
Electives:	ISC351 and AGR313.				

Third year	; second semester:				
Code	Name	Trm	lpw	ppw	Crdt
AGV421	COMMUNICATION_421	S2	2	0	20
ZEN365	INSECT_PEST_MANAGEMENT_365	K4	4	2	18
Totals for o	compulsory modules in the third/fourth terms		2/6	0/2	10/28
Electives: AGR361, APZ321, WDE320 and HSC320					
Compulsory credits = (90) Elective credits = (54)					

Fourth ye	ar, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20
ARD482	RESOURCES_AND_DEVELOPMENT_482	S1	3	0	20
LBU410	LAND_USE_PLANNING_410 Prerequisite/s: [GKD250]	S1	3	1	14
OKW413	WEED_SCIENCE_413 Prerequisite/s: [PPK251]	S1	2	0.5	14
Totals for o	compulsory modules in the first/second terms		10/10	1.5/1.5	34/34

Fourth ye	ar, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
AGR460	PROD.SYST.11:_VEGETABLE_CR.460	S2	2	0.5	12
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20
GKD460	ENVIRONMENTAL_MANAGEMENT_460 Prerequisite/s: [GKD250] and [GKD350]	S2	4	1	26
GKD480	RESOURCE_SURVEYS_480 Prereguisite/s: [GKD250] and [GKD350]	S2	3	1	14

LBU420 PROJECT:LAND_USE_PLANNING_420 Prerequisite/s: [LBU410]	S2	3	1	14		
Totals for compulsory modules in the third/fourth terms		14/14	3.5/3.5	43/43		
Electives: HSC460 en WDE460 or any module(s) in the Faculty of Natural and Agricultural						
Sciences after consultation with the heads of department.						
Compulsory credits = (154) Elective credits = (6)						
A minimum of (570) credits is required to obtain the degree.						

Field of study	Dept	Code
BInstAgrar Rural Development Management	LEK	03136082

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BLG150	INTRODUCTORY_PLANT_BIOLOGY_150 Prerequisite/s: [This module may not be taken by students registered for a BSc degree, with the exception of students on the extended programme]	S1	3	1	16
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
EKN110	ECONOMICS_110	S1	3	0	10
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
SCI150	NATURAL_SCIENCE_150	S1	6	1	12
WTW101	MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8
Totals for compulsory modules in the first/second terms		20/20	3/3	28/28	

First year,	second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
AGC161	INTRODUCTORY_AGRICULTURE_161	S2	2	0.5	8	
BLG160	INTRODUCTORY_ANIMAL_BIOL.160	S2	3	1	16	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8	
SCI160	NATURAL_SCIENCE_160 Prerequisite/s: [SCI150]	S2	6	1	12	
WTW101	MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8	
Totals for o	compulsory modules in the third/fourth terms		21/21	4/4	31/31	
STK110 can be taken instead of WTW101. Students who do not comply with the admission						
requirements for STK110, should register for STK113 and STK123.						
Compulsory credits = (118) Elective credits = (0)						

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12
VKU210	ANIMAL_SCIENCE_210	S1	1	0.5	6
WDE210	VELD_MANAGEMENT_PRACTICES_210 Prerequisite/s: [PPK251 #]	S1	2	0.5	12
Totals for o	compulsory modules in the first/second terms		13/13	3/3	33/33

Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BME120	BIOMETRY_120	S2	4	1	16

HSC260	CROP_PROPAGATION_260 Prerequisite/s: [BOT161 or BLG150]	S2	2	0.5	12	
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12	
SEM161	SEMINAR_161	K3	3	0	4	
Totals for compulsory modules in the third/fourth terms 10/7 1/					18/14	
Electives can be chosen from: APZ221, GKD260, RHD264, HSC362 and other modules in consultation with the head of department.						
Compulsory credits = (98) Elective credits = (46)						

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
AGV410	AGRARIAN_EXTENSION_410	S1	2	0	20
LEK310	AGRICULTURAL_ECONOMICS_310 Prerequisite/s: [LEK251 or EKN110] and [LEK252 or EKN120]	S1	3	0	12
LIR410	AGRICULTURAL_ENGINEERING_410	S1	2	2	8
Totals for compulsory modules in the first/second terms			7/7	2/2	20/20

Third year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
AGV421	COMMUNICATION_421	S2	2	0	20
LEK320	AGRICULTURAL_ECONOMICS_320 Prerequisite/s: [LEK220] and [LEK251] and [LEK252]	S2	3	2	18
LIR421	AGRICULTURAL_ENGINEERING_421	S2	3	1	8
Totals for o	compulsory modules in the third/fourth terms		8/8	3/3	23/23
Compulsory credits = (86) Elective credits = (66)					

Fourth yea	ar, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20
ARD482	RESOURCES_AND_DEVELOPMENT_482	S1	3	0	20
LBU410	LAND_USE_PLANNING_410 Prerequisite/s: [GKD250]	S1	3	1	14
LEK485	PROJECT_PLANNING_&_APPR485	S1	3	0	20
Totals for compulsory modules in the first/second terms			11/11	1/1	37/37

Fourth yea	ar, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20	
FPP461	APPRO.FOOD_PRES.VATION_TECH461 Prerequisite/s: [FPP451 GS] and [FPP452 GS] or [TDH]	S2	2	0.5	20	
LEK424	RESOURCE_ECONOMICS_424 Prerequisite/s: [LEK251] and [LEK252]	S1	3	0	10	
Totals for compulsory modules in the third/fourth terms			7/5	0.5/0	35/15	
Compulsory credits = (124) Elective credits = (28)						
A minimum of (566) credits is required to obtain the degree.						

Field of study	Dept	Code
BInstAgrar Rural Household Development	VBR	03136064

First year	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BLG150	INTRODUCTORY_PLANT_BIOLOGY_150 Prerequisite/s: [This module may not be taken by students registered for a BSc degree, with the exception of students on the extended programme]	S1	3	1	16

CIL111 COMPUTER_LITERACY_111	S1	2	0	4
EKN110 ECONOMICS_110	S1	3	0	10
EOT110 ACADEMIC_LITERACY(1)_110	S1	2	0	6
SCI150 NATURAL_SCIENCE_150	S1	6	1	12
WTW101 MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8
Totals for compulsory modules in the first/second terms		20/20	3/3	28/28

First year,	second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
AGC161	INTRODUCTORY_AGRICULTURE_161	S2	2	0.5	8	
BLG160	INTRODUCTORY_ANIMAL_BIOL.160	S2	3	1	16	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
MBY161	INTRODUCTION_TO_MICROBIOLO.161	S2	2	0.5	8	
SCI160	NATURAL_SCIENCE_160 Prerequisite/s: [SCI150]	S2	6	1	12	
WTW101	MATHEMATICS_101 Prerequisite/s: [Par 1.2]	J1	4	1	8	
Totals for o	compulsory modules in the third/fourth terms		21/21	4/4	31/31	
STK110 can be taken instead of WTW101. Students who do not comply with the admission						
requirements for STK110, should register for STK113 and STK123.						
Compulsory credits = (118) Elective credits = (0)						

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
GKD250	INTRODUCTORY_SOIL_SCIENCE_250 Prerequisite/s: [CMY117 GS] or [TDH]	S1	3	1	12
LEK251	INTRO.TO_FIN.MAN.IN_AGRICU.251	K1	3	0	6
LEK252	INTR.TO_AGRICPRODECON252 Prerequisite/s: [LEK251]	K2	3	0	6
PPK251	SUSTAINABLE_PRODUCTION_SYS.251 Prerequisite/s: [BOT161 or BLG150]	S1	2	0.5	12
VDS210	FOODS_210 Prerequisite/s: [VDS111 or #]	S1	3	1	18
VKU210	ANIMAL_SCIENCE_210	S1	1	0.5	6
Totals for compulsory modules in the first/second terms			14/14	3.5/3.5	36/36

Second ye	ear, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
BME120	BIOMETRY_120	S2	4	1	16	
HSC260	CROP_PROPAGATION_260 Prerequisite/s: [BOT161 or BLG150]	S2	2	0.5	12	
KEP220	CULTURAL_EATING_PATTERNS_220	S2	3	0	12	
LBU260	AGROCLIMATOLOGY_260	S2	2	0.5	12	
LEK220	AGRICULTURAL_ECONOMICS_220 Prerequisite/s: [LEK251] and [LEK252 or EKN113 and/or EKN120]	S2	3	0	12	
RHD262	RURAL_HOUSEHOLD_DEVELOPM262	K4	2	1	4	
RHD264	RURAL_HOUSEHOLD_DEVELOPM264	S2	1	2	10	
SEM180	SEMINAR_180	S2	2	0	6	
VDS221	FOODS_221 Prerequisite/s: [VDS210]	S2	3	1	18	
Totals for compulsory modules in the third/fourth terms 18/20 4.5/5.5 43/47						
Students who have passed STK110 must register for ERG280and ERG282 instead of BME120.						
Compulso	ory credits = (162) Elective credits = (0)					

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
AGR313	PRIMARY_FOOD_CROPS_313 Prerequisite/s: [HSC260] and [PPK251]	S1	2	0.5	14
AGV410	AGRARIAN_EXTENSION_410	S1	2	0	20

LIR410	AGRICULTURAL_ENGINEERING_410	S1	2	2	8
RHD351	RURAL_HOUSEHOLD_DEVELOPM351 Prerequisite/s: [RHD264]	S1	4	1	18
VDG255	NUTRITION_255	K1	3	0	6
VDG256	NUTRITION_256	K1	3	0	6
Totals for o	compulsory modules in the first/second terms		16/10	3.5/3.5	42/30

Third year	r, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
AGV421	COMMUNICATION_421	S2	2	0	20	
LEK320	AGRICULTURAL_ECONOMICS_320 Prerequisite/s: [LEK220] and [LEK251] and [LEK252]	S2	3	2	18	
LIR421	AGRICULTURAL_ENGINEERING_421	S2	3	1	8	
VDG363	NUTRITION_363 Prerequisite/s: [VDG255] and [VDG256]	K3	3	1	10	
VDS363	FOODS_363 Prerequisite/s: [VDS251] and [VDS252] and [VDS261] and [VDS262]	S2	3	1	15	
Totals for o	compulsory modules in the third/fourth terms		14/11	5/4	40.5/30.5	
Compulsory credits = (143) Elective credits = (0)						

Fourth yea	ar, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20
ARD482	RESOURCES_AND_DEVELOPMENT_482	S1	3	0	20
RHD480	RURAL_HOUSEHOLD_DEVELOPM480 Prerequisite/s: [RHD351]	S1	3	1	20
VDG483	NUTRITION_483 Prerequisite/s: [KEP261] and [KEP262] and [VDG255] and [VDG256] and [VDG363]	S1	3	0	20
Totals for o	Totals for compulsory modules in the first/second terms			1/1	40/40

Fourth year	ar, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
ARD480	AGRIC.&_RURAL_DEVELOP.STUD.480	J1	2	0	20	
FPP461	APPRO.FOOD_PRES.VATION_TECH461 Prerequisite/s: [FPP451 GS] and [FPP452 GS] or [TDH]	S2	2	0.5	20	
FPP462	APPRO.FOOD_PROCESTECHNO462 Prerequisite/s: [FPP451 GS] and [FPP452 GS] or [TDH]	S2	2	0.5	20	
FPP463	PROJECT_463 Prerequisite/s: [FPP451 GS] and [FPP452 GS] or [TDH]	S2	2	0.5	20	
RHD481	RURAL_HOUSEHOLD_DEVELOPM481 Prerequisite/s: [RHD480]	S2	2	2	20	
Totals for compulsory modules in the third/fourth terms			8/8	3/3	50/50	
Compulsory credits = (180) Elective credits = (0)						
A minimum of (603) credits is required to obtain the degree.						

Field of study	Dept	Code
BCons.Sc.: Clothing: Retail Management	VBR	02130112

First year	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
EKN110	ECONOMICS_110	S1	3	0	10
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
FRK111	FINANCIAL_ACCOUNTING_111 Prerequisite/s: [Par.1.2]	S1	4	0	10
KLR110	CLOTHING_PROD:SEWING_TECH_110	S1	1	1	9

OBG111 PRINCIPLES_OF_DESIGN_111	S1	1	1	7
STK110 STATISTICS_110 Prerequisite/s: [Reg1.2(j)]	S1	3	1	13
Totals for compulsory modules in the first/second terms		16/16	3/3	29.5/29.5

First year	, second semester:					
Code	Name	Trm	lpw	ppw	Crdt	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
EKN120	ECONOMICS_120 Prerequisite/s: [EKN110 GS or EKN113GS] and Reg 1.2(f)	S2	3	0	10	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
EST121	AESTHETICS_121 Prerequisite/s: [OBG111]	S2	1	1	9	
FRK121	FINANCIAL_ACCOUNTING_121 Prerequisite/s: [FRK111 GS]	S2	4	0	12	
INF181	INFORMATICS_181	S1	0	2	3	
KLR120	CLOTHING_PRODUCT:PROCESSES_120 Prerequisite/s: [KLR110]	S2	1	1	9	
Totals for	compulsory modules in the third/fourth terms		13/13	4/4	26.5/26.5	
Compulsory credits = (112) Elective credits = (0)						

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
BEM110	MARKETING_MANAGEMENT_110	S1	3	0	10
EST212	AESTHETICS:PRODUC.CONS.&EN.212 Prerequisite/s: [EST121]	S1	1	1	8
KLD210	COSTUME_&_FASHION_HISTORY_210	S1	3	0	12
KLR211	FLAT_PATTERN_DESIGN_211 Prerequisite/s: [KLR120]	S1	0	2	12
OBS110	BUSINESS_MANAGEMENT_110	S1	3	0	10
TKS212	TXS:UTILITY,FIBRES&YARNS_212	S1	3	1	14
Totals for compulsory modules in the first/second terms			13/13	4/4	33/33

Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BEM121	CONS.BEHAVIOUR&SERV.MARKET_121	S2	3	0	10
KLD222	FASHION_FORECASTING_222	S2	2	0	12
KLR221	PATTERN_USE_AND_GOOD_FIT_221 Prerequisite/s: [KLR211]	S2	1	1	10
KTP220	EXPERIENTIAL_TRAINING_220	S2	0	1	4
OBS120	BUSINESS_MANAGEMENT_120	S2	3	0	10
TKS222	TXT:STRUCTURES_&_FINISHES_222 Prerequisite/s: [TKS212 GS]	S2	3	1	14
Totals for o	compulsory modules in the third/fourth terms		12/12	2/2	30/30
Compulso	ry credits = (126) Elective credits = (0)				

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BEM211	MARKETING_MANAGEMENT_211 Prerequisite/s: [BEM110 GS]	S1	3	0	16	
BER210	BUSINESS_LAW_210	S1	3	0	16	
KLR311	TAILORING_311 Prerequisite/s: [KLR211] and [KLR221]	S1	1	1	11	
OBS210	BUSINESS_MANAGEMENT_210	S1	3	0	16	
TKS310	NEW_DEV.&_TEXTILES_IN_USE_310 Prerequisite/s: [TKS212] and [TKS222 GS]	S1	2	0	10	
Totals for (compulsory modules in the first/second terms		12/12	1/1	34.5/34.5	

Third year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BEM221	MARKETING_MANAGEMENT_221 Prerequisite/s: [BEM110 GS]	S2	3	0	16		
BEM262	MARKETING_MANAGEMENT_262 Prerequisite/s: [BEM110 GS]	K4	3	0	8		
BER220	BUSINESS_LAW_220	S2	3	0	16		
KLD322	SOC.&CULT.ASPECTS_OF_CLOTH.322	S2	4	0	20		
KLR321	CLOTHING_PRODUCTION_321 Prerequisite/s: [KLR221]	S2	1	1	11		
OBS220	BUSINESS_MANAGEMENT_220	S2	3	0	16		
SEM381	SEMINAR_381	S2	1	0	5		
Totals for o	compulsory modules in the third/fourth terms		15/15	1/1	42/42		
Compulsory credits = (153) Elective credits = (0)							

Fourth year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BEM351	MARKETING_MANAGEMENT_351 Prerequisite/s: [BEM110 GS or BEM161,162]	K1	3	0	10	
BEM352	MARKETING_MANAGEMENT_352 Prerequisite/s: [BEM110 GS]	K2	3	0	10	
KLD410	CLOTHING_RETAIL_MANAGEMENT_410 Prerequisite/s: [Fourth-year status]	S1	3	0	15	
KLR411	CLOTHING_PRODUCTION_411 Prerequisite/s: [KLR221]	S1	2	1	19	
KTP402	CLOTHING_TEXTILE_PROJECT_402 Prerequisite/s: [Fourth-year status]	J1	0	1	9	
Totals for a	compulsory modules in the first/second terms		8/8	2/2	31.5/31.5	

Fourth year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BEM361	MARKETING_MANAGEMENT_361 Prerequisite/s: [BEM261 GS] and [BEM262 GS] and [BEM351 GS] and [BEM352 GS]	К3	3	1	10		
BEM362	MARKETING_MANAGEMENT_362 Prerequisite/s: [BEM261 GS] and [BEM262 GS] and [BEM351 GS] and [BEM352 GS]	K4	3	1	10		
KLD420	CLOTHING_MERCHANDISING_420 Prerequisite/s: [Fourth-year status]	S2	3	0	15		
KTP402	CLOTHING_TEXTILE_PROJECT_402 Prerequisite/s: [Fourth-year status]	J1	0	1	9		
TKS421	TEXTILES_421 Prerequisite/s: [TKS212] and [TKS222] and [TKS310]	S2	3	0	15		
Totals for	compulsory modules in the third/fourth terms		9/9	2/2	29.5/29.5		
KTP400: During the 4 years of study, during holidays, weekends and after hours, students must complete a total of 480 hours experiental training in the industry to develop practical and occupational skills. This is equal to 3 weeks x40 hours (120 hours) per year, according to							

requirements as determine by the head of department. These "credits" must be successfully completed together with a complete portfolio before the degree will be conferred. Compulsory credits = (122) Elective credits = (0) A minimum of (513) credits is required to obtain the degree.

Field of study	Dept	Code
BCons.Sc.: Foods: Retail Management	VBR	02130114

First year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BEM110	MARKETING_MANAGEMENT_110	S1	3	0	10		
CIL111	COMPUTER_LITERACY_111	S1	2	0	4		
EKN110	ECONOMICS_110	S1	3	0	10		
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6		
FRK111	FINANCIAL_ACCOUNTING_111 Prerequisite/s: [Par.1.2]	S1	4	0	10		
OBS110	BUSINESS_MANAGEMENT_110	S1	3	0	10		
STK110	STATISTICS_110 Prerequisite/s: [Reg1.2(j)]	S1	3	1	13		
VDS111	FOODS_111	S1	2	1	10		
Totals for a	compulsory modules in the first/second terms		22/22	2/2	36.5/36.5		

First year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BEM121	CONS.BEHAVIOUR&SERV.MARKET21	S2	3	0	10
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
EKN120	ECONOMICS_120 Prerequisite/s: [EKN110 GS or EKN113GS] and Reg 1.2(f)	S2	3	0	10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
FRK121	FINANCIAL_ACCOUNTING_121 Prerequisite/s: [FRK111 GS]	S2	4	0	12
INF181	INFORMATICS_181	S2	0	2	3
OBS120	BUSINESS_MANAGEMENT_120	S2	3	0	10
Totals for	compulsory modules in the third/fourth terms		17/17	2/2	27.5/27.5
Compulso	ory credits = (128) Elective credits = (0)				

Second year, first semester:					
Code	Name	Trm	lpw	ppw	Crdt
BEM211	MARKETING_MANAGEMENT_211 Prerequisite/s: [BEM110 GS]	S1	3	0	16
OBG111	PRINCIPLES_OF_DESIGN_111	S1	1	1	7
OBS210	BUSINESS_MANAGEMENT_210	S1	3	0	16
VDS210	FOODS_210 Prerequisite/s: [VDS111 or #]	S1	3	1	18
Totals for	compulsory modules in the first/second terms		10/10	2/2	28.5/28.5

Second year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BEM221	MARKETING_MANAGEMENT_221 Prerequisite/s: [BEM110 GS]	S2	3	0	16	
BLG260	GENERAL_MICROBIOLOGY_260	K3	4	1	8	
KEP220	CULTURAL_EATING_PATTERNS_220	S2	3	0	12	
VDG220	NUTRITION_220	S2	3	0	12	
VDS221	FOODS_221 Prerequisite/s: [VDS210]	S2	3	1	18	
Totals for o	compulsory modules in the third/fourth terms		16/12	2/1	37/29	
Compulsory credits = (123) Elective credits = (0)						

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BEM351	MARKETING_MANAGEMENT_351 Prerequisite/s: [BEM110 GS or BEM161,162]	K1	3	0	10		
BEM352	MARKETING_MANAGEMENT_352 Prerequisite/s: [BEM110 GS]	K2	3	0	10		

VDG311 NUTRITION_311 Prerequisite/s: [FSG110] and [FSG120 or VDG220]	S1	3	1	17
VDS310 FOODS_310 Prerequisite/s: [VDS210] and [VDS221]	S1	3	1	21
VDS354 FOODS_354	K2	3	0	8
Totals for compulsory modules in the first/second terms		9/12	2/2	29/37

Third yea	r, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
ABV320	LABOUR_RELATIONS_320	S2	3	0	20
BEM361	MARKETING_MANAGEMENT_361 Prerequisite/s: [BEM261 GS] and [BEM262 GS] and [BEM351 GS] and [BEM352 GS]	К3	3	1	10
BEM362	MARKETING_MANAGEMENT_362 Prerequisite/s: [BEM261 GS] and [BEM262 GS] and [BEM351 GS] and [BEM352 GS]	K4	3	1	10
VDG321	NUTRITION_321 Prerequisite/s: [VDG311]	S2	3	1	17
	Totals for compulsory modules in the third/fourth terms		9/9	2/2	28.5/28.5
Compulsory credits = (123) Elective credits = (0)					

Fourth year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
FST411	SENSORY_ANAL.&QUAL.MAN.SYS.411 Prerequisite/s: [FST260] and [FST351] and [FST352] or [TDH] (Capita Selecta)	S1	2	1	10		
PGB400	PROJECT:_HOSPITALITY_MANAG.400	J1	4	0	10		
VDB410	FOOD_SERVICE_MANAGEMENT_410 Prerequisite/s: [ABV320] and [VDB321]	S1	3	1	24		
VDS413	FOODS_413 Prerequisite/s: [VDS310 or VDS322]	S1	3	2	30		
VDS415	VISUAL_MERCHANDIS.OF_FOODS_415	S1	3	0	15		
Totals for o	compulsory modules in the first/second terms		15/15	4/4	44.5/44.5		

Fourth ve	ar. second semester:				
Code	Name	Trm	lpw	ppw	Crdt
VDS423	FOODS_423	S2	3	0	15
VDS425	PROJECT_FOODS:VISUAL_MERCH.425 Prerequisite/s: [VDS415] and [VDS423]	S2	3	0	15
VDS426	FOOD_RESEARCH_PROJECT_426 Prerequisite/s: [PGB400 #] and [VDS310]	S2	1	2	18
Totals for o	compulsory modules in the third/fourth terms		7/7	2/2	24/24

OPI480 (Experiential training in the industry): During the 4 years of study, during holidays, weekends and after hours, students must complete a total of 480 hours experiental training in the industry to develop practical and occupational skills. This is equal to 3 weeks x40 hours (120 hours) per year, according to requirements as determined by the head of department. These "credits" must be successfully completed together with a complete portfolio before the degree will be conferred.

Compulsory credits = (137) Elective credits = (0) A minimum of (511) credits is required to obtain the degree.

Field of study	Dept	Code
BCons.Sc.: Hospitality Management	VBR	02130115

First year	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
EKN110	ECONOMICS_110	S1	3	0	10

EOT110 ACADEMIC_LITERACY(1)_110	S1	2	0	6
OBS110 BUSINESS_MANAGEMENT_110	S1	3	0	10
STK110 STATISTICS_110 Prerequisite/s: [Reg1.2(j)]	S1	3	1	13
TBE110 TOURISM_MANAGEMENT_110	S1	4	0	10
VDS111 FOODS_111	S1	2	1	10
Totals for compulsory modules in the first/second terms		19/19	2/2	31.5/31.5

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
BLG260	GENERAL_MICROBIOLOGY_260	K3	4	1	8
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
EKN120	ECONOMICS_120 Prerequisite/s: [EKN110 GS or EKN113GS] and Reg 1.2(f)	S2	3	0	10
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
ITW121	INTERIOR_MERCHANDISE_121	S2	2	1	8
OBS120	BUSINESS_MANAGEMENT_120	S2	3	0	10
TBE120	TOURISM_MANAGEMENT_120	S2	4	0	10
Totals for o	compulsory modules in the third/fourth terms		20/16	2/1	32/24
Compulsory credits = (119) Elective credits = (0)					

Second year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
OBG111	PRINCIPLES_OF_DESIGN_111	S1	1	1	7		
OBS210	BUSINESS_MANAGEMENT_210	S1	3	0	16		
VDS210	FOODS_210 Prerequisite/s: [VDS111 or #]	S1	3	1	18		
Totals for o	compulsory modules in the first/second terms		7/7	2/2	20.5/20.5		

Second ye	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
ABV320	LABOUR_RELATIONS_320	S2	3	0	20
ITW263	INTERIOR_MERCHANDISE_263	K3	2	1	5
KEP220	CULTURAL_EATING_PATTERNS_220	S2	3	0	12
TBE220	TOURISM_MANAGEMENT_220	S2	4	0	16
VDG220	NUTRITION_220	S2	3	0	12
VDS221	FOODS_221 Prerequisite/s: [VDS210]	S2	3	1	18
Totals for o	compulsory modules in the third/fourth terms		18/16	2/1	44/39
Compulsory credits = (124) Elective credits = (0)					

Third year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
ITW311	INTERIOR_MERCHANDISE_311 Prerequisite/s: [ITW121]	S1	2	1	11	
OBS311	ENTREPRENEURSHIP_311	S1	3	0	20	
TBE310	TOURISM_MANAGEMENT_310	S1	0	0	20	
VDG311	NUTRITION_311 Prerequisite/s: [FSG110] and [FSG120 or VDG220]	S1	3	1	17	
VDS354	FOODS_354	K2	3	0	8	
VDS355	Title not on mainframe Prerequisite/s: [VDS220] and [VDS221]	K1	2	1	6	
Totals for o	compulsory modules in the first/second terms		10/11	3/2	40/42	

Third year	r, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
VDB321	FOOD_SERVICE_MANAGEMENT_321 Prerequisite/s: [VDS322 #]	S2	3	0.5	18
VDG321	NUTRITION_321 Prerequisite/s: [VDG311]	S2	3	1	17

VDS322 LARGE_SCALE_PLANNING&_PREP.322 S2 Prerequisite/s: [KEP261 or KEP220] and [VDS221] S2	3	3	29			
Totals for compulsory modules in the third/fourth terms	9/9	4.5/4.5	32/32			
Compulsory credits = (146) Elective credits = (0)						

Fourth year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
PGB400	PROJECT:_HOSPITALITY_MANAG.400	J1	4	0	10	
VDB410	FOOD_SERVICE_MANAGEMENT_410 Prerequisite/s: [ABV320] and [VDB321]	S1	3	1	24	
VDS413	FOODS_413 Prerequisite/s: [VDS310 or VDS322]	S1	3	2	30	
VDS414	CULINARY_ART_414 Prerequisite/s: [VDS210] and [VDS221]	S1	2	1	19	
Totals for o	compulsory modules in the first/second terms		12/12	4/4	41.5/41.5	

Fourth year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
INB320	INTERIOR_PLANNING_320 Prerequisite/s: [ITW311] and [OBG111]	S2	1	1	3		
PGB400	PROJECT: HOSPITALITY MANAG.400	J1	4	0	10		
VDS424	CULINARY_ART_424 Prerequisite/s: [VDS221] and [VDS320 #] and [VDS414]	S2	2	1	19		
Totals for o	compulsory modules in the third/fourth terms		7/7	2/2	20/20		

OPI480 (Experiential training in the industry): During the 4 years of study, during holidays, weekends and after hours, students must complete a total of 480 hours experiental training in the industry to develop practical and occupational skills. This is equal to 3 weeks x40 hours (120 hours) per year, according to requirements as determined by the head of department. These "credits" must be successfully completed together with a complete portfolio before the degree will be conferred.

Compulsory credits = (133) Elective credits = (0) A minimum of (522) credits is required to obtain the degree.

Field of study	Dept	Code
BCons.Sc.: Interior Merchandise: Retail Management	VBR	02130116

First year, first semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BEM110	MARKETING_MANAGEMENT_110	S1	3	0	10	
CIL111	COMPUTER_LITERACY_111	S1	2	0	4	
EKN110	ECONOMICS_110	S1	3	0	10	
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6	
FRK111	FINANCIAL_ACCOUNTING_111 Prerequisite/s: [Par.1.2]	S1	4	0	10	
INK110	INTERIOR_PRODUCTION_110	S1	1	1	9	
OBG111	PRINCIPLES_OF_DESIGN_111	S1	1	1	7	
STK110	STATISTICS_110 Prerequisite/s: [Reg1.2(j)]	S1	3	1	13	
VKK110	VISUAL COMMUNICATION_110	S1	3	0	12	
Totals for o	compulsory modules in the first/second terms		22/19	3/3	40.5/34.5	

First year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BEM162	MARKETING_MANAGEMENT_162	K4	3	0	5	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
EKN120	ECONOMICS_120 Prerequisite/s: [EKN110 GS or EKN113GS] and Reg 1.2(f)	S2	3	0	10	

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EOT120 AC	ADEMIC_LITERACY(2)_120	S2	2	0	6	
FRK121 FIN Pre	IANCIAL_ACCOUNTING_121 erequisite/s: [FRK111 GS]	S2	4	0	12	
INF181 INF	ORMATICS_181	S1	0	2	3	
ITW121 INT	ERIOR_MERCHANDISE_121	S2	2	1	8	
KOB183 CO	MMUNICATION_MANAGEMENT_183	K3	3	0	5	
Totals for com	pulsory modules in the third/fourth terms		19/16	3/3	31.5/26.5	
Compulsory credits = (133) Elective credits = (0)						

Second year, first semester:

Code	Name	Trm	lpw	ppw	Crdt
BEM251	MARKETING_MANAGEMENT_251	K1	3	0	8
BEM252	MARKETING_MANAGEMENT_252	K2	3	0	8
ERG282	ERGONOMICS_282 Prerequisite/s: [ERG281]	S1	1	1	8
INIK210	INTERIOR_PRODUCTION_210	C1	1 1	1	10
INK210	Prerequisite/s: [INK110 or KLR120]	31			10
MTT210	FURNITURE&_TEXTILE_HISTORY_210	S1	3	0	12
OBS110	BUSINESS_MANAGEMENT_110	S1	3	0	10
OBS113	ENTREPRENEURSHIP_113	S1	3	0	10
TKS212	TXS:UTILITY,FIBRES&YARNS_212	S1	3	1	14
Totals for o	compulsory modules in the first/second terms		17/17	3/3	40/40

Second year, second semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BDO181	INDUSTR&_ORGPSYCHOLOGY_181	K4	4	0	5		
BEM261	MARKETING_MANAGEMENT_261 Prerequisite/s: [BEM110 GS]	К3	3	0	8		
BEM262	MARKETING_MANAGEMENT_262 Prerequisite/s: [BEM110 GS]	K4	3	0	8		
INB220	INTERIOR_PLANNING_220 Prerequisite/s: [ERG282 GS] and [OBG111]	S2	1	2	16		
ITW221	INTERIOR_MERCHANDISE_221 Prerequisite/s: [ITW120 Final-year status]	S2	2	1	12		
MTT220	FURNITURE&_TEXTILE_HISTORY_220 Prerequisite/s: [MTT210 GS]	S2	3	0	12		
OBS123	ENTREPRENEURSHIP_123	S2	3	0	10		
TKS222	TXT:STRUCTURES_&_FINISHES_222 Prerequisite/s: [TKS212 GS]	S2	3	1	14		
	Totals for compulsory modules in the third/fourth terms		15/19	4/4	40/45		
Compulsory credits = (165) Elective credits = (10)							

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BDO219	INDUSTR.AND_ORG.PSYCHOLOGY_219	S1	3	0	16		
BER210	BUSINESS_LAW_210	S1	3	0	16		
INK310	INTERIOR_PRODUCTION_310 Prerequisite/s: [INK210]	S1	1	1	11		
ITW311	INTERIOR_MERCHANDISE_311 Prerequisite/s: [ITW121]	S1	2	1	11		
OBS213	ENTREPRENEURSHIP_213	S1	3	0	16		
OKU220	DESIGN_COMMUNICATION_220	S2	1	0	8		
	Totals for compulsory modules in the first/second terms		13/13	2/2	39/39		

Third year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
BER220	BUSINESS_LAW_220	S2	3	0	16	
INB322	INTERIOR_PLANNING_322 Prerequisite/s: [ERG282] and [ITW311] and [OBG111] and [OKU210]	S1	1	1	11	

SEM381 SEMINAR_381	S2	1	0	5			
Totals for compulsory modules in the third/fourth terms		7/5	1/1	26/16			
Compulsory credits = (120) Elective credits = (0)							

Fourth year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
BEM351	MARKETING_MANAGEMENT_351	K1	3	0	10		
DENISST	Prerequisite/s: [BEM110 GS or BEM161,162]	N.	5	U	10		
BEM352	MARKETING_MANAGEMENT_352	K2	3	0	10		
DEIVIJJZ	Prerequisite/s: [BEM110 GS]	1\2			10		
	INTERIOR_PLANNING_410	Q1	1	2	23		
INDHIU	Prerequisite/s: [INB322] and [OKU210]	31					
	PROJECT: INTERIOR_MERCHAN481						
ITP481	Prerequisite/s: [INB322] and [INB410 #] and [SEM381 GS]	J1	1	1	11		
	and [Final-year status]						
VBF411	CONSUMER_FACILITATION_411	S1	2	0	10		
Totals for	compulsory modules in the first/second terms		8/8	3/3	34.5/34.5		

Fourth ye	ar, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
	MARKETING_MANAGEMENT_361				
BEM361	Prerequisite/s: [BEM261 GS] and [BEM262 GS] and	K3	3	1	10
	[BEM351 GS] and [BEM352 GS]				
	MARKETING_MANAGEMENT_362				
BEM362	Prerequisite/s: [BEM261 GS] and [BEM262 GS] and	K4	3	1	10
	[BEM351 GS] and [BEM352 GS]				
	PROJECT:_INTERIOR_MERCHAN481				
ITP481	Prerequisite/s: [INB322] and [INB410 #] and [SEM381 GS]	J1	1	1	11
	and [Final-year status]				
Totals for	compulsory modules in the third/fourth terms		4/4	2/2	15.5/15.5
IPO380 (E	experiential training): During the last two years of study, dur	ing h	olidays,	week	ends and
after hour	s, students must complete a total of 240 hours experientation	al trai	ning in	the ir	ndustry to
develop pr	actical and occupational skills. This is equal to 3 weeks x40	hour	s (120 h	ours)	per year,
according to requirements as determined by the head of department. This exposure must be					
successfully completed together with a final report before the degree will be conferred.					
Compulso	ory credits = (95) Elective credits = (0)				
A minimu	m of (513) credits is required to obtain the degree.				

Field of study	Dept	Code
BCons.Sc: Ed(Consumer Studies)	VBR	02130122

First year,	first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
KLR110	CLOTHING_PROD:SEWING_TECH_110	S1	1	1	9
OBG111	PRINCIPLES_OF_DESIGN_111	S1	1	1	7
OBS110	BUSINESS_MANAGEMENT_110	S1	3	0	10
SCE170	RELIGIOUS_INSTRUCTION_170	S1	2	0	6
SCI153	ACADEMIC_PROFICIENCY_153	K1	1	0	6
VDS111	FOODS_111	S1	2	1	10
Totals for o	compulsory modules in the first/second terms		13/13	4/3	32/26

First year, second semester:						
Code	Name	Trm	lpw	ppw	Crdt	
CIL121	INFORMATION_LITERACY_121	S2	2	0	4	
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6	
ITW121	INTERIOR_MERCHANDISE_121	S2	2	1	8	
KEP220	CULTURAL_EATING_PATTERNS_220	S2	3	0	12	
KLR120	CLOTHING_PRODUCT:PROCESSES_120 Prerequisite/s: [KLR110]	S2	1	1	9	
OBS120	BUSINESS_MANAGEMENT_120	S2	3	0	10	
Totals for o	compulsory modules in the third/fourth terms		13/13	2/2	24.5/24.5	
Compulsory credits = (107) Elective credits = (0)						

Second ye	ear, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
ERG282	ERGONOMICS_282 Prerequisite/s: [ERG281]	S1	1	1	8
INK210	INTERIOR_PRODUCTION_210 Prerequisite/s: [INK110 or KLR120]	S1	1	1	10
SCE200	SCIENCE_EDUCATION_200	J1	2	0	9
SOC259	HOUSEHOLDS,FAMILY_&_GENDER_259	K2	3	1	10
TKS212	TXS:UTILITY,FIBRES&YARNS_212	S1	3	1	14
VDS210	FOODS_210 Prerequisite/s: [VDS111 or #]	S1	3	1	18
Totals for o	compulsory modules in the first/second terms		10/13	5/6	29.5/39.5

Second y	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
ITW221	INTERIOR_MERCHANDISE_221 Prerequisite/s: [ITW120 Final-year status]	S2	2	1	12
SCE200	SCIENCE_EDUCATION_200	J1	2	0	9
TKS222	TXT:STRUCTURES_&_FINISHES_222 Prerequisite/s: [TKS212 GS]	S2	3	1	14
VDG220	NUTRITION_220	S2	3	0	12
VDS221	FOODS_221 Prerequisite/s: [VDS210]	S2	3	1	18
Totals for	compulsory modules in the third/fourth terms		13/13	4/4	32.5/32.5
Compulso	Compulsory credits = (130) Elective credits = (0)				

Third year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
ITW311	INTERIOR_MERCHANDISE_311 Prerequisite/s: [ITW121]	S1	2	1	11		
SCE300	SCIENCE_EDUCATION_300 Prerequisite/s: [CIL111] and [CIL121] or SCI152, SCI162]	J1	2	1	21		
VDG311	NUTRITION_311 Prerequisite/s: [FSG110] and [FSG120 or VDG220]	S1	3	1	17		
VDS354	FOODS_354	K2	3	0	8		
Totals for o	compulsory modules in the first/second terms		7/10	6/6	24.5/32.5		

Third year	, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
INB320	INTERIOR_PLANNING_320 Prerequisite/s: [ITW311] and [OBG111]	S2	1	1	11
KLD322	SOC.&CULT.ASPECTS_OF_CLOTH.322	S2	4	0	20
SCE300	SCIENCE_EDUCATION_300 Prerequisite/s: [CIL111] and [CIL121] or SCI152, SCI162]	J1	2	1	21
VDG321	NUTRITION_321 Prerequisite/s: [VDG311]	S2	3	1	17

VDS322 LARGE_SCALE_PLANNING&_PREP.322 Prerequisite/s: [KEP261 or KEP220] and [VDS221]	S2	3	3	29		
Totals for compulsory modules in the third/fourth terms		13/13	9/9	49/49		
Compulsory credits = (155) Elective credits = (0)						

Fourth year, first semester:								
Code	Name	Trm	lpw	ppw	Crdt			
COE400	SOCIAL_CONTEXTS_IN_EDUCAT400	J1	Block session		6			
FOE400	FOUNDATIONS_OF_EDUCATION_400	S1	Blo ses	ock sion	6			
GPE400	GLOBAL_PERSPECTIVES_IN_EDU.400	S1	Block session		6			
LNT400	LEARNING_THEORIES_400	S1	Block session		12			
PEL400	PROFESSIONAL_ETHICS_&_LAW_400	S1	3	1	12			
VHE400	SUBJECT DID: CONS.SCIENCES_400	J1	3/3	1/1	24/24			
Totals for o	compulsory modules in the first/second terms		5/5	3/3	3			

Fourth year, second semester:							
Code	Name	Trm	lpw	ppw	Cr		
ASS420	ASSESSMENT_420	S2			12		
COE400	SOCIAL_CONTEXTS_IN_EDUCAT400	J1	Bloo sess	ck ion	6		
FCL400	FACILITATING_LEARNING_400	S2	Block session		24		
PPF400	PROFESSIONAL PORTFOLIO_400	J1	3	1	12		
VHE400	SUBJECT DID: CONS.SCIENCES_400	J1	3	1	12		
Totals for o	compulsory modules in the third/fourth terms		3/3	1/1	33/33		
Compulso	ry credits = (114) Elective credits = (0)						
A minimu	A minimum of (506) credits is required to obtain the degree.						

Field of study	Dept	Code
BCons.Sc: Ed(Hospitality Studies)	VBR	02130123

First year	, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL111	COMPUTER_LITERACY_111	S1	2	0	4
EOT110	ACADEMIC_LITERACY(1)_110	S1	2	0	6
OBG111	PRINCIPLES_OF_DESIGN_111	S1	1	1	7
OBS110	BUSINESS_MANAGEMENT_110	S1	3	0	10
OBS113	ENTREPRENEURSHIP_113	S1	3	0	10
SCE170	RELIGIOUS_INSTRUCTION_170	S1	2	0	6
SCI153	ACADEMIC_PROFICIENCY_153	K1	1	0	6
TBE110	TOURISM_MANAGEMENT_110	S1	4	0	10
VDS111	FOODS_111	S1	2	1	10
Totals for o	compulsory modules in the first/second terms		19/19	3/2	37.5/31.5

First year,	second semester:				
Code	Name	Trm	lpw	ppw	Crdt
CIL121	INFORMATION_LITERACY_121	S2	2	0	4
EOT120	ACADEMIC_LITERACY(2)_120	S2	2	0	6
ITW121	INTERIOR_MERCHANDISE_121	S2	2	1	8
OBS120	BUSINESS_MANAGEMENT_120	S2	3	0	10

OBS123 ENTREPRENEURSHIP_123	S2	3	0	10		
TBE120 TOURISM_MANAGEMENT_120	S2	4	0	10		
Totals for compulsory modules in the third/fourth terms		16/16	1/1	24/24		
Compulsory credits = (117) Elective credits = (0)						

Second year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
SCE200	SCIENCE_EDUCATION_200	J1	2	0	9		
TKS211	TEXTILES:_UTILITY_211	K1	3	1	7		
VDS210	FOODS_210 Prerequisite/s: [VDS111 or #]	S1	3	1	18		
Totals for o	compulsory modules in the first/second terms		8/5	3/2	20.5/13.5		

Second y	ear, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
IT\//221	INTERIOR_MERCHANDISE_221	62	2	1	12
11 00 22 1	Prerequisite/s: [ITW120 Final-year status]	32	2	1	12
KEP220	CULTURAL_EATING_PATTERNS_220	S2	3	0	12
SCE200	SCIENCE_EDUCATION_200	J1	2	0	9
TBE220	TOURISM_MANAGEMENT_220	S2	4	0	16
VDG220	NUTRITION_220	S2	3	0	12
VDS221	FOODS_221 Prerequisite/s: [VDS210]	S2	3	1	18
Totals for	compulsory modules in the third/fourth terms		17/17	3/3	39.5/39.5
Compulsory credits = (109) Elective credits = (0)					

Third year	r, first semester:				
Code	Name	Trm	lpw	ppw	Crdt
SCE300	SCIENCE_EDUCATION_300 Prerequisite/s: [CIL111] and [CIL121]] or SCI152, SCI162]	J1	2	1	21
TBE310	TOURISM_MANAGEMENT_310	S1	0	0	20
VDG311	NUTRITION_311 Prerequisite/s: [FSG110] and [FSG120 or VDG220]	S1	3	1	17
VDS414	CULINARY_ART_414 Prerequisite/s: [VDS210] and [VDS221]	S1	2	1	19
Totals for o	compulsory modules in the first/second terms		7/7	6/6	38.5/38.5

Third year	r, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
SCE300	SCIENCE_EDUCATION_300 Prerequisite/s: [CIL111] and [CIL121] or SCI152, SCI162]	J1	2	1	21
VDB320	FOOD_SERVICE_MANAGEMENT_320 Prerequisite/s: [VDS320 #]	S2	4	1	26
VDS322	LARGE_SCALE_PLANNING&_PREP.322 Prerequisite/s: [KEP261 or KEP220] and [VDS221]	S2	3	3	29
VDS424	CULINARY_ART_424 Prerequisite/s: [VDS221] and [VDS320 #] and [VDS414]	S2	2	1	19
Totals for o	compulsory modules in the third/fourth terms		11/11	9/9	47.5/47.5
Compulsory credits = (164) Elective credits = (0)					

Fourth year, first semester:							
Code	Name	Trm	lpw	ppw	Crdt		
COE400	SOCIAL CONTEXTS IN EDUCAT 400	11	Block		6t		
002400	000IAL_00IIIEX10_III_ED00A1400	51	session		01		
EOE400	FOUNDATIONS OF EDUCATION 400	S 1	Block		6		
102400		5	sessio	n	0		
CPE400		Q1	Block		6		
GF 2400	GLOBAL_FERSFECTIVES_IN_ED0.400	51	sessio	n	0		

LNT400	LEARNING_THEORIES_400	S1	Block sessio	n	12
PEL400	PROFESSIONAL_ETHICS_&_LAW_400	S1	Block sessio	n	6
VHS400	SUBJ.DID: HOSPITALITY STUD_400	J1	0	1	12
Totals for o	compulsory modules in the first/second terms		0/0	1/1	24/24

Fourth yea	ar, second semester:				
Code	Name	Trm	lpw	ppw	Crdt
ASS420	ASSESSMENT_420	S2	Block session		12
COE400	SOCIAL_CONTEXTS_IN_EDUCAT400	J1	Block session		6
FCL400	FACILITATING_LEARNING_400	S2	Block session		24
VHS400	SUBJ.DID:_HOSPITALITY_STUD_400	J1	0	1	12
Totals for o	compulsory modules in the third/fourth terms		0/0	1/1	33/33
Compulso	ry credits = (114) Elective credits = (0)				
A minimu	n of (504) credits is required to obtain the degree.				

Sc.7.2 BACCALAUREUS SECUNDAE EDUCATIONIS (SCIENTIAE) BSecEd(Sci) (Code 02135001)

(a) Articulation possibilities

Candidates who meet all the requirements for the DipEd(Sci), can be considered for admission to studies for the BSecEd(Sci). Applicable modules that have been passed, will be recognized for the degree.

(b) Admission requirements

A Grade 12 certificate with university exemption, with Mathematics and Physical Science at higher grade with at least 50% (D), as well as two official languages, including English or Afrikaans (first or second language) at higher grade with at least 50% (D), with an adjusted M-score of 24.

The Extended Programme: Biological and Natural Sciences is also applicable with regard to the BSecEd(Sci) degree.

NB: Candidates who do not comply with the requirement regarding Physical Science may only be admitted to the degree if the study programme is compiled from modules for which Physical Science is not a prerequisite.

(c) Duration

Four years of full-time study.

(d) Curriculum

A minimum of 534 credits are required to obtain the degree.

Module code	Module description	Credits	Prereq.
Faculty Require	rement (16)		
WTW 114	Calculus 114 or	(16)	Par.1.2
WTW 134	Mathematics 134	(16)	Par.1.2

General requirements (258)

SCI 152 Computer and Problem-solving Skills 152 (12)

SCI 153	Academic Skills 153	(6)	
SCI 162	Computer and Problem-solving Skills	(12)	
SCI 163	Basic Research Skills 163	(6)	
EOT 151	Academic Literacy 151	(3)	
EOT 152	Academic Literacy 152	(3)	
EOT 153	Academic Literacy 153	(3)	
EOT 154	Academic Literacy 154	(3)	
SCE 170	Religious Instruction 170	(6)	
SCE 200	Science Education 200	(18)	
SCE 300	Science Education 300	(42)	SCE 200
SCE 301	Educational Community Project 301	(28)	SCE 200

Additional requirement

Two year modules† at 200 level, both of which should be recognized school subjects.

At least 72 credits at 300 level of a single year module (two sequential semester modules) that is presented in the Faculty of Natural and Agricultural Sciences.

The following modules are presented by the Faculty of Education at the Groenkloof Campus as part of the PGCE (Post Graduate Certificate in Education) programme. These modules alsoconstitute the fourth year of the BSecEd(Sci) degree and must be taken by final year (4th year) BSecEd(Sci) students.

Fundamental modules

GPE 400	Global Perspectives in Education 410	(6)
FOE 400	Foundations of Education 410	(6)

Core modules

LNT 400	Learning Theories 410	(12)
FCL 400	Facilitating Learning 420	(24)
ASS 420	Assessment 410	(12)
PEL 400	Professional Ethics and Law 410	(6)
COE 400	Social Context of Education 410	(12)
PPF 400	Professional Portfolio 420	(12)

Further Education and Training

(Choose one in accordance with the degree subject on 300 level) (24)				
VBL 400	Methodologies in Biology 400			
VGG 400	Methodologies in Geography 400			
VNS 400	Methodologies in Physical Science 400			
VWS 400	Methodologies in Mathematics 400			
VRS 400	Methodologies in Computer Studies 400			

Outstanding credits

Outstanding credits are compiled from two additional year modules[†]. Students may, in consultation with the Dean, take modules not listed in the Syllabi and which are the equivalent of a maximum of 36 credits.

† A year module is two successive semester modules.

(e) Teaching Practice

A student must gain teaching experience by means of:

- (i) Attending demonstration lessons
- (ii) School Practice as incorporated in the PGCE program in the 4th year
- (iii) Educational Community Project (SCE301).

(f) Language Endorsement

Students must demonstrate the ability to teach in at least two official languages, of which one must be either English or Afrikaans.

(g) Compulsory language modules

Subject to satisfactory performance in the prescribed academic literacy test, all or some of the above academic literacy modules (EOT 151–154) may be replaced by approved language modules of equal weight.

(h) Religious Instruction (SCE 170)

Required by the Department of Education. A student may apply for exemption on the grounds of conscientious objection, only if a module of at least 6 credits is taken instead of Religious Instruction.

(i) Professional studies

Professional studies consist of the Educational Community Project (SCE 301) and the PGCE modules in the fourth year.

(j) Education

Education consist of Science Education (SCE 200 and 300) as well as the PGCE modules.

(k) Recognized school subjects

Subject	Level	Modules
Biology*††	100	BLG 150,160 or MLB 111 and ZEN 161 and BOT
		161
Biology*††	200	Appropriate modules in Botany or
		Zoology/Entomology or Physiology at 200 level.
Chemistry**	100	CMY 117, 127/101,102
Chemistry**	200	CMY 282,283,284,285
Physics**	100	PHY 171/101,102
Physics**	200	PHY 251, 252, 261, 262
Natural Science	200	GLY 151, GGY 252, 361 or 362,
		GLY 162 or GGY 164 or
		a combination of appropriate modules in Chemistry
		and Physics at 200 level, on the recommendation of
		the head of department and with the approval of the
		Dean.
Geography	100	GGY 132, 153, 154, GGY 162, 163, 164
Geography	200	GGY 252, 283, 263, 264
Agriculture ⁺⁺	100	In consultation with the Programme Manager:
		Natural and Agricultural Sciences
Agriculture ^{††}	200	In consultation with the Programme Manager:
		Natural and Agricultural Sciences

Computer Science	100	COS 110, COS 130 or 212, 283
Computer Science	200	4 modules from:
		COS 212, 214, 222, 140, 284
Mathematics	100	WTW 114/101,126,128
Mathematics	200	WTW 211, 389 plus a suitable combination of
		credits to the value of 24 from WTW

- **NB:** All modules of a subject must be passed for the subject to be recognized as a school subject.
- * Zoology, Botany and Biology are the equivalent of only one recognised school subject. A recognised module must be passed at 100 level.
- ** Physics, Chemistry and Physical Science are the equivalent of only one recognised school subject and is only accepted if a full year module (two consecutive semester modules) is passed in both Chemistry and Physics at 100 level.
- †† The combination BLG 150,160,250, BOT 227 is the equivalent of Biology at 200 level, but does not lead to admission to modules at 300 level. The combination with MLB 111, BOT 161, ZEN 161 together with appropriate second-year modules in Zoology, Botany and Physiology can lead to admission to modules at 300 level.

(I) Special examination in the Faculty of Natural and Agricultural Sciences

A final-year student who requires a maximum of 48 credits to comply with all the requirements for the degree, may be admitted by the Dean on the recommendation of the relevant head(s) of department, to special examinations in the modules he or she has failed, provided that this will enable them to qualify for the degree. Students with a final mark of less than 40% in any of the failed modules, or who have previously been admitted to a special examination, do not qualify for a special examination.

(m) Degree with distinction

The BSecEd(Sci) degree is conferred with distinction on a student who obtains a weighted average of at least 75% in:

- (i) A compulsory year module at 300 level.
- (ii) The PGCE modules.

Sc.8 DIPLOMAS

A Grade 12 certificate must be included in all applications.

POSTGRADUATE DIPLOMA IN EARTH SCIENCE PRACTICE AND MANAGEMENT (Code 02220043)

(a) Admission requirements

BSc(Hons) in Geology or an equivalent four-year degree, or any other qualification deemed by the Senate in terms of Regulation G.62 to be equal. Additional preparatory coursework may be required by the head of the department.

(b) Duration and curriculum

The minimum duration is two years of part-time studies. The curriculum comprises theoretical modules that are determined in consultation with the head of department.

(c) Examination admission and pass requirements

To be admitted to the examination, a student must have a semester or year mark of at least 40 %. A subminimum of 40% is required in the examination to pass, and the final mark must be 50% or higher.

In some modules a semester or year mark may not be required. In such cases, the examination mark must be 50% or higher to pass. The modules where this is the case, are indicated in the departmental guides.

(d) Diploma with distinction

The diploma is awarded with distinction if a student obtains an average of at least 75% in 50% of the theoretical modules (based on module credits), *as well as* an average of at least 65% in the remaining theoretical modules.

(e) Articulation possibilities for admission to Magister Scientiae in Earth Science Practice and Management

Successful completion of the Diploma can offer admission by articulation to the MSc with specialisation in Earth Science Practice and Management, for which a mini-dissertation on an approved subject is a prerequisite.

Students who have registered for the MSc, but fail to submit a mini-dissertation within one calendar year after completion of the theoretical part, qualify for the Postgraduate Diploma in Earth Science Practice and Management.

POSTGRADUATE DIPLOMA IN GEOGRAPHICAL INFORMATION SYSTEMS (GIS) (Code 02220041)

Please note: This Diploma has temporarily been suspended. No new students will be admitted until further notice.

(a) Admission

An appropriate B degree is normally required, or any other qualification deemed to be equal by the Senate of the University.

(b) Duration

Two years of telematic tuition, but arrangements are being made for a full-time programme of one year.

(c) Aim

Geographic Information Systems (GIS) is an aid which is used by a variety of businesses and disciplines for the processing of data and presentation of information for decision making. The programme in GIS covers the conceptual, technical and organizational aspects of geographic data and data processing, as well as its application possibilities. The programme aims to introduce people from various disciplines to and train them in the use of new technology of geographic data processing.

(d) Presentation

The programme is presented telematically (distance education) and students do not have to attend lectures. Discussion sessions can be arranged.

(e) Curriculum

The curriculum is compiled in consultation with the head of department.

POSTGRADUATE DIPLOMA IN ENVIRONMENT AND SOCIETY (Code 02220042)

(a) Admission requirements

BSc(Hons) in Geography or an equivalent four-year degree, or any other qualification deemed by the Senate in terms of Regulation G.1.3 and G.62 as being equal to the BSc(Hons). Additional preparatory coursework may be set by the head of department.

(b) Evaluation

Evaluation of progress will be done throughout the study by means of tasks, projects, tests and examinations.

(c) External evaluation

Oral and written examinations as well as the mini-dissertation will be moderated by external examiners.

(d) Curriculum

The curriculum is compiled in consultation with the head of department.

(e) Articulation possibilities for admission to the Magister Scientiae in Environment and Society

Successful completion of the Diploma can offer admission by articulation to the MSc with specialisation in Environment and Society, for which an essay on an approved subject is required.

Students who are registered for the MSc and fail to submit the mini-dissertation within one calendar year after completing the theoretical part of the work, qualify for the Postgraduate Diploma in Environment and Society.

ADVANCED DIPLOMA IN EXTENSION AND RURAL DEVELOPMENT (Code 02220044)

The admission requirements are:

- an appropriate initial university diploma in one of the Agricultural disciplines plus one year appropriate extensive experionce; or
- an appropriate BTech degree or National Diploma plus one year relevant extensive experience; or
- an appropriate Agricultural Diploma or related diploma plus five years' relevant extensive experience; or
- a qualification deemed appropriate by the Senate of the University plus approved experience (RPL).

Sc.9 SYLLABI

Sc.9.1. SYLLABI FOR BSC, BSC(AGRIC), BINSTAGRAR AND BCONS.SC.

List of codes:

Fac Dept:	=	The Faculty in which the timetable for the particular module is determined and the department that offers the module.
NAS BCM =	Facu	lty of Natural and Agricultural Sciences Department of Biochemistry
NAS BOT	=	Faculty of Natural and Agricultural Sciences Department of Botany
NAS CMY	=	Faculty of Natural and Agricultural Sciences
NAS FLG	=	Faculty of Natural and Agricultural Sciences
NAS ESK	=	Eaculty of Natural and Agricultural Sciences Department of Physics
NAS GGY	=	Faculty of Natural and Agricultural Sciences Department of Geography, Geoinformatics and Meteorology
NAS GLY	=	Eaculty of Natural and Agricultural Sciences Department of Geology
NAS GTS	=	Faculty of Natural and Agricultural Sciences Department of Genetics
NAS LEK	=	Faculty of Natural and Agricultural Sciences Department of Agricultural Faculty of Natural and Agricultural Sciences Department of Agricultural
NAS MBY	=	Faculty of Natural and Agricultural Sciences
		Department of Microbiology and Plant Pathology
NAS PGW	=	Eaculty of Natural and Agricultural Sciences
		Department of Plant Production and Soil Sciences
NAS SCI	=	Faculty of Natural and Agricultural Sciences
		Gold Fields Computer Centre for Education
NAS VBR	=	Faculty of Natural and Agricultural Sciences
		Department of Consumer Science
NAS VDW	=	Faculty of Natural and Agricultural Sciences
	_	Department of Food Science
NAS VKU	=	Department of Animal and Wildlife Sciences
NAS VWT	=	Faculty of Natural and Agricultural Sciences
		Department of Insurance and Actuarial Sciences
NAS WST	=	Faculty of Natural and Agricultural Sciences Department of Statistics
NAS WTW	=	Faculty of Natural and Agricultural Sciences
		Department of Mathematics and Applied Mathematics
NAS ZEN	=	Faculty of Natural and Agricultural Sciences
		Department of Zoology and Entomology
EB BDO	=	Faculty of Economic and Management Sciences
	_	Department of Human Resource Management
	-	Paculty of Economic and indinagement Sciences
EB EKN	=	Faculty of Economic and Management Sciences
		Department of Economics
EB FRK	=	Faculty of Economic and Management Sciences Department of
		Accounting and Financial Management
EB INF	=	Faculty of Economic and Management Sciences
	_	Department of Informatics
EB OB2	=	Pacenty of Economic and Management Sciences
FB TBE	=	Eaculty of Economic and Management Sciences
		Department of Tourism Management

GW EOT	=	Faculty of Humanities Unit for the Development of Language Skills
GW FLG	=	Faculty of Humanities Department of Physiology
GW KGK	=	Faculty of Humanities Department of Visual Arts
GW MTL	=	Faculty of Humanities Department of Ancient Languages
GW SLK	=	Faculty of Humanities Department of Psychology
GW SOC	=	Faculty of Humanities Department of Sociology
GW VKK	=	Faculty of Humanities Department of Visual Arts
ING CIR	=	Faculty of Engineering, Built Environment and Information
		Technology Department of Chemical Engineering
ING COS	=	Faculty of Engineering, Built Environment and Information
		Technology Department of Computer Science
ING SWK	=	Faculty of Engineering, Built Environment and Information
		Technology Department of Civil and Biosystems Engineering
MED ANA	=	Faculty of Health Sciences Department of Anatomy
MED FAR	=	Faculty of Health Sciences Department of Pharmacology
OPV OPV	=	Faculty of Education Faculty of Education
RGL RGL	=	Faculty of Law Faculty of Law
VET ANA	=	Faculty of Veterinary Science Department of Anatomy and Physiology
VET PAS	=	Faculty of Veterinary Science Department of Production Animal Studies

Language: Medium of instruction of the module

English: Medium of instruction is English. Afrikaans: Medium of instruction is Afrikaans. Double: Separate classes for Afrikaans and English. Bilingual: Both Afrikaans and English are used in the class.

lpw/ppw: lectures per week/ practicals per week (e.g.: 3+1 = 3 lectures and 1 practical per week)

Quarter: The quarter in which the specific module is presented.

- J1 = the whole year (year module: extends over two semesters)
- S1 = the first semester (K1 + K2); S2 = the second semester (K3 + K4)

K1 = first quarter; K2 = second quarter; K3 = third quarter; K4 = fourth quarter

Credits: Credit value of a module.

Prerequisite modules: clarification: minimum requirements

[]	Code in brackets: [AGR313]	Obtained a minimum of 50%
#	Code followed by #: AGR313#	Concurrent registration
GS	Code followed by GS: AGR313GS	Average of 40% - 49%

TDH: Approval from the head of department is required to register for the module.

Par 1.2: Refers to the requirements for specific modules that appear at the beginning of this publication

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
AGR313	PRIMARY_FOOD_CROPS_31	3			
NAS PGW	AGR351,352	Bilingual	2 + 0.5	S1	14
Botanical character	istics. classification. growth reg	uirements, pr	oduction pr	actices ar	nd utilization of
vegetables in the fi	eld and in a controlled environ	ment. Visits t	o fresh pro	duce mar	kets, seed and
chemical companies	s and growers.				,
Prereguisites: [HSC	2601 and [PPK251]				
AGR361	INDUSTRIAL CROPS 361				
NAS PGW	AGR323	Bilingual	2 + 0.5	S2	14
Botanical character	istics classification growth reg	uirements pr	oduction pr	actices ar	nd utilization of
crops rich in oil and	d protein, fibre crops, tobacco.	sugarcane a	nd diverse	crops. Vis	its to research
institutions and proc	lucers.				
Prereguisites: IHSC	260] and [PPK251]				
AGR450	PROD.SYST.1: GRAIN CROP	PS 450			
NAS PGW	AGR481	English	2 + 0.5	S1	12
Integration of agron	omic, pedological, botanical, ec	conomic and	manageme	nt conside	rations in crop
production systems	with a view to sustainable ma	iximum econ	omic vield.	Case stud	lies of specific
crops.			onno yrora.	0000 000	
AGR460	PROD.SYST.11: VEGETABLE	CR.460			
NAS PGW	AGR482	English	2 + 0.5	S2	12
Integration of agron	omic pedological botanical ec	conomic and	manageme	nt conside	rations in crop
production systems	with a view to sustainable ma	iximum econ	omic vield	Case stud	ties of specific
vegetable crops			onno jiona.	0400 0141	
	AGRARIAN EXTENSION 410				
NAS LEK	n a	Bilingual	2 + 0	S1	20
The objective phi	losophy and ethics of exten	sion Techn	ology and	agricultur	al production
Distribution and diff	fusion of technology Group dy	namics the	functioning	and hand	ling of groups
Leadership leaders	hip functions and types Extension	on organisati	on	and nama	ing of groups.
AGV412	GROUP DYNA LEADSH & CO	M.FAC.412			
NAS LEK	n a	English	3 + 0	S1	20
Community - conce	pt and meaning: the community	and change	: hindrance	s to chan	ae. The use of
small groups in the	community: group dynamics:	aroup and co	ommunity a	oals. The	paradigm shift
from directing to fa	cilitating: group techniques: par	ticipative tech	niques. Le	adership o	development in
communities. Case	studies.				
AGV413	COMMUNICATION 413				
NAS LEK	na	Enalish	2 + 0	J1	20
Nature and importa	nce of development communication	ation: the pro	cess and m	odels of c	communication:
critical elements ar	nd factors in communication: s	symbol syster	ms and no	n-verbal c	communication.
Credibility, message	es and message treatment: au	dience and a	udience ide	ntification	channels and
methods of commu	inication. Effective listening and	d feedback.	Practical tra	ainina in c	communication:
Effective speaking;	visual aids in communication; ma	anaging confl	ict; report w	riting.	
AGV415	PRINC.&APPRO.OF DEVEL.8	EXT 415		Ť	
NAS LEK	n a	English	2 + 0	J1	20
The role, importance	e and nature of extension and de	evelopment; e	ethics in dev	elopment	and extension.
International approaches to development and extension: paradium shifts within extension and					
development. The Third World: concept. characteristics and change. The subsistence farmer, rural					
poverty and the d	eprivation trap. Development	practice and	theories. F	Participatic	on; appropriate
technology; role players and responsibilities in development.					
AGV421	COMMUNICATION 421				
NAS LEK	n a	Bilingual	2 + 0	S2	20
Communication: De	finition and clarification of con	cepts. Theor	v and elem	nents of c	communication.
Verbal and non-verbal communication. Determinants of interpersonal communication. Abating factors					
impeding communic	ation. Nature, classification and	efficiency of	communicat	tion chann	els.
-		-			

Module	Title				
Fac_Dept	Old code La	anguage	lpw/ppw	Term	Credits
AGV426	PROGRAMME_&_PROJECT_PL	_AN.426			
NAS_LEK	na Ei	nglish	2 + 0	J1	20
Nature, purpose and	d principles of a programmed and	purposeful a	pproach. Ir	nstitutiona	framework for
community participa	ation, ownership and empowerm	nent; linking	with comp	olementar	y and support
services. Participati	ve need appraisal, problem ider	ntification ar	nd delimitat	ion; PRA	methods and
techniques; problem	1 conceptualisation and developm	ent of surve	y instrumer	nt; situatio	n surveys and
analyses; formulatio	n of objectives; identification and	scheduling of	of methods	and activi	ties; work plan
or calendar construc	ction, budgeting.				
AGV428	EVAL.OF_DEVEL.&DEVEL.PRO	JS.428			
NAS LEK	na E	nglish	3 + 0	J1	20
Reasons and purpo	oses of evaluation; expectations	from evalua	tions; role	players a	nd motives in
evaluation. Criteria	and indicators of developme	ent, develop	ment proj	ects and	development
organisations. Meth	ods of evaluation; formulation of c	bjectives ar	id scale coi	nstruction	for evaluation;
developing and cod	ing the measuring instrument. Sa	impling and	sampling te	echniques	; data analysis
and interpretation; e	valuation report.			•	
AGV429	BEHAVIOUR CHANGE &INTER	RVEN.429			
NAS LEK	na E	nalish	2 + 0	J1	20
Characteristics of I	numan behaviour: basic concept	ts: percepti	on, defenc	e mecha	nism. decision
making and proble	em solving learning innovative	eness and	adoption	behaviour	" diffusion of
innovations: elemen	its and phases of diffusion, opinio	on leaders a	nd contact	farmers.	nethodological
implications for exte	nsion Psychological cultural and	social barrie	ers to chan	ne Behav	iour change or
modification: compa	arison of different approaches ar	nd strategie	s. A pract	ical mode	I: Background
principles and theor	ies, identifying "forces" or behavio	our determir	ants: desic	inina effe	ctive extension
messages for develo	opment programmes.			,	
AGV481	EXTENS PHIL ORGAN & MNC	GEM 481			
NAS LEK	n a Fr	nalish	4 + 0	S1	20
The history of agric	ultural extension: phases of device	elonment er	tension in	other cou	intries: nature
nhilosonhy and ohi	ectives of extension, phases of deve	extension: m	nodels of c	rnanisatio	ns: nersonnel
management: admir	histration: seminar			rgamoan	
AGV482	FADERSHIP& GROUP DYNA	MICS 482			
NAS LEK		nalish	4 + 0	S1	20
The group as chang	nel and instrument in extension: (definitions a	ad characte	victice: ar	oup formation:
theories of aroun fur	nctioning: internal and external arc	un dynamic	s: aroun ter	hniques :	and evaluation:
rural arouns and the	ir application: definitions and theo	ries of leade	s, group icc	e kinde a	nd functions of
leadershin: the ext	ension officer as professional le	ader: onini	on leaders	o, kinuo a nin: trainii	na of leaders:
seminar	choich chiech as professional le			np, uann	ig of leaders,
AGV/185	COMMUNITY EXTENS& DEVEL	I OPM 485			
NAS IEK		nglish	3 + 1	S 1	20
The relation betwee	n a principlo pr	velopment	and oxtone	ion: nhưci	cal and social
etructures of commi	unities: cultural and value system	e: social str	atification:	lon, priys	cal alla social
process and ethics	al norme: principles and function	is, social sill	nunity dev		development
obstructions: metho	d and models		nunity dev	elopment	development
AGV/187	EXTENSION PROBAMMING 48	37			
		nalioh	2 + 1	14	20
NAS_LEN	iid Ei	inglish and	<u>2 7 1</u>	u motivo	20
Demnitions, conception	is and models, philosophy philo	cipies and a	assumption		s and tenets,
institutional innages with and participation of communities, recomassance surveys, problem					
and up of any of	formulation of objectives ide	alion, questi	of activition	istruction,	planning and
dialysis of surveys	s, ioiniulation of objectives, ide	tion	activities	anu au	ivity planning,
		400			
	EVALUATION_OF_EXTENSION	_468	0 1 0	14	20
NAS_LEK	na <u>E</u> l	ngiisn	2 + U	h.	20
ivieaning, extent ar	nd place of evaluation in exten	ision; chara	cteristics o	ot a scier	ice (extension
science); extension	science; the process of research	n and evalua	ation; probl	em identi	ication; theory
and hypothesis; obj	ectives; literature research and s	sources of in	normation;	sampling	methods and
collection of data;	criteria of efficiency; quality of n	neasuring in	istruments;	construc	tion of scales;
interviewing: statistic	cal methods: research reporting: c	computer pro	arammina:	practical e	exercises.

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
AGV489	ACCEPTANCE_&_DIFFUSION	_489			
NAS_LEK	na	English	4 + 0	J1	20
The nature and purp	oose of extension; definitions; p	sychological f	oundations	and dyna	mics of human
behaviour; theories	and models of decision-making	g and change	in conduct	; the field	theory, theory
and practice; char	acteristics and acceptance of	of innovation	s, factors	determini	ng behaviour,
categories of accept	otance. Diffusion: clarification of	of concepts;	deficiencies	s of emp	irical research;
seminar.					
ANA121	INTR.:_HUMAN_ANAT.&_EME	BRIOL121			
MED_ANA	na	Bilingual	1 + 1	S2	4
Terminology, musci	ulo-skeletal system, nervous sy	/stem, surfac	e anatomy,	cardiova	scular system,
respiratory system,	urogenital system, gastro-inte	estinal syste	m, endocrir	ne syster	n, introductory
osteology and joints	, introductory embryology.				
Prerequisite: [MLB1	11 GS]				
ANA122	HUMAN_OSTEOLOGY_122	D		0.0	
MED_ANA	na	Bilingual	1+1	S2	4
Introduction to osteo	plogy, bone function and classifi	cation, hume	rus, radius,	ulna, tem	ur, tibia, fibula,
clavicle, scapula, ri	bs, sternum, vertebrae, pelvis,	hand and f	oot bones,	sesamolo	d bones, skull,
mandible, joints.		400			
ANA126	BASIC_HUMAN_HISTOLOGY	126		0.0	
MED_ANA	na	Bilingual	1+1	52	4
General Introductio	n to cells and tissue, termino	blogy, the ce	ell and cyto	opiasm, c	organelles and
inclusions, surface	and giandular epitnelium, ger	neral connec	tive tissue,	specialis	ed connective
tissue, namely car	tilage, bone, blood and naei	mopoletic tis	sue, musci	e and n	ervous tissue.
ANA244					
	HUMAN_CELL_&_DEVELOPW	Dilimental	0.4	64	40
NED_ANA	lid	Billingual	2 ± 1	01 Infunction	IZ
etructure. Control of	f the human cell boredity and t	onnai anu a	onormai ce		in relation to
and development	dhesion and division. Aspects	of collular res	enome. Cen		n how to study
celle Medical cell ar	a molecular biology application			iniques o	IT HOW to study
NOTE: This module	are not open to all students a	nd may only	he taken hv	BSc: Me	dical Sciences
students		na may only	be taiten by	D00. me	
Prereguisites: [ANA	1211 and [ANA126]				
ANA215	PALEO-ANTHROPOLOGY 21	5			
MED ANA	n a	Bilingual	2 + 1	S1	10
Introduction to pale	eoanthropology, focussing on	hominid fos	sil record.	principles	of evolution.
principles of heredit	y, human variation, introduction	to primatolog	y, hominide	taxonom	v, time-frames
and dating method	ls, fossilation and tafonomy, t	trends in ho	minide evo	lution, ho	minide areas.
Australopithecus, H	lomo habilis, Homo erectus,	Homo sapier	ns neander	thalensis,	the origin of
anatomically moder	n human beings, DNA studies,	paleo-enviror	nments, hon	ninide die	ts, introduction
to the development	of culture, South African populat	ions.			
ANA217	HUMAN_ANATOMY_217				
MED_ANA	na	Bilingual	2 + 1	S1	16
Regional approach	to human anatomy. Cadaver	dissection of	the upper	and lowe	er limbs, back,
thorax, abdomen, pe	elvis, perineum and genital area.	Anatomical t	echniques.		
NOTE: This module	are not open to all students a	nd may only	be taken by	BSc: Me	edical Sciences
students.					
Prerequisites: [ANA	121] and [ANA122]				
ANA226	HUMAN_HISTOLOGY_226				
MED_ANA	na	Bilingual	1 + 1	S2	10
General introduction	to organ structure. Terminolog	y. The eye, e	ar, skin, ciro	culatory s	stem, nervous
system, lymphoid s	system, gastrointestinal tract, g	astrointestina	a tract glar	nas, respi	ratory system,
urinary system, andrological and female reproductive systems, endocrine system. NOTE: This					
module are not ope	en to all students and may only	y be taken b	y BSc: Mee	dical Scie	nces students.
Prerequisite: [ANA1]	20]				

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term (Credits
ANA227	HUMAN_ANATOMY_227				
MED_ANA	n a	Bilingual	0 + 0	S2	16
Regional approach	to human anatomy. Cadaver	dissection of	the head,	neck as w	ell as neuro-
anatomy. Anatomica	al techniques. NOTE: This modu	ule are not or	pen to all st	udents and	I may only be
taken by BSc: Medic	al Sciences students.				, ,
Prerequisite: [ANA2	17 GSI				
ANA315	FORENSIC ANTHROPOLOGY	′315			
MFD ANA	n a	Bilingual	2 + 1	S1	16
Introduction to forer	usic anthropology detection of	draves exca	vation of ar	aves hum	an vs. animal
hone forensic entor	nology osteometry cranial and	nost-cranial	measureme	nts non-m	etric features
of the skeleton an	e determination sex determin	ation race d	eterminatio	n ante-mo	ortem stature
dental analysis ost	equation factors of individual	alisation mea	surements	of the face	introduction
of face manning and	skull-photo superimposition lea	nal aspects	eurennenne,	01 110 1000	,
NOTE [.] This module	are not open to all students ar	nd may only l	be taken by	BSc: Med	lical Sciences
students		ia may only i	se taken by	Bee. mee	
Prerequisites: [ANA	1221 and [ANA215]				
ΔΝΔ316	HISTOLOGY TECHNIQUES 3	16			
		Rilingual	2 + 2	Q1	16
NED_ANA	IId	Dilliyuai	<u>Z T Z</u>	DI .	10 a imbodding
General Introduction	1 to light and electron microsco	pic technique	es: fixation,	processing	g, imbedding,
staining. Principles	of different starting techniqu		anu Eivi. i	outine sta	ins, proteins,
carbonydrates, amir	to acids, metachromasia, immul	nocytocnemis	try, lectin s	tains, spec	alised stains.
Principles of the op	eration of LIVI and EIVI: general	LIM, TIUORESC	ent microsc	opy, amere	ential contrast
microscopy, dark tie	eid microscopy, phase contrast	microscopy,	transmissio	n and scar	ining electron
microscopy.	201				
Prerequisite: [ANA2]	26]				
ANA324	HUMAN_CELL_&_DEVEL.BIO	LOGY_324			1
MED_ANA	na	Bilingual	2 + 1	S2	14
Practical aspects of	cell biology. Cell, tissue, organ,	and organisr	n culture. T	he biology	of the culture
environment. Cellul	ar basic of morphogenesis, o	cleavage pat	terns and	gastrulatio	n. The early
vertebrate developr	ment; neurilation, ecto-, meso-	- and endod	erm deriva	tives. Cell	destiny and
embryonic axis incl	uding malformations. Developm	nent of the	l etrapod lir	nb and ce	ll death. Cell
interactions at a dist	ance through hormones and me	tamorphosis.	NOTE: This	s module a	re not open to
all students and may	only be taken by BSc: Medical	Sciences stud	dents.		
Prerequisites: [ANA:	214] and [ANA226]				
ANA327	COMPARATIVE_ANATOMY_3	27			
MED_ANA	na	Bilingual	1 + 1	S2	14
Introduction to comp	parative anatomy. Introduction to	comparative	osteology.	Comparativ	e anatomy of
the appendicular sk	eleton. Comparative anatomy o	f the axial sk	eleton. NO	TE: This m	odule are not
open to all students	and may only be taken by BSc:	Medical Scier	nces studen	ts.	
Prerequisites: [ANA	121] and [ANA122] and [ANA21]	7] and [ANA22	27]		
ANA328	APPL.RESEARCH_TECHNIQU	JES_328			
MED_ANA	na	Bilingual	0 + 1	S2	8
Introduction to rese	arch. Development of research	project. Rese	earch skills.	Completio	n of research
project. NOTE: This	module are not open to all st	udents and n	nay only be	taken by	BSc: Medical
Sciences students.					
Prerequisites: [ANA:	315] and [ANA316]				
APS461	CROP PHYSIOLOGY 461				
NAS PGW	PPK411	Enalish	2 + 0.5	S2	14
Physiology of growt	h, vield, and quality; effect of e	environmental	factors up	on plant ca	arbon budget
source – sink relation	onships, stress physiology grow	th analysis a	nd modellin	a. Growth	manipulation
Prerequisites: [GKD250] and [GKD260] and [HSC260] and [PGW350]					
ΔP7325	IVESTOCK BREEDING 325				
NAS VKU	n a	English	2 + 0	S2	10
Introduction to appli	ad animal brooding and consting	Constin dof	ecte in form	and comp	anion animala
			cuis III Idimi	anu compa	anion animals
(angle yene dilu i	nutiliactor characteristics). Prie	colocting form	and comp	anion anim	valiative dilu
uuaniitative innefita	nce. Funciones of preeding and	selecullu läff		aniun anilfi	iais, preeuliid

Module	Title				
Fac Dept	Old code Language lpw/ppw Term Credits				
systems application	in and interpretation of breeding values and animal recording schemes				
Prerequisite: [GTS2	611				
ΔP7400	SEMINAR 400				
NAS VKU					
litoraturo atudioo	and cominary on the management of Animal Droduction Systems				
Droroguioitoo: [ADZ	and Seminars on the management of Aminar Floudellon Systems.				
	511j anu [APZ512] anu [APZ515] anu [APZ521] anu [APZ524] anu [APZ525] anu				
NAS_VKU	na jengiisn j3 + 1 jS1 j16				
Interaction betwee	n livestock and the environment: specific adaptation mechanisms and				
management of res	ources to optimise biological efficiency. Selected literature study and discussion				
classes. Prerequisite	e: [APZ324] or [TDH]				
APZ422	LIVESTOCK_MANAGEMENT_422				
NAS_VKU	n a English 3 + 1 S2 16				
Functional drive in t	peef and dairy cattle, sheep and goats. Management programmes and intensive,				
extensive productio	n systems. Seminars, discussions and literature studies on animal nutrition,				
breeding, production, planning and management systems and marketing.					
Prerequisites: [APZ3	324] and [APZ325] or [TDH]				
APZ423	LIVESTOCK MANAGEMENT 423				
NAS VKU	n a English 3 + 1 S2 16				
Functional manager	nent of pigs, poultry and aquaculture. Management programmes and production				
systems, seminars.	discussions and literature studies on animal nutrition, breeding, production.				
planning and manac	rement systems and marketing				
	3241 and [AP7325] or [TDH]				
NAS_LEN	μ a μ				
Overview of the c	livelihand sustance beyonded forming sustance desiring and the according of				
development. Rural	livelinood systems: nousenoid farming systems; decisions and the operation of				
farming systems; N	on-tarm enterprises and SMMEs in the rural economy; household food security.				
Rural institutions: L	Definitions and role of institutions; land tenure; rural financial markets; local				
institutional develop	ment; human capital, knowledge systems. Methodologies for Rural Development:				
The farming system	is approach; participatory techniques; Assessment of land use patterns (zoning				
techniques); Typolo	gy techniques; technology transfer and decisionmaking support; communication				
for rural developmer	it; planning rural development at local level.				
ARD482	RESOURCES_AND_DEVELOPMENT_482				
NAS_LEK	n a English 3 + 0 S1 20				
Review of the mo	st important physical-biological agricultural resources - soil, water, climate,				
topography, plant sp	pecies, animal species; differences in characteristics, quality and vulnerability; the				
concept of optimun	n land use; resource conservation; general ecological principles; examples of				
problems caused by	/ mismatching of physical-biological resources and land use during development				
planning; principles	of sensible technology transfer.				
ASS420	ASSESSMENT 420				
OPV OPV	n a Bilingual + S2 12				
Theory and practic	e of educational assessment Recording and reporting of assessment Self-				
assessment neer a	seessment and formal assessment. Accommodations and alternative assessment				
of learners with a d	lisability. The principles of designing the professional portfolio presentation and				
using it for assessm	ent				
BCM251					
	$\frac{ \mathbf{R} _{\mathbf{R}}}{ \mathbf{R} _{\mathbf{R}}} = \frac{ \mathbf{R} _{\mathbf{R}}}{ \mathbf{R} _{\mathbf$				
NAS_DUN Structural and ionic	DCMZ10 $Dimingual Z + 0.5 D1 12$				
Structural and ionic	properties of amino acids. Peptides, the peptide bond, primary, secondary,				
is using and quaterniary subtrained proteins. Interactions that stabilize protein subtrating, definitually during the proteins of proteins of proteins and restriction to methods for the proteins of proteins of proteins and the proteins of proteins of proteins and the proteins of proteins of proteins of proteins and the proteins of proteins					
and renaturation or proteins, introduction to methods for the publication of proteins, amino acid					
composition, and se	equence determinations. Introduction to enzyme kinetics and enzyme inhibition.				
Allosteric enzymes, regulation of enzyme activity, active centres and mechanisms of enzyme					
catalysis. Examples	catalysis. Examples of industrial applications of enzymes.				
Prerequisites: [CMY117 GS] and [CMY127 GS] and [MLB111 GS]					
Module	Title				
------------------------	------------------------------------	-----------------	---------------	----------------	-------------------
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
BCM252	CARBOHYDRATE_METABOL	ISM_252			
NAS_BCM	BCM217	Bilingual	2 + 0.5	S1	12
Biochemistry of carl	pohydrates. Thermodynamics a	nd bioenerge	tics. Glycoly	/sis, citric a	acid cycle and
electron transport.	Glycogen metabolism, pento	ose-phosphat	e pathway	, glucone	ogenesis and
photosynthesis.					
Prerequisites: [CMY	117 GS] and [CMY127 GS] and	[MLB111 GS	5]		
BCM261	LIPID_&_NITROGEN_METAB	OLIS.261			
NAS_BCM	BCM226	Bilingual	2 + 0.5	S2	12
Biochemistry of lipid	s, membrane structure, anabolis	sm and catab	olism of lipi	ds. Nitroge	n metabolism,
amino acid biosynth	esis and catabolism. Biosynthes	sis of neurotra	ansmitters,	pigments,	hormones and
nucleotides from an	nino acids. Catabolism of purene	ess and pyrin	nidines. The	erapeutic a	gents directed
against nucleotide	metabolism. Examples of inbo	orn errors of	metabolisn	n of nitrog	en containing
compounds. The ure	ea cycle, nitrogen excretion.				
Prerequisites: [CMY	117 GS] and [CMY127 GS] and	[MLB111 GS	5]		
BCM262	BIOCHEMISTRY_IN_PERSPE	СТ262			
NAS_BCM	BCM227	Bilingual	2 + 0.5	S2	12
Integration of metal	oolic pathways; biochemistry ar	nd nutrition; h	normones a	nd second	messengers;
hormonal control in	metabolism; a case study in c	onnectivity ar	mong metal	bolic pathv	vays, nutrition,
regulation and the ir	nmune system.				
Prerequisites: [CMY	117 GS] and [CMY127 GS] and	[MLB111 GS	5]		
BCM271	BIOCHEMISTRY_PRACTICAL	_271			
NAS BCM	BCM228	English	0 + 1	J1	12
(Note: for student	s majoring in Biochemistry	only) Basic	biochemica	al separat	ion methods,
experimental design	, biochemical calculations.	,			
Prerequisites: [BCM	251 #] and [BCM252 #] and [BC	M261 #] and	[BCM262 #	and [CM]	(283 #] and
[CMY284 #]		-	-		-
BCM351	BIOCHEMISTRY OF PROTEI	NS 351			
NAS BCM	BCM312	Bilingual	2 + 1	K1	9
Biochemistry of ami	no acids, peptides and proteins.	Chemical mo	dification of	amino aci	ds. Primary,
secondary, tertiary a	and quaternary structure, protein	folding, sequ	ence motifs	and doma	ains,
supersecondary and	I supramolecular structure, self a	assembly. Pra	actical: Subo	cellular frac	ctionation
(CBE) and purification	on of proteins. HPLC of proteins	(CBE). Diper	otide seque	ncing and	
electrophoresis of p	roteins. Prerequisite: [BCM251]			-	
BCM352	PROTEOME_ANALYSIS_352				
NAS BCM	BCM312	Bilingual	2 + 1	K2	9
Analysis of amino	acid composition and sequence	ce of protein	s. Isolation	and char	acterization of
proteins. Introductio	n to proteomics. Sequence-bas	ed character	isation of p	roteins, sc	oring matrices
and algorithms. Ba	sic techniques for three-dimen	sional model	ling and ch	aracteriza	tion. Practical:
Introduction to bioin	formatics in protein structure-fun	ction relation	investigatio	ns.	
Prerequisites: [BCM	251] and [BCM351 GS]				
BCM354	BIOCHEMOF_NUCLEIC_AC	IDS_354			
NAS_BCM	BCM411	Bilingual	1 + 0.5	S1	9
Biochemistry of nuc	leic acids, nucleotides and nitro	gen bases. C	Chemical m	odification	of nucleotides
and nucleic acids. F	Primary, secondary and tertiary	structure of r	nucleic acid	s and sequ	uence-induced
conformational type	es. Sequence-based analysis	and compari	ison, chara	cterisation	of functional
regions and genome	e analysis. Hybridization of nucl	eic acid strar	nds, thermo	dynamics a	and kinetics of
the process. Revers	sible interactions between small	ligands (dye	s and antib	iotics) and	nucleic acids.
Interaction betweer	n nucleic acids and nucleic	acids bindir	ng proteins	. Enzymo	logy of gene
manipulation. Prine	ciples of the Polymerise C	hain Reacti	on (PCR).	Nucleoti	de sequence
determination of nuc	cleic acids. Chemical synthesis a	and use of oli	gonucleotid	es. Note. 7	he practical is
shared with the depa	artments of Microbiology and Ge	enetics.			
Prerequisites: [BCM	251] and [BCM252] and [BCM20	61] and [BCM	1262]		
BCM355	IMMUNOBIOLOGY_355				
NAS_BCM	BCM423	Bilingual	1 + 0.5	S1	9
Adaptive and innate	immunity. Complement. Organ	ns and cells c	of the immu	ne respons	se. Cell killing:
	tosis and necrosis Anatomy and	d ontogeny (d	levelonmen	t) of the im	mune system

Module	Title			
Fac_Dept	Old code	Language	lpw/ppw	Term Credits
Chemical and cellu	lar techniques of immunology	. The origin	of diversit	y in antigen receptors
Practical: Working	with experimental animals,	the synthe	sis of ha	pten-protein conjugate
immunization, bleed	ing and serum production and a	n immuno-ass	say.	
Prerequisites: [BCM	251] and [BCM252] and [BCM26	51] and [BCM	262]	
BCM362	NUTRITIONAL BIOCHEMISTR	RY 362		
NAS BCM	BCM413	Enalish	1+0	K3 4
Proximate analysis	of nutrients. Review of energy	v requiremen	ts and exp	enditure. Metabolism of
enerav-vieldina nutr	ients. Requirements and function	on of water. v	itamins and	minerals. Interpretation
and modification of I	RDA values for specific diets, eq	growth, exer	cise, pregna	ancy and lactation, aging
and starvation. Com	parison of monogastric and run	ninant species	s. Significan	ce of the composition of
the carbohydrates	eq monosaccharides and disa	accharides c	ompared to	o fiber. Composition of
triglycerides, fatty a	cids and arteriosclerosis. Chole	sterol, polyun	saturated, o	essential fatty acids and
dietary anti-oxidants	. Essential amino acids and pro	otein quality,	nitrogen ba	lance and determination
of amino acid requi	rements. Interactions between r	nutrients. Biod	chemical fur	nctions of water and fat-
soluble vitamins,	hypo- and hypervitaminosis	and assess	ment of v	vitamin status. Minera
requirements, bioch	emical function, deficiency and	d overload, i	mbalances,	diarrhea and vomiting
Minerals in redox re	actions and dietary antioxidants.			
BCM363	XENO_BIOCHEMISTRY_363			
NAS_BCM	BCM421	English	1+0	K4 5
Metabolism of xen	obiotics: absorption, distribution	n and excret	ion; oxidati	on/reduction (Phase I)
conjugations (Phase	e II), export from cells (Phase I	II); factors af	fecting meta	abolism and disposition
Toxic responses:	tissue damage and physiol	ogical effect	s; teratoge	enesis, immunotoxicity
mutagenesis and ca	arcinogenesis. Examples of tox	ins: biochemi	cal mechar	nisms of common toxins
and their antidotes.	Food toxicology: natural toxins	in animal, pl	ant and fun	gal products. Ecologica
biochemistry: flower	pollination, plant defence and a	nimal adaptiv	e responses	3.
BCM364	BUILDING_THE_CELL_364			
NAS_BCM	BCM322	English	1 + 0.5	S2 9
Membrane structure	e: plasma membrane structure	e, organisatio	n of lipid	membranes, membrane
proteins, glycoprote	ins and glycolipids, principles c	of membrane	organisatio	n, specialisations of the
plasma membrane.	Transport across cell membran	es: major typ	es of memb	prane transport proteins
diffusion of small r	nolecules across pure phosph	olipid bilayer	s; uniporte	r-catalysed transport of
specific molecules;	ion channels, intracellular ion	environment	and mem	brane electric potential
active ion transpor	t and ATP hydrolysis; cotrans	sport catalyse	ed by symp	porters and antiporters
osmosis, water char	inels and the regulation of cell v	olume. Organ	elle biogen	esis: mitochondrial DNA
synthesis and loca	ilisation of mitochondrial prote	eins; chlorop	last DNA	and the biogenesis of
chloroplasts and oth	ier plastids, peroxisome biosynt	thesis; proteir	n traffic into	and out of the nucleus.
Synthesis and sortin	g of plasma membrane, secreto	ry and lysoso	mal proteins	3.
BCM365	IMMUNOBIOCHEMISTRY_365	B		
NAS_BCM	BCH423	Double	1 + 0.5	<u>S2</u> 9
Interactions betwee	n antigens and antibodies: Qua	antitative and	qualitative	properties, regulation of
the immune respor	ise, integrated immunology. Pr	actical: Tutor	ials on inte	grated and quantitative
Immunology.				
	ENZYMULUGY_366	E	4 . 4	
NAS_BCM	BCM321	English	1+1	52 9
Nomenciature: enzy	me nomenciature and classifica	ition. Specific	ity and mec	nanisms: the active site
mechanisms of ca	italysis and examples of spe	ecific enzyme	e mechanis	sms eg lysozyme and
carboxypepiluase A	. Enzyme kinelics. derivation of	and Vmay in	the establish	equation by equilibrium
and linear transform	sumptions, significance of Kin			ic enciency of enzymes
and inear transion	alions of the MM equation. En		toving and	drugo Multi substratos
Cloland nomenclatu	re and multi substrate reaction	s Allostoria		adale by Kochland Hil
and Monod Problem	me and multi-substitute reductions me and answere: tutoriale of pr	ohlems and	answere ha	sed on above concepts
Practicals: isolation	of an enzyme determination of	f nH and tom	nerature or	seu on above concepts
Km and Vmax enzy	whe activation enzyme inhibition	n nurification	table and f	final report oral defense
of report	ine activation, enzyme initibilio			indi report, orai deletise
or report.				

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
BDO181	INDUSTR&_ORGPSYCHO	LOGY_181			
EB_BDO	na	Bilingual	4 + 0	K4	5
Capita selecta: Thi	s course will provide an introd	duction to pe	ersonnel ps	ychology,	organisational
behaviour and lab	our relations. It will refer to	the selection	n of emplo	yees, the	e training and
development of hum	an resources in order to adapt f	to changing ci	ircumstance	s. The rol	e of leadership
in group utilisation a	nd motivation will be discussed	both theoretic	ally and pra	actically. L	abour relations
will be studied in ter	ms of the institutional processes	and service i	relationship	and will in	clude practical
aspects such as grie	evance handling, disciplining and	d dispute reso	lution.		
BEM110	MARKETING_MANAGEMENT	_110			
EB_BEM	na	Bilingual	3 + 0	S1	10
Fundamentals of ma	arketing management and mark	eting instrume	ents: Gener	al overvie	w of marketing
management includ	ing the marketing concept, the	process of m	narketing m	anagemer	nt, evolution of
marketing and the r	marketing environment. Consur	ner entity, ma	arket segme	entation, p	positioning and
marketing informati	on. Perspective of various ma	arketing instr	uments in	the mark	keting mix, for
example, product d	ecisions, distribution decisions,	marketing co	ommunicatio	on decisio	ins and pricing
decisions.					
BEM121	CONS.BEHAVIOUR&SERV.MA	ARKET_121			
EB_BEM	na	Bilingual	3 + 0	S2	10
Part 1					
Consumer behavio	ur				
Internal and externa	al influencing factors of consum	ner behaviour	. The cons	umer's de	cision process
and application field	s of consumer behaviour. Consu	umerisms and	l social resp	onsibility.	
Part 2					
Introduction to the	marketing of services				
Acquiring basic mar	keting skills will enhance the c	apabilities of	marketers (of services	s. This module
provides an overvie	w of the seven marketing instru	uments of a p	professional	services	marketing mix.
The focus will fall o	n the practical implications of t	he characteri	stics of inta	angible pro	oducts and the
pricing, promotion,	placement, physical evidence	, process ar	nd people	dimensior	ns of services
marketing.					
BEM162	MARKETING_MANAGEMENT	_162			
EB_BEM	na	Bilingual	3 + 0	K4	5
Introduction to the r	narketing of professional servic	es: Acquiring	basic mark	ceting skill	s will enhance
the capabilities of p	professionals in inter alia the a	accounting pr	ofession. I	his modul	le provides an
overview of the seve	en marketing instruments of a pr	rofessional se	ervices mark	ceting mix.	. The focus will
fall on the practica	al implications of the characte	eristics of inf	tangible pro	oducts an	id the pricing,
promotion, placeme	nt, physical evidence, process a	nd people din	nensions of	profession	hal services.
BEM251	MARKETING_MANAGEMENT	_251			-
EB_BEM	na	Bilingual	3 + 0	K1	8
Consumer behaviou	IT: The use of marketing resear	ch in marketi	ing decisior	ı making;	the process of
marketing research	n, research designs, randor	n tests, co	onsumer s	urveys, o	questionnaires,
experimentation, ob	servation, data analysis and ana	alyses of mark	ceting mode	ls. Scienti	fic approach to
marketing informatic	in, the influence of modern tende	encies (comp	uters, Interr	iet).	
BEM252	MARKETING_MANAGEMENT	_252		h	-
EB_BEM	na	Bilingual	3 + 0	K2	8
Marketing research:	The use of marketing researc	ch in marketir	ng decision	making;	the process of
marketing researcl	n, research designs, randor	m tests, co	onsumer s	urveys, o	questionnaires,
experimentation, ob	servation, data analysis and ana	alyses of mark	ceting mode	ls. Scienti	fic approach to
marketing informatic	in, the influence of modern tende	encies (comp	uters, intern	iet).	
BEM261	MARKETING_MANAGEMENT	_261		-	
EB_BEM	na	Bilingual	3 + 0	K3	8
Distribution decision	is: The development and mana	gement of di	stribution cl	nannels -	strategic aims,
conventional market	ting systems, the main role play	yers, the inte	gration of d	istribution	with the other
marketing instrumer	nts and relationship marketing;	the influenc	e of the ex	kternal en	vironment and
channel design and	I management; the manageme	ent of the inte	ernal chanr	enviror	nment; vertical
marketing systems,	concession agreements, relation	onship manag	gement and	the formi	ng of strategic
alliances. Prerequisi	te: [BEM110 GS]				

Module	Title				
Fac Dept	Old code	Language	lpw/ppw	Term	Credits
BEM262	MARKETING MANAGEMENT	262	ipin ppi	1 OIIII	orouno
FR REM	n a	Bilingual	3 + 0	K4	8
Product decisions:	Problem supposition and pro	blam datarmi	ination in (Connection	with product
decisions manage	mont strategies of the enter	vrorico onto	nation in t		duct strategy
organisation of prov	duct strategy product and mai	rket developn	nont strate	iegy, proc	studios aroun
discussions coming	are quest speakers visits to en	torprises for r	neni silale	integration	of theory and
practico	is, guest speakers, visits to en		nearingiui	integration	or theory and
Proroquisito: [REM1	10 681				
	MARKETING MANAGEMENT	361			
		Dilingual	0 1 1	1/2	10
EB_BEIVI		Bilingual	3 + 1	NJ	10
Strategic issues in r	narketing.		المتعالم		
wuiti-level marketin	g; relationship marketing; e-ma	arketing; bran	id loyalty; g	generation	segmentation
and ethics in market	ing.			1. 1	
Practical (1 I.p.w.):	Case studies, group discussion	ons, seminars	, and visits	s to/by org	ganisations for
meaningful integration	on of the theory and practice.			050 001	
Prerequisites: [BEM	261 GSJ and [BEM262 GSJ and	[BEM351 GS	I and IRFIN	352 GS]	
BEM362	MARKETING_MANAGEMENT	_362			
EB_BEM	na	Bilingual	3 + 1	K4	10
Strategic marketing					
Strategic analysis; c	ustomer management; market	strategies; glo	balisation;	strategy in	nplementation;
marketing planning a	and strategy evaluation and con	trol.			
Practical (1 l.p.w.):	Case studies, group discussion	ons, seminars	, and visits	s to/by org	ganisations for
meaningful integration	on of the theory and practice.				
Prerequisites: [BEM	261 GS] and [BEM262 GS] and	[BEM351 GS] and [BEM	352 GS]	
BEM781	MARKETING_MANAGEMENT	_781			
EB_BEM	na	Bilingual	3 + 0	S2	15
Information available	e at the Department		•		
BER210	BUSINESS LAW 210				
EB BEM	na – –	Bilingual	3 + 0	S1	16
Basic principles of L	aw of Contract. Law of sales, cr	edit agreemer	nts, lease.	-	
BFR220	BUSINESS I AW 220	our agroomer	10, 10000.		
ER REM	n a	Bilingual	3 + 0	S2	16
Labour Law Aspect	ts of Security Law Law of Insol	vency Entrer		aw: Comp	any law law
concerning close co	rnoration I aw of Partnerships			aw, comp	any Law, Law
CONCERNING CLOSE CO		0 OCV 150			
	INTRODUCTORT_FLANT_BIC	Double	0 1 4	C1	16
INAS_BUT		Double	<u>5 + 1</u>		10
The following subj	ects are treated at an introc	luctory level:	Plant mo	rpnology	and anatomy;
reproductive biology	of nigner plants; properties c	of biomolecule	es; basic p	lant metat	polism; protein
piosynthesis; recom	ibinant DNA-technology; princip	bles of plant	taxonomy;	diagnostic	properties of
selected plant familie	es.				
Prerequisite: [This r	nodule may not be taken by stud	dents register	ed for a BS	c degree, v	with the
exception of student	s on the extended programme				
BLG160	INTRODUCTORY_ANIMAL_BI	OL.160	- ·		
NAS_ZEN	na	Bilingual	3 + 1	S2	16
Study of animals	and animal diversity. Function	nal morpholo	ogy (structu	ire) of ve	rtebrates and
invertebrates. Anima	al development, evolution and in	heritance.			
Prerequisite: [This	module may not be taken by	students reg	istered for	a BSc de	gree, with the
exception of student	s on the extended programme]	or [TDH]			
BLG260	GENERAL_MICROBIOLOGY_	260			
NAS_MBY	na	Bilingual	4 + 1	K3	8
General anatomy a	nd morphology of bacteria, viru	ises and fund	gi. Basic nu	itritional re	equirements of
micro-organisms an	d the effect of environmental f	actors on mi	crobial grov	wth. Micro	-organisms as
essential componen	ts of ecospheres: plant, water a	and soil ecosy	stems. Foc	d decay. f	food poisoning
and preservation of	food by micro-organisms. Basi	c principles in	nvolved in a	disinfection	ns, sterilization
and control of micro	obes; techniques for microbial	repression: s	terilization	by using h	eat, radiation.
filtration, chemicals:	decimation of numbers.	,		,	.,,

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
BME120	BIOMETRY_120				
EB WST	BME161,162	Double	4 + 1	S2	16
Simple statistical	analysis: Data collection a	nd analysis	: Samples	s, tabula	ation, graphical
representation, desc	cribing location, spread and ski	ewness. Intro	oductory pr	obability	and distribution
theory. Sampling di	stributions and the central limit	theorem. St	tatistical inf	erence: I	Basic principles,
estimation and tes	ting in the one- and two-sa	mple cases	(parametr	ic and	non-parametric).
Introduction to exp	erimental design. One- and	two-way des	signs, rand	omised	blocks. Multiple
statistical analysis:	Bivariate data sets: Curve	fitting (linea	r and non	-linear),	growth curves.
Statistical inference	in the simple regression case.	Categorical a	analysis: Te	sting goo	dness of fit and
contingency tables.	Multiple regression and corre	elation: Fitting	g and test	ing of m	odels. Residual
analysis.			•	0	
Computer literacy: L	Ise of computer packages in data	a analysis an	d report wr	iting.	
BME210	BIOMETRY_210				
EB WST	BME251,252	English	4 + 1	S1	24
Analysis of variand	e: Multiway classification. Tes	sting of mod	lel assump	tions, gr	aphics. Multiple
comparisons. Fixed	, stochastic and mixed effect m	nodels. Block	experimer	its. Estim	ation of effects.
Experimental design	1: Principles of experimental de	sign. Factori	al experime	ents: Con	founding, single
degree of freedom a	pproach, hierarchical classificat	ion. Balance	d anḋ unba	lanced de	esigns. Split-plot
designs. Analysis	of covariance. Computer lite	racy: Writing	g and inte	erpretatio	n of computer
programmes. Repor	t writing.		•		
Prerequisite: [BME1	20]				
BOT161	PLANT_BIOLOGY_161				
NAS_BOT	n a	Bilingual	2 + 0.5	S2	8
Basic plant structure	; plant organs at work; metamo	rphic plant or	rgans and t	heir funct	ion; introductory
plant taxonomy and	plant systematic; the ecosyster	m; adaptatior	of plants t	o extrem	e environments;
introduction to veld	evaluation and veld managemen	it.	-		
BOT251	SA_FLORA_&_VEGETATION_	251			
NAS BOT	n a	Bilingual	2 + 1	S1	12
Origin and affinity o	of South African flora and veget	tation types;	principles of	of plant of	eography; plant
diversity in southern	Africa; characteristics, environm	nents and ve	getation of	southern	African biomes;
major vegetation ty	pes of southern Africa; centra	of plant en	demism; ra	ire and t	hreatened plant
species; red data	lists; plant conservation; interr	national conv	ventions; Ic	cal envi	ronmental laws;
conservation status	of southern African vegetation ty	/pes.			
Prerequisite: [BOT1	61] or [TDH]				
BOT261	PLANT_BIOCHEMEVOLUTIC	DN_261			
NAS_BOT	n a	Bilingual	2 + 1	S2	12
Role of biochemica	I evolution in the survival of p	plants as sta	ationary org	ganisms	(coordination of
outotrophic and hete	protrophic metabolism on cellula	r and whole	plant level,	nitrogen	fixation, defence
mechanisms and	interaction with other orga	anisms). Fa	milies of	econom	ic importance,
interrelationship be	tween humans and plants; fo	ood, medicin	ie, drugs a	and pois	ons, landscape
architecture, energy	, water and industry.				
Prerequisites: [BOT	161] and [CMY117] and [CMY12]	27] or [TDH]			
BOT356	PLANT_ECOPHYSIOLOGY_35	56			
NAS_BOT	na	Bilingual	2 + 1	S1	18
The emphasis is on	the efficiency of the mechanisms	s whereby C3	3-, C4- en C	CAM-plan	ts bind CO2 and
how it is impacted u	pon by environmental factors. T	he mechanis	sms and fac	tors whic	h determine the
respiratory conversion	on of carbon skeletons and how	production i	s affected t	hereby w	ill be discussed.
Insight into the ecolo	gical distribution and manipulati	ion of plants f	for increase	d produc	tion is gained by
discussing the inte	rnal mechanisms whereby ca	arbon alloca	tion, horm	one proc	Juction, growth,
flowering and fruitse	are influenced by external fac	ctors. To uno	derstand the	e functio	hing of plants in
aiverse environment	is, the relevant structural proper	rties of plants	s and the ir	npact of	soil composition
and water flow in th	e soil-plant-air continuum will be	e aiscussed.	various im	portant te	echniques in the
rieid of study will be	illustrated in the practicals and i	may be empl	oyed to inv	estigate a	aspects such as:
the effect of herbic	ides on isolated chloroplasts,	water-use el	miclency of	plants, 1	actors affecting
stomatal opening, de	etermination of plant stress, pho	officiente Dr	ate and hith		
or noner uragrattis a	In ucici I i i i all'Uni un ciasticity co	enicients. Ple	ELEQUISILE.		

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
BOT357	CROP_BIOTECHNOLOGY_357	7			
NAS BOT	na	Bilingual	2 + 1	S1	18
Molecular tools in cr	op biotechnology; whole crop pla	ant physiolog	v explored b	y molecu	lar techniques;
usefulness of mode	el plants; gene and promoter	identification	and transf	fer techni	iques for crop
improvement; inves	tigation of plant transcriptomes	using micro	arrays; mol	ecular an	alysis of plant
reactions to stres	s; transgenic plant strategies	s for impro	ved stress	resistar	nce in crops.
Prerequisite: [BOT1	61] or [TĎH]	·			
BOT358	PLANT ECOLOGY 358				
NAS BOT	na <u> </u>	Bilingual	2 + 1	S1	18
A description of the	environment of plants. Theory	of plant comr	nunity conc	epts. vea	etation change
over space and tim	ne; surveying techniques of ver	etation and	environmen	ital factor	s; floristic and
structural composition	on. Data processing techniques;	ecological in	terpretation	and desc	ription of plant
communities. Veget	ation and environmental manage	gement; vege	etation and	the grazi	ing animal. An
examination of the	ecological traits of plant populat	tions; conven	tional and o	diagramm	atic life tables;
population growth a	and population regulation; pop	ulation dyna	mics. Speci	ies intera	ctions and an
evaluation of their ef	fects on interacting species.	· · · · · ·			
Prereguisite: [BOT1	61] or [TDH]				
BOT365	PHYTOMEDICINE 365				
NAS BOT	n a	Enalish	2 + 1	S2	18
The course will in	clude a review on the disco	very and us	e of plant	medicine	es and phyto-
therapeutically impo	ortant molecules obtained from	m plants C	ertain aspe	ects of n	atural product
chemistry i.e. the	biosynthesis and ecological r	ole of the	three main	classes	of secondary
compounds: ternenc	olds phenolics and alkaloids will	be discusse	d The role (of these n	atural products
in defence against n	nicroorganisms and herbivores w	vill be presen	ted during th	ne course	The basics of
alternative medicine	es such as homeonathy avur	vedic medici	ne acunun	cture etc	will also be
discussed Key skills	s / practical elements to be cover	red in the mo	dule include	modern	techniques like
high performance I	iquid chromatography and flas	h chromatoo	raphy used	for the	detection and
isolation of active of	compounds from medicinal plan	nts. Practical	drug disco	verv app	roaches using
chromatographic teo	chniques for phytochemical ana	lvsis of seco	ndarv meta	bolites su	ich as tannins.
alkaloids, sterols an	id saponins will be conducted.	Bioassays or	n microorga	nisms wil	l also be done
during the practica	I sessions in order to develop	the skills f	or the pote	ential disc	covery of new
antibiotics. Visits to	several pharmaceutical laborator	ries will be ari	ranged.		
Prerequisite: [BOT1	61] or [TDH]		0		
BOT366	PLANT_DIVERSITY_366				
NAS BOT	na	Bilingual	2 + 0	S2	10
Basic principles and	methods of plant classification	. Sources of	plant variati	ion. Mode	ern methods to
ascertain evolutiona	ary relationships among plants.	The extent	and signific	cance of	vascular plant
diversitv. General st	tructural, and biological characte	eristics of evo	lutionary en	id ecoloai	cally important
plant groups. Botani	cal nomenclature.		,	0	<i>,</i>
Prereguisite: [BOT1	61] or [TDH]				
BOT367	PRACT PLANT IDENTIFICAT	ION 367			
NAS BOT	na – –	Bilingual	0 + 1	S2	10
Plant identification in	practice: identification methods	kevs herba	ria and bota	nical gard	lens
Diagnostic character	rs for the field identification of tre	es, wild flowe	ers and gras	ses. Fam	ilv recognition
of southern African r	plants. Available literature for pla	nt identificatio	on. Methods	to condu	ct floristic
surveys Nature and	significance of voucher specime	ens Prerequis	site: [BOT16	1 l or ITC)H1
CHM215	CHEMISTRY 215	iner i rerequi		.] 0. [. 5	
NAS CMY	CHM214	Double	3 + 1	S1	16
Organic chemistry (Chemical properties of organic (i	ncluding aror	natic) comp	ounds Fi	inctional group
transformation and	synthesis Physical Chemistr	rv Colloid o	chemistry	Surface	chemistry and
nrocesses at solid e	urfaces PVT properties of real of	3565			stration y and
Prerequisites: ICHM	1711 and [CHM181]				
CHM226	CHEMISTRY 226				
NAS CMV	CHM216	Double	2 + 1	\$2	8
Theory: Introduction	to instrumental chemical analys		4 ± 1	ic chomi	o ontical and
computer principles	for the construction of analytics	al instruments	ation Detail	discussio	on of principles

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
and some instrum	ental methods from three d	lisciplines wi	thin analyt	ical cher	mistry, namely
electrochemistry, s	pectroscopy and chromatograp	ohy. This inc	cludes pote	ntiometry	, (AA) atomic
absorption-, (ICP) a	tomic emission-, ultraviolet (UV)-, and infrare	ed (IR) spec	troscopy,	potentiometric
and photometric titr	ations, gas chromatography, lic	quid chromato	graphy as	well as c	ombinations of
these techniques. I	Practical: IR spectroscopy, UV	spectroscopy	, AA spec	troscopy,	potentiometric
titration, gas chrom	atography. (Note: Two lectures	per week. T	hird quarter	: Six 3 h	our practicals.)
Prerequisites: [CHN	171] and [CHM181]				
CIL111	COMPUTER_LITERACY_111				
ENG_SIT	na	Bilingual	2 + 0	S1	4
Computing Concept	s, Windows 2003, Internet & W	orld Wide We	b, What wil	l word pro	ocessing do for
me?, Gaining Prof	iciency Editing & Formatting,	Enhancing a	document	& the v	veb and other
resources, Advance	d features: Outlines, Styles &	selections &	Tables, Intr	oduction	to PowerPoint,
Presentations made	e easy, Gaining Proficiency -	Slide Show	Tools, The	web &	Slide Masters,
Introduction to MS	Excel: What is a spreadsheet	t, Gaining Pr	oficiency -	The web	and business
applications, Spread	sheets in Decision Making: What	at if?, Graphs	and Charts	: Deliveri	ing a Message,
Introduction to MS A	Access: What is a Database?, Ta	ables and For	ms: Design	s, Propert	ties, Views and
Wizards, Information	n from the Database: Reports an	d Queries.	-	-	
An exemption exam	ination may be written in the first	t week of sem	ester 1.		
CIL121	INFORMATION_LITERACY_12	21			
ENG SIT	na	Bilingual	2 + 0	S2	4
Why computers ma	tter to you, Networking, Informat	tion resources	s (include th	e Acader	mic Information
Services), Quality	of Information, Ethics, plagia	rism and co	py right, s	Searching	the Internet,
Information Seekin	g Strategies, Location & Acce	ess, Specific	Search Er	vironmen	nts (include all
electronic database	s and journals in the AIS ap	plicable to the	he relevant	faculties), Referencing
techniques, Use s	nthesis and evaluation of info	ormation, Ne	w trends.	Content :	specific to the
University of Pretori	a.				
No exemption exam	ination.				
CMY101	FIRST COURSE IN CHEMIST	FRY 101			
NAS_CMY	n a	English	4 + 1.5	J1	16
NAS_CMY Theory: (Four lectur	n a es or contact via the Virtual Car	English npus, Web-C	4 + 1.5 T). General	J1 introducti	16 ion to inorganic
NAS_CMY Theory: (Four lectur and analytical chem	n a es or contact via the Virtual Car istry. Nomenclature of inorganic	English npus, Web-C ions and con	4 + 1.5 T). General npounds, st	J1 introducti oichiomet	16 ion to inorganic tric calculations
NAS_CMY Theory: (Four lectur and analytical chem concerning various	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac	English npus, Web-C ions and con tions. Atomic	4 + 1.5 T). General npounds, st structure a	U1 introducti oichiomet nd period	16 ion to inorganic tric calculations icity. Molecular
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF	English npus, Web-C ions and con tions. Atomic PR model. E	4 + 1.5 T). General npounds, st structure a quilibria, ac	U1 introducti oichiomet nd period cid, base	16 ion to inorganic tric calculations icity. Molecular s, buffers and
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac	English npus, Web-C i ions and con tions. Atomic PR model. E tical or tutoria	4 + 1.5 T). General npounds, st structure a quilibria, ac I per week.	U1 introducti oichiomet nd period cid, base	16 ion to inorganic tric calculations icity. Molecular s, buffers and
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL CHEMISTRY 102	English npus, Web-C i ions and con tions. Atomic PR model. E tical or tutoria	4 + 1.5 T). General npounds, st structure as quilibria, ao I per week.	U1 introducti oichiomet nd period cid, base	16 ion to inorganic tric calculations icity. Molecular s, buffers and
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS CMY	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a	English npus, Web-C i ions and con tions. Atomic PR model. E tical or tutoria English	4 + 1.5 T). General npounds, st structure a quilibria, ac l per week. 4 + 1.5	µ1 introducti oichiomet nd period sid, base µ1	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph	English npus, Web-C i ions and con tions. Atomic PR model. E tical or tutoria English nysical behay	4 + 1.5 T). General npounds, st structure au quilibria, ac l per week. 4 + 1.5 riour of gas	μ1 introducti oichiomet nd period cid, bases μ1 μ1 ses, liquid	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids.
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Pf s, solutions. Principles of reactiv	English npus, Web-C ions and con tions. Atomic PR model. E tical or tutoria English nysical behav vity: Energy a	4 + 1.5 T). General npounds, st structure ar quilibria, ac l per week. 4 + 1.5 riour of gas nd chemica	U1 introducti oichiomet nd period cid, bases U1 ses, liquid l reaction	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, is, entropy and
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electri	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac incal bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph s, solutions. Principles of reactiv ochemistry. Organic chemistry:	English npus, Web-C i ions and corn tions. Atomic 2R model. E tical or tutoria English nysical behaw vity: Energy a Structure (b	4 + 1.5 T). General npounds, st structure ar quilibria, ac l per week. 4 + 1.5 riour of gas ond chemica onding), nc	U1 introducti oichiomet nd period cid, bases U1 ses, liquid reaction omenclatu	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, is, entropy and ire, isomerism,
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electra introductory stereoc	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph s, solutions. Principles of reactiv ochemistry. Organic chemistry: hemistry, introduction to chemi	English npus, Web-C i ons and corn ions. Atomic ?R model. E tical or tutoria English nysical behav vity: Energy a Structure (b cal reactions	4 + 1.5 T). General npounds, st structure al quilibria, ac l per week. 4 + 1.5 riour of gas nd chemica onding), nc and chemica	U1 introducti oichiomet nd period cid, bases U1 ses, liquid ses, liquid l reaction omenclatu cal proper	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and tre, isomerism, rties of organic
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electro introductory stereoc compounds and b	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph s, solutions. Principles of reactiv ochemistry. Organic chemistry: hemistry, introduction to chemit iological compounds, i.e. cart	English npus, Web-C ions and cor tions. Atomic PR model. E tical or tutoria English nysical behav vity: Energy a Structure (b Structure (b sohydrates, 1	4 + 1.5 T). General npounds, st structure au quilibria, ac I per week. 4 + 1.5 riour of gas nd chemica onding), nc and chemica ipids and	U1 introducti oichiomet nd period cid, bases U1 ses, liquid al reaction menclatu cal proper amino ad	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and ure, isomerism, rites of organic cids. Practical:
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electrr introductory stereooc compounds and b Molecular structure	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Pr s, solutions. Principles of reactiv chemistry. Organic chemistry: hemistry. introduction to chemit iological compounds, i.e. cart (model building), synthesis and	English npus, Web-C ions and corr tions. Atomic PR model. E English nysical behav vity: Energy a Structure (b cal reactions ophydrates, 1 properties of	4 + 1.5 T). General npounds, st structure at quilibria, ac I per week. 4 + 1.5 riour of gas ind chemica onding), nc and chemica ond chemica ond chemica ond chemica ond chemica	U1 introducti oichiomet nd period cid, base: U1 ses, liqui al reactior omenclatu cal proper amino ac anino com	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, is, entropy and ire, isomerism, rties of organic cids. Practical: pounds. (Note:
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electro introductory stereooc compounds and b Molecular structure Four lectures and	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac incal bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Pr s, solutions. Principles of reacti ochemistry. Organic chemistry: hemistry, introduction to chemi iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee	English mpus, Web-C ions and cor R model. E R model. E tical or tutoria English nysical behav vity: Energy a Structure (b cal reactions pohydrates, 1 properties of k, one 3 ho	4 + 1.5 T). General npounds, st structure al quilibria, ac quilibria, ac quilibria, ac quilibria, ac to the structure is denenica onding), nc and chemica onding), nc and chemica ipids and f simple org ur practica	U1 introducti oichiomet nd period cid, base: U1 ses, liqui al reaction menclatu al proper amino ac amino ac anic com I every s	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, is, entropy and tre, isomerism, rties of organic cids. Practical: pounds. (Note: second week.)
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electir introductory stereoo compounds and b Molecular structure Four lectures and Prerequisite: [CMY1	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph s, solutions. Principles of reacti- ochemistry. Organic chemistry: hemistry, introduction to chemi iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01]	English npus, Web-C ions and corn tions. Atomic PR model. E tical or tutoria English nysical behav vity: Energy a Structure (b cal reactions pohydrates, 1 properties of k, one 3 hc	4 + 1.5 T). General npounds, st structure al quilibria, ac l per week. 4 + 1.5 riour of gas ond chemica onding), nc and chemica pids and f simple org our practica	U1 introducti oichiomet nd period cid, base: U1 ses, liquial reaction menclatu cal proper amino ac anic com I every s	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and ire, isomerism, rties of organic cids. Practical: pounds. (Note: second week.)
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electr introductory stereoo compounds and b Molecular structure Four lectures and Prerequisite: [CMY11 CMY117	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph s, solutions. Principles of reacti- ochemistry, introduction to chemi iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117	English npus, Web-C ions and con tions. Atomic PR model. E trical or tutorial English nysical behava Structure (b cal reactions pohydrates, I properties of k, one 3 hc	4 + 1.5 T). General npounds, st structure at quilibria, ac l per week. 4 + 1.5 four of gas onding), no and chemica ipids and f simple org our practica	U1 introducti oichiomet nd period cid, base: U1 ses, liquia l reactior menclatu al prope amino ad anic com I every s	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and tre, isomerism, rties of organic cids. Practical: pounds. (Note: second week.)
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electra introductory stereoc compounds and b Molecular structure Four lectures and Prerequisite: [CMY11 CMY117 NAS_CMY	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Pr s, solutions. Principles of reacti- ochemistry, introduction to chemis- iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117 CMY152, CMY153	English npus, Web-C i ons and cor i ons Atomic ?R model. E ?R model. E ?R model. E ranglish pysical behava yvity: Energy a Structure (b cal reactions pohydrates, I properties of k, one 3 hc Double	4 + 1.5 T). General npounds, st structure au quilibria, ac I per week. 4 + 1.5 riour of gas nd chemica onding), nc and chemica ipids and f simple org uur practica 4 + 1	J1 introducti oichiomet nd period cid, base: J1 ses, liquid ses, liquid l reactior omenclatu cal proper amino ad anic com I every s S1	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and re, isomerism, rites of organic cids. Practical: pounds. (Note: second week.) 16
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and chem precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electri introductory stereoc compounds and b Molecular structure Four lectures and Prerequisite: [CMY1 CMY117 NAS_CMY Theory: General int	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Pr s, solutions. Principles of reactiv ochemistry, introduction to chemis iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117 CMY152, CMY153 roduction to inorganic and anal	English mpus, Web-C ions and cor tions. Atomic PR model. E tical or tutorial English nysical behav vity: Energy a Structure (b Structure (b cal reactions pohydrates, I properties of k, one 3 hc Double ytical chemis	4 + 1.5 T). General npounds, st structure au quilibria, ac I per week. 4 + 1.5 riour of gas and chemica onding), nc and chemica ipids and f simple org ur practica 4 + 1 try. Nomeno	J1 introducti oichiomet nd period cid, base: J1 ses, liquid areactior omenclatu cal proper amino ea anic com l every s S1 clature of	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and ure, isomerism, rites of organic cids. Practical: pounds. (Note: second week.) 16 inorganic ions
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electri introductory stereoc compounds and b Molecular structure Four lectures and Prerequisite: [CMY1 CMY117 NAS_CMY Theory: General int and compounds,	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac incal bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Pr s, solutions. Principles of reacti ochemistry. Organic chemistry: themistry, introduction to chemi iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117 CMY152, CMY153 roduction to inorganic and anal stoichiometric calculations cor	English mpus, Web-C ions and cor R model. E R model. E tical or tutoria English mysical behav mysical behav mysical behav mysical behav structure (b cal reactions pohydrates, 1 properties of k, one 3 ho Double ytical chemis cerning che	4 + 1.5 T). General npounds, st structure ai quilibria, ac l per week. 4 + 1.5 riour of gas nd chemica onding), nc and chemica onding), nc and chemica ipids and f simple org uur practica 4 + 1 try. Nomena mical reac	U1 introducti oichiomet nd period cid, base: U1 ses, liquid l reaction penenclatu cal proper amino ac anic com l every s S1 clature of tions, re	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, is, entropy and ure, isomerism, rties of organic cids. Practical: pounds. (Note: second week.) 16 inorganic ions dox reactions,
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electrr introductory stereoc compounds and b Molecular structure Four lectures and Prerequisite: [CMY1 CMY117 NAS_CMY Theory: General int and compounds, solubilities, atomic	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac incal bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph s, solutions. Principles of reacti- ochemistry. Organic chemistry: hemistry, introduction to chemi- iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117 CMY152, CMY153 roduction to inorganic and anal stoichiometric calculations cor structure, periodicity. Inorganic	English mpus, Web-C ions and corn tions. Atomic PR model. E tical or tutoria English nysical behav vity: Energy a Structure (b cal reactions pohydrates, 1 properties of k, one 3 hc Double ytical chemis necerning che and physical	$\frac{4 + 1.5}{1}$ T). General npounds, st structure al quilibria, acd l per week. $\frac{4 + 1.5}{1}$ riour of gas ond ing), nc and chemica onding), nc and chemica ipids and f simple org uur practica $\frac{4 + 1}{1}$ try. Nomenon mical reac chemistry.	U1 introducti oichiomet nd period cid, base: U1 ses, liquia al reaction menclatur cal proper amino ac anic com I every s S1 clature of tions, re- Molecula	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and tre, isomerism, rties of organic cids. Practical: pounds. (Note: second week.) 16 inorganic ions dox reactions, r structure and
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electri introductory stereoc compounds and b Molecular structure Four lectures and Prerequisite: [CMY1 CMY117 NAS_CMY Theory: General int and compounds, solubilities, atomic chemical bonding	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph s, solutions. Principles of reacti- ochemistry. Organic chemistry: themistry, introduction to chemi- iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117 CMY152, CMY153 roduction to inorganic and anal stoichiometric calculations cor structure, periodicity. Inorganic using the VSEPR models. Ch	English mpus, Web-C ions and cor tions. Atomic PR model. E tical or tutoria English ysical behav vity: Energy a Structure (b cal reactions pohydrates, I properties of k, one 3 hc Double ytical chemis ncerning che and physical hemical equil	4 + 1.5 T). General npounds, st structure al quilibria, act l per week. 1 per week. 4 + 1.5 iour of gas: onding), no and chemica onding), no and chemica pids and f simple orgour practica 4 + 1 try. Nomenom chemistry. ibrium, acii	<u>μ1</u> introducti oichiomet nd period cid, base: <u>μ1</u> ses, liquia al reaction menclatur cal proper amino ad anic com I every s <u>S1</u> clature of tions, re Molecula ds and t	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and ure, isomerism, rties of organic cids. Practical: pounds. (Note: second week.) 16 inorganic ions dox reactions, r structure and bases, buffers,
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electri introductory stereoc compounds and b Molecular structure Four lectures and Prerequisite: [CMY1 CMY117 NAS_CMY Theory: General int and compounds, solubilities, atomic chemical bonding	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph s, solutions. Principles of reactiv chemistry, introduction to chemis iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117 CMY152, CMY153 roduction to inorganic and anal stoichiometric calculations cor structure, periodicity. Inorganic using the VSEPR models. Cl ical: (Note: Four lectures and	English npus, Web-C ions and con tions. Atomic PR model. E tical or tutorial English nysical behava structure (b cal reactions pohydrates, I properties of k, one 3 hc Double hytical chemis cerning che and physical emical equil t one 3 hoc	4 + 1.5 T). General npounds, st structure au quilibria, ac l per week. 4 + 1.5 riour of gas nd chemica onding), nc and chemica ipids and f simple org uur practica 4 + 1 try. Nomena mical reac chemistry. ibrium, aciu r practical	U1 introducti oichiomet nd period cid, base: U1 ses, liquid areactior menclatu anino ad anic com I every s S1 clature of tions, rei Molecula ds and t s and t or tutori	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and re, isomerism, rites of organic cids. Practical: pounds. (Note: second week.) 16 inorganic ions dox reactions, r structure and pases, buffers, ial per week.)
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and chem precipitates. Practic CMY102 NAS_CMY Theory: General pr intermolecular force free energy, electri introductory stereoc compounds and b Molecular structure Four lectures and Prerequisite: [CMY1 CMY117 NAS_CMY Theory: General int and compounds, solubilities, atomic chemical bonding precipitation. Pract Prerequisite: [Par 1	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Pr s, solutions. Principles of reactiv chemistry. Organic chemistry: hemistry, introduction to chemi iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117 CMY152, CMY153 roduction to inorganic and anal stoichiometric calculations cor structure, periodicity. Inorganic using the VSEPR models. CH cal: (Note: Four lectures and .2]	English mpus, Web-C ions and corn tions. Atomic PR model. E tical or tutoria English mysical behav vity: Energy a Structure (b cal reactions bohydrates, I properties of k, one 3 ho Double ytical chemis ncerning che and physical hemical equil d one 3 hou	4 + 1.5 T). General npounds, st structure au quilibria, ac l per week. 4 + 1.5 riour of gas nd chemica onding), nc and chemica ipids and f simple org ur practica 4 + 1 try. Nomenon mical reac chemistry. ibrium, aciu ir practical	J1 introducti oichiomet nd period cid, base: J1 ses, liquid ses, liquid areactior menclatu amino ad anic com l every s S1 clature of tions, re Molecula ds and t or tutori	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and re, isomerism, rites of organic cids. Practical: pounds. (Note: second week.) 16 inorganic ions dox reactions, r structure and bases, buffers, ial per week.)
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electrr introductory stereoc compounds and b Molecular structure Four lectures and Prerequisite: [CMY1 CMY117 NAS_CMY Theory: General int and compounds, solubilities, atomic chemical bonding precipitation. Pract Prerequisite: [Par1 CMY127	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac incal bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Pr s, solutions. Principles of reacti- ochemistry. Organic chemistry: themistry, introduction to chemi- iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117 CMY152, CMY153 roduction to inorganic and anal stoichiometric calculations cor structure, periodicity. Inorganic using the VSEPR models. Ch ical: (Note: Four lectures and .2] GENERAL_CHEMISTRY_127	English mpus, Web-C ions and cor tions. Atomic R model. E tical or tutoria English mysical behav vity: Energy a Structure (b cal reactions pohydrates, 1 properties of k, one 3 ho Double ytical chemis and physical hemical equil d one 3 hou	4 + 1.5 T). General npounds, st structure al quilibria, ac l per week. I per week. 4 + 1.5 riour of gas onding), no and chemica onding), no and chemica onding), no and chemica f simple org simple org f simple org f simple reac chemistry. ibrium, acia ir practical	U1 introducti oichiomet nd period cid, base: U1 ses, liquia I reaction ses, liquia I reaction menclatu cal proper amino ac amic com I every s Stature of tions, re Molecula ds and t or tutori	16 ion to inorganic tric calculations icity. Molecular s. buffers and 16 ds and solids, ns, entropy and re, isomerism, rties of organic cids. Practical: pounds. (Note: second week.) 16 inorganic ions dox reactions, r structure and pases, buffers, ial per week.)
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electrr introductory stereoc compounds and b Molecular structure Four lectures and Prerequisite: [CMY1 CMY117 NAS_CMY Theory: General int and compounds, solubilities, atomic chemical bonding precipitation. Pract Prerequisite: [Par1 CMY127 NAS_CMY	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac incal bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph s, solutions. Principles of reacti- ochemistry. Organic chemistry: hemistry, introduction to chemic iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117 CMY152, CMY153 roduction to inorganic and anal stoichiometric calculations cor structure, periodicity. Inorganic using the VSEPR models. Ch cal: (Note: Four lectures and .2] GENERAL_CHEMISTRY_127 CMY 161, CMY162	English mpus, Web-C ions and corn tions. Atomic PR model. E tical or tutoria English nysical behav vity: Energy a Structure (b cal reactions pohydrates, 1 properties of k, one 3 hoc Double point chemis nacerning che and physical hemical equil i one 3 hoc Double	$\frac{4 + 1.5}{1}$ T). General npounds, st structure al quilibria, acd l per week. $\frac{4 + 1.5}{1}$ riour of gas ond chemica onding), nc and chemica onding), nc and chemica ipids and f simple org ur practica $\frac{4 + 1}{1}$ try. Nomence mical reace chemistry. ibrium, aciu r practical $\frac{4 + 1}{1}$	J1 introducti oichiomet nd period idid, base: J1 ses, liquia al reaction menclatur anino ac aninc com l every s S1 clature of tions, rec or tutori or tutori S2	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and tre, isomerism, rties of organic cids. Practical: pounds. (Note: second week.) 16 inorganic ions dox reactions, r structure and pases, buffers, ial per week.) 16
NAS_CMY Theory: (Four lectur and analytical chem concerning various structure and cher precipitates. Practic CMY102 NAS_CMY Theory: General p intermolecular force free energy, electri introductory stereoc compounds and b Molecular structure Four lectures and Prerequisite: [CMY1 CMY117 NAS_CMY Theory: General int and compounds, solubilities, atomic chemical bonding precipitation. Pract Prerequisite: [Par 1 CMY127 NAS_CMY Theory: General p	n a es or contact via the Virtual Car istry. Nomenclature of inorganic different types of chemical reac nical bonding using the VSEF al and tutorials: One 3 hour prac GENERAL_CHEMISTRY_102 n a hysical-analytical chemistry: Ph s, solutions. Principles of reacti- ochemistry. Organic chemistry: themistry, introduction to chemi- iological compounds, i.e. cart (model building), synthesis and one 3 hour tutorial per wee 01] GENERAL_CHEMISTRY_117 CMY152, CMY153 roduction to inorganic and anal stoichiometric calculations cor structure, periodicity. Inorganic using the VSEPR models. Cf ical: (Note: Four lectures and .2] GENERAL_CHEMISTRY_127 CMY 161, CMY162 hysical-analytical chemistry: Ph	English mpus, Web-C ions and cor tions. Atomic PR model. E tical or tutoria English ysical behav vity: Energy a Structure (b cal reactions pohydrates, I properties of k, one 3 hoc Double hemical equil t one 3 hoc Double pysical behav	$\frac{4 + 1.5}{1}$ T). General npounds, st structure al quilibria, acd l per week. $\frac{4 + 1.5}{1}$ riour of gas nonding), no and chemica pids and f simple org nur practica $\frac{4 + 1}{1}$ try. Nomenomical reac chemistry. ibrium, acii ur practical $\frac{4 + 1}{1}$	J1 introducti introducti oichiomet nd period sid, base: J1 ses, liquia araction menclature anic com anic com l every s S1 clature of tions, re Molecular ds and t or tutori §2 ses, liquia	16 ion to inorganic tric calculations icity. Molecular s, buffers and 16 ds and solids, ns, entropy and tre, isomerism, rtes of organic cids. Practical: pounds. (Note: second week.) 16 'inorganic ions dox reactions, r structure and pases, buffers, ial per week.) 16 coses, buffers, ial per week.)

Module	Title				
Fac Dept	Old code	Language	lpw/ppw	Term	Credits
introductory stereod	hemistry, introduction to chemi	ical reactions	and chemic	cal proper	rties of organic
compounds and bio	logical compounds, i.e. carbohy	drates, lipids a	and aminoa	cids. Prac	tical: Molecular
structure (model bi	uilding), synthesis and propert	ties of simple	e organic c	ompound	s. (Note: Four
lectures and one 3 h	nour practical or tutorial per wee	k.)			-
Prerequisite: [CMY1	17 GS or CMY101]	-			
CMY151	CHEMISTRY_151				
NAS_CMY	na	Bilingual	4 + 1	S1	16
Theory: Introduction	n to general chemistry: Measu	rement in che	emistry, ma	itter and	energy, atomic
theory and the period	odic table, chemical compounds	and chemica	l bonds, qu	antitative	relationships in
chemical reactions,	states of matter and the kinetic	c theory, solut	tions and co	olloids, ac	ids, bases and
ionic compounds, cl	hemical Equilibria. Introduction t	o organic che	mistry: Che	mical bon	iding in organic
compounds, nature,	, physical properties and nome	nclature of sir	mple organi	c molecul	les, isomerism,
chemical properties	s of alkanes and cycloalkane	es, alkenes,	alcohols, a	Idehydes	and ketones,
carboxylic acids an	d esters, amines and amides	, carbohydrat	es, proteins	s, and lip	ids. Practicals:
(Note: Four lectures	and one 3 hour practical or tuto	orial per week.	.)		
Prerequisite: [Par 1	.2]				
CMY282	PHYSICAL_CHEMISTRY_282				
NAS_CMY	n a	English	4 + 1	K1	12
Theory: Classical cl	hemical thermodynamics, gases	s, first and se	cond law a	nd applica	ations, physical
changes of pure ma	terials and simple compounds. I	Phase rule: C	hemical rea	ctions, che	emical kinetics,
rates of reactions.	Fundamentals of spectroscopy	(including NN	1R). Practica	als. (Note	: Four lectures
and one 6 hour prac	tical per week.)				
Prerequisites: [CMY	(117 or CMY101] and [CMY127	or CMY102]			
CMY283	ANALYTICAL_CHEMISTRY_2	83			
NAS_CMY	n a	English	4 + 1	K3	12
Theory: Statistical	evaluation of data, gravimetric	analysis, aq	ueous solut	tion chem	istry, chemical
equilibrium, precip	itation-, neutralisation- and	complex forr	mation titra	ations, re	dox titrations,
potentiometric meth	ods, introduction to electrocher	nistry. Practic	als. (Note:	Four lectu	ares and one 6
hour practical per w	eek.)				
Prerequisites: [CMY	117 or CMY101] and [CMY127	or CMY102]			
CMY284	ORGANIC_CHEMISTRY_284				
NAS_CMY	na	English	4 + 1	K2	12
Theory: NMR spe	ctroscopy: Applications, Organ	ic reactivity:	Rates and	equilibriu	m. Acidity and
basicity. Conjugatio	on and resonance: Allylic sys	tems. Alkene	es, alkyl ha	alides, alo	cohols, ethers.
Carbonyl compour	ids: ketones, aldehydes, car	boxylic acids	and thei	r derivati	ives. Dynamic
stereocnemistry: NL	icleophilic substitution, eliminati	on, addition.	Practicals.	(Note: Fol	ur lectures and
one 6 nour practical	and one 50 minute tutorial per	week.) Select	ion criteria i	based on	performance in
CIVIT 127 OF CIVIT 10	2 will be applied due to limited c	apacity in the	practical co	urse.	
Prerequisites: [Civit	117 OF CMY 101] and [CMY 127	or CIVIT 102]			
	INORGANIC_CHEMISTRT_20	0 Factor	4 . 4	144	40
NAS_CIVIY	na 	English	4 + 1	K4	
I neory: Atomic str	ucture, structure of solids (ion	ic model). C	o-ordination	chemisti	ry of transition
metals: Oxidation	states of transition metals,	liganos, stel	reocnemistr	y, crysta	i field theory,
consequences of a-	orbital splitting, chemistry of the	e main group	elements, a	acio-base	concepts, non-
aqueous solvenis,	electrochemical properties of		Dreaticale	(Nete: Fe	ution, moustrial
applications of trans	nor wook)	speciroscopy.	FIACUCAIS.	(NOLE. FO	ui lectures anu
Droroquisitos: [CMV	(117 or CMV101] and [CMV127]	or CMV1021			
CMV282	PHYSICAL CHEMISTRY 382				
NAS CMV	PHISICAL_CHEMISIRI	English	4 ± 1	K/	19
Theory: Melecular of	li a Wantum machanica, Introduction	Eligiisii		N4	
mierosoppio evistor	uantum mechanics. Introduction		iya ul Classi	cai pilysic	ond rotational
movement Atomic	estructure and spectra: Atomic	bydrogon m	ultiple elect	ron eveto	and rotational
novement. Atomic	Subclure and specifia. Alomic	moloculo icr	diatomia an	iuii syste	mis, specifia of
etructure and proper	arties of molecules. Molecules	in motion. V	iscosity dif	iu poiyalo	obility Surface
chemistry: Physicor	ntion and chemisoration adeor	ntion isother	ns surface	tension	heterogeneous
onomiany. Thysisul	priori and chemisorpriori, ausor	PROFILISOUTET	no, sundue	consion,	necerogeneous

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
catalytic rate reactio	ns, capillarity. Practicals. (Note:	Four lectures	s and one 6	hour practi	cal per week.)
Prerequisites: [CMY	282] and [CMY283] and [CMY28	84] and [CMY	′285]	-	
CMY383	ANALYTICAL_CHEMISTRY_3	83			
NAS_CMY	na	English	4 + 1	K2	18
Theory: Separatio	n methods: Extraction, mu	ultiple extra	ction, chr	omatograp	hic systems.
Spectroscopy: Cons	struction of instruments, atomic	absorption	and atomic	emission	spectrometry,
surface analysis te	chniques. Mass spectrometry.	Instrumental	electrocher	nistry. Pra	cticals. (Note:
Four lectures and or	ne 6 hour practical per week.)				
Prerequisites: [CMY	282] and [CMY283] and [CMY28	84] and [CMY	′285]		
CMY384	ORGANIC_CHEMISTRY_384				
NAS_CMY	na	English	4 + 1	K3	18
Theory: Aromaticity	and aromatic chemistry, synth	netic methodo	ology in org	anic chem	istry: Carbon-
carbon bond formati	on: Alkylation at nucleophilic ca	rbon sites, alo	dol and rela	ted conden	sations, Wittig
and related reaction	s, acylation of carbanions (Clais	en condensa	tion). Practi	cals. (Note:	Four lectures
and one 6 hour prac	tical and one 50 minute tutorial	per week.)			
Prerequisites: [CMY	282] and [CMY283] and [CMY28	84] and [CMY	′285]		
CMY385	INORGANIC_CHEMISTRY_38	5			-
NAS_CMY	na	English	4 + 1	K1	18
Theory: Structure a	and bonding in inorganic chem	nistry: Molecu	ular orbital	approach,	diatomic and
polyatomic molecule	es, three-centre bonds, metal-m	etal bonds, tr	ransition me	etal comple	xes, magnetic
properties, electron	ic spectra, reactivity and react	ion mechanis	sms, reactio	on types, s	special topics.
Practicals. (Note: Fo	our lectures and one 6 hour prac	tical per weel	k.)		
Prerequisites: [CMY	282] and [CMY283] and [CMY28	84] and [CMY	′285]		
COE400	SOCIAL_CONTEXTS_IN_EDU	CAT400			
OPV_OPV	na	Bilingual	+	J1	12
Contextual understa	anding of the human and sociol	logical develo	opment imp	acting on e	education with
particular reference	to following an asset-based app	proach to mar	naging a div	verse, multi	cultural, multi-
ethnic group of learn	ners often contending with probl	ematic home	circumstan	ces and ur	ider the threat
of HIV/AIDS.					
	PROGRAM_DESIGN:INTROD		14	6.	10
ENG_COS	na	Double	4 + 1	51	16
Object oriented prog	gramming, graphical user interfa	ices and ever	nt handling.	leaches s	ound program
design, leading to w	ell structured, robust and docur	mented progr	ammes. Ap	preciation	of the limits of
computers.	01				
Prerequisite: [Par 1	.2]				
	INTRODUCTTO_PROGRAM	MING_130	4 . 4	04	40
ENG_COS	na	Double	4 + 1	51	10
The aim of this cou	rse is to acquire a sound know	ledge of bas	ic computer	programm	ling concepts.
The theory of these	concepts, as well as design m	ethodologies,	, WIII DE INV	estigated. I	Understanding
innovativo ekillo en	ang is emphasized in order to s	f computer			evelopment of
Innovative skills an	implement these concents. After	r completing	programmin this source	ig. The C	programming
to design and write	structured officient programs	using the C	lins course,		with the basic
data structures poir	structured, enclent programs	ave an introd	language, L	vledge of a	with the basic
structures	iters and life processing, and it			wedge of a	iuvanceu uala
Prereguisite: [Par 1	21				
	INTRODUCT TO PROGRAM	MING 131			
ENG COS	na	Bilingual	4 + 1	S1	16
The aim of this more	tule is to acquire a sound know	vledge of has	sic compute	r program	ning concepts
and an introductory	knowledge of data structures	The theory of	of these con	cents as v	well as design
methodologies will	be investigated Understanding	rather than m	nemorising i	s emphasiz	zed in order to
stimulate creative th	ninking and the development of	innovative sl	kills among	st students	in the field of
computer programm	ning. The C programming langu	age is used t	to implement	nt these co	ncepts. At the
end of the module a	short introduction to object-orie	nted program	ming using	C++ will he	aiven.
After completing th	is module, a student should b	e able to de	esign and v	write struct	ured. efficient
programs using the	C programming language be fa	miliar with th	e basic data	structures	pointers and

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
file processing, and	d have an introductory knowled	edge of adv	anced data	structure	s and object-
orientation.	5	0			
COS140	COMPUTER SCIENCE				
ING COS	n.a	Bilingual	4 + 1	S2	16
Netcentric Comput	er Systems 140	J J		-	
This module introdu	ces the principles of netcentric	computing th	at can be a	polied to	he WWW and
internet as well as to	o distributed applications. The r	nain focus is	on the cond	epts of cli	ent and server
side programming, v	web-based applications, port an	d socket inter	action, writi	na program	ns that require
remote function cal	ls. and achieving database co	nnectivity usi	ng the app	opriate te	chnology. The
supporting technolog	gies of mark-up languages and	scripting lan	quages are	also stud	ied. It will also
test the ability of a	student to use, integrate and	maintain the	necessarv	software	and hardware
required to illustrate	the concepts specified.		,		
Students who pass t	this module may not enrol for IN	Y 324.			
Prereguisites: COS	3 110 or (COS 130/COS 131/EP	E 111/EPE 1	12)		
COS151	INTR.TO COMPUTER SCIEN	CE 151	,		
ING COS	na	Bilingual	2 + 1	S1	8
This course introdu	ces concepts and terminology	related to th	he hardwar	e of com	uters system
software and to co	mmunication systems It also	provides an	understand	ing of ha	sic algorithmic
concents number sy	vstems and binary logic	provides an	understand	ing of bu	sie algoriannie
COS212	DATA STRUCTURES & ALG	ORITHMS			
		Double	1 + 1	S2	16
The primary objecti	ive of this course is to introdu		to the class	pz sic data i	structures and
algorithms found in (computer programs. Data abstr	action is an im	nortant con	cont in pro	ducing correct
and reusable software	are in this course it is shown h	action is an in	data types	can be de	signed for the
classic data structur	are. In this course it is shown i	iow abstarct	uala lypes	that can be	signed for the
implementation of th	es, i.e. sideks, queues, lisis, lie	their interface	s. vanalions	inal can i	vell as how to
choose the appropri	ate version for efficiency. Class	ic algorithms	for sorting	soorching	and traversing
are investigated an	ate version for enciency. Class	Recursion is	also dealt	with and	some of the
algorithms are imple	mented recursively. The mean	na of algorith	mic comple	vity is intr	oduced to gain
an appreciation of t	the limits of computing through	examples of	nroblems t	that canno	t be solved in
reasonable time	are mine of comparing intough	examplee of	probleme	anat barne	
Prereguisite: [COS1	10]				
COS214	DESIGN PATTERNS 214				
	COS213	Double	4 + 1	S1	16
This course teacher	programming using design no	ttorns The f	CUE of the		on the theory
and implementation	of design patterns, in order to y	write modular	and re usal		Conular object
oriented languages	are used as implementation me	dium	and re-usa		opulai object-
Prereguisites: ICOS	110 or COS1301 or [EPE111] or	IEPE112] an	d [COS140]		
COS222	OPERATING SYSTEMS 222		u [000140]		
		Double	1 + 1	Q1	16
ING_COS We study fundamer	nd atal appagata of modern appro	ting overame	in torma o	01 fthoir otru	ioturo and the
we sludy fulldaffel	ital concepts of modern opera	Deel Time	III leinis o Multimodio		
Sustema Ma study	modern design issues of press		multimedia		pie Flocessoi
Systems. We study	modelli designi issues of proces		ation of the	k, memory	manayement,
hovo knowlodgo of t	the fundamental concents and security	Aller compr	elion of the	course a	student should
have knowledge of t					nouern uesign
Broroguioito: ICOS1					
	CONCURRENT SYSTEMS 22				
	CONCORRENT_3131EM3_22	Daukla	4 . 4	60	40
ING_COS	003223	Double	4 + 1	<u>52</u>	10
Nost of computer so	cience courses deal with seque	ntial program	s. This cour	se looks a	t concurrency,
what it means, how	it can be exploited, and what fa	icilities are av	anable for p	proving pro	grams correct
and deadlock free.	In the process we learn the I	-inite State H	rocesses (FSP) lang	uage and run
specifications on the	e Labelled State Transition Ana	iyser (LISA)	Inese pro	grams car	be translated
into Java implement	ations and tested for a variety	or classic cor	itrol and syl	ncnronisat	on processes,
and some interesting	y modern examples.				
Prerequisite: [COS1	TU J OF [TDH]				

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
COS301	SOFTWARE_ENGINEERING	301			
ING_COS	n a The second	English	1+1	J1	27
The module expose	es students to problems associa	ated with soft	ware deve	opment or	n an industrial
scale. Overall goals	s of the course are: to unders	stand the sof	tware engi	neering pr	ocess and to
appreciate its compl	exity; to be exposed to a variety	y of methodol	ogies for ta	ckling diffe	erent stages of
the software life cy	ycle. To become familiar with	the latest tr	ends in so	oftware en	gineering. To
experience the adva	antages and problems of workir	ng in a group	. To take r	esponsibili	ty a variety of
roles within a grou	p, and to understand the diff	erent require	ments for	these; to	complete the
development of a fai	irly large OO-based software pro	oduct. The foo	cus of the c	ourse is or	a project that
lasts the whole	year. The project is tackle	d in group	s of app	roximately	4 students.
Prerequisite: [COS2	14] or [TDH]				
COS314	ARTIFICIAL_INTELLIGENCE_	314			
ING_COS	na	Bilingual	2 + 1	S1	18
In this course, class	sical themes in AI are studied	such as plan	ning, searc	hing, imag	je recognition,
machine learning,	etc are studied. A particular	focus is pla	ced on the	e modern	AI theme of
computational intell	igence, with reference to ne	ural network	s, intellige	nt agents,	genetic and
evolutionary algorit	thms, etc. Concepts are co	onsolidated t	hrough ho	omework	and practical
assignments.					
Prerequisites: [COS	214] and [WTW128]				
COS326	DATABASE_SYSTEMS_326				-
ING_COS		Double	1+1	S2	18
This module builds	on a prior introductory modu	le on databa	se technol	ogy and p	provides more
advanced theoretica	and practical study material.				
Prerequisites: INF 2	14 or LP				
COS332	COMPUTER SCIENCE				
ING_COS	na	English	2 + 1	S2	18
Computer Network	s 332				
The objective of th	is module is to acquaint the	student with	the termin	ology of c	ommunication
systems and to est	tablish a thorough understand	ing of exactly	y how data	a is transf	erred in such
communication netw	vorks, as well as applications that	at can be fou	nd in such	environme	nts. The study
material includes: c	oncepts and terminology, the h	nierarchy of p	protocols ad	cording to	the OSI and
TCP/IP models, pro	tocols on the data level, physica	al level and n	etwork leve	el as well a	as higher level
protocols. The practi	ical component of the module in	volves progra	mming TCF	P/IP socket	ts using a high
level language.	·		Ū.		
Prerequisite: COS	214 or TDH				
COS333	PROGRAMMING_LANGUAGE	S_333			
ING_COS	na	English	2 + 1	S2	18
The overall goal of t	he course is to survey character	istics of the m	nost importa	ant kinds of	f programming
languages. Three pa	aradigms are studied: imperative	e, functional a	nd logic. Th	ie syntax, s	semantics and
implementation of	various languages within these	e paradigms	are studie	d, critique	ed and cross-
compared. Students	are given practical exercises in	each of these	e language	paradigms	s, as well as in
scripting languages.					
Prerequisite: [COS1	10] or [TDH]				
COS341	COMPILER CONSTRUCTION	341			
ING COS	na	English	2 + 1	S1	18
The course illustrate	es how to build a complete com	piler for a mi	ni-language	based or	I Java using a
compiler generator.	It covers LL and LR parsing,	abstract syn	tax trees,	semantic a	analysis, error
recovery and code	generation. Emphasis is place	ed on back-e	nd analysi	s including	intermediate
codes, basic blocks,	register allocation, liveness ana	lysis and garl	bage collect	tion.	
Prerequisite: [COS2	12]		-		
COS343	TRENDS_IN_INFORM.TECHN	OL343			
ING_COS	na	English	2 + 1	S1	18
The content of this	module is specifically intended	to keep stud	ents abrea	st of new	and important
trends in IT. The mo	dule focuses on relevant topics	that vary from	year to ye	ar at the di	scretion of the
department.		, -			
Prerequisite: [COS1	10]				

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
COS344	COMPUTER_GRAPHICS_344				
ING COS	na <u> </u>	English	2 + 1	S2	18
The aim of this cou	rse is to acquire a sound know	ledge of the	basic theor	v of intera	ctive computer
graphics and basic	computer graphics programm	ina techniau	es. The the	eorv will o	cover graphics
systems and mod	els. graphics programming.	input and i	nteraction.	aeometric	objects and
transformations vie	wing in 3D shading rendering	techniques	and introd	uce advar	nced concepts
such as object orig	inted computer graphics discre	ete technique	s The more	dule inclu	des a practical
component that en	ables students to apply and t	est their kno	wledge in	computer	araphics The
OpenGL graphics lik	prary and the C programming lar	nguage will be	e used for th	nis purpose	9.4p
Prerequisites: ICOS	2141 and [WTW126]	iguage mil b			5.
COS389	MICROPROCESSOR SYSTEM	AS 389			
ING COS	n a	English	2 + 1	S2	18
Covers the following	n areas of the 80x86 IBM PC	and compatib		rs: micror	processors and
supporting chips m	emory and memory interfacing	input/output	it and inter	facing tim	ner and music
interrunte device dr	ivers buses programming in C	and accombly		acing, un	
Proroquisito: ICOS2	80 1 or ITDH1		y language.		
	ANIMAL ANATOMY&PHYSIO	0.007 200			
NAS VKU		English	1 + 1	11	36
Conorol structure of	nd plan of the body of livesteel		oboroctoria	tion of col	lo opd ticquog
Bedy water Apotor	nu plan of the body of livestoch	k. Types and	Characteris		anu lissues.
bouy water. Anator	ny, physiology and histology t	JI SYSTEMS. C	Skill, Skelet	on, musci nd amali	es, connective
lissue, ligaments, j	onis, nervous system, senso	ly organs of	signi, sou	nu, smeil	, louch, lasie,
circulatory system,	respiratory system, endocrino	blogy, male			clive systems,
digestive system, ga	astrointestinal tract, liver, pancre	eas; kidneys, a	acid-base b	alance and	a nomeostasis;
lactation; immune sy	stem. General species difference	ces.			
Prerequisite: [CMY1	27 Jor [IDH]				
DAN310	ANIMAL_ANATOMY_310			-	
NAS_VKU	na	Bilingual	1 + 0.5	S1	8
Functional anatomy	, growth and development of	f tissues and	d organ sy	stems. C	hanges during
maturation, reprodu	iction, the post-partum period	and lactation	n. Ageing a	ind tissue	changes with
erosion diseases. T	he influence of hormones, pro-	duction and r	reproductior	n on confo	ormation and a
critical evaluation of	assessment of animals for func	tional efficien	cy.		
Prerequisite: [DAF2	00]				
DFS311	ANIMAL_PHYSIOLOGY_311				
NAS_VKU	na	Bilingual	2 + 0	S1	10
Homeostasis and He	omeorhesis in animals: Thermor	regulation. Ad	laptation of	glucose, li	pid and protein
metabolism in respo	onse to short and long-term char	nges in the su	pply and ba	lance of n	utrients and to
changes in tissue de	emand for nutrients during different	ent physiologi	ical states. I	Deviations	from normal
homeostasis, metab	olic diseases and the prevention	n thereof. Pat	hogenesis c	of inflamma	ation and
infections; immunity	. Prerequisite: [DAF200]		-		
DFS320	GROWTH_PHYSIOLOGY_320				
NAS_VKU	n a The second	Bilingual	2 + 0.5	S2	10
The underlying phys	siological processes in growth ar	nd developme	nt. Pre- and	post-nata	al growth and
factors which detern	nine growth rate: growth curves,	stimulants of	growth, age	e, nutrition	, race, gender,
et al. Prerequisites:	[DAN310] and [DFS311]		0 / 0		
EKN110	ECONOMICS 110				
EB EKN	n a	Bilingual	3 + 0	S1	10
Conceptualise the	interrelationships of the diffe	erent sectors	in South	African e	economy. The
functioning of interr	national trade, government eco	nomics and i	oolicy, the I	abour ma	rket, monetary
economics, econom	nic development, and environn	nental econo	mics with s	pecific re	ference to the
South African conte	ext. The impact of national and	international	decisions a	and events	s on the South
African economy					
FKN113	ECONOMICS 113				
FR FKN	na	Bilingual	3 + 0	S1	15
Introduction to econ	omics and principles of microeo	onomice	0.0	~ '	
The scope of econo	mice: the basic theory of demon	d and europy	nrice inco	me and cr	nes elasticity of
demand: consumer	utility the utility function and	case studios	in terms	f the utilit	v function: the
ucinaliu, consuller	aunty, the aunity function and	Case studies			y iuncuon, the

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term C	Credits
theory of the firm in	the short and long run; market	structures na	amely the p	erfect mark	et, monopoly,
oligopoly and mono	polistic competition; public sector	or finances; r	nicroeconor	mics vs mae	croeconomics
and economic statis	tics.				
Prerequisite/s: Reg	1.2(f)				
EKN120	ECONOMICS_120				
EB_EKN	na	Bilingual	3 + 0	S2	10
The economic env	ironment and problem: workin	g and cours	se of the S	South Afric	an economy;
functioning and inte	errelationships of the different	economic s	ectors. Mad	croeconomi	c theory and
analysis. Analyse a	and interpret economic perform	mance criter	ia: econom	ic growth,	inflation, job
creation, balance of	of payments and exchange ra	ate stability,	income dis	stribution. C	Calculate and
interpret core econo	mic indicators.				
Basic microeconom	ic principles: demand analysis	(consumer	theory); su	upply analy	sis (producer
theory). Market an	alysis: market equilibrium; pric	e determina	ition; marke	et forms; m	arket failure;
calculate and interpr	et price, income and cross elast	ticities.			
Prerequisite/s: [EKN	110 GS or EKN113GS] and Rec	g 1.2(f)			
EKN123	ECONOMICS_120				-
EB_EKN	na	Bilingual	3 + 0	S2	15
National income and	<i>t principles of macroeconomics.</i>				
The mechanics of	national income accounts, the	Keynesian	macroecon	omic mode	I, the money
market, demand fo	r money and money supply, r	money and	credit creat	ion and the	e role of the
monetary authorities	 The IS-LM model of macroecc 	onomic equili	brium and n	nonetary an	d fiscal policy
applications; The a	ggregate demand and supply	models with	the debat	e between	the classical
school, the moneta	rists and the Keynesian school	I. The proble	ems of infla	tion and ur	nemployment.
Macroeconomic issu	ues namely: macroeconomic po	licy, internati	onal trade,	the balance	of payments
and economic growt					
Prerequisite/s: [EKN	113 GS and Par 1.2(t)				
EKN214	ECONOMICS_214			1	1
EB_EKN	na	Bilingual	3 + 0	S1	16
Macroeconomics				e	
From Wall and Bay	Street to Diagonal Street – a	thorough un	derstanding	of the med	chanisms and
theories explaining	the workings of the economy is	essential. M	acroeconon	nic insight is	s provided on
the real market, th	e money market, two market	equilibrium,	monetarism	, growtn tn	eory, cyclical
analysis, inflation, r	Reynesian general equilibrium a	analysis and	fiscal and	monetary	bolicy issues.
Dranaminitatics for eco				ues.	(110001 and
PTETEQUISILE/S. [ENI	NTIUGS and EKINIZU OF EKI	NTISGS an	IU LEKINIZO		CITUGS and
	ECONOMICS 215				
		Bilingual	3 + 0	C 1	16
LD_LINN		Diiiiguai	5+0	51	10
The role and elem	s onte of the financial system in	the econor		ic descriptio	on functions
historic development	t legal framework and asset	and liability	structures of	of financial	institutions in
South Africa Finance	cial instruments in the money m	arket financ	ial instrume	nte in the c	anital market
fixed interest secur	ities market variable interest s	securities ma	irket stock	market (sh	ares) capital
market instruments	foreign exchange market and in	nstruments f	utures mark	et and cont	racts ontions
market and contract	s	iotramento, i			
The meaning and fu	Inctions of money understandin	a interest rat	es portfolio	choice the	behaviour of
interest rates, risk a	nd term structure of interest rate	s. an econor	nic analysis	of the finan	cial structure.
multiple deposit cre	ation and the money supply p	rocess. dete	erminants of	f the mone	v supply, the
demand for money	(different schools of thought)	transmissio	n mechanis	sms of mor	netary policy.
money and inflation	on, theory of rational expect	ations and	efficient c	apital marl	kets, rational
expectations and im	plications for policy.				,
Global finance and	the world economic environme	nt, Internatio	nal Moneta	ry System.	Eurocurrency
market and offshore	e banking, overview of the glob	al financial n	narkets, the	current mo	onetary policy
framework and poli	cy process in South Africa, pos	ssible future	developmen	nts (includir	inflationary
targets and modern	central banking trends), bank	regulation: t	he key role	banks mu	st play in the
financial system and	I the basic reason for bank regul	ation and ele	ectronic ban	king.	

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term (Credits
Prerequisite/s: [EKI [STK120GS]	N110GS] and [EKN120 or EK	N113GS] an	d [EKN123]	and [STI	K110GS] and
EKN224	ECONOMICS_224				
EB_EKN	na	Bilingual	3 + 0	S2	16
Microeconomics					
Microeconomic insi	ght is provided into: Consume	er and produ	cer theory,	general m	nicroeconomic
equilibrium, Pareto-	optimality and optimality of the	e price mecl	nanism, wel	fare econo	omics, market
forms and the pro	oduction structure of South A	Africa. Statis	tical and e	conometric	c analysis of
microeconomic issu	es.				
Prerequisite/s: [EKN	1110 or EKN113] and [STK110]	and [EKN214	GS]		
EKN225	ECONOMICS 225				
EB_EKN	n a	Bilingual	3 + 0		16
Economic thought a	nd development				
History of economic	thought and capita selecta deve	elopment issu	les. Econom	nic systems	s: types, origin
and historical devel	opment, history of economic the	ought, the his	story of west	ern and ot	her economic
systems.					
EKN310	ECONOMICS_310				
EB_EKN	na	Bilingual	3 + 0	S1	20
Public finance					
Role of government	in the economy. Welfare econo	mics and the	ory of optim	ality. Ways	s of correcting
market failures. Go	vernment expenditure theories,	models and	programme	s. Governn	nent revenue.
Models on taxation,	, effects of taxation on the ecor	nomy. Assess	sment of tax	ation from	an optimality
and efficiency point	of view. South African perspecti	ve on public f	inance.		
Prerequisite/s: [EKN	I214] and [EKN224] and [STK12	:0]			
EKN314	ECONOMICS_314				
EB_EKN	na	Bilingual	3 + 0	S1	20
International trade/fi	inance				
International econor international trade, customs unions an	nic insight is provided into inter international capital moveme d other forms or regional co-c	national econ nts, internati operation and	omic relatio onal trade I integration	ns and his politics, e , internatio	tory, theory of conomic and onal monetary
relations, foreign ex	change markets, exchange rate	e issues and	the balance	of paymer	nts, as well as
open economy mac					
Prerequisite/s: [EKN	[214] and [EKN224] and [STK12	20]			
EKN320	ECONOMICS 320				
EB_EKN	n a	Bilingual	3 + 0		20
Economic analyses					
Identification, collec	tion and interpretation process	of relevant e	conomic dat	a; the nation	onal accounts
(i.e. income and pro	oduction accounts, the national	financial acc	count, the ba	alance of p	bayments and
input-output tables);	economic growth; inflation; emp	bioyment, une	employment,	wages, pr	oductivity and
income distribution,	business cycles, infancial, lisca	and social in		ternational	compansons,
sconario analysis:	errel accompany of the Sou	th African of	alysis, iong-i	the period	d from 1060
onwarde			Sonony ove	i ule pend	50 110111 1900
EKN325	ECONOMICS 325				
ER EKN	n a	Bilingual	3 + 0	S2	20
Economic dovolor	pi a pent: capita selecto	Dinnyuai	5+0	02	20
Economic developin	Several macroeconomic polic		ch ac ficca	l and mo	notany policy
international trade n	olicy labour policy and competit	tion noticy E	chi as lisca	elonment is	e studied from
the nerspective of S	South Africa as a developing n	ation Severa	al canita sel	ecta is cov	ered with the
focus on sustainabil	ity of development in the South	African and r	aional cont	ovt	
Prereguisite/s: [EKN	I310GSI and [EKN314GS]]		sylonal conta	571.	
FOT110	ACADEMIC LITERACY(1) 14	0			
GW FOT	EOT151 EOT152	Bilingual	2 + 0	S1	6
An introduction to a	reademic literacy that considers	various land		na etvlee e	nd strategies
and provides an init	tial exploration of the characteri	istics of acad	emic langua	ig sigies d	nu sualcyles,
initially on academic	c listening and speaking. Practic	e in collection	a information	n for acade	emic tasks as
induly on academic	s notorning and opeaking. I labit		g miornatio		,, ao (ao (ao (ao (ao (ao (ao (ao (ao (ao

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
well as in the proc	cessing of academic information	n. In addition	n, the modu	ule has a	focus on the
enhancement of a	cademic vocabulary, and som	ne initial and	d elementa	ry acade	mic writing is
attempted.					
EOT120	ACADEMIC_LITERACY(2)_120				
GW_EOT	EOT153, EOT154	Bilingual	2 + 0	S2	6
While retaining an e	emphasis on the collection and p	processing of	academic	informatio	on, this module
also provides susta	ined practice in academic readi	ng. Similarly,	we concer	ntrate on	building up an
academic vocabular	ry specific to certain fields of stu	udy. The final	part of the	module b	orings together
academic listening,	reading and writing. The prod	luction of ac	ademic info	ormation i	in the form of
argumentative writin	ig is the focus here, i.e. we conc	centrate on pr	oducing ac	ademic di	scourse that is
rational, coherent, c	lear and precise.				
EOT161	ACADEMIC_READING_SKILLS	S_161		1	
GW_EOT	na	Bilingual	3 + 0	K1	6
Developing academ	ic reading skills in English, incluc	ding summari	zing, vocabı	ulary build	ling and critical
reading. *Not for stu	dents who are compelled to enro	oll for EOT110), EOT120.		
EOT162	ACADEMIC_WRITING_SKILLS	5_162			
GW_EOT	na	Bilingual	3 + 0	K2	6
Developing academ	ic reading skills in English, inclu	uding structur	ring and su	staining a	rguments, and
basic English gram	matical and editing skills *No	t for student	s who are	compelle	d to enroll for
EOT110, EOT120.	1				
EOT164	COMMUNICIN_ORGANIZATI	ONS_164			
GW_EOT	na	English	3 + 0	K4	6
This module focuse	s on the role of language in or	rganizations.	Techniques	for pers	uasion, finding
information, conduct	ting interviews, etc. are covered,	as well as me	ethods used	l in advert	ising and skills
needed for public s	peaking. The criteria for drawin	g up a succe	essful CV, f	for condu	cting meetings
successfully, writing	J letters, agendas, minutes and	l reports are	discussed	and prac	ticed. *Not for
students who are co	mpelled to enroll for EOT110, EC	OT120.			
ERG282	ERGONOMICS_282			I	1-
NAS_VBR	ERG110	Bilingual	1+1	S1	8
Study of general erg	jonomic principals as applied to t	he design of	workplaces,	work and	l ways of
performing work. Th	e interactions between the huma	in (user) and	his work, wo	orkspace	and general
environment (climate	e, lighting, and noise, etc.) serve	as a point of	reference. I	rerequisi	te: [ERG281]
EST121	AESTHETICS_121				1-
NAS_VBR	EST310	English	1+1	S2	9
Presentation technic	ques: story boards and technica	l drawings. F	resentation	technique	es using CAD.
Prerequisite: [OBG1	11]				
EST212	AESTHETICS:PRODUC.CONS.	.&EN.212			1-
NAS_VBR	EST211	Bilingual	1+1	S1	8
Introduction to aesth	netics: framework of approach; p	physical as pr	remise; role	of clothin	ig and clothing
environments; perce	ptual process; factors that influe	nce evaluatio	n. Aesthetic	s of the p	roduct: Design
elements in clothing	products; visual, tactile, audio a	nd olfactory e	elements; co	mplexity,	order, novelty.
Aesthetics of the co	onsumer: figure analysis; colour	r; design elei	ments: cloth	ning produ	uct and figure.
Aestnetics of the en	vironment: visual presentation in	clotning envi	ronments.		
Prerequisite: [EST12					
FAR381	PHARMACOLOGY_381			0.4	b a
MED_FAR	na l	Bilingual	2+0	S1	20
Introduction, recep	otors, antagonism, kinetic p	principles, th	ne autono	mic nerv	vous system,
pharmacotherapy of	r nypertension, angina pectoris,	myocardial in	marction, he	eart tailure	e, arrnythmias,
and epilepsy. Diure	tics, giucocorticosteroids, local a	anaestnetics,	anaestnetic	: arugs, a	naigesics, iron
and vitamins, oncos	tatics and immuno suppressants	•			
FAR382	PHARMACULUGY_382	Dilling and a l	0.0	<u></u>	45
	na I	Bilingual	2+0	52	15
Hormones, drugs	that act on the histaminergia	c, serotoner	gic, and d	opaminer	gic receptors.
intestinal discoses	Anticoagulante, antimicrohiel dru	a, uepression	, opesity, al	ixiety, ins	omna, gastro-
intestinal diseases. A	Anticoaguiants, antimicrobial dru	ys.			

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
FBS110	FINANCIAL_MANAGEMENT_1	110			
EB_RFB	n a	Bilingual	3 + 0	S1	10
Purpose and functio	ning of financial management. E	Basic financia	manageme	ent concep	ots. Accounting
concepts and the	use of the basic accounting e	equation to d	escribe the	financial	position of a
business. Recording	g of financial transactions. Re	lationship be	tween cash	n and acc	counting profit.
Internal control and	the management of cash. Deb	tors and shore	t-term inve	stments. S	Stock valuation
models. Depreciation	on. Financial statements of a	business. D	istinguishing	g charact	eristics of the
different forms of bu	siness. Overview of financial n	narkets and t	ne role of fi	nancial in	stitutions. Risk
and return charact	eristics of various financial in	nstruments.	ssuing ord	inary sha	ares and debt
instruments.					
Prerequisite: [Par 1	.2]				
FBS120	FINANCIAL_MANAGEMENI_1	120		0.0	1.0
EB_RFB	na	Bilingual	3+0	S2	10
Analysis of financial	statements. Budgeting and bud	igetary contro	I. I ax princ	iples and	normal income
tax for individuals.	lime value of money and in	ts use for fi	nancial and	d investm	ient decisions.
Calculating the cos	t of capital and the financing	of a busine	ss to main	tain the	optimal capital
structure. Capital Inv	resident decisions and a study	of the financi	al selection	criteria in	the evaluation
or capital investmen	i projects. The dividend decisio	n and an ove	rview or fina		management.
Frerequisite. [Par 1.	2				
FD3232		Dilingual	2 . 0	1/0	0
EB_RFB Ducing an understight	II a	Billingual	3 ± 0	nz	o
			ig decisions) .	
ED DED		Bilingual	2 + 0	K4	0
ED_KFD Oast of semitals data		Billingual	3 + 0	n 4	
Cost of capital, dete	ture: dividend decisions	is and the line	ancing of a	business	to maintain the
oplinal capital struc		00			
	FACILITATING_LEARNING_4	Bilingual		60	04
OFV_OFV Conceptualising chr	ind	Dilligual	T go in oduc	oz ation prav	etico Poreonal
development through	the reflection Studying the ph	ilosophy and	principles	of facilit	ating learning
Explore outcome b	ased education system Redefi	no ovistina ta	aching stra	itogios in	context of the
Lapiore outconic be	Designing and operationalisi	na learnina	tasks for	learners	Creating and
managing a learning	environment in which learner	s can constru	ict and sha	re meanir	a Understand
the importance of (collaboration team teaching ar	nd networking	n Develon	an intear	ated approach
supported by ICT pe	rtaining to the seven roles of the	e teacher.	. Dorolop	an integi	atou approact.
FIL155	SCIENCE AND WORLD VIEW	NS 155			
GW FIL	na <u> </u>	Double	1+0	K1	6
Role played by mat	nematics and observation (expe	riment). Indu	ction and fa	Isification.	Causality and
determinism. Scient	tific revolutions: theory of relat	tivity, quantur	n and evol	ution the	ory. Brain and
consciousness. How	is ethics possible? Euthanasia	and abortion.			
FLG211	INTRODUCTORY_&_NEUROP	PHYS.211			
MED FLG	n a	Bilingual	2 + 1	S1	16
Orientation in phys	iology, homeostasis, cells, tiss	sues, muscle	, neurophys	siology a	nd the special
senses.					
Prerequisites: [CMY	117 GS] and [MLB111 GS] and	[PHY171 GS	or GS]		
FLG212	CIRCULATORY_PHYSIOLOG	Y_212			
MED_FLG	n a	Bilingual	2 + 1	S1	16
Body fluids; ha	ematology; cardiovascular	physiology	and the	e lymph	atic system.
Prerequisites: [CMY	117 GS] and [CMY127 GS] and	[MLB111 GS] and [PHY1	171 GS or	GS]
FLG221	LUNG/RENAL_PHYS,ACID/TE	MP221			
MED_FLG	n a	Bilingual	2 + 1	S2	16
Structure, gas exch	ange and secretory function of	f the lungs, s	tructure, ex	cretory a	nd non-urinary
function of the kidne	ys; acid-base balance as well as	s the skin and	body temp	erature co	ontrol.
Prerequisites: [FLG2	211] and [FLG212]				

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term 0	Credits
FLG222	DIGEST.,ENDOCR.&_REPROI	D/SYS222			
MED_FLG	na	Bilingual	2 + 1	S2	16
Nutrition, digestion	and metabolism; hormonal cor	ntrol of the b	ody function	ns and the	reproductive
systems.					
Prerequisites: [FLG2	211] and [FLG212]				
FLG311	APPL.CELLULAR_PHYSIOLO	GY_311			-
MED_FLG	na	Bilingual	1 + 1	S1	14
Study of cell morph	nology, functions of the cell org	ganelles, synt	thesis of the	e various r	nembrane en
cytoskeleton proteir	ns, activation of proteins throug	gh phosphory	lation which	n is control	lled by signal
transduction mecha	nisms, processes involved in co	ntrolling cell	numbers, ba	ackground	for cell based
experiments and res	search.	10014004 00		000 001	
Prerequisites: [BCM	251 GSJ and [BCM252 GSJ and	[BCM261 GS	s] and [BCM	262 GSJ ar	nd [FLG221]
and [FLG222]					
FLG312	DEVELOPMENTAL_PHYSIOL	OGY_312	4 . 0	04	6
MED_FLG	na	Bilingual	1+0	51	9
Study on the physio	logical development and adapta	uons from the	e toetus to ol	u age.	
Prerequisites: [BCM	251 GSJ and [BCM252 GS] and	IBCM261 GS	and IRCM	202 GSJ ar	10 [FLG221]
	RESEARCH_METH.&_LIT.STC		4 . 4	C4	4.4
MED_FLG	na Isan subis	Bilingual	[] +] itemations	ST studies su	[14
Research methodo	10gy, career planning, subject		Ilterature	studies al	nd seminars.
and [EL C222]				vizoz 63j	anu [FLG221]
MED ELC		Dilingual	1 ± 0	C1	h
Introduction to	hasia applied and	intograted	immuno	logical	a mooboniomo
Proroquisites: IBCM	251 GSI and IBCM252 GSI and		Initiality and IBCI	10910al	and [ELC221]
and IFI G2221				vizoz 63j	anu [i 1022 i]
FI G322	INDUSTRIAL PHYSIOLOGY	322			
MED FLG	na	Bilingual	1 + 1	S2	14
Problem orientated	course with the emphasis on	occupational	health and	safety in	the industrial
environment. Integra	ation of different physiological sy	stems.		ouroty in	
Prereguisites: [BCM	251 GS] and [BCM252 GS] and	[BCM261 GS	3] and [BCM	262 GS] ar	nd [FLG221]
and [FLG222]		•		-	
FLG324	EXERCISE_PHYSIOLOGY_32	4			
MED_FLG	na <u> </u>	Bilingual	1+1	S2	14
Mechanisms of	muscle contraction and e	nergy source	ces. Cardi	o-respirato	ry changes,
thermoregulation an	d other adjustments during exe	ercise. Use a	nd abuse of	f substance	es to improve
performance.					
Prerequisites: [BCM	251 GS] and [BCM252 GS] and	d [BCM261 G	S] and [BCI	M262 GS]	and [FLG221]
and [FLG222]					
FLG325	NUTRITION_PHYSIOLOGY_32	25			-
MED_FLG	na	Bilingual	1+0	S2	9
The importance of	nutrients and micro-nutrients in	n the compo	sition of a	normal die	et; the neuro-
endocrine control	of food intake and special a	spects of in	nmunology	of the di	gestive tract.
Prerequisites: [BCM	251 GSJ and [BCM252 GSJ and	I IBCM261 G	isj and [BCI	W262 GS]	and [FLG221]
	RESEARCH PROJECT_326	Dilimentel	4 . 4	00	4.4
IVIED_FLG	lid	Bilingual	+ 1	52	14
Special techniques a			Sl and ID O	1262 001	
and IEL C2221			ol and IRCI	vizoz (68]	anu [FLG221]
EL G327		INCT 327			
		Afrikaans	0 + 2	S2	20
	11 a	- III Kaalis	0 - 2	04	<u>~</u> ∪

Module	Title					
Fac Dept	Old code	Language	lpw/ppw	Term	Credits	
Tutorials and semir	hars on higher functions of the	brain and in	teraction be	tween the	e neurological,	
endocrine and immune systems.						
Prerequisites: [BCM	251 GS] and [BCM252 GS] and	[BCM261 GS	3] and [BCM	262 GS] a	nd [FLG221]	
and [FLG222]		-		-		
FLG328	PATHOPHYSIOLOGY_328					
MED FLG	na	Afrikaans	1+0	S2	9	
Human pathophysio	logy.					
Prerequisites: [BCM	251 GS] and [BCM252 GS] and	[BCM261 GS	3] and [BCM	262 GS] a	nd [FLG221]	
and [FLG222]		-		-		
FLG329	INTEGRATED_HUMAN_PHYS	IOL329				
MED FLG	na <u> </u>	Bilingual	0 + 1	S2	9	
Integration of all the	human physiological systems.					
Prerequisites: [BCM	251 GS] and [BCM252 GS] and	[BCM261 GS	3] and [BCM	262 GS] a	nd [FLG221]	
and [FLG222]						
FOE400	FOUNDATIONS OF EDUCAT	ION 400				
OPV OPV	n a	Bilingual	+	S1	6	
Exploration of theori	es and philosophies of learning	and pedagog	ical knowled	lge impac	ting on change	
in education. Issue	s impacting on education relate	ed to decision	n- making ir	the clas	sroom: school	
system, interpretation	on of policy documents and progr	ramme studie	es.			
FPP451	CHEM/MICROBIOL ASPEC/F	OOD 451	-			
NAS VDW	VOV483	English	2 + 1	S1	20	
Chemical aspects:	The role and composition of t	he major che	emical com	onents c	of food (water.	
carbohydrates, prot	teins and lipids). The content	and nutrition	al role of c	lifferent n	ninor chemical	
components of food	(minerals and vitamins) The pr	rinciples and	control of er	zvmic an	d non-enzymic	
browning. The con	nposition and use of enzyme	s in food p	rocessina. I	Microbiolo	gical aspects:	
Introduction to micro	o-organisms. Intrinsic and extrins	sic factors that	t affect grow	th and su	rvival of micro-	
organisms. Importa	nt microbial groups in food. Mic	robial spoilad	e of foods.	Determin	ation of micro-	
organisms and/or t	heir products in foods. The pre	eservation of	foods. Micr	obial indi	cators of food	
safety and quality. F	ood borne diseases and intoxic	ations. The ι	utilisation of	micro-org	anisms in food	
production.						
Prerequisite: [Third-	-year status or TDH]					
FPP452	FOOD_PROC.EQUIP/OPERAT	IONS_452				
NAS_VDW	VOV485	English	3 + 0.5	S1	20	
(Also includes: 1 dis	scussion class per week) Dimen	isions and un	its. Introduct	tion to ma	ss and energy	
balance. Heat trans	fer theory, Energy for food prov	cessing, Fluid	d flow and r	heology, ı	unit operations	
including: materials	handling, cleaning, sorting a	ind grading,	peeling, dis	sintegratio	n, separation,	
pumping, mixing	and forming, heating,	concentratio	n, drying,	extrus	ion, cooling.	
Prerequisite: [Third	-year status or TDH]					
FPP461	APPRO.FOOD_PRES.VATION	_TECH461				
NAS_VDW	na	English	2 + 0.5	S2	20	
Food security. Pos	t-harvest losses (biochemical	spoilage, che	emical spoil	age, phys	sical spoilage,	
physiological spoila	ige, microbial spoilage, insect	s and roden	ts). Post-ha	rvest har	ndling of food	
(storage, transport	and packaging). Appropriate pr	ocessing and	d preservation	on techno	logies (drying,	
fermentation, chemi	cal preservation, heat treatment,	, hurdle techn	ology, millin	g).		
Prerequisites: [FPP4	151 GS] and [FPP452 GS] or [T	DH]				
FPP462	APPRO.FOOD_PROCESTEC	CHNO462				
NAS_VDW	VOV483	English	2 + 0.5	S2	20	
Cereals (milling, fe	ermentation, baking). Oilseeds	and legum	es (extraction	on, refinii	ng, bleaching,	
hydrogenation). Fru	its and vegetables (drying, cann	ing, pickling).	Dairy (ferm	entation,	concentration).	
Meat (fermentation,	drying, canning, smoking and cu	uring).				
Prerequisites: [FPP4	451 GS] and [FPP452 GS] or [T	DH]				
FPP463	PROJECT_463					
NAS_VDW	VOV472	English	2 + 0.5	S2	20	
Exercise in beneficia	ating a locally produced agricultu	Iral raw mater	rial into an a	dded-valu	e food product	
with an extended sh	elf life; applying food preservation	on and proces	ssing princip	les, perfor	ming a mass-	
energy balance and	costing of the process. Prerequi	isites: [FPP45	51 GS] and [FPP452 (SS] or [TDH]	

Module	Title				
Fac_Dept	Old code	anguage	lpw/ppw	Term	Credits
FRK111	FINANCIAL ACCOUNTING 11	1			
EB FRK	na – – – – – – – – – – – – – – – – – – –	Bilingual	4 + 0	S1	10
The nature and fun	ction of Accounting; the develop	ment of Aco	counting; fin	ancial pos	ition; financial
result; the recording	g process; processing of Accou	unting data;	elementary	income s	statement and
balance sheet; flow	of documents; accounting syste	ems; introdu	ction to inte	rnal contro	ol and internal
measures; bank re	conciliations; control accounts;	adjustmen	ts; financial	statemer	nts of a sole
proprietorship. Prere	equisite: [Par.1.2]				
FRK121	FINANCIAL_ACCOUNTING_12	1			
EB FRK	na E	Bilingual	4 + 0	S2	12
Elements of financia	al statements in detail. The cor	nceptual fram	nework. Inco	ome stater	ment, balance
sheet, cash flow sta	tement and analysis and interpre-	etation of clu	ubs, partners	ships close	corporations.
Introduction to comp	panies.			•	
Prerequisite: [FRK1	11 GS]				
FSG110	PHYSIOLOGY 110				
BA GW	na E	Bilingual	3 + 0	S1	6
Information available	e at the Department	J • •		-	1
FSG120	PHYSIOLOGY 120				
BA GW	na [Rilingual	3 + 0	S2	6
Information available	a at the Department	Siingaai	0.0	02	P
Prereguisite: [ESG1	10 GSI				
		Doublo	4 + 1	C1	16
NAS_FITT Mathematical intrad	lid line		HT I	OI and thro	10 a dimonoiona
Mathematical Introd	uction, motion in a straight line	, vectors, m	iotion in two	and thre	e dimensions,
Droroguioiteo: IV/TV	Kinetic and potential energy,	WOIK, COIIIS	sions, rotati	on, oscilla	ations, waves.
Frerequisites. [WTW					
FSK126	PHISICS_126	D. I.I.	4 . 4	00	40
NAS_PHY	na l		4+1	<u>S2</u>	16
Electric charge, elec	tric fields, Gauss' law, electric po	otential, capa	icitance, ele	ctric currer	nt and
resistance, circuits, i	magnetic fields, induction and inc	suctance, alt	ernating cur	rent, electr	omagnetic
waves, mirrors, lens	es. Prerequisite: [FSK116 GS]				
FST250	INTRO/FOOD_SCIENCE_&_TE	CH250	I	I	
NAS_VDW	VDW211	English	2+1	S1	12
Lectures: How food	is produced, processed and c	distributed (f	ood pipeline	e). Human	nutrition and
human food require	ments. Constituents of foods. Fo	bod quality.	Food deterio	pration and	d control (food
preservation). Unit	operations in food processing.	Food safety	, risks and	hazards.	Selected food
industries. Principle	s of food packaging. Food legi	slation and	labelling. Fo	ood proce	ssing and the
environment. Practic	cals: Group assignments applying	g the theory	in practice;	practical d	emonstrations
in pilot plants; guest	t lecturers on the world of food s	scientists; fai	ctory visit/vic	deos of foo	od processing.
Prerequisites: [CIVIY	117] and [CMY127] and [MBY16	1] and [PHY	131] and [w	100134]0	r[IDH]
FST260	PRIN/FOOD_PROC&_PRESE	RV260	I		
NAS_VDW	VDW222	English	2 + 1	S2	12
Lectures: Food pi	reservation technologies: conc	cept of hui	rdle techno	ology; hea	at (blanching,
pasteurisation and s	terilisation); cold (refrigeration ar	nd freezing);	concentratio	on and deh	ydration; food
irradiation; fermenta	ation; preservatives; new methe	ods of food	l preservation	on. Practio	cals: Practical
applications of abov	ve processes. Physical, chemic	al and sens	ory evaluat	ion of pro	cessed foods.
Assignment: Appli	cation of hurdle technolog	y concept	to a s	pecific fo	ood product.
Prerequisites: [CMY	117] and [CMY127] and [MBY16	1] and [PHY	131] and [W	IW134]0	r[IDH]
FST350	INTEGRATED_FOOD_SCIENC	E_350			-
NAS_VDW	VDW400	English	2 + 0	J1	18
Literature studies	and seminar presenta	ations on	topics	in Foo	d Science.
Prerequisites: [FST2	250] and [FST260] or [TDH]				
FST351	FOOD_CHEMISTRY-(1)_351				
NAS_VDW	VDW314	English	2 + 1	S1	18
Lectures - Chemistr	y of major food components: C	arbohydrates	s. Proteins.	Lipids. Wa	ater. Chemical
and nutritional aspe	ects of food processing: implication	tions of diffe	erent proces	sing tech	niques on the

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
major food compo	nents. Functional properties o	of the major	food comp	onents.	Modification of
functional properties	of the major food components.	Food analysi	s methodolo	ogy. Practi	cal work: Food
analysis.					
Prerequisites: [BCM	251] and [BCM252] and [BCM20	61] and [BCN	1262] or [TE)H]	
FST352	FOOD_CHEMISTRY-(2)_352		_		
NAS_VDW	VDW324	English	2 + 1	S1	18
Lectures - Basic Fo	od Analysis and Chemistry of the	ne Minor Foo	d Compone	nts: Basic	food analysis,
vitamins, minerals,	additives, contaminants. Chem	nical and nut	ritional aspe	ects of for	od processing:
implications of differ	ent processing techniques on r	minor food co	omponents).	Functiona	al properties of
the minor food of	components. Food analysis	methodology	. Practical	work: F	ood analysis.
Prerequisites: [BCM	251 J or [TDH] and [BCM252] of	or [IDH] and	[BCM261]	or[IDH]	and [BCM262]
OF [TDH]					
	FOOD_ENGINEERING_353	E a alla h	0.05	64	4.0
NAS_VDW	LPR311,312		3 + 0.5	ST	18 and rediction
Lectures- Mass and	a energy balance. Heat transfe	er theory: Co	invection, c	onduction	and radiation.
Energy for food pro	cessing. Fiuld flow and meolog	gy. Unit operation	ations: mate	elaged and	dling, cleaning,
sorting, grading, pe	ening, disintegration, separation	i (e.g. memu	orane techn	ology), pu	ala/practicala
Calculations on	g, concentration, drying, extrus	sion, reingera	alion, neezi	ng. Tuton	als/placticals -
Proroquisitos: ICMV	117] and [CMV127] and [EST26		1311 and IM	TW13410	anu neezing. r ITDUI
FST360	PLANT FOOD SCIENCE 360		i Si j aliu [W	100134]0	נושרן יי
	P 2	English	2 ± 1	60	19
Fruit and vegetable	science: Overview of structure	and chemic	al composit	tion · Nutri	itional value of
fresh fruits and year	science. Overview of structure	and chemic		ality aval	uption of fresh
nroduce Post-harv	est handling: storage nackadi	ng and trans	enort Shelf	i lifo ovto	nsion of fresh
produce. Tost-harv	ence: Sources of cereal produc	ts in the worl	d Structure	and cher	nistry of cereal
grains Chemistry of	wheat proteins. Storage of cere	als Nutrition	al value of a	cereals D	ough rheology
Oilseeds and legum	es science. Structure and chem	istry of the m	ost importa	nt leaume	s and oil seeds
(sova beans, pean	uts. sunflower seeds). Practical	work: Labo	ratory analy	ses of co	mponents and
products of cereals,	oilseeds, legumes and fruits ar	nd vegetables	. Modified a	atmospher	e packaging of
fruits and vegetable	s; Determination of quality.	0			
Prerequisites: [FST2	250] and [FST260] and [FST351] and [FST35	2] or [TDH]		
FST361	ANIMAL_FOOD_SCIENCE_36	1			
NAS_VDW	na	English	2 + 1	S2	18
Dairy science: Com	position of milk; some physical	properties of	milk; factors	affecting	composition of
milk; microbiologica	aspects of milk production; lac	ctation; mech	anical milkir	ng; milk de	efects; nutritive
value of milk and	milk products. Practical work	c: Chemical	and microl	biological	tests of milk.
Demonstration of th	e cheese-making process. Mea	t, poultry, fish	n and egg so	cience: Th	e composition,
nutritional value and	quality of meat, poultry, fish an	d eggs; facto	ors affecting	quality fro	m slaughter or
harvesting to cons	umption. Practical work: Visi	ts to red m	neat and p	oultry ab	attoirs; quality
determinations, egg	quality and protein functionality.				
Prerequisites: [FS12	250j and [FS1260j and [FS1351]	and [FS135	2] or [I DH]		
FS1400	RESEARCH_METHODOLOGY	_&_SEM.400)	1	6.0
NAS_VDW	FS1453	English	2 + 1	<u>1</u>	20
Lectures and prac	ticals/assignments: Research	methodolog	jy. Literatu	re study	and seminar
presentations on top	ICS IN FOOD Science and/or Tech	nnology.			
Prerequisite. [Third-		NV 404			
	ANIMAL_FOOD_TECHNOLOG	51_401	0.1	14	60
NAS_VDW	FS1452	Englisn	<u> 2 + 1</u>	UT Servers servers al	
Dairy technology: I	ne technology of fluid, concentr	ated, dried, f	rozen and t	ermented	dairy products
and starter culture	oducte in this actorony Dessible	ppiy anu oti a defecta car		ovention	Dractical work:
Preparation of cond	ensed milk custard ready to or	e uelecis, cal	descerte f	evenuon.	milk beverages
dainy fruit juice mixt	ures ice cream and other from	an desserts:	vogburt and	avoureu II	milk products:
cheeses Evaluation	n and analysis of the produc	ts Factory	visits Meat		fish and equ
technology: Meat	poultry, fish and egg proces	ssing and e	auipment	Meat em	ulsion. curing

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
dehydration and fer	mentation technology. Preservat	tion and stora	age. Packa	ging. Leo	gislation. Quality
control and hygiene. Practical work: Manufacturing of dried, cured, fermented and emulsion type					
products. Visits to pr	rocessing factories.				
Prerequisite: [FST36	61] or [TDH]				
FST402	PLANT_FOOD_TECHNOLOGI	ES_402			
NAS_VDW	FST462	English	2 + 1	J1	20
Fruit and vegetable	technology: Extension of shelf I	life of minima	lly processe	ed fruits	and vegetables.
Pre-processing. Pro	ocessing and preservation: can	ning, freezing	g, dehydrat	ion, con	centration, juice
extraction, irradiati	on and fermentation. Effect	of process	ing of nu	utritional,	sensory and
microbiological qual	ity. Practical work: Practical exe	ecution of the	processes	describe	d above in pilot
factory; factory visit	s; execution and reporting of a	practical pro	ject on ext	ended sl	helf life of fresh
juice or of minima	lly processed fruits and vegeta	ables. Cerea	I technolog	y: Dry a	and wet milling
extraction processe	s. Bread baking technology. S	Soft wheat p	roducts teo	chnologie	es. Malting and
brewing technology	 Production of RTE (ready- 	-to-eat) brea	kfast cerea	als. Pas	ta and noodle
technology. Alternat	ive uses of cereals. Traditional	African cerea	al products.	Practica	al work: Visits to
mills, bakeries and	breweries. Experiments to dete	ermine the m	nilling and I	baking q	uality of wheat.
Rheological, chemi	cal and baking tests of whea	t. Small-scal	e processi	ng, facto	ory visits, basic
analytical methods	and quality control of cereal	products. Oi	lseeds and	legume	s technologies.
Processability, funct	ional characteristics and food ap	oplications of	the most in	nportant	legumes and oil
seeds (soy beans,	peanuts, sunflower seeds). Pra	actical work:	Visits to for	od factor	ries; small-scale
processing of olisee	ds and legumes. Prerequisite: [F	S1360] or [1	DHJ		
	PRODUCI_DEVELOPMENI_4	10	0	6.	6.0
NAS_VDW	VDVV442,FS1461	English	2+1	S1	20
Lectures: Principles	involved and steps followed in th	he developme	ent of new f	ood prod	lucts. Practicals:
Applying the theory	of food product development:	A product de	evelopment	project	will be planned,
executed and prese	nted orally and in a written forma				
Prerenuisites' IEST	2601 and 1551 3511 and 1551 352	IOFILIDHI			
FST411	SENSORY_ANAL.&QUAL.MAN	N.SYS.411	0 + 4	C1	bo
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FST411 NAS_VDW Lectures: Quality m HACCP and ISO 90 test conditions and	SENSORY_ANAL.&QUAL.MAN VDW442,FST461 anagement systems with speci 00. Principles and applications of their functions. Selection and	N.SYS.411 English ific reference of sensory ev d training of	2 + 1 to Good M aluation. Ty panellists	S1 Manufact pes of p for desc	20 uring Practices, anels, tests and criptive sensory
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FST411 NAS_VDW Lectures: Quality m HACCP and ISO 90 test conditions and evaluation. Instrume Application and imp evaluation techniq measurements. Prei FST412 NAS_VDW Capita selecta FST4 Principles and appli functions. Selection quality measurement Practicals: Practica interpretation of data Prerequisite: [TDH] FST420 NAS_VDW Lectures: Lectures processing and nutit Advanced techniqu microbiology, food e Prerequisite: [Third- FST463	SENSORY_ANAL.&QUAL.MAN VDW442,FST461 ianagement systems with speci- i00. Principles and applications of it their functions. Selection and intal sensory quality measureme idementation of HACCP. Practic ues, analysis and interpreta requisites: [FST260] and [FST35 SENSORY_ANALYSIS_412 n a 11. cations of sensory evaluation. Ty and training of panellists for des its. Statistical analysis and interpr a apects and execution of a. Instrumental sensory quality m ADVANCED_FOOD_SCIENCE FST451 in advanced level food chemin rition. Problem solving and litera es of analyses and applicati ngineering, food processing and -year status] or [TDH] RESEARCH_PROJECT_463	V.SYS.411 English ific reference of sensory ev d training of nts. Statistica als: Practical tition of data iti] and [FST3 English retation of data sensory eva teasurements 420 English stry, food mi ature discuss ons or assi nutrition.	2 + 1 to Good N aluation. Ty panellists a aspects al a. Instrun 52] or [TDH 1 + 1 s, tests and ory evaluati ita. aluation teo 2 + 0 crobiology, ion. Practic gnments ir	S1 Manufact pes of p for desc nd interp nd execu- ental s 1] S1 test con on. Instru- chniques S2 food er als and/ o food o	20 uring Practices, anels, tests and criptive sensory retation of data. ution of sensory ution of sensory utions and their 10 ditions and their umental sensory , analysis and 20 ngineering, food pr assignments: chemistry, food
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FST411 NAS_VDW Lectures: Quality m HACCP and ISO 90 test conditions and evaluation. Instrume Application and imp evaluation techniq measurements. Prei FST412 NAS_VDW Capita selecta FST4 Principles and applif functions. Selection quality measuremen Practicals: Practica interpretation of data Prerequisite: [TDH] FST420 NAS_VDW Lectures: Lectures processing and nut Advanced techniqu microbiology, food e Prerequisite: [Third- FST463 NAS_VDW Planning, executior	SENSORY_ANAL.&QUAL.MAN VDW442,FST461 anagement systems with speci 00. Principles and applications of 1 their functions. Selection and intal sensory quality measureme blementation of HACCP. Practic ues, analysis and interpreta requisites: [FST260] and [FST35 SENSORY_ANALYSIS_412 n a 11. cations of sensory evaluation. Ty and training of panellists for dess its. Statistical analysis and interp a laspects and execution of a. Instrumental sensory quality m ADVANCED_FOOD_SCIENCE FST451 in advanced level food chemis- reition. Problem solving and litera- tes of analyses and applicati- ngineering, food processing and year status] or [TDH] RESEARCH_PROJECT_463 n and reporting of a research	NSYS.411 English Ific reference of sensory ev d training of training training of training	2 + 1 to Good N aluation. Ty panellists a spects at aspects at ta. Instrum 52] or [TDP 1 + 1 s, tests and ory evaluation ta. aluation teo by crobiology, ion. Practic gnments in 2 + 0 a selected	S1 Manufact rpes of p for desc nd interp nd exect hental s 1] S1 test con on. Instru- chniques S2 food er als and/ h food of food of S2 food er als and/ h food of Food of Food of S2 food of food food	20 uring Practices, anels, tests and criptive sensory retation of data. ution of sensory sensory quality 10 ditions and their mental sensory , analysis and 20 ngineering, food pr assignments: chemistry, food 40 Science and/or

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
GGY132	CARTOGRAPHIC_SKILLS_13	2			•
NAS_GGY	n a	Bilingual	0 + 1	S1	4
Principles of cartog	raphy. Map reading, analysis ar	nd interpretati	on; introdu	ctory surv	ey techniques.
Prerequisite: [Par 1	.2]	·			
GGY153	GEOGRAPHY OF CITIES 153	3			
NAS GGY	na <u> </u>	Double	4 + 0	K2	6
An introduction to th	e forms and functions of cities fr	om ancient tir	nes to the 1	7th centu	rv as a basis
for understanding ea	arly South African towns. The es	sence of the s	searegated	and apart	heid forms of
the modern South A	frican city.		3 3		
Prereguisite: [Par 1	.2]				
GGY155	HUMAN GEOGRAPHY OF S	ADC 155			
NAS GGY	na <u> </u>	English	4 + 0	K1	6
Foundations for unc	derstanding contemporary huma	n geographic	processes	in South	ern Africa The
course will trace the	e major changes in the economic	c. political and	population	n deograp	hy of Southern
Africa including thos	e associated with the formation	of the South A	African Deve	elopment	Community.
GGY162	REMOTE SENSING 162				
NAS GGY	n a	Bilingual	0 + 1	S2	4
Use interpretation a	and analysis of satellite imagery	aerial photo	ography and	d other re	motely sensed
data		, aona priot	graphy an		
Prereguisite: [Par 1	.21				
GGY164	PHYSICAL GEOGRAPHY OF	SA 164			
NAS GGY	n a	English	4 + 0	K4	6
Introduction to the	physical geography of South	Africa includ	ina climate	and we	ather natterns
landscape evolution	and topographical distribution	andscaning	nrocesses v	within arid	semi-arid and
coastal environment	s: fluvial systems and processes	: mountain er	vironment		, semi-anu anu
GGV165		768 165	WIGHTIERI) .	
		English	4 + 0	K3	6
Introduction to the	concepts of Physical Geography	Linglish Lond its rolat	ionshins to	other ph	
(climatology geolog	y hydrology biology) Geography	nhical implic	ations of e	ndogenic	and exogenic
forces in space and	time: their mutual interaction in	the long-terr	n formation	nrecent	dynamics and
vulnerability of land	forms and landscapes from a de	hal nersnecti		, present	uynannos, anu
Prerequisite: [Par 1	21				
GGV252		V 252			
		English	1 + 2	K2	12
Rhysical processes	that influence the earth's surface	a and manage	mont Sna	nific proce	access and their
interaction in theme	such as weathering: soil erosio	e anu manay	ement. Spe	t and flux	
GGV263	UPBAN MODELLING 263	п, зюре, тпаз	3 movemen	it and huv	lai processes.
	DRBAN_WODELLING_203	English	1 + 2	K3	12
The utility of evicting	n modele for urban planning for	Linglish aition in dovol		rto trica and	the challenges
ne utility of existing	realities will be exemined using			of oition of	and planning in
Africa Thomas disc	realities will be examined using		stilomont t		and planning in
importance of the	informal economy. In light of t	be realities	of the afor	omontion	and factors the
development of new	more appropriate urban model	a will be consi	idered	ementione	
GGV261			uereu.		
	DRBAN_SOCIAL_MORFHOLD	English	4 + 2	KA	12
The structure and or	actial distribution of alaga, incom	c othnicity o	+ + Z	r domogr	anhia variahlaa
in urban onvironme	ate in South Africa and other	e, ethnicity, a		litativo a	aprile variables
analyses of social	change and transformation in (rities includi	na seareaa	tion dese	areastion and
analyses of social			ig segrega	uon, uese	syregation and
Other themes include	te urban perception urban living	n social area	analveis	and enatia	al strategies for
social integration		y, 500iai aita	anaryoio, c	and opaile	in Strategies 101
GGY283	INTRODUCTORY CIS 282				
	n a	English	2 + 1	S1	12
Introduction to Coo	graphic Information Systems (C	IS) types of	CIS data	input dat	a analysis and
accoriated tooback	graphic information systems (G	ta analysis	tochniques	in proct	a analysis allu
associated technolo	uyy. Gio applications and da	ia andiysis	rechniques	in practi	icais comprise

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
evaluation of simpl	e soil characteristics. Field pra	acticals on s	oil formatio	n in the	Pretoria area.
Prerequisite: [CMY1	17 GS] or [TDH]				
GKD260	SOIL_FERTIL.&_PLANT_NUTF	RIT.260			
NAS_PGW	GKD228	Bilingual	3 + 1	S2	12
Principles of plant	nutrition. Essential plant nutrier	nt elements.	Soil as gro	wth mediu	um for plants.
Macro and micro el	ement supply to plants. Micro ele	ements. Defic	iencies and	I toxicities.	Evaluation of
soil fertility. Practica	al work: Laboratory evaluation of	of soil fertility	 Pot expe 	riments in	glass house.
Prerequisite: [GKD2	50 GS]				
GKD320	SOIL_CHEMISTRY_320				
NAS_PGW	GKD215	Bilingual	2 + 1	S2	14
The more exact che	emistry of soils systematically ex	plained by ur	derstanding	g the partion	cular chemical
principles. Charge	origin. Chemical equilibriums. M	lanifestations	of sorption	n. Ion exc	hange. Acidic
soils, saline soils a	and the organic fraction of soil.	. The chemis	stry of the	important	plant nutrient
elements P, K and N	l is explained.				
Prerequisite: [GKD2	50]				
GKD350	SOIL_CLASSIF.&_SURVEYING	G_350			
NAS_PGW	GKD317	Bilingual	2 + 1	S1	14
A taxonomic system	n for South Africa. USDA's Soil	Taxonomy.	Land suitab	oility evalu	ation. Optimal
resource utilization.	The conservation component.	Ecological a	aspects. Ec	otype, lar	nd types. Soil
maps. Practical wor	k: Field practicals and compulso	ry excursion.	Identificatio	n of soil h	orizons, forms
and families. Land s	uitability evaluation. Elementary	mapping exe	rcise.		
Prerequisite: [GKD2	50 GS]				
GKD351	SOIL_PHYSICS_351			r	
NAS_PGW	GKD329	Bilingual	1 + 0.5	S1	10
A study of some	soil physical properties of soi	I: structure,	texture, co	mpacting	and crusting.
Sedimentation and	sieve analyses for the detern	nination of p	article size	s. Condu	ction of heat.
Practical work: Dete	rmination of some physical prope	erties of soil.			
Prerequisite: [GKD2					
GKD460	ENVIRONMENTAL_MANAGEN	1EN1_460		0.0	6.0
NAS_PGW	PGW411+GKD414	Bilingual	4 + 1	S2	26
Chemical, physical	and biological soil degradation	(with the emp	phasis on p	ollution); t	ypes, causes,
eπects, compating.	Biogeochemical element cycles	. Sewage. A	cid rain. Pe	Sticides. A	spects of soil
erosion. Integrated	environmental management. En		mpact stud	les as we	i as planning,
Monogramont of oot	abmonto deportification modifie	ations of alo	ans. Suip	and open	cast mining.
wanagement of cat	chinents, desertification, modific	alloris of glor		tudion on	tor or invasive
loctures, Dusil enclusi	actiment and polition of all and active and [GKD350]	water. Fract	Cal WUR. S	luules on	ine aspects of
CKD461		SIS 161			
	CKD415	Dilingual	0 ± 1	60	14
NAG_FOW	SKD415	billingual	z + i	02 aanalatura	aloosification
and synthesis of cla	v minerale	interalogy. Sti	ucture, non	lenciature	, classification
CKD190					
	CKD487	Rilingual	3 + 1	60	14
NAS_FGW	overtien of detailed apil outro	Dililiyual	5 T I	oz and tha c	14
mane and reporte)	: analysis of climatic data; fie	d and cana		tion: anal	veis of water
resources Practical	, analysis of childle uald, he	iu anu capa	icity evalua	lion, anai	ysis of water
Proroquisitos: [GKD	2501 and [GKD350]	•			
CI V151		151			
		English	4 ± 1	K 1	0
Rolar evetom: atm	ucture of solid mottor: minare	Ligion le and rock	r⊤i e: introduo	tion to a	vmmetri and
ouidi systemi, Stru	ortant minerals and solid solut	ione: rock or	s, initiouulo icle: classifi	cation of	rocks Crustel
models mineral and	rock samples Prerequisite: [De	ar 1 21	UC, UASSII		TUCKS. Cryslal
GI V152	PHYSICAL GEOLOGY 152	ai i.2j			
	CLV113	English	1 + 1	K2	8
	021110	Ligion		- \L	~

Module	Title	
Fac_Dept	Old code Language	lpw/ppw Term Credits
geomorphology). Ir	nternal structure of the earth. The dynamic	earth – volcanism, earthquakes,
mountain building –	 the theory of plate tectonics. Geological proce 	esses (magmatism, metamorphism,
sedimentology, stru	uctural geology) in a plate tectonic context. Ge	ological maps and rock specimens.
Prerequisite: [Par 1	1.2]	
GLY161	HISTORICAL_GEOLOGY_161	
NAS_GLY	GLY123 English	4+1 K3 8
Principles of stratig	raphy and stratigraphic nomenclature; geologi	cal dating and international and SA
time scales; Africa f	framework and tectonic elements of SA; introdu	uction to depositional environments.
Overview of the hist	torical geology of SA, from the Archaean to th	e present: major stratigraphic units,
intrusions and tecto	onic-metamorphic events - their rock types, fos	sil contents, genesis and economic
commodities. Princi	iples of palaeontology and short description of	of major tossil groups: tossil torms,
ecology and ge	eological meaning. Geological maps	and profiles; rock samples.
Prerequisite: [Par 1		
GLY162	ENVIRONMENTAL_GEOLOGY_162	a ka ka
NAS_GLY	In a English	4+1 K4 8
Geological process	ses and their influence on man's environme	ent: earthquakes, volcanoes, slope
movement, subside	ance, floods, coastal processes, meteorite imp	acts, atmospheric changes. Natural
resource utilization a	and the impact of man on the geological envir	onment: urban development, dams,
nining, agriculture	in ansport systems, neavy structures, co	nstruction materials, groundwater
fossil specimens	isposal, environmental poliution. Geological n	haps, promes and rock specimens,
Prereguisite: [Par 1	1 21	
GI Y251	CRYSTAL OPTICS & CRYS CHEM 251	
NAS GLY	GLY214 English	4+2 K1 12
The properties of I	light in isotronic and anisotronic solids: the	polarizing microscope: nature and
identification of isot	tronic uniaxial and biaxial crystals in transmi	tted and reflected light Atoms and
atomic structure: crv	vstal structure and crystal field theory	
Prereguisites: [CMY	Y117 GSI and IGLY151 and 2 of GLY152. GLY	161. GLY162.1
GLY252	MINERALOGY 252	
NAS GLY	n a English	4 + 2 K2 12
Phase rule of Willar	rd Gibbs. Phase diagrams in pressure-tempera	ature-compositional space. One and
two component sys	stems. Systematic review of the major rock-for	orming silicate, sulphide and oxide
minerals in terms	of optical properties, crystal structure, crysta	al chemistry, pressure-temperature
conditions of form	nation, alteration and association in rock s	ystems. Optical identification and
description of	minerals and their mutual rela	ationships in thin section.
Prerequisite: [GLY2	251 GS]	
GLY253	SEDIMENTOLOGY_253	
NAS_GLY	GLY215 English	4 + 2 K2 12
Introduction to sedi	limentology; grain studies; composition and to	extures of sedimentary rocks; flow
dynamics and beh	aviour of sediment particles in transport sys	stems; description and genesis of
sedimentary structi	ures; diagenesis; depositional environments	and their deposits, modern and
ancient; chemical	sedimentary rocks; economic sedimentol	ogy; field data acquisition from
trondo: interpretation	and writing of reports, sieve analysis, warkov	analysis, analysis of palaeocurrent
Prereguisite: [3 of (
GI Y254		
021204	3 6 1 1 6 4 1 7 1 1 1 7 7 4	
NAS GLY	GLY216 English	4 + 2 K1 12
NAS_GLY	GLY216 English	4 + 2 K1 12
NAS_GLY Integrated theoretic analysis of deforme	GLY216 English cal and practical course dealing with the p of rocks. Stress, strain and rheology; fault syste	4 + 2 K1 12 rinciples of rock deformation and ems reactivation of faults inversion
NAS_GLY Integrated theoretic analysis of deforme tectonics, balanced	GLY216 English cal and practical course dealing with the p ed rocks. Stress, strain and rheology; fault syster 1 cross sections: folds, interference (superor	4 + 2 K1 12 rinciples of rock deformation and ems, reactivation of faults, inversion seed) folds: tectonic fabrics: shear
NAS_GLY Integrated theoretic analysis of deforme tectonics, balanced zones, progressive	GLY216 English cal and practical course dealing with the p ad rocks. Stress, strain and rheology; fault syste d cross sections; folds, interference (superpo e) deformation; mapping and analysis of def	4 + 2 K1 12 rinciples of rock deformation and ems, reactivation of faults, inversion sed) folds; tectonic fabrics; shear eformed rocks; reaional tectonics.
NAS_GLY Integrated theoretic analysis of deforme tectonics, balanced zones, progressive Prerequisite: [3 of 0	GLY216 English cal and practical course dealing with the p ad rocks. Stress, strain and rheology; fault syste d cross sections; folds, interference (superport efformation; mapping and analysis of de GLY151, GLY152, GLY161, GLY162.1	4 + 2 K1 12 vrinciples of rock deformation and ems, reactivation of faults, inversion osed) folds; tectonic fabrics; shear eformed rocks; regional tectonics.
NAS_GLY Integrated theoretic analysis of deforme tectonics, balanced zones, progressive Prerequisite: [3 of C GLY261	GLY216 English cal and practical course dealing with the p ad rocks. Stress, strain and rheology; fault syste d cross sections; folds, interference (superpo- e deformation; mapping and analysis of de GLY151, GLY152, GLY161, GLY162.] [GNEOUS_PETROLOGY_261	4 + 2 K1 12 rinciples of rock deformation and ems, reactivation of faults, inversion osed) folds; tectonic fabrics; shear eformed rocks; regional tectonics.
NAS_GLY Integrated theoretic analysis of deforme tectonics, balanced zones, progressive Prerequisite: [3 of C GLY261 NAS_GLY	GLY216 English cal and practical course dealing with the p ad rocks. Stress, strain and rheology; fault syste d cross sections; folds, interference (superpo- e deformation; mapping and analysis of de GLY151, GLY152, GLY161, GLY162.] IGNEOUS_PETROLOGY_261 GLY316 English	4 + 2 K1 12 rrinciples of rock deformation and ems, reactivation of faults, inversion osed) folds; tectonic fabrics; shear eformed rocks; regional tectonics. 4 + 2 K3
NAS_GLY Integrated theoretic analysis of deforme tectonics, balanced zones, progressive Prerequisite: [3 of C GLY261 NAS_GLY Classification and n	GLY216 English cal and practical course dealing with the p ed rocks. Stress, strain and rheology; fault syste d cross sections; folds, interference (superpo- e deformation; mapping and analysis of de GLY151, GLY152, GLY161, GLY162.] IGNEOUS_PETROLOGY_261 GLY316 English omenclature of igneous rocks. The nature of s	4 + 2 K1 12 rrinciples of rock deformation and ems, reactivation of faults, inversion osed) folds; tectonic fabrics; shear eformed rocks; regional tectonics. 4 + 2 K3 12 silicate melts; physical and chemical

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
crystallisation and p	artial melting. Trace elements a	nd isotopes, a	and their us	e in petrog	enetic studies.
Global distribution	of magmatism and its origin.	Mid-oceanic	ridges, act	tive contin	ental margins,
intraplate magmatis	m.				
Prerequisite: [GLY2	52]				
GLY262	METAMORPHIC_PETROLOG	Y_262			
NAS_GLY	GLY316	English	4 + 2	K4	12
Classification of me	tamorphic rocks. Anatexis, migrr	natite and gra	nite; eclogi	te. Metamo	orphic textures.
PT-time loops.	Metamorphism in	various p	olate te	ctonic	environments.
Prerequisite: [GLY2	52]				
GLY264	INTRODUCTION_TO_GEOPH	YSICS_264			
NAS_GLY	na	English	4 + 2	K3	12
Physical properties	of rocks and minerals rele	vant to exp	loration ge	ophysics:	porosity, and
permeability; densit	ty; magnetic properties; natura	I radioactivit	y; elastic p	properties;	seismic wave
attenuation; therma	I properties; electrical propertie	es. Basic pri	nciples and	application	ons of various
geophysical technic	ques: gravity, magnetic, resist	ivity, electro	magnetic,	seismic ai	nd radiometric
techniques. Mapping	g techniques.				
Prerequisites: [GLY	151] and [GLY152] and [WTW11	14]			
GLY265	GROUNDWATER_265				
NAS_GLY	na	English	4 + 2	K4	12
Origin and classification	ation of groundwater; classification	on of aquifers	; groundwa	ter mover	nent; equations
for groundwater flow	w into boreholes; the La Place	equation and	solutions f	or pump te	ests; execution
and interpretation o	f pump tests. Groundwater flow	v modelling; (classificatio	n of aquife	ers in southern
Africa; groundwater	exploration and management. M	Apping techr	niques.	-	
Prerequisite: [GLY1	52 TDH]				
GLY352	ORE_FORMATION_352				
NAS GLY	GLY323	English	4 + 2	K1	18
Principles of ore for	prming processes and geologic	al environme	ents of ore	formation	: classification
schemes; exploratio	n models; economic factors; val	uable by-pro	ducts; mark	et fluctuati	ons; resources
and their renewabilit	ty. Mapping techniques.				
Prerequisite: [GLY2	61]				
GLY361	ORE_DEPOSITS_361				
NAS GLY	GLY323	English	4 + 2	K3	18
Systematic review	of major metallic and non-meta	llic ore types	and exam	ples in So	uth Africa and
world-wide; ore type	e models (grades, tonnages); g	eometry of o	re bodies; r	mining. Ore	e samples and
ore mineralogy. Mar	oping techniques.			Ū.	
GLY362	GEOSTAT.& ORE RESERV.	CALC.362			
NAS GLY	GLY323	English	4 + 2	K2	18
Review of classica	al geostatistical methods: prob	plem evaluat	ion: descri	ptive stati	stics. normal
lognormal, three pa	rameter lognormal distributions:	confidence i	ntervals: st	udent-t. Sa	mplina: cut-off
values: grid generat	tion and trend surface analysis.	Semivariogra	am: error es	stimation: I	(BLUE)
techniques. Ore res	erve calculations. Mapping techn	niques.	,	,	5 5 (-)
GLY363	ENGINEERING GEOLOGY 30	63			
NAS GLY	GLY323	English	4 + 2	K4	18
Definition and score	pe of Engineering Geology; pr	roperties and	use of ro	ock materi	al: rock mass
classification: origin	of soil: engineering properties	s and use of	f soils: sta	aes of site	investigation:
general geotechnica	al properties of the typical soils	and rocks or	the South	ern Africar	subcontinent.
Prerequisites: [GLY	152] and [GLY265 TDH]				
GMA220	REMOTE_SENSING 220				
NAS GGY	na	English	3 + 1	S2	16
The electromagneti	c spectrum, atmospheric and s	surface prope	erties relate	d to aeria	l photography
History of photogra	mmetry. Camera and film para	ameters type	s of conve	ntional an	d digital aerial
photographs and t	heir uses, photo mosaics, or	thophotos. F	light plans	and pho	to acquisition
Stereoscopic analys	sis, height measurements and r	napping, Apr	lications ar	nd interpre	tation of aerial
photographs for a w	ide range of disciplines.				
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Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
GMA320	REMOTE SENSING 320				
NAS GGY	n a	English	3 + 1	S2	24
The electromagneti	c spectrum, atmospheric and	surface prop	erties relat	ed to sate	ellite imagery.
History of satellite re	emote sensing. Orbit and sensor	r parameters.	resolution	types, sate	llite types and
their uses, passive	and active systems. Introductor	ry digital ima	ge process	ing. Web s	sites and data
acquisition. Applicat	ions and interpretation of satellite	e data for a w	ide range o	f discipline	s.
GMC110	CARTOGRAPHY 110		U		
NAS GGY	n a	Enalish	3 + 0	S1	8
An overview of the	development of cartography.	the concept	s. processe	s. technia	ues and data
sources. Practical di	aital mapping.		-,	-,	
Prereguisite: [GGY1	321				
GMC210	CARTOGRAPHY 210				
NAS GGY	n a	Enalish	3 + 1	S1	12
Rules of graphical c	communication and the depiction	n of spatial da	ata Projecti	ons Grap	hical elements
of design and symb	olisation and visualisation of spa	atial reference	ed data in a	polication	areas such as
sociology economic	s environmental management	etc		ppiloution	
Prerequisite: [GMC1	10]				
GMC310	CARTOGRAPHY 310				
NAS GGY		Enalish	3 + 1	S1	24
The traditional and	digital approaches to cartog	ranhic desig	n and use	r/sunnlier	requirements
Evaluation of the	cartographic processes for an	nlicahility Tl	he function	ality of di	aital manning
programs and the	cartographic software of Ge	plicability. In	formation	Sveteme	The cognitive
programs and the	data capture and spatial da	ta visualisati	ion Knowle	adae_haser	1 man design
techniques Multime	dia and virtual reality as visua	alisation tech	niques The	role of (artography in
information visualisa	ation systems		inques. The		anography in
Prereguisite: [GMC2	2101				
CMT320	PROJECT: GEOMATICS 320				
NAS COV	n a	Bilingual	3 + 1	S2	24
A project which is a	approved by the lecturer and in	which one o	r more of th	pz pa studiod	techniques of
data acquisition and	h processing are used to produ		of enatially	reference	d information
The project must be	fully described in a project report	rt	or spatially	relefence	a mornation.
Proroquisito: [GIS31	0 1 or [TDH]	rt.			
CDE400	CLOBAL DEDEDECTIVES IN	EDI1 400			
	DECEMPTER SPECTIVES_IN	Bilingual	L.	Q1	6
OFV_OFV Dealing with futuri	ita	Dilliguai porging from	r alabaliaat	ion word	of work and
Dealing with luturs	suc scenarios in education en	nerging from	i giobalisat	tomnoromi	of work and
the future education	sconarios impacting on educe	preung the w	vt of Africa	Creating	management
etratogios in dealing	with the age of technology HI		social struc	tures den	dor and racial
issues (WERCT)	with the age of technology, Th	VAIDS, New	Social Struc	Juies, yei	
GTS161	INTRODUCTORY GENETICS	161			
	GTS122	Double	2 + 0 5	62	8
NAS_015 Dringinlag of Mondo	GIGIZZ		2 ± 0.5	02 ninonoo in	p toractions and
eniotopies of Menue	nan inneritance. concepts such	as locus and	vision Drol		ieractions and
linkage and chrom	by cylogenetics, the karyotype	and cell up	soy linko	d traite I	nheritance of
evtoplasmic DNA an	d extendes mic effects	ination and	SEX IIIKE	u liaits. i	intentance of
Droroquisito: [ML B1	11 CS 1 or ITDH1				
		CANIZ 254			
	GENE_&_CHROMOSOWE_OR	GANIZ231	0.0	64	40
NAS_GIS	G15215, G15217	English	2 + 2		12
Introduction to mole	scular genetics: Gene structure	e, transcriptio	n and tran	slation, ge	ne regulation,
DINA replication, mu	tation, DNA repair and transpos	sition. Extrant	iciear inneri	tance. The	genetic basis
or cancer and immu					
CTORCA		A 001			
G15261	GENETIC_ANAL&_MANIPUL	_A261		0.0	10
NAS_GIS	GTS215, GTS217	English	2 + 0.5	S2	12
Creation of variation	on in micro organisms: transf	ormation, co	njugation a	and transo	luction. Basic
concepts of recomb	inant DNA technology and its	applications	in gene an	alysis and	manipulation.

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term (Credits
Introduction to gene	etic analysis of populations: alle	ele and geno	typic freque	ncies, bree	ding systems
and quantitative inhe	eritance.				
Prerequisite: [GTS1	61 GS] or [TDH]				
GTS351	EUKARYOTIC_GENE_CON.&	_DEVL.351			
NAS_GTS	GTS325	English	2 + 1	S1	18
Regulation of gen	e expression in eukaryotes:	regulation a	t the geno	me, transo	ription, RNA
processing and tran	slation levels. Applications of th	e principles o	of gene cont	rol: cancer,	development
and differentiation	of plants and animals. Aspect	s of the epig	genetic con	trol of gene	e expression.
Prerequisites: [GTS	251 GS] and [GTS261 GS] or [TDH]			
GTS352	GENOMES_352			-	
NAS_GTS	na	English	2 + 1	S1	18
Analysis of the ge	nome as central entity in mo	ecular gene	etics. Comp	arison of t	he molecular
organization of prol	karyote and eukaryote genome	s, nuclear ar	nd mitochon	drial genor	nes. Genome
organization in diffe	erent organisms; gene families	, overlapping	genes, ps	eudogenes,	DNA repeat
content. Genetic te	chniques for genome mapping,	physical ma	ipping, geno	ome sequer	ncing and the
localization of gene	s. Processing of DNA sequenc	ing data usin	g computer	technology	. Approaches
for studying genor	ne function. Functional genor	nics, transcr	iptomics an	a proteom	ics. Genome
evolution.	251 CS1 and ICTO261 CS 1 5	וחטב			
CTEASE					
	ADVPOPULATION_GENET	C3_353	0.1	C1	10
NAS_GIS	GIS320	English	<u>2 + 1</u>		18 hund and bin
Genetic variation a	and mating systems. Allele in	equency cha	nge: geneti	ic driπ, na	tural and kin
selection, mutation a	and migration. Molecular evolut	ion: nucleotid		ons to multig	gene ramilies,
and the neutral th	eory. Quantitative genetics: a	nalysis of g	enetic varia	ition, nerita	bility, natural
Proroquisitos: IGTS	251 GSI and IGTS261 GS I or I	TDHI	uon or quar		
GTS261	LUMAN CENETICS 361	ibiij			
NAS GTS	CTS314	English	2 ± 1	60	19
Human kanyatuna I	Dedigroe analysis and the inhe	ritopoo of oin	alo aono tra	pz pito in hum/	
Furth as X-chromos	me inactivation variable expre	esivity penet	gie gene lia		eity genomic
imprinting and mo	saicism Developmental den	atics Genet	ic differenti	ation of s	erry, genomic
chromosome abnor	malities Cytogenetic and mole	cular basis o	f genetic dis	seases Lin	kane analysis
and the identific	ation of human disease	denes Gei	netics of	the imm	ine system
Prereguisite: [GTS3	52 GS 1 or [TDH]	genee. ee	10100 01		and oyotonn.
GTS363	EVOLUTIO. & PHYLO-GENE	TICS 363			
NAS GTS	n a	English	2 + 1	S2	18
Origin of life's code.	Molecular evolution and analyt	ical tools. De	termining th	e molecula	r ecology and
evolutionary history	of populations and species,	and its ap	plications in	n conserva	tion, medical
sciences and hum	an evolution. Optimality, phyl	ogenetic and	d molecular	studies c	of adaptation;
Evolution of sexual	reproduction, resistance and vir	ulence, and i	ts practical a	applications	; Evolutionary
arms					races.
Prerequisite: [GTS3	53 GS] or [TDH]				
GTS364	VETERINARY_GENETICS_36	4			
NAS_GTS	na	English	2 + 0	S2	9
Molecular basis of d	isease and disease treatment, v	accine devel	opment, dia	gnostic test	s and cancer.
Genomics-individua	I variation in disease susce	eptibility, mu	Itigenic dis	eases, im	plications for
medicines, microarr	ay technology and cytogenetic	cs. Epidemio	logy, domes	stication an	d association
studies. Conservat	tion genetics. Host parasite	co-evolutio	n, virulenc	e, disease	e resistance,
evolutionary medicir	he and emerging diseases.	~ ~ ~ ~			
G1S365	APPLIED_MEDICAL_GENETI	CS_365		6.0	4.0
NAS_GIS	na	English	<u> </u> + 1	D2	
The clinical manife	estations of common Mendel	an disease	s and cogi	nenital and	malles; Risk
assessment/calculat	uon and genetic counselling; G	enes and di	seases - the	e use or po	iymorphisms,
yene mapping, ger	re mixage and association stu	luies in med	ione, Gene	detection	and predictive
testing: Population	screening - prepatal and page	atal screening	CUI, Udillel	of genetic	dispases and
resuring, ropulation s	screening - prenatal- and neona	atai sureening	, neament	U yenellC	uiseases and

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
gene based therapy	; Pharmacogenetics and cancer	genetics. Eth	nical issues		
Prerequisites: [GTS2	251 GS] and [GTS261 GS] or [T	ſĎH]			
GTS366	PLANT_GENETICS_&_BIOTE	CHN366			
NAS GTS	GTS362	English	2 + 1	S2	18
Plant genetic resou	rces and genetic systems. Plan	t genome or	danization	and evolu	tion. Control of
gene expression in	plants: cis and trans regulation	tion, mRNA	stability, q	ene silen	cing and RNA
signaling, regulation	n of cytoplasmic genes, light	/dark regula	ition, horm	onal cont	rol and signal
transduction during	g defense. Protein process	sing. Devel	opmental	genetics:	seed/embryo
development, contro	ol of vascular development and	d flowering.	Genetics o	of male ste	erility and self-
incompatibility. Plan	t biotechnology, tissue and cell	cultures, pla	ant transfor	mation and	d regeneration.
Prerequisites: [GTS	251 GS] and [GTS261 GS] or	[TDH] and	[GTS351 G	S is reco	mmended] and
[GTS352 GS is reco	mmended]				
GTS451	SEMINAR_&_TECHNIQUES_C	OURSE451			
NAS_GTS	GTK401, GTK403	English	2 + 0.5	S1	18
Techniques course:	molecular techniques, plant tis	sue culture a	and transfor	rmation, D	NA genotyping
and analysis, hybrid	lisation techniques. Seminars a	nd literature	discussion:	writing ar	nd presentation
of seminars, article of	discussion groups.				-
Prerequisite: [GTS3	52 GS] or [TDH]				
GTS452	ADVANCED_PLANTBREEDIN	G_452			
NAS_GTS	GTK402	English	2 + 0.5	S1	18
Genetic systems, r	ecombination and variability. F	Population st	tructure an	d variabili	ty. Sources of
variation including in	nduced mutations, hybridisation	and chromo	osome man	ipulation.	Assessment of
variation. Manipulat	ion of genetic systems: incomp	atibility syste	ms, male s	sterility, as	exual systems,
as well as cell and	d tissue cultures. Selection me	ethods: selec	ction strate	gies, choi	ce of breeding
methods and appl	ications; marker-assisted sele	ction: trait/g	ene-linked	markers,	application of
markers in backcro	ss-breeding, Mapping quantita	ative charact	ers; gamet	iophytic a	nd sporophytic
selection; in vitro	selection. Adaptation: gene	otype x er	nvironment	interactio	on, modelling.
Prerequisite: [GTS3	62 GS] or [TDH]				
GTS461	PLANTBREEDING_STRATEG	IES_461			
NAS_GTS	GTS442	English	2 + 0.5	S2	18
Specific breeding st	trategies. Breeding for specific	traits. Bioteo	chnology: a	pproaches	and available
techniques, role of g	ene technology in plant breeding	g. Ethical asp	pects. Comp	orehensive	plant breeding
strategies. Populatio	on growth, world food supply an	nd sustainabl	e agricultur	e, role of	plant breeding.
Prerequisite: [GTS4:	52 GS] or [TDH]				
GTS462	APPLICATIONS_IN_PLANTER	REED.462	-		
NAS_GTS	GTK403	English	1+1	S2	18
Research project re	elated to specific breeding strate	egies: cereal	ls, forestry	species, h	orticulture and
floriculture.					
Prerequisite: [GTS4	52 GS] or [TDH]				
GVK420	LARGE_STOCK_SCIENCE_42	20	<u>la a a</u>		
NAS_VKU	na	Afrikaans	2 + 0.5	S1	12
Industrial science	and management of large st	ock. Revisio	n of the	principles	of agricultural
management. Aspe	ects of business management	t of the lar	ge stock	enterprise.	. Management
programmes, produ	ction systems and techniques a	applicable to	beet cattle	, dairy cat	tle and horses.
Design and planning	g of farm buildings and structure	es. Storage a	and nandling	g of foade	r. The handling
and manageme	nt of refuse. Hygier	ne and	nera	nealth	programmes.
Prerequisites. [LEK2		ij and [VKU2	10]		
	HUMAN_NUTRITION_210		4.4	64	40
MED_HNT	n a	Bilingual	1+1	51	
Application of scien	tific principles in numan nutritic	on. Menus (d	liet, mealpla	an, menus	i), ration scale,
Droroquinite: N/DOO					
	CROP PROPACATION CCC				
	TRUP_PROPAGATION_260	Dilinguist	0.05	60	10
NAS_PGW	IDRZZI	Billingual	∠ + 0.5	52	[1∠
riopagation by see	u. seed development, including	pollination, 1	iertilisation,	empryoge	mesis mult and
seed development:	principles and techniques of se	eea producti	UII: SEED D	INVSIOIOOV:	principles and

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
practical aspects of	seed germination; seed testing	and legislatio	n. Vegetativ	e propaga	ation: principles
and techniques of ro	ooting/cuttings; budding and gra	fting; propaga	ation using s	pecialized	d organs; micro
propagation (tissue	culturing). Students will get ha	ands-on expe	rience and	will visit o	companies and
nurseries.					
Prerequisite: [BOT1	61 or BLG150]				
HSC320	FRUIT_PRODUCTION_320				
NAS_PGW	HSC350, HSC362, HSC450	Bilingual	4 + 1	S2	26
Crop modelling, cli	mate zones, climate requirem	ents, cultivat	ion regions	, econom	ic importance,
anatomy and morpl	nology, phonological modelling.	. Commercial	ly importan	t scions, i	rootstocks and
their interactions. C	rop management including fertil	ization, irrigat	tion, pest ar	nd disease	e complex, tree
and fruit manipulati	on, physiological disorders of	economically	important	tropical, s	subtropical and
temperate fruit crops	s produced in Southern Africa.				
Prerequisites: [HSC:	260] and [PPK251]				
HSC351	NURSERY_MANAGEMENT_3	51			
NAS_PGW	STZ311	Bilingual	2 + 0.5	S1	14
The nursery industry	/ in South Africa. Greenhouse e	nvironmental	control. Red	quirements	s for soil-based
and soil-less growir	g media. The production of pla	ants in a nur	sery. Manag	gement, e	conomical and
marketing aspects o	f different nursery operations. P	ractical expe	rience on the	e experim	ental farm or in
nurseries of own cho	pice is compulsory for all particip	pants in this m	nodule.		
HSC460	PROD.SYS.1V:SUBTROP.FRL	J.PR.460			
NAS PGW	HSC483	English	2 + 0.5	S2	12
Integration of the se	asonal phonology of subtropica	al fruit crops v	with manage	ment syst	tems through a
study of the appropr	riate botany of the crop, its bioc	hemistry and	physiology,	as well a	is the influence
of climate, soil, wa	ter, diseases and pests, in or	der to achie	ve the max	imum vie	ld, quality and
profit.Identification of	of ornamental plants for comm	ercial and lar	ndscape us	e. Climatio	c, reproduction
and maintenance re	equirements of above mentione	d trees, paln	ns, shrubs,	flowering	plants, ground
covers, climbers ar	nd indoor plants. Functional ar	nd aesthetic	value of pl	lants in a	landscape or
indoors. Practical e	xperience on the experimenta	I farm is co	mpulsory fo	r all parti	icipants in this
module.					
HSC470	PROD.SYS.111:TEMP.FRUIT.	PR.470			
NAS_PGW	HSC484	English	2 + 0	S1	10
Integration of seaso	nal phonology of temperate fruit	crops with m	anagement	systems t	hrough a study
of the appropriate b	otany, biochemistry and physiol	logy, as well	as climate, s	soil, water	and diseases,
in order to achieve t	ne maximum yield, quality and p	profit.			
Prerequisites: [HSC]	260] and [PPK251]				
HSC490	ORNAMENT_HORTICULTURE	E_490			
NAS_PGW	HSC352,451	Bilingual	2 + 0.5	S1	14
Economic importan	ce of cut flowers and pot pla	ants. Taxono	my and pla	ant descri	ption. Climatic
requirements and	production practices including	establishing	a, growth	manipulat	ion, nutritional
requirements, irrigat	ion, pest and disease control, h	arvest and po	ost-harvest l	handling. I	Identification of
ornamental plants	for commercial and landscape	e use. Clima	itic, reprodu	uction and	d maintenance
requirements of abo	ve mentioned trees, palms, shru	ubs, flowering	plants, grou	und covers	s, climbers and
indoor plants. Fund	tional and aesthetic value of p	plants in a la	andscape of	r indoors.	Excursions to
nurseries and practi	cal experience on the experimer	ntal farm are	compulsory	for all par	ticipants in this
module.					
IAS211	ACTUARIAL_MATHEMATICS	_211			
NAS_VWT	na	Bilingual	2 + 1	S1	12
Accumulation function	ons, interest, time value of mone	ey, compound	ing periods,	cashflow	models,
equations of value, a	annuities certain, continuous tim	e application,	life tables,	derivation	of contingent
probabilities from life	e tables, contingent payments, fi	undamentals	of survival n	nodels, sir	mple laws of
mortality, expectatio	n of life, elementary survival cor	ntracts, comm	utation fund	tions, prei	miums for
elementary survival	contracts. Prerequisites: [WTW1	114 60%] and	[WTW128	60%]	
IAS221	ACTUARIAL_MATHEMATICS	_221			
NAS VWT	n a – – – – – – – – – – – – – – – – – –	Bilingual	2 + 1	S2	12
Select and ultimate	life tables, advanced life annuit	ies. accumula	ation and dis	scountina.	life insurance.
net and gross prem	iums, reserves, pension applic	ations, statist	ical conside	erations. Ic	oan schedules.

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
performance measu	rement, valuation of fixed interest	st securities.			
Prerequisite: [IAS21	1 GS]				
IAS261	LIFE_ASSURANCE_PRAC.IN_	_RSA_261			
NAS_VWT	na	English	3 + 0	K3	8
Structure of and or	ganisations in the life assurance	ce industry, p	products, la	w, tax, org	anisation and
operation of the insu	irer, personal financial planning.	This module	is not pres	ented every	/ year - please
consult the Head of	Department.				
Prerequisite: [IAS21	1 GS]				
IAS262	LIFE_ASSURANCE_PRAC.IN_	_RSA_262			
NAS_VWT	na	English	3 + 0	K4	8
Life assurance polic	cy design and rating, policy val	lues and alte	rations, act	tuarial valu	ation, surplus,
reinsurance, investr	nent of life assurance funds. The	his module is	not prese	nted every	year - please
consult the Head of	Department.				
Prerequisites: [IAS2	11 GS] and [IAS221 #]				
IAS282	FINANCIAL_MATHEMATICS_2	282		_	
NAS_VWT	AKM702	Bilingual	3 + 0	S2	12
Generalised cash-f	low model. The time value	of money.	Interest	retes. Dis	counting and
accumulating. Comp	cound interest functions. Equati	ions of value.	Loan sche	edules. Pro	ject appraisal.
Investments. Simple	e compound interest problems	s. The "No /	Arbitrage"	assumption	and forward
contracts. Term stru	cture of interest rates. Stochasti	c interest rate	e models.		
Prerequisite: [IAS21	1 70%]				
IAS351	SHORT-TERM_INS.PRAC.IN_I	RSA_351		h	1
NAS_VWT	na	English	3 + 0	K1	10
Structure of and org	anisations in the short term ins	surance indus	try, law, ty	pes of insu	rance, Lloyds,
risk management. I	his module is not presented eve	ery year - plea	ase consult	the Head of	of Department.
Prerequisite: [IAS21	1 GS]				
IAS352	SHORT-TERM_INS.PRAC.IN_I	RSA_352			
NAS_VWI	na	English	3+0	K2	10
Short-term insuranc	e rating, reserving, reinsurance	, investment	of short-te	rm insuran	ce funds. This
module is not	presented every year - p	please cons	sult the	Head of	Department.
Prerequisites: [IAS2	11 GSJ and [IAS221 GS] and [IA	AS351 #j			
	RETIREMENT_FUND_PRAC.I	_RSA_361	00	1/0	40
NAS_VW1	na	English	3+0	K3	10
Structure of and org	anisations in the retirement fun	ia industry, in	struments,	typical ben	efits, law, tax,
retirement fund des	sign. This module is not prese	ented every	year - piea	ase consult	the Head of
Department.	1.001				
	DETIDEMENT FUND DRACI	DCA 262			
	RETIREMENT_FUND_FRAC.I	_K3A_302	2 . 0	K4	10
NAS_VVVI Detirement fund de	lid sign financing role of the actu		3 ± 0	r4	IU Suranaa Thia
Retirement jund de	sign, infancing, fole of the actu	aly, investin		Is, group in	Department
Proroquisitos: [[AS2]	11 CS1 and [IAS221 CS] and [IA	VS361 CS1 or	#	Head 01	Department.
		<u>assor Gsjur</u>	#		
NAS VANT	ACTUARIAL_MODELLING_30	Engligh	0 ± 1	60	bo
NAS_VVVI Dringiples of actual	rial modelling and stochastic i		Z T I Iarkov oba	ing and or	20
Markov jump proce	and modeling and stochastic	processes. IN		adolo ond	the life table
Estimating the lifetir	me distribution Ex(t) The Cox	processes.	odol Tho		life life lable.
The general Markov	model Rinomial and Roisson r	models Grad	uation and	etatistical t	arkov mouer.
of graduation Expos	sed to risk. The evaluation of as	surances and	dalion anu	Promiume	and reserves
Prereguisite: [[A928	21			i iciliuilis	and 16361765.
INR220					
NAS VBR	n a	Rilingual	1 + 2	S2	16
Advanced colour the	nu a	ial presentativ	ons for clie	nte: includir	no a storyboards
and computer -	aided design Evaluation	of floor of	ans: arra	naement	of furniture
Prerequisites: [FRG	282 GS] and [OBG111]		uno, uno	ingement	or runnule.

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
INB320	INTERIOR_PLANNING_320				
NAS_VBR	n a	Bilingual	1+1	S2	11
The planning and ar	rangement of existing living and	d working spa	ces to provi	ide for the	various needs
of the individual, fan	nily or group. Evaluation of floor	plans; arrang	ement of fu	rniture.	
Prerequisites: [ITW3	311] and [OBG111]				
INB322	INTERIOR_PLANNING_322				
NAS_VBR	na	Bilingual	1 + 1	S1	11
The planning and d	lesigning of living and working	spaces to pr	ovide for th	e differen	t needs of the
client. Visual and ora	al presentations for clients.				
Prerequisites: [ERG	282] and [ITW311] and [OBG11	1] and [OKU2	210]		
INB410	INTERIOR_PLANNING_410				
NAS_VBR	na	Bilingual	1 + 2	S1	23
Advanced interior pl	anning				
Prerequisites: [INB3	22] and [OKU210]				
INF112	INFORMATICS_112				
EB_INF	na	Bilingual	3 + 0	S1	10
Introduction to inf	ormation systems, informatior	n systems i	n organiza	tions, ha	rdware: input,
processing, output,	software: systems and application	on software, o	organization	of data a	nd information,
telecommunications	and networks, the Internet	and Intranet	Transactio	on proces	sing systems,
management inform	nation systems, decision support	rt systems, ir	formation s	systems in	business and
society, systems	analysis, systems design,	implementat	ion, maint	enance	and revision.
Prerequisite: [Par 1	.2]				
INF153	INFORMATICS_153		Ia a	a (
EB_INF	na	Bilingual	2+0	S1	5
General systems the	eory, creative problem solving, s	oft systems n	nethodology		
Prerequisite: [Par 1	.2]				
INF154	INFORMATICS_154		1	a (
EB_INF	na	Bilingual	1+2	S1	5
Introduction to progr	ramming.				
Prerequisite: [Par 1	.2]				
INF163	INFORMATICS_163		Ia a		
EB_INF	na	Bilingual	2+0	S2	5
I he systems analys	t, systems development building	g blocks, syste	ems develop	oment, sys	tems analysis
methods, process m	odelling.				
Prerequisites: [INF1	53 GSJ and [Par 1.2]				
INF164	INFORMATICS_164			00	-
	na	Bilingual	1+2	S2	5
Advanced programn	ning, use of a computer-aided so	oftware engin	eering tool.		
Prerequisites: [INF1	54 GSJ and [Par 1.2]				
	INFORMATICS_181			6.4	6
EB_INF	na	Bilingual	0 + 2	S1	3
Computer processin	g of accounting information.				
INF214	INFORMATICS_214		Ia (a (
EB_INF	na	Bilingual	3+1	S1	14
Development design	n, rational model, structured que	ery language	(SQL), entit	ty relations	ship modelling,
normalization, datab	ase development life cycle, pra	ctical introduc	tion to data	base desig	gn. Databases:
Advanced entity re	lationship modelling and norm	alization, obj	ect-orientate	ed databa	ses, database
development life cyc		e design.			
Prerequisites: [CIL1					
	INFURMATICS_261	Dilinguist	0 1 0	1/2	
		Biinguai	<u> </u> >+∠	r J	/
Database manager	ment; transaction manageme	nt, concurrer	it processe	es, recov	ery, database
auministration: new	v developments: distributed	uatabases,	client-serve	er databa	ses: practical
Discregionicity (IN)	a colored to the contraction with CO	SZZZ NOT Allow	wea.		
Prerequisite: [INF21	4 63]				

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
INF271	INFORMATICS_271				
EB_INF	INF253	Bilingual	2 + 0	J1	14
Systems analysis, s	ystems design: construction, app	plication arch	itecture, inp	ut design,	output design,
interface design, use	e of computer-aided developmer	nt tools, progr	amming.		
Prerequisites: [CIL1]	11] and [CIL121] and [INF163] a	nd [INF164] a	and [Par 1.2	2]	
INF272	INFORMATICS_272				
EB_INF	INF263	Bilingual	2 + 0	J1	14
Systems design: in	ternal controls, program desig	in, object de	sign; projec	ct manage	ement, system
implementation, u	ise of computer-aided de	evelopment	tools, ad	vanced	programming.
Prerequisites: [CIL1]	11] and [CIL121] and [INF163] a	ind [INF164] a	and [Par 1.2	2]	
INK110	INTERIOR_PRODUCTION_110)	-		
NAS_VBR	na	Bilingual	1+1	S1	9
Basic and more adv	anced construction and sewing	techniques; u	use of vario	us sewing	machines and
materials in the cons	struction of selected interior prod	lucts.			
INK210	INTERIOR_PRODUCTION_210)			
NAS_VBR	na	Bilingual	1 + 1	S1	10
Evaluation of ready-	-made interior products; measu	iring, planning	g and const	truction of	custom made
interior products: wir	ndow coverings, upholstery and	assorted furn	ishings.		
Prerequisite: [INK11	0 or]				
INK310	INTERIOR_PRODUCTION_310)			
NAS_VBR	na	Bilingual	1 + 1	S1	11
A study of fashion	and market trends in interior	textile produ	cts. Develo	pment of	a sample file.
Exposure to mass p	roduction of selected interior pro	ducts.			
Prerequisite: [INK21	0]				
IPO380	INTERIOR_EXPERIENTIAL_TR	RAI.380			
NAS_VBR	na	unknown	+	na	na
Controlled experient	ial training.				
Prerequisites: [INK3	10] and [ITW311]				
ITP481	PROJECT:_INTERIOR_MERCI	HAN481			
NAS_VBR	na	Bilingual	1 + 1	J1	22
Project to illustrate	the ability to integrate relevant	t theory in th	ne planning	and pres	entation of an
interior merchandise	project for specific clients.				
Prerequisites: [INB3	22] and [INB410 #] and [SEM38	1 GS] and [F	inal-year st	atus]	
ITW121	INTERIOR_MERCHANDISE_12	21	-		
NAS_VBR	na	Bilingual	2 + 1	S2	8
Household material	and equipment studies: Metals	s and non-m	etals used t	for the ma	inufacturing of
objects, equipment	and components of appliance	es for house	hold use. S	Study and	evaluation of
selected non-electric	cal household equipment in term	is of specific	end-use situ	ations.	
ITW221	INTERIOR_MERCHANDISE_22	21			
NAS_VBR	na	Bilingual	2 + 1	S2	12
Equipment studies:	study of major and portable elec	trical househ	old appliand	ces in term	s of consumer
needs, specific en	d use situations, running and	d life cycle	costs, sus	stainability	aspects and
environmental conce	erns to facilitate consumer decis	ion making.			
Prerequisite: [ITW12	20]				
ITW261	INTERIOR_MERCHANDISE_20	61			
NAS_VBR	na	Bilingual	2 + 1	K3	5
Equipment studies:	study of selected major and por	rtable electric	al househo	ld applianc	es in terms of
consumer needs, sp	pecific end use situations, runnir	ng and life cy	cle costs, s	ustainabilit	y aspects and
environmental conce	erns to facilitate consumer decis	ion making.			
ITW311	INTERIOR_MERCHANDISE_3 [,]	11			
NAS_VBR	na	Bilingual	2 + 1	S1	11
Choice of lifestyle pr	oducts (furniture and textile proc	ducts), wall a	nd floor finis	hing and li	ghting in
specialised spaces.					
Prerequisite: [ITW12	21]				

Module	Title				
Fac_Dept	Old code	anguage	lpw/ppw	Term	Credits
KEP220	CULTURAL_EATING_PATTERN	NS_220			
NAS_VBR	VDG120/KEP261 B	Bilingual	3 + 0	S2	12
Origin and developn	nent of food habits; Factors influe	encing food h	nabits and c	hoice; Dy	namics of food
habits. Influence of	religion on food habits. Food ha	bits of differ	ent ethnic g	groups. Tl	ne influence of
culture on cuisines.	Study of the cuisines of selected /	African, Euro	opean and E	Eastern co	untries.
KEP261	CULTURAL_EATING_PATTERN	NS_261			
NAS_VBR	VDG120 B	Bilingual	3 + 0	K3	6
Origin and develop	ment of food habits; Factors infl	fluencing ha	bits and ch	ioice; Dyr	amics of food
habits. Influence of r	religion on food habits. Food habit	ts of differen	t ethnic grou	ups.	
KGK356	SOUTH_AFRICAN_ART:_THEM	AES_356			
GW_KGK	na D	Double	3+0	K3	15
This module focuse	s on the art historical concepts	of represen	tation and	identity in	contemporary
South African art. Di	Interent aspects of representation	and identity	are investig	ated by m	eans of the art
			mmy worsw		nelle van.
		JRT_210	2 . 0	C1	10
NAS_VBR Costume and fashi	KLD220 B	billingual	3 + U Maatara dri	DI Dagi Influi	
Evolution of styles fr	rom Ancient Equation up to and in	cluding the r	vestern ure	ess. innue	encing factors.
			Jieseni.		
	PASHION_FORECASTING_222	Pilingual	2 + 0	60	10
NAS_VER Regio principles of f	fachian: fachian an a product. Ea	oninguai	Z T U	02 0. Couture	12
wear clothes Eashic	on forecasting and fashion analysi				anu reauy-io-
	SOC & CILL T ASPECTS OF CL	OTH 322			
NAS VRP		Rilingual	4 + 0	S2	20
Social-Psychologica	and cultural aspects of clothi	ing: Develo	nment of a	pz framew	ork: Symbolic
Interaction as a fran	mework: the cognitive approach	Developmer	nt of the se	lf: self an	d self-concent:
the body as indicato	r: personal values and norms Ar	nnearance m		t and nrac	entation of the
self: role accentanc	re identity social control roles i	in social co	nition Cult	tural cont	ext and dress
reflection of human	adaptation: culture creations (tech	hnical, moral	and cerem	onial patte	erns): societies
and clothing: beauty	v standards and beauty ideals. S	ocial contex	t. identity. c	hange ar	d clothina: the
family, politics, relic	gion, economy and the role of c	clothing as	a reflection	of social	and personal
identities; mentefact	s and identities, social change an	nd clothing.			·
KLD410	CLOTHING_RETAIL_MANAGEM	MENT_410			
NAS_VBR	na B	Bilingual	3 + 0	S1	15
Clothing retail and	marketing aspects: fashion mark	keting comm	unication; o	clothing ra	anges; textiles,
footwear and acces	ssories merchandise characteristi	tics; custome	er service;	packing a	nd packaging.
Global interdepende	ence: appreciation of cultural diffe	erences; res	pect for dive	ersity; trad	de agreements
and implications; un	derstanding of import/export regul	llations.			
Prerequisite: [Fourt	h-year status]				
KLD420	CLOTHING_MERCHANDISING_	_420			
NAS_VBR	KLD420, KLD411 B	Bilingual	3 + 0	S2	15
Clothing merchandi	ise managerial aspects: plannir	ng, purchas	ing, contro	l; search	for suppliers;
relationship with su	appliers; management roles and	responsibil	ities; techno	ology; eth	ical and legal
behaviour. Visual n	nerchandising: basic component	ts; tools and	d technique	s; planni	ng. Retail and
wholesale: Introduct	tion: factors influencing stock mo	ovement; red	distribution	OF STOCK;	merchandising
processes. Planning Processes. Flanning	stock movement; factors influenc	cing buying s	strategies.		
		CH 110			
			1 + 1	C1	6
NAS_VER A study of sowing a	D	oninguai oo bondling i	1 ± 1	different	voes of fabric
Functional and creat	tive sewing techniques: grading a	ind quality as		uncicil	spes or lablic.
		SSES 120			
NAS VBR		Rilingual	1 + 1	S2	9
Processes (collare	nockets buttonholes fasteners	s helte han	ns etc \ A	nolication:	Unstructures
multi-sized garment	or selected interior product. Prere	equisite: [KLI	R110]	phoauon.	Chisti dotares,

Module	Title				
Fac Dept	Old code	Language	lpw/ppw	Term (Credits
KLR211	FLAT PATTERN DESIGN 21	1	•••••		
NAS VBR	KLR320	Bilingual	0 + 2	S1	12
Flat pattern design.	Production design (flat pattern d	esian + CAD)		
Prereguisite: [KLR12	201				
KLR221	PATTERN USE AND GOOD	FIT 221			
NAS VBR	KLR210	Bilingual	1 + 1	S2	10
Pattern use and goo	d fitting Wardrobe planning stra	tegies		01	
Prereguisite: [KI R2	11]	lieg.ee.			
KLR311	TAILORING 311				
NAS VBR	KI R220	Bilingual	1 + 1	S1	11
Tailoring		Diirigaal		01	I
Prereguisites: [KI R2	2111 and [KI R221]				
KI R321	CLOTHING PRODUCTION 32	1			
NAS VBR	KI R310	Bilingual	1 + 1	S2	11
Small scale pro	duction: Industrial machines	nroductio	n svetem		assurance
Prereguisite: [KI R2]			n system	s, quanty	assurance.
	CLOTHING PRODUCTION 41	1			
NAS VER	KI R420	Bilingual	2 + 1	Q1	10
Reduction: product	ALIN420	tion Applica	tion clothing	n toxtilo a	nd consumer
knowledge by utilisi	ing a CAD-program for planning	a and asser	nbling anna	y, lexille a	mall business
enterprise: Introduct	ing a CAD-program for planm	ornrisos: type	s and locat	ione Mark	ating aspects:
ternet market sel	ection: product mix: pricing	erprises, type	distribution	channel	enny aspecis.
communication mix:	financial aspects	methous,	uistributioi	i channel	s, marketing
Prereguisites: [KI R2	2211 and [KI R321]				
		JENT 183			
		Rilingual	3 + 0	K3	5
LD_DLIVI	n a a at the Department	Biiiiguai	5+0	N3	ρ
		AENT 264			
		Dilingual	2 . 0	1/2	0
ED_DEIVI	lid a at the Department	Dilligual	3 7 0	N3	ο
KTROOD					
	EXPERIENTIAL_TRAINING_22		0.1	60	4
NAS_VBR	na Italian in the elething induct	Bilingual	0 + 1	52	4
Compulsory practica	al training in the clothing indust	ry during the	year, appro	oved in cor	isultation with
the head of the depa	artment.				
KTP400	EXPERIENTIAL_TRAINING_40	0			
NAS_VBR	na	Bilingual		na	na
Compulsory practic	al training in the clothing industry	у.			
Prerequisite: [Fourt	h-year status]				
KTP402	CLOTHING_TEXTILE_PROJE	CT_402	Ia (li a
NAS_VBR	na	Bilingual	0 + 1	J1	18
Project in field of ap	plication: planning and executior	۱.			
Prerequisite: [Fourt	h-year status]	-			
KVK420	SMALL_STOCK_SCIENCE_42	0			
NAS_VKU	n a	Afrikaans	2 + 0.5	S2	12
Small stock manage	ement, shearing organisation, sl	neds and equ	ipment, pe	ns, dipping	, drinking and
feeding facilities. Pre	eparation and marketing of hides	s, mohair and	karakul. La	mbing seas	sons and herd
management. Mana	igement programmes for the pr	oduction of v	vool, meat,	karakul pe	It and mohair
according to the par	ticular ecological region and for	conditions o	f drought. F	lerd health	programmes.
Prerequisites: [LEK2	210] and [RPL320] and [VGE301] and [VKU22	20]		
LBC320	INDUSTRIAL_PRINCIPLES_32	20			la.
ING_LBI	LBC420	Afrikaans	2 + 0	S2	8
Laws. Mechanizatio	n, planning and management.	Engineering	models for	agricultura	al production.
Mathematical model	ling of implement systems.				

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
LBP420	IRRIGATION_420				
ING_LBI	na	Afrikaans	3 + 0.5	S2	15
Water and soil suit	able for irrigation. Evaluation	of irrigation	systems and	d practices	s. Theory and
design procedure f	or flood, sprinkler, drip and r	nicro irrigatio	on systems.	Compute	r software for
irrigation design.				•	
Prerequisite: [LHL31	11/LHL401]				
LBU260	AGROCLIMATOLOGY_260				
NAS_PGW	LBU260, LKM262	Bilingual	2 + 0.5	S2	12
Climate in Southern	Africa. Irradiation and energy I	balance. Hydi	rological cyc	le with spe	ecial reference
to downpour and ev	vaporation from vegetative surf	aces. Wind-b	reaks and fi	rost contro	ol. Influence of
climate on farming	systems. Instrumentation and n	neasurement	of downpou	r, evapora	tion, radiation,
temperature, humidi	ty and wind. This module may c	only be taken	by students	enrolled for	or a BSc(Agric)
programme or a Bin	stAgrar programme.	-	-		
LBU410	LAND USE PLANNING 410				
NAS PGW	LBU481	Bilingual	3 + 1	S1	14
Land suitability eval	uation: background, principles a	nd applicatio	ns: aspects	concerned	. methods and
resources (maps, re	eports, other resources).: Land	suitability ev	aluation: bad	ckaround.	principles and
applications: steps	of the planningprocess, critica	al aspects: a	pplication ar	nd examp	les. Land use
planning focues on	irrigation-, drv land- and inte	nsive agricul	ture: principl	les and c	ritical aspects.
Prereguisite: [GKD2	50]		·· · · · · ·		
LBU420	PROJECT:LAND USE PLAN	NING 420			
NAS PGW	na <u> </u>	Bilingual	3 + 1	S2	14
Practical drafting of	a land-use plan for a selected f	ield of study:	defending of	the property	sed plan in an
oral examination bet	fore a panel of examiners	iola of otaay,	derending er		
Prerequisite/s: [BU	410]				
I FK220	AGRICULTURAL ECONOMIC	S 220			
NAS LEK	n a	Double	3 + 0	S2	12
The agribusiness sy	stem: the unique characteristic	of agricultur	al producte:	marketing	functions and
costs: market struc	sture historical evolution of a	aricultural m	arketing in	South Afr	ica Marketing
environment and pri	ce analysis in agriculture. Intro	duction to sur	only and dem	and analy	sis Marketing
plan and strategies	for agricultural commodities: m	arket analysi	is: product n	nanademe	nt distribution
channels for agricul	tural commodities the agricult	ural supply cl	hain the ag	ricultural f	utures market
Prerequisites: [] FK2	2511 and [I EK252 or EKN113 a	nd/or FKN120)]	inountariar i	
I FK251	INTRO TO FIN MAN IN AGRI	CU 251	-1		
NAS LEK	n a	Double	3 + 0	K1	6
Introduction to finan	cial management in agriculture:	Earm manage	b · o	agricultura	l finance farm
management inform	nation: analysis and interpreta	tion of farm	financial sta	agricultura atements:	risk and farm
nlanning Budgets:	nartial break-even enterprise	total cashflor	w and canita	l budgete	Time value of
monev			w and capita	i buugets.	
I FK252	INTR TO AGRIC PROD EC	ON 252			
NAS LEK	n a	Double	3 + 0	K2	6
Introduction to prov	duction and recourse use: the		5 + 0	function	total physical
production to prod	inal physical product curve, ave		production	ve stages	of production
Assessing short-ter	m business costs: Economic	s of short-te	rm decision	ve, slayes	mice of input
substitution. Least-	cost use of inputs for a given	outout short-	term least-c	oet input	use effects of
input price changes	a least-cost input use for a c	iven hudget	Economice	of produ	et substitution
Product combination	one for maximum profit	Economics	of cron a	nd anima	al production
Prereguisite: [] EK2	511		or crop a	a anni	
		\$ 310			
	AGRICOLITORAL_ECONOMIC	Bilingual	3 + 0	Q1	12
NAS_LER	af Couth African agricultural			the state	IZ
	OI South Amean agricultural	policy. Agri	culture and	tion to our	e. reasons ion
government interver	rinoiples parete estimative Ma			tion to agr	icultural policy
analysis. weitare p	morples, pareto optimality. Ma	acio-economi	c policy and	i ine agric	unural sector.
Droroquinitor: [L	luidi lidut. 251 or EKN1101 and [LEK252 or	EKN1201			
FICIEQUISILES. [LEK2	201 01 LKN110 and [LEK252 0				
L					
Module	Title				
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Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
LEK320	AGRICULTURAL_ECONOMIC	S_320			
NAS_LEK	na	Double	3 + 2	S2	18
The modern food an	d agribusiness sistem: The final	ncing decisio	n: capital ac	quisition,	different capital
sources, capital str	uctures. The investment decisi	ion and worl	king capital	manager	ment. Strategic
marketing. Operation	nal management and human res	sources mana	agement.		-
Prerequisites: [LEK2	220] and [LEK251] and [LEK252]]			
LEK415	AGRICULTURAL_ECONOMIC	S_415			
NAS_LEK	na	English	3 + 1	S1	18
Derivative instrumer	nts in agriculture: To prepare sti	udents for tal	king the SA	FEX Agric	cultural Markets
Division brokerage	exam. Giving an in-depth knowl	edge on the i	importance	of hedgin	g. Giving an in-
depth knowledge on	designing and implementation	of low/zero ris	sk hedging s	strategies	. Introduction to
the mathematics o	f portfolio management and i	mathematical	modeling	of deriva	tives. Working
knowledge of the n	nathematical relationships in th	ne managem	ent of a he	edged po	rtfolio. Working
knowledge on the	applicable software for mana	iging derivati	ve portfolic	s. Introd	uction into the
management of opti	on portfolios. To expand the the	inking on the	uses of de	rivatives,	by also dealing
with the hedging of a	diesel cost, interest rates and we	eather events			
Prerequisites: [EKN	110] and [LEK220] and [WTW13	34]			
LEK421	AGRICULTURAL_ECONOMIC	S_421			
NAS_LEK	na	Bilingual	3 + 2	S2	24
Price and producti	on function analysis; Input -	output, inp	ut - input	and proc	duct - product
relationships; profit	maximization; the production pr	rocess throug	gh time, ecc	nomies o	f size; risk and
risk management; lir	near programming.				
Prerequisites: [LEK4	51] and [STK210] and [STK281]			
LEK424	RESOURCE_ECONOMICS_42	4			
NAS_LEK	na	English	3 + 0	S1	10
Definition and status	of natural resources in Souther	n Africa; land	l, water, fore	ests, mine	rals and
environment. Introdu	uction to resources and location.	Optimal mar	nagement of	natural re	esources,
Resource valuation.	Cost Benefit analysis. Environm	nental policy.			
Prerequisites: [LEK2	251] and [LEK252]				
LEK451	AGRI.DEMAND_&_SUPP.ANA	LYSIS451	_		
NAS_LEK	na	Double	3 + 2	K1	12
This module will foc	us on the demand and supply s	shifters as we	ell as the ela	asticities,	flexibilities, and
impact multipliers. A	fter providing an appropriate ba	ackground in	the theoret	ical conce	pts of demand
and supply these ba	sics will be applied in the gener	ation of econ	ometric/ sim	ulation m	odels. Practical
experience in the fo	ormulation of these models will	be attained f	from practic	al session	ns. Student will
submit a project in	which he/she must analyse the	e demand or	supply pat	terns of a	a commodity of
his/her choice by ge	nerating an econometric model.	_			
Prerequisites: [LEK2	220] and [LEK252] and [STK281]			
LEK452	COMMODITY_PRICE_ANALY	SIS_452			
NAS_LEK	n a	Double	3 + 2	K2	12
This module will focu	us primarily on price determinati	on under diffe	erent marke	t structure	s, which will be
followed by practica	I sessions on measuring marke	t structures i	n various w	ays. This	will include the
calculation of marke	et concentration. Some time wi	Il also be sp	ent on mea	suring pri	ce changes by
using indexes, and e	especially seasonal indexing. Al	l of this will b	e supported	by the re	levant practical
sessions. The releva	ance of changes to the main ma	cro economic	c indicators v	will be dis	cussed through
out this course.					
Prerequisites: [LEK2	20 and [LEK252] and [LEK451]	and [STK28	1]		
LIR410	AGRICULTURAL_ENGINEERI	NG_410		a :	
ING_ING	na	Afrikaans	2 + 2	S1	8
Surveying, water so	ources, hydrology, determinatio	n of runoff, o	channel flow	v, storm v	vater drainage,
terracing, rainfall er	osion losses, sediment yield in	runoff, buttre	ess and arc	n dams, o	circular storage
dams.					
LIK421	AGRICULTURAL_ENGINEERI	NG_421	.		-
ING_ING	na	English	3 + 1	S2	8
Soil conservation,	hydraulics and pumps, app	lied electrici	ty, farm p	ower, fa	m machinery,
mechanization mana	agement, tractor and implement	costing, hitch	i systems.		

Fac_Dept Old code Language pw/ppw Term Cred							
	lits						
NAS PGW I KM451 452 Bilingual 2 + 0.5 S1 16							
Environmental variables. Quantitative description and measurement of atmospheric environmental	ronmental						
variables and water in organisms. Mass and energy fluxes. Quantitative description of ene	rav fluxes						
in organisms' environments. Energy balances of animals and plant communities will be	e derived.						
Prerequisite: [WTW134]							
LLI420 RURAL ENGINEERING 420							
$ING B $ n a Afrikaans 3 ± 0 S2 9							
The planning utilization and management of natural resources in rural areas on a sustaina	ble basis						
planning and management of different irrigation systems, surface and subsurface drainage	e soil and						
water conservation and structures, waste control and environmental planning.	, con ana						
LLS410 AGRICULTURAL STRUCTURES 410							
ING I BI n a Bilingual 3 + 0.5 S1 15							
Building construction Euroctional requirements for and design of farm related structures	· housing						
systems and handling facilities for different species of animals	, nouoing						
INT400 I FARNING THEORIES 400							
OPV OPV n.a. Bilingual + S1 12							
This study focuses on different theories of learning. Students will be challenged to exp	lore most						
recent research on learning style preferences and motivation whole-brain learning and	d multiple						
intelligences and possible causes of poor and underachievement to enable them to cat	er for the						
diversity of learners. Concepts, elements and skills of critical and creative thinking will be de	alt with to						
create challenging learning environments (Web-based).							
NAS MBY n a Bilingual 2+0.5 S2 8							
General anatomy and morphology of bacteria, viruses and fungi. Basic nutritional require	ements of						
micro-organisms and the effect of environmental factors on microbial growth. Micro-orga	anisms as						
essential components of ecospheres: plant, water and soil ecosystems. Food decay, food	poisoning						
and preservation of food by micro-organisms. Basic principles involved in disinfection, st	terilization						
and control of microbes; techniques for microbial repression: sterilization by using heat,	radiation						
filtration, chemical; decimation of numbers.	filtration chemical: decimation of numbers						
	radiation,						
WB1251 GROWIN_DIVERS.&CONTROL/BAC.251	- adiation,						
NAS_MBY n a Bilingual 2 + 2 \$1 12							
MBY 251 GROWTH_DIVERS.&CONTROL/BAC.251 NAS_MBY n a Bilingual 2 + 2 \$1 12 Envelope of gram positive and gram negative rods. Growth of bacteria, replication of the	e genome,						
MBY n a Bilingual 2 + 2 S1 12 Envelope of gram positive and gram negative rods. Growth of bacteria, replication of the regulation of septum formation, diversity of cell division mechanisms across the prokaryotes	e genome,						
MAS_MBY n a Bilingual 2 + 2 S1 12 Envelope of gram positive and gram negative rods. Growth of bacteria, replication of the regulation of septum formation, diversity of cell division mechanisms across the prokaryotes survival structures. Control of bacterial growth; classes of antibacterial agents, cellular t	e genome, s, bacterial argets for						
NAS_MBY n a Bilingual 2 + 2 S1 12 Envelope of gram positive and gram negative rods. Growth of bacteria, replication of the regulation of septum formation, diversity of cell division mechanisms across the prokaryotes survival structures. Control of bacterial growth; classes of antibacterial agents, cellular t growth inhibition and killing of cells. Energy sources, harvesting from light versus oxidation,	e genome, , bacterial argets for regulation						
NAS_MBY n a Bilingual 2 + 2 S1 12 Envelope of gram positive and gram negative rods. Growth of bacteria, replication of the regulation of septum formation, diversity of cell division mechanisms across the prokaryotes survival structures. Control of bacterial growth; classes of antibacterial agents, cellular t growth inhibition and killing of cells. Energy sources, harvesting from light versus oxidation, of catabolic pathways, chemotaxis. Nitrogen metabolism, iron-scavenging. Alternative	e genome, s, bacterial argets for regulation e electron						
NAS_MBY n a Bilingual 2 + 2 S1 12 Envelope of gram positive and gram negative rods. Growth of bacteria, replication of the regulation of septum formation, diversity of cell division mechanisms across the prokaryotes survival structures. Control of bacterial growth; classes of antibacterial agents, cellular t growth inhibition and killing of cells. Energy sources, harvesting from light versus oxidation, of catabolic pathways, chemotaxis. Nitrogen metabolism, iron-scavenging. Alternative acceptors: denitrification, sulphate reduction, methanogenesis. Structure and function	e genome, bacterial argets for regulation e electron on versus						
MAS MBY n a Bilingual 2 + 2 51 12 Envelope of gram positive and gram negative rods. Growth of bacteria, replication of the regulation of septum formation, diversity of cell division mechanisms across the prokaryotes survival structures. Control of bacterial growth; classes of antibacterial agents, cellular t growth inhibition and killing of cells. Energy sources, harvesting from light versus oxidation, of catabolic pathways, chemotaxis. Nitrogen metabolism, iron-scavenging. Alternative acceptors: denitrification, sulphate reduction, methanogenesis. Structure and functio phylogenetics. Biodiversity; bacteria occurring in the natural environment (soil, water	genome, bacterial argets for regulation electron on versus and air),						
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Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
replication, transcrip	tion and protein synthesis; effect	t on hosts; vi	ral immunol	ogy; evolu	ition of viruses.
Prerequisites: [BCM	251] and [CMY127] and [MBY16	61]			
MBY352	ENVIRONMENTAL_MICROBIC	DLOGY_352			
NAS MBY	na	Bilingual	2 + 1	S1	18
Basic principals in	microbial ecology: microbial ev	volution. mic	robial intera	ctions. ed	cosvstems and
communities, gene	transfer, abiotic factors and e	extreme envi	ronments. r	nicrobial	habitats which
include air, water,	soil, man, insects, animals	and plants.	The role	of micro	organisms in
biogeochemical cvc	ling and microbial food webs.	Potential ex	ploitation of	extreme	environments.
organisation of nat	ive populations in extreme en	vironments,	ecological	aspects o	of deterioration
control, soil, waste a	and water management.		•		
Prerequisite: [MBY1	61]				
MBY353	VERTIBRATE-MICROBE INTE	RAC.353			
NAS MBY	n a <u> </u>	Bilingual	2 + 1	S1	18
Normal interactions	between humans or animals a	and microora	anisms. Hos	st-nathoge	en interactions:
Principles of patho	ogenesis: Important infectious	diseases of	f man and	animals	Principles of
diagnostics: Introduc	ction to epidemioloav.				
MBY354	VETERINARY VIROLOGY 354	4			
NAS MBY	n a	Enalish	2 + 0	S1	9
Introduction to virus	es important in veterinary scien	ce: mechanis	sms of virus	replicatio	n transcription
and protein synthe	sis: effect on hosts: viral immu	inology: enic	lemiology a	nd evolut	ion of viruses
prions: diagnoses a	nd control of viral diseases and v	/iral vaccines	i.		
CAPITA SELECTIO	N ONLY FOR BVSc PROGRAM	IME.			
Prerequisites: [BCM	2511 and [CMY127] and [MBY16	511			
MBY361		Y 361			
NAS MBY	n a	Bilingual	2 + 1	S2	18
Inderlying principle	e: the catalyst of the reaction	is a solf-ror	licating cell	enerav	transfer mass
transfer growth m	ode reactor design and one	ration grow	th kinotice	, energy Droduct	development:
economics of hioter	chnology market needs scope	and market	analveie nr	oduction	and marketing
intellectual property	rights bioprospecting microh	ial diversity	classical i	solation	and screening,
Strain improvement	Metabolic flux and metaboloso	me analysis	metabolic a	nd nathwa	and screening.
nrotein engineering:	directed mutagenesis and gene	shuffling P	roduction of	amino ac	ids antibiotics
enzymes microhial	nolymers alcohols and organic	acids		unino uo	100, 0111010100,
Prereguisites: IRCM	2511 and [MBY251]	40103.			
MRV362					
		Rilingual	2 ± 1	60	19
Microbial quality and	d apoilago of food: mont poultr	Dillingual		lo: fruito y	rogotables and
araine Microbial for	a sponage of 1000. Ineal, poull	y, sealood, t		is, iluiis, i vitee: tovir	
protective measured	e preservation: HACCD Eacd for	armentations	· Drinciples	and organ	is, mycoloxins,
evamples: dainy	vegetables traditional product	te hoor on	d wine M	licrobial	food analysis
Conventional approx	aches ranid methods	is, beel di		norobiai	anaiyala.
Prerequisite: IMRV2	511				
MRY363	MOLEC BIOLOF PROKARY	OTES 363			
NAS MBY	n a	Bilingual	2 + 1	S2	18
Modification of conc	nic material: DNA damage and a	damaga rona		otivation (
Mobile elemente in	ne material. DNA udmaye and t	ne Control	of operance	and rocy	lone pegativo
involute elements, insertion sequences, transposons. Control of operons and regulons, negative					
ponnior, positive control, mixed control, regulation by upstream DNA structure, sigma factors, the role of recombination in expression, regulation of translation, DNA protoin interactions. Destinant					
or recombination in expression, regulation or translation, DivA-protein interactions. Posttranslational					
control by compa	rtmentalisation Global regulat	tory network	ks carbon	cataboly	te renression
alarmones signal	transduction chemotavis room	ulation of fe	armentation	and reer	viration etress
alamones, signal iransouccion, chemotaxis, regulation or remendation and respiration, stress					
damaged proteine	Prerequisites: [RCM251] and [C]	MY1271 and	[MRY161]		
MRY364		BES 364			
	n a	English	2 + 1	S2	18
labelation of clanch	na NA (appomio librarica		hooio) doo	ing voot	no (ploomide
bactarianhagaa	amide) plasmid incompatibility	and control		ing vecto	nation of DNA
varienupnayes, co			UL CODY IL	INDEL LI	ματιστί στι στηλά

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
fragments, modifica	tion of DNA end and different li	gation strateg	gies. Direct	and indired	t methods for
the identification of recombinant organisms. Characterization (polymerase chain reaction, nucleic acid					
sequencing) and mi	utagenisis of cloned DNA fragm	nents. Gene e	expression i	n Gram ne	gative (E.coli)
Gram positive (B.su	btilis) and yeast cells (S.cerevis	sea). Use of A	Agrobacteriu	im and bac	culoviruses for
gene expression in	plant and insect cells respective	ly. Application	is in protein	engineerin	g, diagnostics
and synthesis of use	eful products.				
Prerequisites: [BCM	251] and [CMY127] and [MBY10	61]			
MGW112	PEOPLE_&_THEIR_ENVIRON	MENT_112			
MED_MGW	na	Bilingual	4 + 0	S1	6
This module comp	rises basic psychology and s are also taught.	ociology con	cepts relev	ant to Me	edicine. Basic
MLB111	MOLECULAR & CELL BIOL	OGY 111			
NAS GTK	MI B111	Double	4 + 1	S1	16
Introductory study (of the ultrastructure function a	and compositi	ion of repre	esentative	cells and cell
components Gener	al principles of cell metabolism	molecular de	enetics cell	arowth ce	Il division and
differentiation		molocular ge		growan, oo	
MTI 181		21			
GW MTI		Double	3 + 0	S1	6
The module entails	the acquisition of a basic medic	al orientated	vocabulary	compiled f	rom Latin and
Greek stem forms o	ombined with prefixes and suffic	vas derived fr	om these la		The manner in
which the meaning	of medical terms can be	determined	hv analyzi	nguages.	ms into their
recognizable meani	ingful constituent parts is tauc	iht and exerc	cised The	functional	application of
medical terms in cor	ntext as practical outcome of ter	minological ar	onlication is	continually	application of
MTT210		OPV 210	splication is	continually	attended to.
		Bilingual	3 + 0	C1	12
Influences of ideolog	nias social institutions and tech	pology on the		ont of Wost	torn and other
material cultures of	specially on furniture and text	ilos Style pa	riode from	Equation 1	to the French
Pevolution	specially off furniture and text	lies. Style pe		Lgyptian	
MTT220		OBX 220			
		Bilingual	3 + 0	62	12
INAG_VDIX	rice applied institutions and task	pliniguai	dovelopme	DZ nt of Wooto	rn and othor
material cultures of	pecially on furniture and textiles	Style period	a from oarly	ninotoont	
the present	specially off furniture and textiles	. Style period	s nom earry	mineteenti	i century to
ne present. Proroquisito: [MTT2]	10 (29)				
	PRINCIPLES OF DESIGN 11	4			
	PRINCIPLES_OF_DESIGN_TI	Dilingual	4 . 4	C1	7
INAS_VDR	lia 	Dilligual			/
Introduction to basic	concepts in design (Design eie	ements and pl	rincipies) ar	id practical	application in
Interior planning and					
OBS110	BUSINESS_MANAGEMENT_1	10		64	4.0
EB_OBS	na ,	Bilingual	3+0	51	10
Introduction to Bus	siness Management as a scie	ence, the en	vironment	in which t	he enterprise
operates, the field	of business, the mission a	nd goals of	an enterp	orise, man	agement and
entrepreneursnip.	ne choice of a form of enterpri	se, the choice	e of produc	ts and/or s	services, profit
and cost planning to	or different sizes of operating un	its, the choice	of location	, the nature	e of production
processes and the la	ayout of the plant of operating u				
OB5120	BUSINESS_MANAGEMENT_1	20		0.0	1.0
EB_OBS	na	Bilingual	3+0	S2	10
Introduction to and	overview of general manager	nent, especia	illy regardir	ig the five	management
tasks, strategic ma	anagement, contemporary dev	velopments a	ina manag	ement iss	ues, tinancial
management, mark	eting, public relations. (Note: F	or marketing	students, r	narketing i	s replaced by
rinancial manageme	ent, and public relations by sn	nail business	manageme	ent.) Introd	uction to and
overview of the va	lue chain model, management	t of the inpu	ts, manage	ment of th	ne purchasing
runction, managem	ent of the transformation pro-	cess with sp	ecific refer	ence to pi	oduction and
operations manager	ment, numan resources manag	ement, and in	normation	manageme	nt. (Note: ⊢or
information manag	ement students, information	management	is replac	ea by sr	nali business
management.)					

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
OBS156	BUSINESS_MANAGEMENT_1	56			
EB_OBS	na	Bilingual	3 + 0	K2	5
A brief introduction	to business management which	h includes a	description	of a busir	ness enterprise
and its environment	s and stake holders; the busine	ess person's	task in esta	blishing a	business, and
the obtaining of fina	ance; the general management	principles wh	nich are use	ed to man	age the whole
enterprise and its dif	fferent functions in order to ensu	ire competitiv	eness.		-
OBS210	BUSINESS_MANAGEMENT_2	:10			
EB_OBS	na	Bilingual	3 + 0	S1	16
The role of logistics	in an enterprise, definition and	scope of cu	stomer serv	vice, electr	onic and other
logistics information	systems, inventory manageme	nt, materials	manageme	nt with sp	ecial reference
to Japanese system	ns, management of the supply	chain. Metho	ds of trans	port and t	ransport costs,
types and costs of w	varehousing, electronic aids in n	naterials hand	lling, cost a	nd price d	etermination of
purchases, organisir	ng for logistics management, me	ethods for imp	roving logis	tics perfor	mance.
OBS220	BUSINESS_MANAGEMENT_2	20			
EB_OBS	na	Bilingual	3 + 0	S2	16
Project managemen	t: Introduction.				
Project managemen	t concepts, needs identification,	the project m	nanager and	the proje	ct tream, types
of project organisati	ons, project communication and	d documental	tion. Plannii	ng and co	ntrol: planning,
scheduling and sche	edule control of projects, resou	rce considera	ations and a	allocations	, cost planning
and performance ev	aluation.				
OBS310	BUSINESS_MANAGEMENT_3	10			
EB_OBS	na	Bilingual	4 + 0	S1	20
The environment in	which human resource manage	ement takes	place, job a	inalysis, st	trategic human
resource planning,	equal employment opportun	iities, plannii	ng and m	anagemer	nt of training,
development and ca	areers, functioning in a global er	nvironment. T	he nature c	of negotiati	on preparation
for negotiation, neg	otiating for purposes of climate	e, creation, p	ersuasive o	communica	ation, handling
conflict and aggres	sion, specialised negotiation,	and collectiv	e bargainir	ng in the	South African
context.					
	WEED_SCIENCE_413			64	4.4
NAS_PGW	UKVV451,452	Bilingual	2 + 0.5	S1 s laboratifi	14
identification of imp	ortant weeds of crops, garder	is and recrea	ational area	is. Identifi	cation of allen
Invasive and indigen	lous encroaching species. Impa	cts of weeds	on desirable	e vegetatio	on. Interrerence
pleast biodiversity on	d erep production potential W	ly and compe		ortioulture	ole of weeds in
biology and ecology	v Mechanical cultural biologi	cal and cher	nical weed	manadan	nent practices
Integrated weed ma	nagement Herbicide formulation	ne and annlic	ation techni		tes of action of
herbicides and their	behaviour and fate in the enviro	nment		ques. mot	
Prerequisite: [PPK2	511	Similarit.			
	EXPER TRAINING IN INDUST	480			
NAS VBR	na	Bilingual	0 + 1	J1	6
Compulsory practic	al training in the hospitality or re	tail industry.	-	-	1-
PAS300	PROD.ANIM.BEHAV.HAND.&V	NELF 300			
VET PAS	AHG300	English	1 + 1	J1	12
Introduction to the n	ormal behavioural repertoire of o	cattle, pigs, sh	neep and ac	bats and se	elected
economically import	ant behavioural aberrations and	their prevent	ion. Animal	welfare as	spects of these
behavioural patterns	. Practical animal handling and	the developm	ent of profic	ciencv in a	range of farm
animal procedures.	Prerequisite: [Only students sel	ected for BSc	(Veterinary	Biology)!!	!]
PEL400	PROFESSIONAL ETHICS &	LAW 400		0,7	
OPV OPV	na <u> </u>	Bilingual	+	S1	6
This module explore	es and reflects on human rights	, environmen	tal and dem	nocratic is	sues impacting
on own practices. (Critical analysis of education s	ystems (educ	ation policy) and its	impact on the
micro level (in the	e classroom) in education. Ki	nowledge of	the eleme	ents of ef	fective school
management, syster	ms of discipline and defining ac	tivities that p	romote an a	awareness	of citizenship,
human rights and	the principles and values of the	he Constitution	on. Interpre	t educatio	onal legislation
dealing with HIV/AID	DS, drugs and violence. Identifyi	ing and interr	alising ethio	cal profess	sional educator

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
PGB400	PROJECT:_HOSPITALITY_MA	NAG.400			
NAS_VBR	n a	Bilingual	4 + 0	J1	20
Research methodo	logy. Planning, executing an	d reporting	a research	n project	in Hospitality
Management.					
PGW350	SOIL WATER RELA.& IRRIG	AT. 350			
NAS PGW	PGW351,352	Bilingual	2 + 0.5	S1	16
Quantitative descrip	tion and measurement of soil v	water content	t and poten	tial as we	II as saturated
and unsaturated h	vdraulic conductivity. Modellin	g water flov	v in soil (l	Darcy's la	aw, Richards's
equation). Infiltration	n, redistribution, evaporation, r	unoff and pe	rcolation. Ir	rigation ir	South Africa.
Modelling and mar	naging the soil water balance	. Plant wate	r consumpt	ion and	the Soil-Plant-
Atmosphere Continu	uum. Irrigation scheduling (soil	, plant and a	atmosphere	approach	es). Managing
poor quality water.	Irrigation systems. Module	includes a f	field trip to	an irrig	ation scheme.
Prerequisite: [GKD2	50]				
PGW400	SEMINAR_400				
NAS_PGW	PGW400	Bilingual	3 + 0	J1	20
Basic principles of	the scientific process. Literature	e accessing	and article	assessme	nt. Manuscript
preparation and pres	sentation of seminars. Basic inst	truction on the	e use of visi	ual aids, e	tc. for effective
oral presentations.					
PGW421	RESEARCH_METHODOLOGY	421			
NAS PGW	PGW401	Bilingual	2 + 0.5	S2	14
Basic experimental of	designs. Measurement and cont	rol over expe	rimental err	or. Factori	al experiments
and interactions.	Analysis of variance	ANOVA	A) and	data	interpretation.
Prereguisite: [BME1]	20]	,	,		
PHY101	GENERAL PHYSICS 101				
NAS PHY	n a	Enalish	4 + 1	J1	16
This is an extended	version of PHY131 Units vector	ors one-dime	ensional kine	ematics d	vnamics work
equilibrium sound	fluids heat electrical potentia	and capac	itance dc a	and ac ci	irrents optics
modern physics, rad	lioactivity.	and capac			
Prereguisite: [Par 1	.2]				
PHY102	MECHANICS AND ELECTRIC	CITY 102			
NAS PHY	na <u> </u>	Enalish	4 + 1	J1	16
This module follow	s after PHY101 and together	they are e	quivalent to	the PH	Y171 module.
Kinematics of a poi	nt. relativistic kinematics. dvna	mics of parti	cles. rotatio	n and dvi	namics of rigid
bodies, simple har	monic motion, electrostatics, e	electrodvnami	cs. elemen	tarv alter	nating current.
Prereguisite: [PHY1	01] or [PHY131]	, , .	,	,	.
PHY131	GENERAL PHYSICS 131				
NAS PHY	na e	Double	4 + 1	S1	16
This course is inten	ded for students who require o	only a single	semester o	f physics.	Students who
have passed the PH	Y131 course but would prefer to	continue wit	h the PHY1	71 year co	ourse, will have
to do an additional	module. This change can on	ly be made	after appro	val by the	e Head of the
Department. Units, v	vectors, one dimensional kinema	atics, dynami	cs, work, ec	uilibrium,	sound, liquids,
heat, electric poter	ntial and capacitance, direct o	urrent and	alternating	current, c	optics, modern
physics, radio activit	y.		-		
Prerequisite: [Par 1	.2]				
PHY171	FIRST_COURSE_IN_PHYSICS	5_171			
NAS_PHY	na	Double	4 + 1	J1	32
SI-units. Significant	figures. Waves: sound, intens	ity, superpos	sition, interfe	erence, st	anding waves,
resonance, beats, D	oppler. Geometrical optics: Refl	ection, refrac	tion, dispers	sion, mirro	rs, thin lenses,
instruments. Physic	cal optics: Young-interference,	coherence,	thin laye	rs, diffrac	tion, gratings,
polarisation. Hydros	statics and dynamics: density,	pressure, Ar	chimedes' l	aw, contir	nuity, Bernouli.
Heat: temperature and scales, specific heat, expansion, heat transfer. Vectors. Kinematics of a point:					
relative, projectile, a	nd circular motion. Dynamics: N	ewton's laws	, friction. We	ork: point	masses, gases
(ideal gas law), gra	avitation, spring, power. Kinetic	energy. Po	tential ener	gy: conse	ervative forces,
gravitation, spring.	Conservation of mechanical er	nergy and er	nergy. Cons	servation	of momentum.
Impulse and collisi	ons. System of particles: cen	tre of mass	, Newton's	laws. Ro	tation: torque,
conservation of and	gular momentum, equilibrium,	centre of ara	avity. Simpl	e harmon	ic motion and

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
pendulums. Coulor	nb's law. Electric field: dipole	e, Gauss' lav	w. Potentia	al. Capaci	tance. Electric
currents: resistance	, resistivity, Ohm's law, energy	, powers, en	niconductor	s, superco	onductors, emf,
RC-circuits. Magnet	ism: Hall effect, Biot-Savart. Fa	araday's and	Lenz's law	s. LR-circu	uits. Alternating
current: RLC-circuits	s, power, transformers. Modern	physics: The	ory of spec	ial relativity	y, wave/particle
nature, photoelectric	c effect, matter waves, quantum	theory, infinit	te potential	well, hydr	ogen atom and
spectra, nuclear phy	sics, Rutherford model, nucleon	IS.			-
Prerequisite: [Par 1	.2]				
PHY253	SIMULATUSING_MATHEMA	TICA_253			
NAS_PHY	na	English	0 + 1	K1	6
Introduction to proc	ramming in "Mathematica": Co	ncept of an	algorithm	and the b	asic logic of a
computer programn	he. Basics of "Mathematica" lar	nguage and s	syntax. Syr	nbolic mar	nipulations with
"Mathematica". Gi	aphics with "Mathematica".	"Mathemati	ca" as	a tool	for numerical
computations.Applic	ations: Selected illustrative ex	amples from	Mathema	tics, Phys	ics, Chemistry,
Biology and Econon	nics.				
Prerequisites: [PHY	171 or PHY101 and PHY102] ar	nd [WTW211 :	#] and [WT	W218 #]	
PHY254	GENERAL_PHYSICS_254				
NAS PHY	n a	English	4 + 2	S1	24
Vibrating systems 8	Waves (12 lectures)				
Simple harmonic	motion (SHM). Superposition	n (different	frequencie	es, equal	frequencies).
Perpendicular vibrat	ions (Lissaious figures). Dampe	d SHM. Force	ed oscillatio	ons. Resor	nance. Q-value.
Fourier analysis. T	ransverse wave motion. Plane	wave soluti	ion using	method of	separation of
variables. Reflection	and transmission at a bounda	ary. Normal 8	eigenmoc	les. Wave	groups. Group
velocity.		,	0		U 1
Modern Physics (30	lectures)				
Special Relativity:	Galilean & Lorentz transformat	tions. Postula	ates. Mom	entum and	d energy. Four
vectors & tensors.	General relativity.Quantum phy	ysics. Failure	of classion	cal physics	s. Bohr model.
Particle-Wave duali	ty. Schrödinger equations. Piec	e-wise const	ant potenti	als. Tunne	ling. Hydrogen
atom. Angular mom	entum. Spin. X-rays. Laser.Nucl	ear physics: F	ission. Fu	sion. Radio	activity.
Heat & Thermodyna	mics (14 lectures)				-
Heat. First Law. Kir	netic theory of gases. Mean free	e path. Ideal,	Clausius,	Van der V	Vaals and virial
gases. Entropy. Se	econd Law. Engines & refrige	erators. Third	d Law. Th	ermodyna	mic potentials:
Enthalpy Helmholtz	& Gibbs Free energies, Chemi	cal potential.	Legendre	transforma	ations (Maxwell
relations). Phase eq	uilibrium. Gibbs phase rule				
Prerequisites: [PHY	171 or PHY101 and PHY102] an	nd [PHY253 #] and [WTV	V211 #] an	d [WTW218 #]
PHY263	GENERAL_PHYSICS_263				
NAS PHY	n a	English	4 + 2	S2	24
Classical Mechanic	s (28 lectures)			•	
Mechanics of defo	mable matter: Fluids. Pascal	l's Law. Arc	himedes'	Law. Berr	oulli equation.
Elasticity, Bulk & Y	oung's modulus. Shear.Fundar	nental conce	ots: Space	& time. N	lewton's Laws.
One-dimensional M	lotion. Conservative forces. Co	onservation d	of energy.	Motion ne	ar equilibrium.
Collision problems	Energy & Angular Momentum:	Energy. Co	nservative	forces. T	orque, angular
momentum. Centra	al forces. Hamilton's principle	& Lagrange	e's equation	ons.Centra	I Conservative
Forces: Conservation	on Laws. Inverse square force. (Orbits equation	n. Scatteri	ng cross s	ections. Impact
parameter. Rotating	Frames: Angular velocity. Rate	e of change o	f a vector.	Apparent of	aravity. Coriolis
force. Precession of	of elliptic orbit around centre of	of force. Two	Body pro	blem: Ce	ntre-of-mass &
relative coordinates	- also Lagrange equations. The	e centre-of-m	ass frame	(P. J and	T), Many Body
Systems: Momentum & centre of mass (CM) motion. Angular momentum & moments of internal					
forces. Kinetic & Potential Energy, Lagrange equations in CM & relative coordinates.					
Physical Optics (14	lectures)				
Electromagnetic Th	eory: Maxwell equations - sim	plified form f	or uniform	transvers	e fields. Wave
equation & plane-w	ave solutions. Electromagnetic	character of	ight. Sphe	rical wave	s. Waves at an
interface: Fresnel e	equations. Evanescent waves.	Conductina n	nedia. Con	nplex inde	x or refraction.
Polarization: Law of	Malus. Jones vectors & matrice	s. Crystal On	tics: Dielec	tric tensor	Index ellipsoid
& surfaces. Charact	eristic waves. Uniaxial crystals I	Interference	Superposit	ion of vect	or fields, wave-
front splitting, ampli	itude splitting. Thin-film stacks	- matrix meth	ods. Diffra	ction: Huv	gens principle.
Fraunhofer approxir	nation. Single & double slit. Diffr	action grating		,	
	-			<u> </u>	

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
Physics of Materials	(14 lectures)				
Classification of mat	terials. Atomic bonding. Crystallo	ography. Poir	nt defects a	nd diffusio	on. Line defects.
Material strength.	Phase diagrammes. Ceramic	s. Polymers	. Compos	ites. Frac	cture. Electrical
properties. Semicon	ductors. Surface physics. Smart	materials. N	anotechnol	ogy.	
Prerequisites: [PHY:	253 GS] and [PHY254 GS] and	[WTW211 G8	S] and [WT)	W218 GS	and [WTW220
#] and [WTW221 #]	1				
PHY353	PHYSICS_PROJECT_353				
NAS_PHY	na	English	0 + 3	S1	12
A student is required	d to complete a project under gu	idance of the	e lecturer. T	he nature	of the project is
determined jointly by	y the student, lecturer and the H	lead of Depa	rtment. Rec	quirement	Admission only
with the approval of	the Head of Department and le	ecturer involv	ed. Cannot	be used	as substitute for
other Physics 300 m	nodules to obtain admission to th	ne BSc(Hons)) in Physics		
Prerequisite: [IDH]					
PHY354	ELECTRONICS_&_ELECTRO	MAGN354			
NAS_PHY	PHY361	English	4 + 2	K1	18
Electronics					
Electronics Circuits:	Thévenin & Norton equivalent	circuits, sup	perposition	principle,	RC, LC & LRC
circuits. Semicond	uctor diode. Bipolar transito	or. Operation	nal amplif	iers. Ele	ctromagnetism
Electrostatics: Coul	omb's law, divergence and cu	ri of E, Gau	iss law, La	aplace's e	equation, image
charge problems, m	ultipole expansion. Magnetostat	ICS: Lorenz to	orce, Blot-S	avart law,	divergence and
curl of magnetic fi	eid, Ampere's law, magnetic	vector poten	tial, multip	ole expar	ision, boundary
wave equation Electron	tria & magnetic fields in metter	Delorization	elic inducti	oll, iviaxv	t & Coupe's low
in dielectrice linear	dielectrics Magnetization (dia	ruianzaliun,	ramagnete	forroma	anote) auvilianu
field H & Am	ore's law in magnetized	matoriale	linear	and nor	gliecs), auxiliary
Prereguisites [PHY]	254 GSI and IWTW218 GSI	materiais,	inical		initeal fileula.
PHY355	OUANTUM MECHAN & MOD	FLUNG 355	5		
NAS PHY	PHY351	English	4+2	K2	18
Quantum Mechani	ics The mathematical and co	ncentual has	s of Wav	e Mechar	aics: de Broalie
hypothesis and the	de Broglie atom Fourier series	and transfor	ms hasis v	ectors in t	function spaces
delta function wave	packets statistical interpretation	n Schröding	ner equation	n Heisen	berg uncertainty
principle. Operators	eigeneguations. One-dimensio	nal applicatio	ons: free pa	article, po	tential wells and
barriers. Eigenvalue	s obtained through operator n	nethods, har	monic osci	llator. Th	ree dimensional
applications: Schrö	dinger equation in cartesian	and spherica	al coordina	ites, angi	ular momentum
eigenvalues, 3D box	c. 3D oscillator spectrum, hvdroc	en atom. Ma	trix method	Is and spir	n.
Physics Modelling	(Assessment will be done	, through a p	ortfolio of	project n	eports) Physics
applications using	basic statistical methods in p	hysics mod	elling: rand	lom walk	s, Monte Carlo
methods. Determini	stic chaos: logistic map, Liapu	nov exponer	nts. Chaos	in contin	uous dynamical
systems: Poincare r	naps.				
Prerequisites: [PHY:	253 GS] and [PHY254 GS] and	[PHY263 GS] and [WTV	/221 GS]	
PHY363	PHYSICS_PROJECT_363				
NAS_PHY	na	English	0 + 3	S2	12
A student is required	d to complete a project under gu	idance of the	e lecturer. T	he nature	of the project is
determined jointly by	y the student, lecturer and the H	ead of Depar	rtment. Req	uirement:	Admission only
with the approval of	the Head of Department and lec	cturer. Canno	ot be used a	is substitu	te for other
Physics 300 module	e to obtain admission to the BSc	(Hons) in Phy	/sics.		
Prerequisite: [TDH]	1				
PHY364	GENERAL_PHYSICS_364			-	
NAS_PHY	PHY362 & PHY352	English	4 + 2	S2	36
Statistical Mechan	ics (32 lectures) Isolated system	ems in therm	nodynamica	l equilibri	um. Systems in
equilibrium with a h	neat bath: the canonical ensem	nble, Gibbs'	entropic for	mula, cla	ssical statistical
mechanics, energy	equipartition theorem, heat ca	pacity of cla	ssical idea	gases, ł	neat capacity of
solids. Einstein's mo	odel. Debye's model, black bod	y radiation, p	paramagnet	ism. The	classical limit of
perfect gases: Gibb	s paradox and the non-distingu	uishable cha	racter of qu	uantum pa	articles, Sackur-
etrode entropic for	mula, the equation of state of th	e classical id	ieai gas. Qu	uantum pe	errect gases: the
orang canonical ens	emple. Fermi-Dirac distribution.	the tree elec	tron das in	metals, th	e Bose-Einstein

Module	Title						
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits		
distribution, Bose-Ei	nstein condensation.						
Solid State Physics (24 lectures) Crystallography: waves in crystals, diffraction. Thermal lattice							
vibrations: the Deby	e model. Phonons in non-metal	s, thermal co	nductivity, s	acattering r	nechanisms for		
phonons. Free elect	rons in crystals: free-electron th	eory and dist	tribution of 1	the electro	ns amongst the		
energy states. Elect	trical conductivity and the band	theory: scatt	tering mech	ianisms. S	emiconductors:		
effective mass, dop	ing and Fermi levels. Physics	of the p-n jui	nction: appl	lications, lo	ow dimensional		
systems, heterojuno	tions. Magnetism: Paramagneti	ism, suscepti	bility, L-S c	oupling an	d Hund's rules,		
Curie's law. Ferrom	agnetism, hysteresis. Antiferror	magnetism. F	errimagnet	ism. Diele	ctric properties:		
microscopic theory of	of the dielectric constant, piezoe	electricity, diel	lectric breal	kdown. Su	perconductivity:		
Meissner effect, orig	in of superconductivity, isotope	effect.					
Physics Modelling	(Assessment will be done thr	rough a portf	folio of proj	ect report	s) Modelling of		
physical systems. B	iologically inspired computation	nal methods.	Selected ill	ustrations	of modelling in		
other fields.							
Prerequisites: [PHY:	253 GS] and [PHY254 GS] and	[PHY263 GS] and [PHY:	353 GS] aı	nd [PHY355		
GS] and [WTW221	GS]						
PLG251	INTRODUCTCROP_PROTE	CTION_251					
NAS_MBY	PLG220	Bilingual	2 + 1	S1	12		
Development and i	mportance of crop protection.	Basic princip	oles in crop	o protectio	n i.e. epidemic		
development of dise	ease and insect pest populatio	ns, ecology o	of plant dis	eases and	abiotic factors		
that affect plant hea	alth i.e. environmental pollution	and pesticide	es, nutrient	deficiencie	es and extreme		
environmental cond	itions. Ecological aspects of pla	ant diseases	pest outbr	eaks and	weed invasion.		
Important agricultur	al pests and weeds. Life cycl	es of typical	disease c	ausing or	ganisms. Basic		
principles of integrat	ed pest and disease manageme	ent.					
PLG261	EPIDEMIOLOGY_261						
NAS_MBY	PLG412	Bilingual	2 + 1	S2	8		
Interdisciplinary epic	demiological principles. Concep	ots, definitions	s as well as	s mathema	atical models of		
epidemics. Classica	al epidemiological case studies	selected fro	om the field	is of anim	al, human and		
plant diseases are d	liscussed.						
PLG351	GENERAL_PLANT PATHOLO	GY_351					
NAS_MBY	PLG220	Bilingual	2 + 1	S1	18		
Fundamental princip	oles of plant diseases as well as	socio-econo	mic importa	ance thereo	of. The different		
types of diseases a	nd their symptomatology. Biolog	gy and life cy	cles of sele	ected disea	ases caused by		
fungi, bacteria, vir	uses and nematodes as we	Il as abiotic	factors.	Plant dise	ase diagnosis.		
Prerequisites: [MBY	161] and [MBY261] or [TDH]				-		
PLG363	PLANT_DISEASE_CONTROL	_363					
NAS_MBY	PLG421	Bilingual	2 + 1	S2	18		
Principles of plant	disease control. Non-chemic	al control ir	ncluding bi	ological c	ontrol, disease		
resistance, regulato	ory measures, cultivation pract	ices, physica	I methods.	Modern	chemo-therapy:		
characteristics, mod	e of action and application of fu	ngicides, bac	tericides ar	nd nematic	ides. Principles		
of integrated diseas	e management.						
PLG364	HOST_PATHOGEN_INTERAC	TIONS_364					
NAS MBY	PLG351	Bilingual	2 + 1	S2	18		
Include fungal, bac	terial and viral interactions. For	ocus on mole	ecular and	cellular ev	vents occurring		
during recognition.	during fungal evasion of the	host's defend	e mechan	isms and	during disease		
symptom developm	ient. Topics discussed will als	so include ce	ell bioloav	of interac	tions. systemic		
acquired resistance	and the role of pathogenesis re	lated proteins	and toxins	in pathog	enesis.		
PLG461	NURSERY & SEED PATHOL	OGY 461					
NAS MBY	PI G422	Bilingual	1 + 0.5	S2	10		
Principles of disea	se control in nurseries. Qualit		nt of nurse	eries Che	mical and non		
chemical control ma	asures will be discussed inclu	dina disinfec	tion of soil	and growd	th modia Plant		
improvement schem	hes production of disease free	nlant materia	l and index	ring of mot	her material for		
nlant nathogens. Se	red pathology: principles detection	ion and contr	nl of seed h	orne dises			
PI G462	RESEARCH PROJECT 462						
NAS MRY	MBV/01	Bilingual	1 + 1	11	20		
A practical research	project of limited extent under	r the europe	cion of one	pi of the let	eturore in Diant		
Pathology within the	Department Apy topic in Plant		an he color				
r autology within the	Department. Any topic in Plant	r alliology Ca	an de seieci	.eu.			

Module	Title				
Fac Dept	Old code	language	low/pow	Term (Credits
PPF400	PROFESSIONAL PORTFOLIO	400	pinppin		Jiouno
OPV OPV	n a	Bilingual	+	S2	12
End of first semeste	r progress assessment and feed	back End of	the academ	nic vear: su	bmission of a
prepared profession	al portfolio as a valid and rel	liable scientif	ic proof of	learning i	ntegrating all
modules Present ar	d defend the professional portfo	plic to a panel	of examine	rs for final e	evaluation
PPK251	SUSTAINABLE PRODUCTION	SYS.251	01 0/10/10/		or and a distin
NAS PGW	PPK210	Bilingual	2 + 0 5	S1	12
Sustainability in plar	t production Principles and pra	ictices of mon	oculture cr	on rotation	lev cropping
and intercropping s	systems Organic farming Pre	cision farmin	a Concept	s such as	target vield
maximum economic	c vield and the farming system	ms approach	Principles	of soil c	ultivation and
conservation.	- ,				
Prereguisite: [BOT1]	61 or BLG1501				
PSZ311	ROCK MECHANICS 311				
Ing ING	na – –	Bilingual	3 + 1	S2	16
Stress and strain in	solid materials, Elasticity, Stren	oth and failu	re modes o	f rock mate	erial and rock
failure criteria. The	characteristics of joints in rock.	Collection of	ioint inform	nation and	interpretation
thereof. The charac	teristics of a rock mass. classi	ification meth	ods and de	etermination	n of strength.
Rock failure due to	gravity. Slope stability, joint failu	re, wedge fai	ure, circular	r and non-o	circular failure
in surface mines.	5 5 1 575	, 0			
Prerequisite: [SWK2	10] or [SWK220]				
PVK420	POULTRY_SCIENCE_420				
NAS VKU	n a	Afrikaans	2 + 0.5	S2	12
Industrial science ar	nd management of production sy	stems and fe	eding syste	ms in poul	try production
units. Applied breed	ing of poultry. Design and utilization	, ation of equip	ment and h	ousing faci	lities. Product
quality and ma	arketing of poultry produ	icts. Hygiei	ne and	health	programmes.
Prerequisites: [LEK2	210] and [VGE301] and [VKU220)]			
RPL310	REPRODUCTION_SCIENCE_3	510			
NAS_VKU	na	Bilingual	1 + 0.5	S1	8
Theriogenology, sp	ermatogenesis, zoogenesis, tł	he female s	exual cycle	e. Species	differences.
Hormonal control of	the sexual functions.				
Prerequisite: [DAF20	00]				
RPL320	REPRODUCTION_SCIENCE_3	20			
NAS_VKU	na	Bilingual	2 + 0.5	S2	10
Artificial insemination	on. Semen collection technique	es, the evalu	ation, dilutio	on and co	nservation of
semen. Collection, o	conservation and transfer of em	bryos. Collec	tion of ova	and in vitr	o fertilization.
Handling of apparate	us and practical insemination, or	estrus observa	ation and de	eterminatior	n of gestation.
Prerequisite: [RPL3'	10]				
SCE170	RELIGIOUS_INSTRUCTION_1	70			1-
NAS_SCE	n a	English	2 + 0	S1	6
Prominent religions	in South Africa, world views as	sociated with	these relig	ions, the c	ultural role of
religions, importance	e of holy days. Mysticism and the	e occult.			
SCE200	SCIENCE_EDUCATION_200				
NAS_SCE	na	English	2+0	J1	18
An introduction to pa	atterns of scientific thinking. The	growth of sci	entific thinki	ng and the	development
of misconceptions in	i children as a function of age.		of scientific	thinking int	o the science
curriculum in a de	velopmentally appropriate way.	. The Learni	ng Cycle. I	Principles	of curriculum
design.					
	SCIENCE_EDUCATION_300	F	04	14	40
NAS_SCE	n a	Englisn	2 + 1	UT The design	42
implications of outc	omes-based education (OBE) 1	for the science	ce teacher.	The desig	n of learning
programmes by pr	ogramme organisers. Macro p	blanning in t	ne natural	science le	earning area.
	and models of assessment. If	ne assessme	int anu imp		n or rearring
programmes. The	assessment of reamer progres	ss III lile CO	aspects of	school quid	lance Carecr
plogrammes. introd	nment Prerequisites (CII 111)	and [Cll 1211	a = p = 0 = 0	SCI1621	
plaining and develo	pinent. i terequisites. [OILTIT] d			2011021	

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term C	Credits
SCE301	EDUC.COMMUNITY PROJEC	T 301			
NAS SCE	n a	Bilingual	0 + 0	J1	28
Students must demo	onstrate the ability to facilitate le	arning with pa	articular em	phasis on th	he application
of team teaching, r	negotiation for resources, plan	ning and imp	lementation	. Evaluatio	on includes a
essav by the studen	it teacher, evaluation reports fro	m a supervis	or and parti	cipants. Ad	ditionally, the
student teacher pre	sents a report to peers in the f	orm of a sem	ninar. This c	contributes	two weeks to
Teaching Practice.					
SCI152	PROBLEM SOLVING SKILLS	152			
NAS SCI	n a	English	1+2	S1	12
Computer literacy	using a word processor includir	na mathemati	ical formula	s and gran	hics Internet
skills I onical reas	soning skills interpreting and	solving ma	athematical	nroblems	with LOGO
Note: Prohibited con	nbination: SCI152 and CII 111	conting the		probleme	Mar 2000.
SCI153	ACADEMIC PROFICIENCY 1	53			
NAS SCI	n a	English	1+0	K1	6
Goals and action of	ans time management taking	notos mind	mane toch	nique for M	riting oxome
ouals and action pi	ans, time management, taking	notes, minu	maps, tech	inque ioi w	mung exams,
SCI15/		154			
		English	4 + 0	C 1	16
NAS_SCI This module is pres	lid				
This module is pres	iverse from an earth bound no		uilles ale w	the whole	join us in our
the sub microscenie	to the west meansain and m	ankind's mod	e reliect on	therein Te	
ine sub microscopic	to the vast macroscopic and ma	ankinu s mou	firmomonto	the entro	o what degree
is our nappiness u	elemined by stars? Echos in	oro milky w		- life asil	priority of old
breathed into the la	ndecano on oarth but is there li	ito olsowboro	2 The archi	tecture of t	ho universe
distance measurem	onte structure of our solar syste	ine elsewhere	e ine archi	How does	it look like on
noighbouring planet	te? Compte and motoprites Li	fo cuclos of	etare Spor	tiow uoes	aloding stars
Evotica like nulsars	and black holes. The content of	this course i	e the same		and students
are not allowed to re	and black holes. The content of	164	S the Same	as 00110 4	and students
SCI162	BROBIEM SOLVING SKILLS	162			
		English	1 + 2	S2	12
Computer modelling	i a of scientific problems using spr	cinglisii oodeboote on	d data base	02	12
Note: Prohibited con	phination: SCI162 and CII 121	eausneets an			
Proroquisitos: [CII 1]	111 or [TDH]				
	BASIC DESEADCH SKILLS	163			
	BASIC_RESEARCH_SRIELS_	Engligh	1 + 0	K2	6
NAS_SUI	I d			r.s	0
			, ethics of s	cience.	
SCI164	EXPLORING_THE_UNIVERSE	164	4 . 0	60	40
NAS_SCI	na 	Afrikaans	4 + 0	52	
i his module is pres	ented in Afrikaans only. See S	CI154 for a s	ummary of	the course	content. The
content of this cours	e is the same as SCI154 and sti	udents are no	ot allowed to	register to	r both SCI154
SEM381	SEMINAR_381				-
NAS_VBR	na <u> </u>	Bilingual	1+0	S2	5
Introduction to resea	arch methodology. The compilati	on of a well s	tructured lite	erature revi	ew.
SGM311	SOIL_MECHANICS_311		I	1	1
Ing_ING	na	Bilingual	3 + 1	S1	16
Introduction to soil	mechanics. Introduction to cla	ay mineralog	y. Mass- vo	olume relat	tionships and
phases of soil. Groundwater flow and permeability. Effective stress principle. Suction pressures in					
saturated as well a	s partially saturated soil. The	Mohr circle a	and stresse	s at a poir	nt. The Mohr-
Coulomb strength	theory and the stress-strain	properties	of soil. T	ne Boussi	nesq theory.
Consolidation theory	/ and soil settlement.				
SLK110	PSYCHOLOGY_110				
GW_SLK	SLK151, SLK154	Double	2 + 1	S1	12
Compulsory introdu	ction module for BSocSci (Ps	sychology and	d Sport Ps	ychology)	and BA This
module is a gener	al orientation to Psychology.	An introduct	ion is give	n to variou	us theoretical

Module	Title				
Fac_Dept	Old code L	anguage	lpw/ppw	Term (Credits
approaches in Psyc	hology, and the development of F	Psychology	as a scienc	e is discus	sed. Selected
themes from every	yday life are explored and inte	tegrated wit	h psycholo	gical princ	ciples. Health
psychology This ma	odule is an introduction to psych	hological as	pects relate	ed to illnes	s and health.
Themes such as the	e following are explored: the patie	ent-helper re	lationship, s	stress and	stress-related
illnesses, lifestyle	and illness/health, psychologica	al aspects	of physical	illnesses,	, coping with
emotional distress a	ssociated with illness, and psycho	ological proc	esses relate	ed to loss a	and death.
SLK120	PSYCHOLOGY_120				
GW_SLK	SLK152, SLK157 D	Double	2 + 1	S2	12
Compulsory introdu	ction module for BSocSci (Psycho	ology & Spo	rt Psycholog	gy) & BA B	iological basis
of behaviour This r	nodule introduces the student to	o a basic kr	nowledge ar	nd underst	anding of the
biologi¬cal bases o	f human behaviour. The module	e addresses	the key co	oncepts an	d terminology
related to the biolo	ogical subsystem, the rules and	principles	guiding bio	logical psy	chology, and
identification of the	e interrelatedness of different b	piological sy	stems and	subsyster	ns. Cognitive
processes In this m	nodule, various cognitive process	ses are stud	died, includi	ing percept	tion, memory,
thinking, intelligence	e and creativity. Illustrations are	e given of v	arious think	ling proces	ses, such as
problem solving, crit	ical, analytic and integrative think	king.			
SLK251	PERSONOLOGY_251				
GW_SLK	na B	Bilingual	2 + 0	K1	10
In the module or	 Personology, various theorie 	es of perso	onality are	studied,	including the
psychoanalytical an	d social learning theories, the pe	erson-oriente	d approach	es, and the	e ecosystemic
approach. An Africa	in perspective is also discussed.	These app	roaches are	: compared	and critically
evaluated with rega	rd to their basic assumptions, vie	ew of the pe	rson, and p	hilosophy	of science, as
well as their cor	tribution towards understandin	ng and ex	plaining hu	ıman beh	aviour within
contemporary conte	xts.				
SLK252	CHILDHOOD_DEVELOPMENT_	_252			
GW_SLK	na B	Bilingual	2 + 0	K2	10
In the module huma	an development from conception	to adolesce	ence is disc	cussed with	 reference to
various psychologica	al theories.				
SLK253	DEVELOPMENT_PSYCHOLOG	Y_253			
GW_SLK	na D	Double	2 + 0	K2	10
In this module, the	areas and determinants of early	ly, middle a	nd late adu	ilthood dev	elopment are
studied. Incorporate	ed are the developmental change	es related to	o cognitive,	physical, e	emotional and
social functioning of	the individual and the context of	f work. Trad	itional and c	contempora	ary theories of
human developmen	t explaining and describing these	e stages are	studied in o	order to ad	dress the key
issues related to adu	ulthood.				
SLK254	SOCIAL_PSYCHOLOGY_254			h (a	1
GW_SLK	na B	Bilingual	2+0	K3	10
This module is a se	ocial-psychological perspective o	on interperso	onal and gr	oup proces	sses. Themes
that are covered in	nclude communication, pro-socia	al behaviour	, social inf	luence and	d persuasion,
political transformati	on, violence, and group behaviou	ır.			
SLK351	COMMUNITY_PSYCHOLOGY_3	351		h	1
GW_SLK	na B	Bilingual	2+0	<u>K1</u>	15
This module deals	s with a community psycholog	igical persp	ective on	human be	ehaviour and
psychological interv	rentions. The module focuses or	n themes si	uch as defi	nitions of I	key concepts,
principles and alms	s of community psychology, and	the role o	t the comm	iunity psyc	chologist. The
application of these	e principies within the South Afr	rican society	/, social ch	ange and	psychological
problems are investi	Igated from a cross-cultural persp	ective.			
SLKJ52	ABNORMAL_BEHAVIOUR_352		0.0	140	45
GW_SLK	na B	Bilingual	2+0	K3	15
nis module provid	es an introduction to psychopati	noiogy and	symptomate	ology of a	uuit abnormal
penaviour. Termino	logy, definitions of aphormal be	enaviour, pro	Solution of the second se	Jiagnosis,	rabelling, and
myuns regarding abr	ionnal penaviour are discussed. I	ineurosis as	a specific fr		
cinically from a mult	n-unnensional perspective, includi	ing initiapsyc	inc, interper	sonai and	social-cultural
EXPIDITALIUNS. Requires QLK 251 a	and SLK 253				
NEQUILES OLN 201 a	IIIU OLIN 200				

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
SLK353	CRITICAL_PERSPECTIVES_3	53			
GW_SLK	na	Bilingual	2 + 0	K4	15
This is a module the	at critically explores the contribution	ution of vario	us perspect	ives in Ps	sychology. The
impact of earlier the	ought frameworks on contempo	rary perspec	tives, and t	he implica	ations of these
ideas for practical in	itiatives focussed on mental hea	Ith in commu	nities, are d	scussed.	
SLK355	PSYCHOLOGICAL_ASSISTAN	ICE_355			
GW SLK	n a	Bilingual	2 + 0	K3	15
This is a practical	module which offers opportu	nities for pr	actising ba	sic comm	nunication and
interpersonal skills,	reflection and the utilisation	n of availabl	e resource	s during	psychological
assistance.				-	
Prerequisites: [SLK2	251] and [SLK352] and [Closed:	needs depar	tmental perr	nission]	
SLK362	CHILD_PSYCOPATHOLOGY_	362			
GW_SLK	na	Double	2 + 0	K2	15
Identification of at	onormal behaviour in childrer	n based on	knowledge	e of nor	mal childhood
development; introd	duction to the study of vario	us models p	pertaining t	o abnorn	nal behaviour;
understanding and a	application of basic concepts in c	hild psychopa	athology.		
SOC151	THE_INDIVIDUAL_&_SOCIET	Y_151			
GW_SOC	na	Bilingual	3 + 0	K1	6
An introduction to so	ciology and the sociological par	adigm.			
SOC152	THE_SOCIOL.OF_INSTITUTIO	NS_152			
GW_SOC	n a	Bilingual	3 + 0	K2	6
A focus on the so	ocial dynamics of the institution	ons of socie	ty such as	family,	the economy,
government, the star	te and civil society.				
SOC259	HOUSEHOLDS, FAMILY & GE	NDER 259			
GW SOC	SOC252	English	3 + 1	K2	10
This module focuses	s on theories and issues relevan	t to the under	standing of	gender, h	ouseholds and
family life at a gene	eral level but with a particular	emphasis on	the Southe	ern Africa	n context. The
course will address	issues such as poverty, surv	vival strategie	es of rural	and urba	n households.
HIV/Aids and its effe	cts on family life and domestic v	iolence.			
STK110	STATISTICS_110				
EB_WST	na	Double	3 + 1	S1	13
Descriptive Statistic	s – Univariate: Sampling and th	ne collection	of data, free	quency di	stributions and
graphical representa	ations. Descriptive measures of I	ocation and d	lispersion. F	robability	and inference:
Introductory probabi	lity theory and theoretical distrib	outions. Samp	oling distribu	utions. Es	timation theory
and hypothesis tes	sting of sampling averages a	nd proportio	ns (one ar	nd two s	ample cases).
Identification, use,	evaluation and interpretation of	of statistical	computer p	ackages	and statistical
techniques.					
Prerequisite: [Reg1	.2(j)]				
STK120	STATISTICS_120				
EB_WS1	na	Double	3 + 1	S2	13
Multivariate statistic	s: Analysis of variance, categori	cal data analy	ysis, distribi	ition-fee r	nethods, curve
fitting, regression ar	id correlation, the analysis of tir	ne series and	indices. St	atistical a	nd economical
applications of quar	ititative techniques: Systems of	linear equation	ons: Drattin	g, matrice	es, solving and
application. Optimisa	ation: Linear functions (two and i	more indepen	ident variab	ies), non-i	Inear functions
(one and two indep	pendent variables). Marginal- a	na total tunc	tions. Stoc	nastic an	a deterministic
functions probability	distributions and probability do	aucers surpr	us, consum	ers surpi	us, distribution
interpretation of statistical computer packages and statistical techniques					
Proroquisito: [STK1	10 CS1		inques.		
STK210	STATISTICS 210				
FR WST		Double	3 + 1	S 1	20
Probability theory	nivariate probability distributions	expected ve	alues and m	oments S	Special
nrohability distributio	ne: Binomial hypergeometric p	oison evnor	ential dama	na hota a	nd normal
distribution Probabil	lity distributions and momente in	the hivariate	case The h	na, ucia a nivariate n	ormal
distribution Identific	ation use evaluation and intern	retation of sta	tistical com	nuter pack	kages and
etatistical techniques	Prerequisites: [STK110] and [S	STK1201			agoo ana

Module	Title					
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits	
STK281	STATISTICS_281					
EB_WST	na	English	3 + 1	S2	10	
Applied regression	analysis: Simple and multiple i	regression, n	on-linear re	gression,	correlation, the	
use of dummy varia	bles, heteroscedasticity, serial	correlation ar	nd lag struct	ures. App	lied time series	
analysis. Identificati	ion, use, evaluation and inter	rpretation of	statistical of	computer	packages and	
statistical technique	S.					
Prerequisites: [STK	110] and [STK120]					
SUR220	SURVEYING_220			1		
NAS_GGY	na	English	3 + 1	S2	16	
Definition of Surve	ying. Adjustment and use of	the following	instrumen	ts: Level,	compass and	
theodolite. Site surv	eying, levelling and tacheomet	ry. Co-ordina	te systems,	angles of	direction, joins	
and polars. Point po	sitioning. I rigonometric height o	determination				
Prerequisite: [WIW	114 GSJ					
SWK122	MECHANICS_122	D	11	0.0	110	
ING_ING	na	Bilingual	4 + 0	S2	16	
Equivalent force sys	stems, resultants. Newton's law	/s, units. ⊢oro	es acting o	n particles	s. Rigid bodies:	
principle of transm	issibility, resultant of parallel	forces. Vect	or moment	s and so	calar moments.	
Relationship betwee	en scalar- and vector momer	its. Couples.	equivalent	torce sy	stems on rigid	
bodies. Resultants (of forces on rigid bodies. Equili	ibrium in two	and three of	limension	s. Hooke's law.	
Trusses and tramev	vorks. Centrolds and second m	oments of are	ea. Hydrosta	atics: pres	sure at a point,	
resultant forces on s	submergeu plane areas. Beams		orces, snea	nd bon	ding moment,	
Proroquisito: [\//T\//		iuau, silea		and ben	ung moment.	
	STRENCTH OF MATERIALS	240				
	STRENGTH_OF_MATERIALS	_210 Dilingual	2 + 2	C1	16	
	lid ad material babaviaum Name	Billingual	3+2	<u>р</u> і fastana a	10 rd sefet: Der	
Stresses, strains a	nu malenai benaviour. Norma	al and shear	stresses,	lacions a	nu salety. Bar	
structures with axia	floads. Displacements and sti	esses of stat				
structures, thermal e	rmetion of choor stress, relation	, strain energ	y, uynamic i	baus. Tor	SION. TOISION OF	
otatically indatarmin	ate evice strein energy Cheer	onship betwe	ell E, G, y	Choor for	soluti of power,	
moment strains and	die dales, stidill ellergy. Sliedi	and strain: Dia	OI Deallis.		ce and benuing	
nlane strain. Deflect	ions of booms. Ruckling	nu suain. Fia	ne suess, u	i-axiai sui	ESS, J-D SIIESS,	
TRE161	TOURISM MANAGEMENT 1	51				
ED TRE	TOURISM_MANAGEMENT_1	Bilingual	4 + 0	K 1	5	
LD_IDL Structure and organ	ind	This introduo	ton modulo	n	on introduction	
to and overview of t	the tourism industry. Firstly defi	nitiona and a	lory module	ovelored	whoreofter the	
evolution of tourism	through the ages is addresse	d With a sou	ind frame of	f reference	n nlace the	
structure and organi	sation of tourism at the internat	ional nationa		and privat	te sector levels	
is examined			i, provinciai			
TBF152	TOURISM MANAGEMENT 1	52				
FR TRE		Bilingual	4 + 0	K2	5	
The tourism system	and the key components of to	uriem: Thie m		des vario	us perspectives	
on the tourism system	rem and then focuses on the	specific comr	onents of t	he tourisr	n system their	
relationships and the	eir interdependence	specific comp			n system, then	
Specific attention is placed on key components such as attractions transportation distribution						
channels hospitality	and related services		actione, a	anopontati		
TBE161	TOURISM MANAGEMENT 10	61				
FB TBF	n a	Bilingual	4 + 0	K3	5	
Tourism demand or	onsumer behaviour and market	research: As	the consu	mer is cer	ntral to success	
in the tourism industry, this module addresses tourism domand from both a quantitative, and a						
qualitative perspecti	ive An understanding is provid	led of tourist	behaviour:	cultural a	nd international	
aspects of travel as	well as the sociology of tourism		contained,	cantarar a		
The latter part of thi	is module focuses on the key re	ole of travel a	and tourism	research	particularly the	
application of resea	arch techniques and the intern	retation of re	search resu	ilts as an	aid in tourism	
planning and decision	on-making.					
	5					

Module	Title				
Fac_Dept	Old code Language lpw/ppw Te	erm Credits			
TBE162	TOURISM_MANAGEMENT_162				
EB_TBE	n a Bilingual 4 + 0 K4	4 5			
Tourism supply, pla	lanning and development: This module focuses on supp	bly side activities and			
services that need to	to be addressed to ensure quality visitor experiences. Partic	cular attention is given			
to the formulation	n and implementation of sustainable tourism planning	g, development and			
management princip	iples and practices.				
TBE261	TOURISM_MANAGEMENT_261				
EB_TBE	n a Bilingual 4+0 K3	3 8			
The management of	of tourism attractions: In this module the aspect of visitor attra	actions, which is at the			
core of successful to	tourism, will be addressed at three levels. Firstly, the key ro	le of visitor attractions			
in the tourism indu	lustry will be outlined, whereafter the overall development	nt process (feasibility			
studies, financial an	nd design aspects, etc.) relating to visitor attractions will rece	eive attention. The last			
part of this module	le focuses on the strategic management and operation	nal aspects of visitor			
attractions.					
TBE262	TOURISM_MANAGEMENT_262				
EB TBE	n a Bilingual 4+0 K4	4 8			
Strategic destinatio	on marketing: This module firstly explores the unique of	characteristics of and			
approaches to strat	ategic destination marketing, with particular emphasis on gl	obal best practices in			
this regard. It then	provides a management and operational framework for o	destination marketing.			
Within this framewor	ork new developments, trends, practices and case studies in	destination marketing			
are also addressed.	l.				
TBE310	TOURISM_MANAGEMENT_310				
EB TBE	n a Double 0+0	S1 20			
Hospitality manager	ement 1 - Rooms division and front office management: The	his section covers the			
"quest cycle" and ad	ddresses the process and procedures, from the moment a pro-	otential quest contacts			
an accommodation	n establishment to the time that he or she departs. All	the operational and			
management function	ions of this process as well as key supportive aspects such	h as hospitality, social			
skills and customer	r care are covered in detail. A distinction is drawn between	revenue centres and			
support centres. All	Il the key support centres such as housekeeping, maintena	ance and security are			
covered. This section	ion concludes with a well-rounded overview of the operatio	onal and management			
aspects of the front	t office and its support units.				
Hospitality managen	ment 2 - Food and beverage and financial management.				
This section firstly	covers the key operational and management aspects o	of food and beverage			
management, which	ch forms a vital part of hospitality management. Industry e	xposure and practical			
involvement is an es	essential ingrediant of this section. As financial management	t and costing is critical			
to the success of ar	any hospitality organisation, the second part of this section of	covers all the policies,			
principles and proc	cedures pertaining to financial operations and financial	management in such			
establishments.					
TBE361	TOURISM_MANAGEMENT_361	- 1			
EB_TBE	n a Bilingual 4+0 K3	3 10			
Hospitality manager	ement 1 - Rooms division and front office management: The	his module covers the			
"guest cycle" and ad	ddresses the process and procedures, from the moment a po	otential guest contacts			
an accommodation	n establishment to the time that he or she departs. All	the operational and			
management function	ions of this process are covered in detail as well as key su	pportive aspects such			
as hospitality, socia	al skills and customer care. A distinction is drawn between	revenue centres and			
support centres. All	If the key support centres such as housekeeping, maintena	ance and security are			
covered. This modu	ule concludes with a well-rounded overview of the operation	onal and management			
aspects of front offic					
I BE362	IOURISM_MANAGEMEN1_362				
EB_IBE	n a Bilingual 4+0 K4	4 10			
Hospitality manager	ement 2 - Food and beverage and financial managemen	it: This module firstly			
covers the key ope	erational and management aspects of food and beverage	management, which			
forms a vital part of hospitality management. Industry exposure and practical involvement is an					
essential ingredient of this module. As financial management and costing is critical to the success of					
any nospitality orga	anisation, the second part of this module covers all the p	olicles, principles and			
procedures pertainir	ing to financial operations and financial management in such	establishments.			

Module	Title				
Fac Dept	Old code	Language	lpw/ppw	Term	Credits
TKS212	TXS:UTILITY,FIBRES&YARNS	5 212			
NAS VBR	TKS210	Bilingual	3 + 1	S1	14
Utility aspects: basi	c components of textiles, consu	imer decision	making, ut	ility aspe	cts that include
durability, comfort,	maintenance, health/safety/prot	ection and a	esthetic asp	ects. Fib	res and varns:
Fibre structure and	performance including textile of	chemistry, fib	re morpholo	ogy and	formation, fibre
properties, classifica	ation and identification. Yarn st	ructure and	performance	e (includii	ng spun yarns,
filament varns, com	pound and novelty yarns)		•	`	0 1 5 7
TKS222	TXT:STRUCTURES & FINISH	IES 222			
NAS VBR	TKS220	Bilingual	3 + 1	S2	14
Fabric structures: In	troduction to fabric structures W	oven fabrics	knits non-v	voven fab	prics and
compound fabrics	inishes and dving processes. In	troduction to	fabric finishi	na Prena	aratory and
final finishes. Finishe	es for special end-uses: durabilit	v. comfort an	d protection	: ease of	maintenance:
aesthetic appeal. Dy	ed and printed fabrics.	,,		,	
Prereguisite: ITKS2	12 GSI				
TKS310	NEW DEV.& TEXTILES IN U	SE 310			
NAS VBR	TKS362	Bilingual	2 + 0	S1	10
New developments	(apparel textiles) Textile pr	oduct use a	nd assessed	nent of	nerformance
Prereguisites: ITKS	2121 and ITKS222 GS1		10 0336331		periormance.
		Rilingual	3 + 0	60	15
Clothing toxtilog on	d taxtila producta from a market	billingual		OZ	ractical project:
Project to access no	a textile products from a final ker	for specific	and use by	using lab	actical project.
written report of the	results is also required	s tot specific t	end-use by	using lab	Jialory lesis. A
Proroquisitos ITKS	2121 and ITKS2221 and ITKS310	1			
		4			
	ANIMAL_BREEDING_320	Dilingual	0 1 0 5	60	10
NAS_VKU	lid ind brooding of opimala, basis	Billingual	2 + 0.5	52	
introduction to appl	lied breeding of animals; basis	of nereality:	cells, chror	nosomes	and gametes,
genes and mutation	ns. Phenolypical showing of ge	enes and quanti	terent ionis	ity Doou	action genetice:
biomotrio concento	population parameters and the	e and quanti	Soloction:	officiono	allon genetics.
pionetric concepts,	population parameters and the		. Selection.	eniciency	, methous and
Broroguigito: [CTS2]					
	ANIMAL_DREEDING_411	Afrikaana	0.05	C1	40
NAS_VKU	lia	Allikaans	2 + 0.5		IZ
Advanced theory in	co-variance estimations of chai	racteristics in	tarm anima	lis. Hereo	ity and genetic
correlation and its t	lse in breeding systems. Econo	mically impo	itant charac	teristics.	index selection
and estimation of in	Dreading velues, estimation or	equency distr	ibution, non	inality, vai	ances, scaling
and transformations	a breeding values. estimation an	id use. Malin	y systems.		y, hybridisation
and assortive/uisas	reproduction at Prooding	structures III V		n brood	
Broroquisito: ITL B3		Suuciales	anu yrou	p preed	ing schemes.
	ANIMAL_BREEDING_420	Dilingual	0 1 0 5	60	10
NAS_VNU	lid Derfermense testing	Billingual	<u>2 + 0.5</u>	02 Deleted 1	IZ
Applieu animal bi	eeding. Performance testing	OI IIVESLOCK	, line asso		egislation and
	analysis, interpretation and appl	incation of per	iornance le	ist data. I	industrias
Socielles	anu 111	relati	eu		industries.
	SITE_SURVETING_215	Diliment	0.1	64	h
NAS_GGY	n a	Bilingual	2 + 1	51	8
Definition of surve	ying; maps, scales, map proj	ection eleme	ents, the So	outh Afri	can projection;
measuring tape and engineers level; plane surveying, distances, neight determination by levelling,					
contours and interpo	plation; simple co-ordinate calcu	nations, area	and volume	calculati	ons; arawing of
a simple site plan.					
I KN217	SITE_SURVEYING_217		b	04	
NAS_GGY	na	Bilingual	<u> + 1</u>	51	<u>к</u>
Lacheometer, Angl	e measurement and tacheon	netry; plot a	and drawing	g of det	ali site plans;

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term C	redits
construction surveys	s, areas and volumes, setting out	t of works. Ta	cheometric	traverse.	
VAP300	VET.ANATOMY_&_PHYSIOLO	GY_300			
VET_ANA	na	English	10 + 2	J1	72
Comparative Anator	ny, physiology, histology and en	nbryology of	the skin, loc	omotor syst	tem, nervous
system, cardiovascu	ular system, respiratory system	, digestive sy	/stem and ι	urogenital s	ystem of the
domestic anima	als. Topographical ana	tomy of	the	domestic	animals.
Prerequisite: [Only :	students selected for BSc(Veteri	nary Biology)	111]		
VBF411	CONSUMER_FACILITATION_4	411			
NAS_VBR	VBF410	Bilingual	2 + 0	S1	10
Consumer decision	making through the family life	e cycle; dete	rminants of	f consumer	satisfaction.
Consumer education	on; development of consumer	skills; less	privileged of	consumers.	Expenditure
patterns of the diver	se SA consumer market. Consul	merism. Glob	alisation.		
VBM400	SUBJ_DID:_BUSINESS_MANC	GEM400			
OPV_CUR	na	Bilingual	2 + 1	J1	24
Basic principles of c	community nutrition. Nutritional a	assessment.	Nutrition pro	blems and	programmes
in South African con	nmunities.				
VDB321	FOOD_SERVICE_MANAGEME	ENT_321			
NAS_VBR	VDB361,362	Bilingual	3 + 0.5	S2	18
Planning and layou	t of food service units for diffe	erent food se	ervice system	ms. Equipm	nent for food
services. Factors inf	iluencing the choice and purcha	sing of equip	ment for diff	ferent food s	service units.
Hygiene and safety	in food services. Principles of r	nanagement	as applied t	to food serv	ice systems.
Human Resource N	Management in food service sy	stems. Finar	icial manag	ement in fo	od services.
Prerequisite: [VDS3	22 #]				
VDB410	FOOD_SERVICE_MANAGEME	ENT_410			
NAS_VBR	VDB451,452	Bilingual	3 + 1	S1	24
The professional fo	od service manager's roles, re	sponsibilities	and chara	cteristics. C	ontemporary
leadership and mar	agement styles in food service	systems. Pro	ofessionalis	m and ethic	s. Advanced
food service syste	ms and production managen	nent techniq	ues. Marke	eting of foo	od services.
Prerequisites: [ABV3	320] and [VDB321]				
VDG250	NUTRITION_250		.		
NAS_VKU	na	English	3 + 0.5	S1	12
Nutrition in the conte	ext of growth, development and o	composition c	of organisms	. Metabolic	processes
and control in the bo	dy. Overview of nutritional proce	esses. The st	udy of the fu	Indamental	principles of
nutrient metabolism	(including macro- and micro-nut	rients and wa	iter) and dig	estion physi	ology.
Applications are ma	de regarding man and animals. I	Practical work	: Experimer	ntal work an	d problem
orientated tasks. Pre	Prequisite: [CMY127] or [CMY10]	2]			
VDG255	NUTRITION_255	E		144	6
NAS_VBR	na	English	3 + 0	K1	b D
Cell and tissue, dige	stive system, absorption and me	etabolism, en	ergy metabo	blism and ba	lance. Study
of macronutrients wi	ith regard to the composition, pro	openies, tunc	tions tood s	ources and	symptoms of
	ILY.				
	NUTRITION_256	E a alla la	0.0	124	h
NAS_VBR	n a	English	3+0	KI	0
A study of micronu	thents with regard to the comp	position, prop	perties, tunc	tions tood	sources and
		iu uletaly gui	165.		
	NUTRITION_311	Dilianus	0.1	04	47
NAS_VBR	na	Bilingual	3 + 1	51	17
line study of numerics and water regarding their chemical composition, characteristics, basic					
ugestion, absorption, metabolism, functions, nod sources and symptoms of deficiency and toxicity.					
increase in the second se					
Dise and application		and y analysis			
		Bilingual	2 ± 1	62	17
The role of nutrition	in the life cycle. The role of putri	tion in the pre	vention of li	festule relat	ed diseases
		uon in the pre		icolyic ieldl	cu uiscases

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
 osteoporosis, canc 	er, coronary heart disease, tooth	h decay. Vege	etarianism. I	Different co	onditions of
malnutrition: Protein	Energy Malnutrition and obesity	/.			
Prerequisite: [VDG3	11]				
VDS111	FOODS_111	-			
NAS_VBR	VDS110	English	2 + 1	S1	10
Basic food preparat	tion and food preparation techr	niques. Weig	hing and m	leasureme	nt techniques,
equipment and term	inology as applied in food prepa	ration. Basic	food quality	control.	
VDS210	FOODS_210				
NAS_VBR	na	Bilingual	3 + 1	S1	18
The study of differer	nt food systems with regard to fo	ood preparatio	on. Physical	and chem	ical properties
and the influence of	of the composition in food pre	eparation. We	eighing and	measurin	g techniques,
equipment and term	ninology as applied in food prep	aration. Food	preparation	n basics of	the following:
soups and sauces; f	ruit and vegetables; salads; froz	en desserts;	gelatine.		
Prerequisite: [VDS1	11 or #]				
VDS221	FOODS_221			1	
NAS_VBR	na	Bilingual	3 + 1	S2	18
The composition an	d physical properties, as well a	s food prepa	ration basic	s of the fo	llowing: meat;
poultry; fish, legum	ies, eggs and milk, starches a	and cereals;	baked proc	ducts (who	ole spectrum);
leavening agents.					
Prerequisite: [VDS2					
VDS310	FOODS_310		1	- ·	1
NAS_VBR	VDS351,352	Bilingual	3 + 1	S1	21
Planning executing	and reporting consumer foo	d research.	Food prese	ervation a	nd evaluation
techniques. Experim	ents in food, emphasizing ingre	dient function	and standa	ard prepara	ation methods.
Application of expen	rimental methods through which	n the chemica	al and phys	sical reaction	ons of food to
different food handli	ing, preparation and preservatio	n techniques	are illustrat	ed. Quality	evaluation of
food products.					
Prerequisites: [VDS					
	LARGE_SCALE_PLANNING&	_PREP.322	0.0	00	60
NAS_VBR	VDS320	Bilingual	3+3	52	29
MODULE 1 AND P	RACTICAL WORK: Principles	of large-scale	tood prepa	aration and	the practical
application thereof i	In a practical restaurant situatio	n. Restauran	t managem	the prestie	
the use of lorge of	ale estering equipment in a re	ol life eitueti			al exposure to
different food service	ale catering equipment in a re			scale food	n pianing ioi
consumption and st	e systems and styles of lood se		L 5. Large		procurement,
Proroquisitos: [KED'	261 or 1 and [\/DS221]				
NAS VBR	n a	Bilingual	2 +10	K 1	6
Table setting tables	serving wine service food and y	vine nairing k		ananomon	<u>۲</u>
Prerequisites: IVDS	2201 and [VDS221]	wine pairing, i	beverage m	anayemen	ι.
VDS354	FOODS 354				
NAS VBR	n a	Bilingual	3 + 0	K2	8
Principles of food s	afety and food bygiene. Consum	or rights and	protection	112	P
		ici rigitto unu	protection.		
NAS VBR	n a	Bilingual	3 + 2	S 1	30
Recipe developmen	nt process. Development of an	propriate reci	nes and fo	od produc	ts for a given
situation Standa	ardisation of recipes	Food styli	pes and io	food	nhotography
Prereguisite: IVDS3	10 or VDS3221	i oou i stylii	ig and	1000	photography.
	CILLINARY ART 414				
NAS VBR	n a	Bilingual	2 + 1	S1	19
Advanced food pror	pration and presentation techni	aues with rec	reriand to: etar	ters side :	dishes source
sauces and	stocks haked and	confecti	narv	nroducte	decente
Prerequisites: [\/D.S	210] and [V/DS221]	Comecu	onur y	p.000003,	0000010.

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
VDS415	VISUAL_MERCHANDIS.OF_F	OODS_415			
NAS_VBR	na	Bilingual	3 + 0	S1	15
Aspects of food ret	ailing with special emphasis or	n food packa	ging and la	belling of	food products.
Aspects of food ret	ailing with regard to display, p	presentation a	and shop la	ayout as a	applied to food
products.					
VDS423	FOODS_423				
NAS_VBR	na	Bilingual	3 + 0	S2	15
Factors influencing	food consumption, consumer b	ehaviour and	d food choid	ce. Food p	product advice.
Consumer advice, m	narketing of food products, consi	umer educati	on.		
VDS424	CULINARY_ART_424				
NAS_VBR	n a	Bilingual	2 + 1	S2	19
Advanced food pre	paration and presentation tech	nniques with	regard to:	meat, po	oultry, fish and
shellfish. Event plan	ning and banqueting.				
Prerequisites: [VDS	221] and [VDS320 #] and [VDS4	14]			
VDS425	PROJECT_FOODS:VISUAL_M	IERCH.425			
NAS_VBR	n a	Bilingual	3 + 0	S2	15
Practical application	of the principles in visual mer	chandising o	f food and	food retail	ing in the food
industry.					
Prerequisites: [VDS4	415] and [VDS423]				
VDS426	FOOD_RESEARCH_PROJECT	Г_426			
NAS_VBR	n a	Bilingual	1 + 2	S2	18
Planning, executing	and reporting a research project	t in a food rel	ated field.		
Prerequisites: [PGB	400 #] and [VDS310]				
VGE301	NUTRITION_SCIENCE_301				
NAS_VKU	na	Bilingual	3 + 0.5	J1	32
Water quality. Char In vivo and in vitro d Prerequisites: [BCM	acteristics of fodder. Rumen fur ligestibility studies. [261] and [BCM262] and [DAF20]	nction and mi	icrobial fern 250] and [V	Nuards. Vonentation.	Practical work:
VGE411	NUTRITION_SCIENCE_411				
NAS_VKU	n a	English	4 + 0.5	S1	18
Specialised nutrition	of monogastric animals: poult	ry, pigs, hors	ses and sel	ected fres	hwater aquatic
organisms. The	use of computer	systems	in fe	eeding	management.
Prerequisite: [VGE3	01]				
VGE421	NUTRITION_SCIENCE_421				
NAS_VKU	n a	English	3 + 0	S2	16
Specialized small stock and game nutrition. Nutrition of rams, ewes and lambs for optimal production. Principles of creep feeding, drought feeding, winter and supplementary feeding. Feeding pen nutrition and final nutritional preparation of lambs. Influence of nutrition on wood, pelts and Angora wool. Nutrition of meat and milk goats. Fodder flow planning. Nutrition of the race horse and working horse Practical work: Formulation of lowest cost rations and practical work with animals. Prerequisite: IVGE3011					
VGE423	NUTRITION_SCIENCE_423				
NAS_VKU	na	Bilingual	3 + 0	S1	16
Specialized nutrition	of beef and dairy cattle accord	ding to produ	ction syster	ns. The u	se of computer
systems in feeding management. The practicals will include compiling rations in terms of requirements and least cost formulations, specialised assignments and on-farm experiential training.					
NAS VER	n a	Bilingual	3 + 1	11	04
The study field of D	idactice: Consumer studios. Exa	moles of the	p⊤i mo.etudv.fr	om the co	
syllabus for Grades Principles of lesson	10,11 & 12, the reduction of le design.	earning conte	nt, evaluati	on of the	school subject.

Module	Title				
Fac Dept	Old code	Language	lpw/ppw	Term	Credits
VHS400	SUBJ.DID: HOSPITALITY ST	UD.400			4
OPV CUR	n a	Bilingual	0 + 1	J1	24
The study field of Di	idactics: Hospitality studies. Exa	mples of the	me study fro	om the se	condary school
syllabus for Grade	10, 11 & 12, the reduction of le	arning conte	nt, evaluatio	on of the	school subject.
Principles of lesson	design.	0	,		
VKD410	PIG SCIENCE 410				
NAS VKU	na – – –	Afrikaans	1 + 0.5	S1	8
Industrial science a	nd management of pigs - sow.	boar and gro	wina pias.	Productio	n systems and
feeding systems. De	esign and utilization of housing	facilities. Pro	duct quality	and mark	keting. Hygiene
and herd health proc	grammes.				5 ,5 -
Prerequisites: [LEK2	210] and [VGE301] and [VKU220	וכ			
VKF411	ANIMAL SCI.PHARMACOLOG	GY 411			
NAS VKU	n a <u> </u>	Afrikaans	3 + 0	S1	12
The pharmacolog	y, laws, control and us	e of subs	tances fo	or anima	al production.
Prerequisites: [DFS3	320] and [VGE301]				
VKK110	VISUAL COMMUNICATION 11	10			
GW GW	VKK155, VKK153	Double	3 + 0	S1	12
Introduction to Visua	al Culture 110				
Introduction to visua	al culture studies; study of the for	rm, content a	nd aims of s	static and	moving images
in diverse media (e.	g. advertising, music video). Intr	oduction to te	erminology a	and mode	s of analysis in
visual culture (e.g.	formalism, feminism, Marxisr	n, semiotics). Investiga	tion of th	he relationship
between popular cu	ulture and the mass-media. Inte	erpretation of	cultural ico	ons such	as the hero in
relation to cultural c	odes, stereotypes and myths. Re	eference to fi	gures such	as Barbie	, Madonna, the
Marlboro man, Mano	dela, and soap opera stereotype	S.	-		
VKU210	ANIMAL_SCIENCE_210				
NAS VKU	n a	English	1 + 0.5	S1	6
A global overview o	f the livestock industry. Historica	al background	d on the orig	gin of anir	nals. Principles
of animal productio	n. Stock science. Practical wor	rk includes th	ne introduct	ion to ge	neral care and
handling of farm sto	ck.			-	
VKU211	ANIMAL_SCIENCE_211				
NAS_VKU	na	Bilingual	2 + 0.5	S1	6
General principles of	of breeding of farm stock, viz. la	rge stock, sn	nall stock, p	oultry and	l pigs. Heredity
and race improveme	ent.	-	-	-	
VKU220	ANIMAL_SCIENCE_220				
NAS_VKU	na	Bilingual	2 + 0.5	S2	12
Animal production s	vstems. Stock farming regions c	of South Africa	a. Introducti	on to the l	basic principles
and terminology of la	arge stock, small stock, pig and	poultry produ	ction syster	ns. Practio	cals include the
general caring and h	nandling of farm animals				
.Prerequisite: [VKU2	210]				
VKU222	ANIMAL_SCIENCE_222				
NAS_VKU	na	Bilingual	2 + 0	S2	6
The chemical comp	osition of fodder. Digestive proc	esses and the	e digestibilit	y of fodde	er. The nutrition
and nutritional requ	irements of farm stock. Basic	composition	of rations.	Intensive	and extensive
feeding.					
VKU320	ANIMAL_SCIENCE_320				
NAS_VKU	na	English	3 + 1	S2	12
Functional manager	nent of intensive and extensive	beef, dairy, s	sheep and g	goat produ	uction systems.
Discussions and literature studies on applied animal nutrition, breeding production planning and					
production processes.					
Prerequisites: [VKU2	210] and [VKU220] and [WDE25	50]			
VKU361	ANIMAL_ECOLOGY_361				
NAS_VKU	VNE310	Bilingual	2 + 0	S2	8
Animal ecology, int	eraction between genotype an	d environme	nt. Animal-	ecological	factors which
influence regional cl	assification. Animal ecology fact	tors which mu	ust be taken	into cons	ideration in the
obtaining of the pr	oduction factors, planning and	managemei	nt of the c	attle farm	ing enterprise.

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
Conservation farmin	ng and adapted farming and ma	anagement sy	/stems; env	rironmental	conservation.
Prerequisites: [VKU	210] and [VKU220]				
VKU362	ANIMAL SCI. BIOTECHNOLO	DGY 362			
NAS VKU	na <u> </u>	Bilingual	1 + 0.5	S2	8
Application of biote	chnology in farm animals with	specific refer	ence to re	productive	biotechnology
such as AI MOET	and sex manipulation, which h	as an effect	on genetic	progress.	Application of
DNA-technology su	ch as parentage verifications, i	dentification of	of genetic d	lefects, QT	L's and MAS.
Prerequisite: [GTS2	26]		0		
VKU411	SEMINAR_411				
NAS VKU	n a	Afrikaans	1+0	S1	8
Literature studies ar	nd seminars in Animal Science.	•		•	
Prerequisite: [TDH]					
VKU412	RESEARCH_METHODOLOGY	′_412			
NAS_VKU	n a	Afrikaans	1 + 0	S1	8
Research methodol	ogy in Animal Science: Handling	of queries, in	ntroduction	to the prob	lem, approach
to problem solving, i	reporting. Practice.	- /		•	
Prerequisite: [TDH]	-				
VSX420	MEAT_AND_DAIRY_SCIENCE	<u>420</u>			
NAS_VKU	n a	Afrikaans	2 + 0	S2	10
Meat industry. Mea	at species. Composition of car	cass and me	at, slaught	ering proce	ess and meat
quality. Hygiene ar	nd marketing. The role of the	producer, wh	nolesale an	d retail de	alers and the
consumer. Dairy in	dustry. Composition and nutriti	ional value o	f milk and	factors that	at influence it.
Lactation. Milk prod	uction, milk quality and marketin	g.			
Prerequisite: [DFS3]	20]				
VVW350	COM.NUTRITION_&PUBL.HE	ALTH_350			
NAS_VDW	n a	Bilingual	3 + 1	S1	21
Theory and practice	of community nutrition and pub	lic health (cap	sel CMT41	11). Enviror	nmental health
issues and health in	dicators in communities.				
Prerequisites: [HNT:	210] or [TDH] and [VDG250] an	id [VDG321]			
VVW361	LEGIS&LABEL/ANI&HUMAN	FOOD_361			
NAS_VDW	na	Bilingual	2 + 1	S2	18
National and international	ational standards, Codex Alime	entarius, FDA	. Nutritional	I labelling.	Application of
food legislation inc	cluding toxicological issues; fo	od additives;	GMO's. [Dietary sup	oplementation,
enrichment and forti	fication.				
Prerequisites: [FST3	351] and [FST352] or [TDH]				
VVW363	FOOD,_NUTRITION_AND_HE	ALTH_363			
NAS_VDW	na	Bilingual	3 + 1	S2	21
The science of foo	od for lifestyles - sport nutrition	n, nutrition fo	or preventic	on of non-o	communicable
diseases. Food aller	rgies and intolerance.				
Prerequisites: [HNT]	210 J or [IDH] and [VDG250] an	id [VDG321]			
WDE210	VELD_MANAGEMENT_PRAC	TICES_210			1
NAS_PGW	WDE271,272	Bilingual	2 + 0.5	S1	12
The influence of env	vironmental factors and defoliati	on on the pro	ductivity of	the differer	nt components
of the grazing ecos	ystem. This will enable the stud	lent to motiva	ate users to	manage t	his ecosystem
with the necessary	care. Management practices	for sustainal	ble animal	production	from natural
pastures. This will	enable the student to advise	farmers on o	different ma	anagement	systems and
practices.	54 //				
Prerequisite: [PPK2					
	PRINCIPLES_OF_VELD_MAN	AGE_310	0.07	64	40
NAS_PGW	na Na salahiri tata t	Bilingual	<u>2 + 0.5</u>	51	[12
The influence of bio	otic and abiotic factors on the p	productivity of	different s	trata and c	omponents of
natural pastures. If	his will enable the student to ad	vise users, w	ith the nece	essary mot	vation, on the
appropriate use of	these strata and components a	and Will form	a pasis for	Turtner res	search on this
system. The princip	nes or vera management system	is and the inf	iuerice of fr	udopt to	it practices on
sustainable animal	production from natural pasture	s. i nis will er	iable the St	udent to ac	ivise users on

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
veld management a	and veld management principles	. It will also	form a basi	s for furth	ner research on
veld management.					
WDE320	PLANTED_PAST&FODDERCR	ROPS320			
NAS_PGW	na	Bilingual	2 + 0.5	S2	14
The establishment a	and use of planted pastures sp	ecies and fo	dder crops	and the	conservation of
fodder. This will ena	able students to advise users on	planted pas	tures speci	es as wel	I as farmers on
the production, con	servation and optimum use of	fodder. This	s will also	form a b	asis for further
research on planted	pastures.				
Prerequisite: [WDE2	210 or WDE310]				
WDE450	EVALUAT.OF_RANGE_&_FOF	RAGES_450			
NAS_PGW	WDE421	Bilingual	3 + 0	S1	14
Concentrates on b	aseline information (for exten	ision and re	esearch pu	rposes) a	and monitoring
evaluation technique	es to provide information on cor	mposition, co	ver, ecolog	ical statu	s, responses to
grazing gradients ar	nd management systems, as we	Il as agronor	nic and anii	mal produ	ction (the latter
being an interaction	i between plant productivity, nut	tritive value o	of plants, nu	utritional r	equirements of
animals and mana	gement systems) of both natu	iral and plar	nted pastur	es. Such	information is
essential in develop	ping production systems based	on these re	esources an	nd especia	ally to facilitate
adaptive manageme	ent responses in management st	rategies.			
WDE460	PRODSYS_V1:INT/PLA&ANIM	PRO_460			
NAS_PGW	WDE483	English	2 + 0.5	S2	12
The role of crop rota	ation alley cropping and leys in r	marginal area	as to ensure	e sustaina	able production.
Integration of fodder	r production with other agricultur	al enterprise	s to yield w	ood/veget	ables/fruit/nuts,
cash crops and an	imal products. Fodder supply to	o commercia	I and comr	nunal ani	imal production
systems.					
WDE461	TURFGRASS_MANAGEMENT	_461			
NAS_PGW	WDE412	Bilingual	2 + 0.5	S2	14
Based on a fundar	nental knowledge of plant strue	cture, taxono	omy and fu	inctioning	with particular
attention to aspects	of soil profiles, soil textures, irrig	gation, fertiliz	ation and c	rop prote	ction (control of
weeds, insects and	diseases) this course concentra	tes on the id	lentification	of suitabl	e species, their
establishment and n	naintenance requirements. Partic	cular emphas	sis is placed	I on the id	entification and
solving of problems.					
WDE470	EVALUAT.OF_RANGE_&_FOF	RAGES_470		1	
NAS_PGW	WDE424	English	3 + 0	S1	10
Capita selecta form	Evaluation of Range and Forage	es 450.			
WKD151	ATMOSPHERIC_PROCESSES	_151			
NAS_GGY	WKD151	English	4 + 0.6	K1	8
Weather and climation	ate. Origin and composition o	of the atmos	sphere. Ox	kygen, ca	arbon and life.
Meteorological instr	ruments. Temperature distributi	on and hea	t capacity.	Atmosph	eric mass and
pressure. Radiation	. Zenith angle of the sun. Sunsh	ine variability	y. The boun	idary laye	r. Heat transfer
in the boundary lay	er. Atmospheric heat budget. I	Urban and ru	ural climate	s. Equation	on of state. Air
parcel theory. Phas	es of water and latent heat. Va	pour and sa	turated vap	our press	sure. Dew point
temperature and rel	ative humidity. Dry adiabatic, we	et adiabatic a	nd environn	nental ten	nperature lapse
rates. Cloud develop	pment. Sensible heat. Comfort z	zones. Acquis	sition of dat	a from the	e South African
Weather Bureau: Co	omposition and submission of a r	report.			
WKD152	ATMOSPHERIC_CIRC.&_CLIN	IATE_152			-
NAS_GGY	WKD152	English	4 + 0.6	K2	8
Hadley and Walker (ENSO) cells. Convergence, divergence, convection and subsidence. Polar					
stratospheric ozone	. Air parcel theory. Angular velo	city of the ea	arth. Gravita	itional, ce	ntrifugal forces:
Gravity force. Press	ure gradient force. Coriolis forc	e. Friction to	rce. Rotatic	on of a cy	cione and anti-
cyclone. Geostrophic white indicate convergence zone (TCZ), monsoon rain. Michaittade					
cycionic frontal systems. Cut-off low. Coastal lows. Jet streams. I ropical cyclones. Foehn effect.					
cumate and climat	e change. Typical circulation	patterns ov		AITICA: CO	imposition and
	MICAL_&_WESUSCALE_N		4 + 0 0	1/2	0
INAS_GGY	WND 101		4 + U.0	nj nj	p Nonce Albert
Electromagnetic SD	ecirum Planck's constant Rad	Valuon energy	v madiance	н анд гас	Jance Albedo

Module	Title
Fac_Dept	Old code Language Ipw/ppw Term Credits
Stefan Boltzman lav	w. Global energy balance. First law of thermodynamics. Stability and instability
Atmospheric particl	es. Homogenous and heterogeneous nucleation. Droplet growth. Lightning
Phases of an air m	ass thunderstorm. Multi-cell storms. Orographic clouds and Lee waves. Cloud
identification. Radia	tion- and advection fog. Case study of a local thunderstorm: Composition and
submission of a repo	ort.
WKD162	DYNAM.&_NUMERMETEOROLOGY_162
NAS_GGY	WKD162 English 4 + 0.6 K4 8
Dimensions and unit	ts. Atmospheric scales of motion. Hydrostatic assumption. Hypsometric equation
Statistical seasonal	assessment and the ENSO. Spatial data interpretation and grid fields
Representation of is	obars and the geostrophic wind. Reduction of the height of the 500hPa pressure
level. Equations for	r the pressure gradient and Coriolis forces. Introduction to finite difference
methods. Vorticity	and divergence. Numerical estimation of the geostrophic wind, vorticity and
alvergence. Advecti	on of temperature. Development of a two-dimensional numerical temperature
	WEATHER_FORECASTING_PRIN103
NAS_GGY	WKD163 Finglish 14+0 K4 18
Classification of we	ather types. Synoptic and METAR messages, weather data on the internet
Introduction to satell	
	WEATHER_FORECASTING_230
NAS_GGY	vvKD251,252 Bilingual 5+0 S1 24
Plot all coded mete	prological messages, analyse surface and upper air synoptic maps. General
circulation of the Sol	of actellite imageny Interpretation of acrelegical diagrams dynamic as
thormodynamia vari	of satellite inagery. Interpretation to describe the surrent state of the streambers
NAS_GG1	$\frac{1}{12}$
to the general South	African public. A project proposal including a budget will be drawn up before the
nroiect commences	and a project report will be drawn up after completion of the project
WKD261	
NAS GGY	WKD261 English 4 + 0 K3 12
Conservative forces	and conservation laws Basic thermodynamic laws for dry and humid air. The
equation of state Ac	tiabatic processes and temperature lanse rates. The Clausuis-Claneron equation
Calculation of the we	et adiabat
WKD262	CLIMATE DATA MANIPULATION 262
NAS GGY	n a English 0 + 1 K4 12
Spatial representation	on and interpretation of weather data. Introduction to statistical and numerica
methods. Obtaining	and displaying weather data. Computer programming. Introduction to
atmospheric models	,
WKD351	ATMOSPHERIC BALANCE LAWS 351
NAS GGY	WKD351 English 4 + 0.6 K1 18
Acceleration in rotat	ting co-ordinates, fundamental forces, momentum equation, one, two and three
dimensional flow bal	ance, conservation of mass, heat equation, thermodynamic energy equation.
WKD352	ATMOSP. VORTIC. & DIVERGENC.352
NAS GGY	WKD352 English 4 + 0.6 K2 18
Scale analyses and	simplification of the basic equations. The geostrophic, thermal and gradient wind
The vorticity equatio	n and divergence.
WKD360	RESEARCH PROJECT 360
NAS GGY	WKD363.364 Bilingual 0 + 2 S2 36
Literature survey a	consistion and manipulation of data research report presentation of research
results.	
WKD361	QUASI-GEOSTROPHIC ANALYSIS 361
NAS GGY	WKD361 English 4+0 K3 18
Tendency and Ome	a equations. Model of a boroclinic system Introduction to numerical models

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
WKD362	CLOUD_&_BOUNDARY_LAY	ER_DYN.362			
NAS_GGY	WKD362	English	4 + 0	K4	18
Introduction to cloue	d dynamics. Classification and	developmen	t of clouds	Cumulor	nimbus clouds,
super cell storms	and tornadoes. Planetary bou	ndary layer,	atmospher	ic turbule	nce, Reynolds
average, turbulent k	inetic energy, the Ekman layer,	secondary cir	culation.		
WKE420	WILDLIFE_SCIENCE_420				
NAS_VKU	na	Afrikaans	2 + 0	S2	10
Introductory aspects	s of wildlife conservation, hab	itat manager	nent, wildlif	e nutritior	n and keeping
wildlife in zoological	gardens.				
Prerequisites: [VGE:	301] and [VKU361] or [TDH]				
WLK410	WOOL_SCIENCE_410				
NAS_VKU	na	Afrikaans	1 + 0.5	S1	8
Development of folli	cles and growth of wool. The n	orphology, p	hysical and	chemical	characteristics
of wool fibre. The o	classing, marketing and proces	sing of wool	. Physical t	esting. Re	egulations with
regard to the o	classing and packaging of	wool. Cla	ass stand	ards of	the NWGA.
Prerequisites: [ILR3	320] and [VGE301]				
WST111	MATHEMATICAL_STATISTIC	5_111		a (
EB_WST	WST110	Double	4 + 1	S1	16
Introductory statistic	al concepts: sampling, classific	ation of data	, graphic re	presentati	on, descriptive
measures and exp	ploratory data analysis. Proba	ability theory	. Introducto	ory theory	y. Introductory
distribution theory	and special statistical distri	butions. Gei	nerating fu	nctions a	and moments.
Identification, use,	evaluation and interpretation	of statistical	computer p	backages	and statistical
techniques. Broroquisito: [Bor 1	21				
	.2] MATHEMATICAL STATISTICS	C 404			
	WATHEMATICAL_STATISTIC	5_121 Double	4 . 4	60	10
EB_WSI	VVST120	Double	4 + 1	52 	
	Analysis of variance Distribution.	nypoinesis	testing with		ns in one and
and regression Intr	reductory estegorical data and		Identificati		ny. Correlation
interpretation of s	statistical computer packages	and static	stical tech	viques F	evaluation and
Prereguisite: [WST1	11 GS1			iiques. iv	teport writing.
WST211	MATHEMATICAL STATISTIC	\$ 211			
FR WST	WST210	Double	4 + 2	S1	24
Set theory Probabil	ity measure functions Random	variables Di	stribution fu	nctions P	robability mass
functions Density	functions Expected values M	loments Mo	ment gener	atina fun	ctions Special
nrobability distributio	ons: Bernoulli binomial bypera	eometric de	ometric ner	native hind	omial Poisson
Poisson process. c	discrete uniform, uniform, gar	ima.exponent	tial. Weibul	. Pareto.	normal. Joint
distibutions: Multin	omial, extended hypergeome	etric, ioint	continuous	distributi	ons. Marginal
distributions. Indep	endent random variables. Co	nditional dis	tributions.	Covarianc	e, correlation.
Conditional expecte	ed values. Transformation of	random vari	iables: Con	volution f	ormula. Order
statistics. Stochasti	c convergence: Convergence	in distributio	n. Central	limit theo	orem. Practical
applications. Practic	al statistical modelling and ana	lysis using st	atistical con	nputer pac	kages and the
interpretation of the	output.				
Prerequisites: [WST	111] and [WST121] and [WTW1	14 GS or GS] and [WTW	126 GS o	r GS] and
[WTW128 GS or GS	<u>]</u>				
WST221	MATHEMATICAL_STATISTIC:	S_221			
EB_WST	WST220	Double	4 + 2	S2	24
Stochastic converge	nce: asymptotic normal distribut	tions, converg	gence in pro	bability. S	tatistics and
sampling distribution	s: Chi-squared distribution. Dist	ribution of the	e sample me	ean and sa	ample variance
for random samples	from a normal population. t dist	ribution. F dis	stribution. Be	eta distribu	ition. Point
estimation: Method of moments. Maximum likelihood estimation. Unbiased estimators. Uniform					
minimum variance u	noiased estimators. Cramer-Ra	o inequality. I	$\pm \pi ciency. C$	onsistenc	y. Asymptotic
relative efficiency. B	ayes estimators. Sufficient statis	SUCS. Comple	teness. The	exponent	iai class.
Confidence Intervals	s. rest or statistical hypotheses.	Reliability an	u survival di	SITIDUTIONS	s. Practical
applications. Practic	al statistical modelling and analy	ysis using sta	usucai com	ритег раск	ages and the
interpretation of the	output. Frerequisite. [WS1211 (50]			

Module	Title		
Fac_Dept	Old code Language Ipw/ppw Term Credits		
WST311	MULTIVARIATE_ANALYSIS_311		
EB_WST	Part of WST310 Bilingual 2 + 1 S1 18		
Multivariate statistic	cal distributions: Moments of a distribution, moment generating functions,		
independence. Mu	ltivariate normal distribution: Conditional distributions, partial and multiple		
correlations. Multing	mial and multivariate Poisson distributions: Asymptotic normality and estimation		
of parameters. Dist	tribution of quadratic forms in normal variables. Multivariate normal samples:		
Estimation of the	mean vector and covariance matrix, estimation of correlation coefficients,		
distribution of the sa	ample mean, sample covariance matrix and sample correlation coefficients. The		
linear model: Model	s of full rank, least squares estimators, test of hypotheses. Practical applications:		
Practical statistical r	moodelling and analysis using statistical computer packages and interpretation of		
the output.			
Prerequisites: [WST	211] and [WST221] and [WTW211 GS] and [WTW218 GS]		
WST312	STOCHASTIC_PROCESSES_312		
EB_WST	Part of WST310 Bilingual 2 + 1 S1 18		
Definition of a stoc	hastic process. Stationarity. Covariance stationary. Markov property. Random		
walk. Brownian mo	tion. Markov chains. Chapman-Kolmogorov equations. Recurrent and transient		
states. First passag	e time. Occupation times. Markov jump processes. Poisson process. Birth and		
death processes. St	ructures of processes. Structure of the time-homogeneous Markov jump process.		
Applications in insu	arance. Practical statistical modelling, analysis and simulation using statistical		
computer packages	and the interpretation of the output.		
Prerequisites: [VVS1	211] and [W1W211 GS] and [W1W218 GS]		
WS1321	TIME_SERIES_ANALYSIS_321		
EB_WSI	WS1361 Bilingual 12 + 1 152 118		
Stationary and non-	-stationary univariate time series. Properties of autoregressive moving average		
(ARMA) and outore	gressive integrated moving average (ARIMA) processes. Identification, estimation		
and diagnostic les	and analysis using statistical computer packages		
Statistical modelling	and analysis using statistical computer packages.		
Prerequisites. [WST			
NAC WCT	MCTORIAL_STATISTICS_522		
NAS_WST	01111111111111111111111111111111111111		
Methods to forecast	t future claim numbers and amounts. The generalized linear model: Exponential		
family mean and y	ariance link functions deviance and residual analysis test statistics log-linear		
and logit models F	Practical statistical modelling and analysis using statistical computer nackages		
Prerequisites: IWST	2111 and IWST2211 and IWTW211 GSI and IWTW218 GSI		
WST362			
FB WST	WST320(2) Double 2 + 1 S2 18		
Distribution-free me	thods one two and multi-sample rank tests Linear rank test statistics with		
applications. Rank	correlation. Asymptotic relative efficiency. Student seminars. Identification. use.		
evaluation and in	terpretation of statistical computer packages and statistical techniques.		
Prerequisites: [WST	211] and [WST221] and [WTW211 GS] and [WTW218 GS]		
WTW101	MATHEMATICS_101		
NAS WTW	n a Double 4 + 1 J1 16		
This module includ	es the syllabus of Calculus 114, as well as enrichment. Enrichment includes		
computer based m	odules. Real numbers and the coordinate plane. Functions and their zero's.		
Polynomials. Expon	ential and logarithmic functions. Vector algebra. Functions, limits and continuity.		
Differential calculus	of single variable functions, rate of change, graph sketching, optimisation and		
applications. The m	ean value theorem, the rule of L'Hospital. Definite and indefinite integrals, the		
fundamental theorem of Calculus, the mean value theorem for integrals, integration techniques. (4			
lectures, 1 computer	r session, 1 tutor session)		
Prerequisite: [Par 1	.2]		
WTW114	CALCULUS_114		
NAS_WIW	n a [Double 4 + 1 S1 16		
vector algebra with	applications to geometry. Functions, limits and continuity. Differential calculus of		
single variable funct	ions, rate of change, graph sketching, applications. The mean value theorem, the		
rule of L'Hospital. L	perinite and indefinite integrals, the fundamental theorem of Calculus, the mean		

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
value theorem for in	ntegrals, integration techniques	. This course	e serves as	preparati	on for students
majoring in Matherr	natics (including all students wh	io intend to e	enrol for W	TW 218 a	nd WTW 220).
Students will not be	credited for more than one of the	he following	modules for	their deg	ree: WTW 114,
WTW 158, WTW 13	4. (4 lectures and 1 tutorial of 3	hours)			
Prerequisite: [Par 1	.2]				
WTW115	DISCRETE_STRUCTURES_11	5			
NAS_WTW	na	Double	2 + 1	S1	8
Propositional logic:	truth tables, logical equivalence	e, implication	, arguments	 Mathem 	atical induction
and well-ordering p	rinciple. Counting techniques: e	elementary pi	robability, m	nultiplicatio	on and addition
rules, permutations	and combinations, binomial the	orem, inclus	ion-exclusic	on rule. (2	lectures and 1
tutorial of 1½ hours)	1				
Prerequisite: [Par 1	.2]				
WTW123	NUMERICAL_ANALYSIS_123		-		
NAS_WTW	na	Double	2 + 1	S2	8
Non-linear equation	s, numerical integration, initial v	alue problem	ns for differe	ential equa	ations, systems
of linear equations.	Algorithms for elementary nume	erical techniq	ues are der	rived and i	implemented in
computer programs.	. Error estimates and convergen	ce results are	e treated. (2	2 lectures a	and 1 tutorial of
1½ hours)					
Prerequisite: [WTW	114 GS or WTW101 GS]				
WTW126	LINEAR_ALGEBRA_126				
NAS_WTW	na	Double	2 + 1	S2	8
Vector algebra with	applications, matrix algebra, s	ystems of lin	ear equatio	ons, the ve	ector space R ⁿ ,
bases, determinants	s. Mathematical induction. Con	plex numbe	rs and fact	orisation	of polynomials.
This module serves	as preparation for students ma	joring in Mat	hematics (ir	ncluding a	Il students who
intend to enrol for	WTW 211). Students will not	be credited	for more th	nan one c	of the following
modules for their d	legree: WTW 126, WTW 161.	This module	e also inclu	udes a fo	rmal technique
mastering programn	ne. (2 lectures and 1 tutorial of 1	1/2 hours)			
Prerequisite: [Par 1	.2]				
WTW128	CALCULUS_128				
NAS_WTW	na	Double	2 + 1	S2	8
Integration techniqu	ies, improper integrals. Applic	ations of int	egration, ir	ntroduction	to differential
equations. Elementa	ary power series and Taylor's t	heorem. Vec	tor function	is, space	curves and arc
lengths. Quadratic surfaces and multivariable functions. This course serves as preparation for					
students majoring in Mathematics (including all students who intend to enrol for WTW 218 and WTW					
220). Students will not be credited for more than one of the following modules for their degree: WTW					
128, WIW 168, WI		of 1/2 nours)		
	MATHEMATICS_134	D. LL	4 . 4	64	40
NAS_WIW	na	Double	4 + 1	<u>S1</u>	16
Functions, derivativ	es, interpretation of the deri	vative, rules	of differe	entiation,	applications of
differentiation, integ	ration, interpretation of the defi	nite integrai,	application	s of integ	ration. Discrete
probability, matrices	, solutions of systems of equation	ons. Markov	chains. Stu	dents will	not be credited
for more than one o	t the following modules for their	degree: WI	VV 134, VVI	VV 114, VV	1VV 158. VV IVV
134 does not gener	ally lead to admission to Mathe		lo level and	the second	ed for students
	nalics at 100 level only. WIWI	54 can also	be taken in	the secon	iu semester. (4
Procession I tutori	al of 1 1/2 hours)				
		English	4 + 1	C1	0
	vvivvi∠ŏ	⊏nglisn	4 + 1	pi aadula (:"	
ine content of this r	noquie is identical to the syllabu	s of Calculus	128. I NIS N	nodule foll	ows WIW 101.
nitegration techniq	ues, improper integrals. Appl	ICALIONS OF	integration,	element	ary unerential
equations. Elementa	ary power series and raylors to	ione Studen	te will pot h	is, space	for more then
one of the following	modules for their degrees WT	10115. 3LUUEII	13 WIII 110L L		
tutorial of 1 hour)	modules for their degree. WIV	/v 110, VV1V	/ 1∠o, VV1V	v 100. (4	
	114 GS or GS1				

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
WTW152	MATHEMATICAL_MODELLING	G_152			-
NAS_WTW	n a 👘 🗌	Bilingual	2 + 1	S1	8
Introduction to the	modelling of dynamic proces	ses using o	difference e	equations.	Curve fitting.
Continuous dynamic	systems, modelled by differentia	al equations.	Application	s to real-li	fe situations in,
among others, finan	ce, economics and ecology. (2 le	ectures and ?	1 tutorial of	1½ hours)	. WTW152 can
also be taken in the	second semester.			,	
Prerequisite: [Par 1	.2]				
WTW158	CALCULUS_158				
NAS WTW	na –	Double	4 + 1	S1	16
Vector algebra with	applications to geometry. Funct	ions. limits a	nd continuit	v. Differer	tial calculus of
single variable funct	ions, rate of change, graph sketc	ching, applica	ations. The	mean valu	e theorem, the
rule of L'Hospital. Ir	ndefinite integrals, integration te	chniques. Th	nis module i	is designe	d for first year
engineering student	s. Students will not be credited	for more the	an one of tl	ne followir	ng modules for
their degree: WTW '	158, WTW 114, WTW 134. (4 lec	tures and 1	tutorial of 3	hours)	•
Prerequisite: [Par 1	.2]				
WTW161	LINEAR ALGEBRA 161				
NAS WTW	na <u> </u>	Double	2 + 1	S2	8
Vector algebra with	applications, matrix algebra, sy	stems of lin	ear equation	ns. the ve	ctor space R ⁿ .
bases, determinants	s. Mathematical induction. Com	plex numbe	rs and facto	orisation of	of polynomials.
Conic sections. Thi	s module is designed for first v	vear enginee	erina studer	nts. Stude	nts will not be
credited for more th	nan one of the following module	es for their o	dearee: WT	W 161. W	VTW 126. This
course also includes	a formal technique mastering p	rogramme. (2	2 lectures a	nd 1 tutori	al of 1 ¹ / ₂ hours)
Prerequisite: [Par 1	.21	- 3			
WTW162	DYNAMICAL PROCESSES 16	52			
NAS WTW	n a	English	2 + 1	S2	8
Dynamical systems	for real functions including stu	dy of orbits	and bifurca	tion Com	inlex functions
dynamical systems	for complex functions fractal	behaviour v	vith exampl	es (such	as Julia sets
Mandelbrot set) fra	ctal dimension Iterated function	systems ex	amples and	d applicati	ons Examples
of chaotic behaviour	found for instance in finances.	numerical m	ethods and	weather.	(2 lectures and
1 tutorial of 11/2 hour	s)				(
Prerequisites: IWTW	/114 GS or WTW101 GSI and IV	VTW152 GS			
WTW168	CALCULUS 168				
NAS WTW	na l	Double	2 + 1	S2	8
Integration techniqu	es improper integrals. The def	inite integral	fundamen	tal theore	m of Calculus
Applications of inter	ration Elementary power series	s and Taylor	's theorem	Vector fu	inctions snace
curves and arc leng	ths Quadratic surfaces and mu	ltivariable fu	actions This	s module	is designed for
first-vear engineerin	a students Students will not b	credited	for more th	an one o	of the following
modules for their de	aree: WTW 168 WTW 128 WT\	N 138 (2 lec	tures and 1	tutorial of	1½ hours)
Prerequisite: IWTW	114 GS or WTW101 GS or WTW	158 GS1		tatoriai oi	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
WTW211	LINEAR ALGEBRA 211				
NAS WTW	na l	Double	2 + 1	S1	12
Matrices and linear	equations linear independence	real vector s	naces and	subspace	s eigenvalues
eigenvectors diag	ionalisation of matrices ar	nlications	of eigenv	alue nro	blems linear
transformations (2)	ectures and 1 tutorial of 1 ¹ / ₂ hour	s) Prereguisi	ite: [WTW12	261 pro	bioinio, inical
WTW218		0) 0. 0 quio]	
NAS WTW	na (Double	2 + 1	S1	12
Calculus of multivari	able functions directional deriva	tives Extrem	na and Laar	ange mult	inligre Multinle
integrals polar cyl	indrical and spherical coordinal	tos lino int	a and Lay	the theo	rem of Green
Surface integrals ar	nd the theorems of Gauss and	Stokes (2)	ectures and	1 1 tutoria	of 1 ¹ / ₆ hours)
Durate integrals and the information of Gauss and Studies. (2 fectures and 1 tutorial of 1/2 flours)					
WTW220		4			
		Doublo	2 ± 1	60	12
NAS_WIW	lid		Pt 1	DZ	
roperties of real n	unibers. Analysis of sequences	and series	or real num	ivers. Pol	wer series and
Analysia of conver	yence. The buzano-weierstras	s ineorem a		tutoria!	value ineorem.
Analysis of real-va		al. (∠ leCtur	es and 1	lutorial	or 1/2 nours)
Prerequisites: [WTW	/ 114 OF VV I VV 101] and [VV I VV 128	DI CONTRA D			

Module	Title				
Fac Dent	Old code	anguage		Torm	Credite
WTW221	LINEAR ALGEBRA 221	Language	ipw/ppw	ICIIII	orcaito
NAS WTW		Double	2 + 1	S2	12
Change of basis	diagonalisability of linear tra	neformations	orthogons	of vectors	unitary and
orthogonal transform	ations canonical forms applica	tions (2 lect	ires and 1 ti	itorial of 1	¹ / ₄ houre)
Prereguisite: [WTW2	2111				/2110013)
WTW285	DISCRETE STRUCTURES 28	5			
NAS WTW		Double	2 + 1	S2	12
Counting techniques	combinations with repetition	functions Dic	<u>eon-hole n</u>	rincinla C	ountability and
computability Settin	a up and solving recurrence rela	ations Granh	s naths cv	nicipie. O	isomorphism
Graph algorithms: K	ruskal Prim Fleury loon invaria	ints (2 lecture	es and 1 tut	orial of 11/2	hours)
Prereguisite: IWTW	115]				inouro)
WTW286	DIFFERENTIAL EQUATIONS	286			
NAS WTW	na	Bilingual	2 + 1	S2	12
Theory and solutio	n methods for linear differenti	al equations	as well as	s for svs	tems of linear
differential equation	s. Solution methods for first ord	ler non-linear	differential	equations	. The Laplace
transform. Introduct	ion to qualitative analysis of lin	near and nor	n-linear svst	tems. (2 I	ectures and 1
tutorial of 11/2 hours)			-) -	,	
Prerequisites: [WTŃ	/114 or WTW101] and [WTW126	6] and [WTW [,]	128]		
WTW310	ANALYSIS_310				
NAS WTW	n a	Bilingual	2 + 1	S1	18
Topology of finite c	limensional spaces: Open and	closed sets,	compactne	ess, conne	ectedness and
completeness. The	orems of Bolzano-Weierstras	s and Hein	e-Borel. Pr	operties	of continuous
functions and applic	ations. Integration theory in R ¹ a	and R ^p . Seque	ences of fun	ictions. (2	lectures and 1
tutorial of 1½ hours)					
Prerequisite: [WTW2	220]				
WTW320	ANALYSIS_320				
NAS_WTW	na	Bilingual	2 + 1	S2	18
Series of functions,	power series and Taylor series.	Complex fun	ctions, Cau	chy-Riem	ann equations,
Cauchy's theorem	and integral formulas. KMS	states. Laur	rent series,	residue	theorem and
calculation of real in	tegrals using residues. (2 lecture	es and 1 tutor	ial of 1½ ho	urs).	
Prerequisites: [WTW	/218] and [WTW310]				
WTW354	FINANCIAL_ENGINEERING_3	54			
NAS_WTW	na	Bilingual	2 + 1	S1	18
Mean variance port	folio theory. The capital asset p	pricing model	, factor mo	dels. Utilit	y functions. (2
lectures and 1 tutoria	al of 1½ hours)				
Prerequisites: [WS1	211] and [WTW211] and [WTW2	218]			
WTW364	FINANCIAL_ENGINEERING_3	64	.		1
NAS_WIW	n a	English	2+1	<u>S2</u>	18
Discrete time financ	al models: Arbitrage and hedgin	ng; the binom	ial model. C	Continuous	s time financial
models: The Black-S	Scholes formula; pricing of option	ns and the oti	her derivativ	es; intere	st rate models;
numerical procedure	es. (2 lectures and 1 tutorial of 1)	$\frac{7}{2}$ nours)	W0061		
	211] and [vv1vv126] and [vv1vv2	218] and [vv i	VV286j		
	ALGEDRA_301	Dilingual	0.1	C1	10
NAS_WIW Croup theory De	lid finition overnles elementer	Dilligual			10
Group theory. De	avelia groups homomorphisms	factor group	a Ding theo	s, permu	iation groups,
elementary propert	ios ideals homomorphisms	factor ringe	s. King thet	ringe f	actorisation of
nolynomials Field e	extensions applications to straid	ht-edge and	compass c	onstructio	ns (2 lectures
and 1 tutorial of 11/2	hours)	gin ougo una	compace c	01100100000	10. (2 10000100
Prerequisites: IWTW	/114 or 1 and [WTW211]				
WTW382	DYNAMICAL SYSTEMS 382				
NAS WTW	n a	Bilingual	2 + 1	S1	18
Matrix exponential fi	Inction: Homogeneous and non-	homogeneou	is linear svs	tems of na	artial
differential equations	s. Qualitative analysis of system	s: phase porti	raits, stabilit	y, linearis	ation, energy
method and Liapund	ov's method. Introduction to chac	otic systems.	Application	to real life	problems. (2
lectures and 1 tutoria	al of 1 ¹ / ₂ hours). This module is r	not presented	everv vear	- please c	onsult the

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term (Credits
Head of Department	t. Prerequisites: [WTW220] and [[WTW286]			
WTW383	NUMERICAL_ANALYSIS_383				
NAS_WTW	na	Bilingual	2 + 1	S2	18
Direct methods for t	he numerical solution of system	s of linear eq	uations, piv	oting strate	gies. Iterative
methods for solving	g systems of linear equations	and eigenval	ue problem	s. Iterative	methods for
solving systems of	nonlinear equations. Introduction	on to optimiza	ation. Algori	thms for th	ne considered
numerical methods	are derived and implemented in	n computer p	rograms. Co	mplexity o	f computation
is investigated. Error	r estimates and convergence re-	sults are prov	ved. (2 lectu	res and 1 p	ractical of 11/2
hours)	-	-	-	-	
Prerequisites: [WTW	/114 or] and [WTW128] and [W	TW211]			
WTW385	DISCRETE STRUCTURES 38	5			
NAS WTW	n a	Bilingual	2 + 1	S2	18
Basic combinatoria	al objects: Selections, arrand	ements, pe	rmutations.	partitions	. Algorithmic
generation of comb	inatorial objects. Generating fur	nctions, arou	p actions. F	Polva theor	v. (2 lectures
and 1 tutorial of 11/2	hours)	inetienie, greu	p detterie, i	olya alool	j. (<u> </u>
Prereguisites: IWTW	/126] and [WTW218] and [WTW	285]			
WTW386	PARTIAL DIFF EQUATIONS	386			
NAS WTW	na	Bilingual	2 + 1	S1	18
Conservation laws	and modelling Fourier analysis	s Heat equa	tion wave	equation a	and Laplace's
equation Solution	methods including Fourier ser	ies Energy	and other	qualitative	methods (2
lectures and 1 tutori	al of 1 ¹ / ₂ hours)	ics. Energy		quantative	1110003. (2
Prerequisites: IWTW	/218] and [WTW286]				
WTW389	GEOMETRY 389				
		Rilingual	2 ± 1	60	19
NAS_WIW Flamontony Fueliday	n accometry Aviematic develor	Dillingual		DZ	10 Son Fuelideen
Elementary Euclidea	an geometry. Axiomatic develop	oment. The p	different acc	uiale anu i	
4 tutorial of 11/ hour			unerent get	metries. (2	
T LULONAL OF 1 /2 NOUL	S) 0111				
ZENIOI	ANIMAL_DIVERSITT_101	Daubla	0.05	60	0
INAS_ZEN	n a		2 ± 0.5	52	p animal nhula
Animal classification	i, phylogeny, organization and te	erminology. E	volution of t	ne various	animai pnyia,
morphological chara	acteristics and life cycles of pa	rasitic and n	ion-parasitic	animais.	Structure and
function of reproduc	tive, respiratory, excretory, circu	latory and dig	jestive syste	ems.	
ZEN251	INVERTEBRATE_BIOLOGY_2	51			1.0
NAS_ZEN	na	English	4 + 1	K1	12
Origin and extent of	f modern invertebrate diversity;	parasites of	man and do	omestic an	imals; biology
and medical importa	ance of arachnids; insect life styl	es; the influe	nce of the e	nvironmen	t on insect life
histories; insect ph	hytophagy, predation and par	asitism; inse	ect chemica	il, visual,	and auditory
communication; fres	hwater invertebrates and their u	se as biologio	cal indicator	S.	
ZEN261	AFRICAN_VERTEBRATES_26	51			
NAS_ZEN	na	English	4 + 1	K3	12
Introduction to gen	eral vertebrate diversity; Africa	in vertebrate	diversity; \	/ertebrate	structure and
function; vertebrate	evolution; vertebrate relations	hips; aquatic	vertebrates	; terrestria	I ectotherms;
terrestrial endother	ms; vertebrate characteristics	; classification	on; structur	al adapta	tions; habits;
habitats; conservatio	on problems; impact of humans of	on other verte	ebrates.		
ZEN351	POPULATION_ECOLOGY_351	1			
NAS_ZEN	na	English	4 + 2	K1	18
Scientific approach	to ecology; evolution and ecology	gy; the individ	dual and its	environme	nt; population
characteristics and	demography; competition; prec	dation; plant-l	herbivore in	teractions;	regulation of
populations; populat	tion manipulation.	•			-
ZEN352	MAMMALOGY_352				
NAS ZEN	n a –	English	4 + 2	K1	18
 Mammalian origins	and their characteristics: evolution	tion of Africa	n mammals	: structure	and function.
integument, support	t and movement: foods and fe	edina: envira	onmental ac	aptations	reproduction
behaviour: ecology	and biogeography: social behav	viour: sexual	selection n	arental car	e and mating

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
systems; community	y ecology; zoogeography. Speci	al topics: pai	rasites and	diseases;	domestication
and domesticated m	ammals; conservation.				
ZEN353	COMMUNITY_ECOLOGY_353				
NAS ZEN	n a	English	4 + 2	K2	18
The scientific appro	pach: characteristics of the co	mmunity: the	e communit	tvasa s	uperorganism:
community changes	s; competition as a factor dete	rmining com	munity stru	cture: dist	urbance as a
determinant of comr	nunity structure; community stab	ility; macroed	cological pat	terns and	mechanisms.
ZEN354	PHYSIOLOGY 354		<u> </u>		
NAS ZEN	n a	English	4 + 2	K2	18
The course in anim	nal physiology is designed to p	promote unde	erstanding c	of animals	as integrated
systems at every le	vel of organization. The course	focuses on	the function	n of tissue	s, organs and
organ systems of m	nulticellular organisms in chemic	al and physi	ical terms. A	Animal phy	siology is the
study of how a livin	g animal functions. This course	adopts a sy	stems-base	ed approa	ch that covers
many of the sub-di	sciplines of physiology, ranging	g from neura	al physiolog	y and en	docrinology to
mechanoreception a	and osmoregulation.	-		-	
ZEN355	INSECT_DIVERSITY_355				
NAS_ZEN	n a	English	4 + 2	K1	18
The extent and sign	ificance of insect diversity. Fund	tional insect	morphology	. The bas	ic principles of
taxonomy and the	classification of taxa within the	e Insecta. In	sect orders	and eco	nomically and
ecologically importa	int southern African insect fami	ilies. Identific	ation of ins	sect orders	s and families
using distinguishing	characteristics. General biologic	al and behav	ioural chara	acteristics	of each group.
Grouping of insects	into similar life-styles and habitat	ts.			-
ZEN361	ECOPHYSIOLOGY_361				
NAS_ZEN	na	English	4 + 2	K3	18
The costs of living;	; factors affecting metabolic rat	te; limitations	s to the ac	quisition of	of energy and
nutrients; the princip	oles of nutritional ecology; proble	ms associate	ed with herb	ivorous die	ets; the effects
of temperature on w	hole organism processes and the	he response	of species t	to tempera	ature variation;
ectothermic and e	endothermic temperature regu	ilation; anim	nal respons	ses to h	igh and low
temperatures; water	balance physiology of insects	and vertebra	ates; osmore	egulation i	in aquatic and
terrestrial environm	ents; the importance of physic	ological ecol	logy for un	derstandir	ng geographic
variation in body size	e, range size, and abundance.				
ZEN362	EVOLUTION_AND_PHYLOGE	NY_362			
NAS_ZEN	na	English	4 + 2	K3	18
Evolution as a proc	ess and pattern, prime movers	in evolution	: selection,	drift, gene	eral population
genetics. Population differentiation, clines, subspecies and species, adaptation as a major force in					
evolution and the	panglossian paradigm, molec	cular evoluti	on. Phylog	eography,	phylogenetic
reconstruction. Evol	utionary biogeography. Adaptati	on, Darwin's	formulation	, proximat	e and ultimate
causation, genetic a	and developmental constraints,	optimality. P	henotypic n	nodels, th	e comparative
method, convergent	evolution. Evolution of complex	biological sy	stems, origi	n of life ar	nd sex, macro-
evolution, punctuate	d equilibrium, numan evolution.	Levels of sele	ection. Spec	cies conce	ots.
ZEN363	BEHAVIOURAL_ECOLOGY_30	53			1.0
NAS_ZEN	na la	Englisn	4+2	K4	18
The history of bena	ivioural ecology. A causal, deve	elopmental, e	volutionary	and adap	tive approach.
Sensory systems a	na communication. Sexual sele	ection, mate	choice and	sperm co	mpetition. Kin
Selection and group	f hebeviewel enclosed. The role	of hohoviour			gy of numaris.
		OI DELIAVIOUI	ai ecology ii	I CONSELVA	luon planning.
ZENJO4	CONSERVATION_ECOLOGY_	304 Englich	4 + 2	KA.	10
This course is inten	and to provide students with skill	c to undortak	re field surv	n 4 ove that ar	ro occontial for
research and plan	ping in the conservation of h	iodiversity 7		bae a l	e essential ioi
component A field t	rin will be conducted over a ten-	day period d	uring the Se	ntombor v	vacation in the
Sani Pass region o	if the Drakensherg (including S	outh Africa	and Lesoth	n) The et	udents will be
actively involved in	planning and executing the field	d survevs a	nd will he r	esponsible	for analysing
and presenting the	results The students will gain	n valuable n	ractical eve	nerience i	n the field hv
applying a number	of survey techniques and focus	ing on sever	al different f	taxa that a	are relevant to
conservation ecolog	V.				

Module	Title				
Fac_Dept	Old code	Language	lpw/ppw	Term	Credits
ZEN365	365 INSECT_PEST_MANAGEMENT_365				
NAS_ZEN	na	English	4 + 2	K4	18
Definition, classification and characteristics of insect pests. Concepts of economic levels. Monitoring,					
surveys, sampling and forecasting. Yield loss assessment. Philosophy and context of integrated pest					
management. Alternative methods of pest control. Insecticide resistance and management. Important					
pests of South African agricultural crops, gardens and lawns.					
It is strongly recommended that students first complete ZEN 355: Insect Diversity 355.					

POSTGRADUATE STUDIES

Sc.10HONOURS DEGREES

SC.10.1 BACCALAUREUS SCIENTIAE HONORES [BSc(Hons)]

Also consult General Regulations G.1.3; G.16 – G. 29 and G.62, and postgraduate syllabi.

(a) Admission requirements and prerequisites

(i) For the BSc(Hons) degree

Subject to the stipulations of General Reg. G.16, a student is only admitted to the study for the honours degree if he or she holds the BSc or BSecEd(Sci) degree with an average mark of at least 60% and provided that he or she complies with the stipulations for the particular modules as set out in the syllabi descriptions.

- (iii) The curriculum is compiled in consultation with the head of department, from whom full details may be obtained except if mentioned otherwise.
- (iv) In cases where the required module or linguistic basis is lacking, additional

modules may be prescribed.

(b) Examination admission and pass requirements

For preparation, evaluation and examination of essays, consult the manual of the Faculty, which is obtainable on request from the head of department. The pass mark for essays is at least 50%. The stipulations regarding pass requirements for dissertations in General Regulation G.60.2.1 2(a) apply *mutatis mutandis* to essays.

(c) Degree with distinction

The BSc(Hons) 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.

(d) Degrees

<u>Discipline</u> Actuarial Mathematics Applied Mathematics Degree code 02240273 02240171

Biochemistry	03241011
Bioinformatics	03241014
Biotechnology	02240392
Botany	03241091
Chemistry	02240121
Engineering and Environmental Geology	02240372
Entomology	03241031
Exploration Geophysics	02240351
Financial Engineering	02240274
Food Science	03240921
Genetics	03241051
Geography	02240411
Geography: Environmental Analysis and	
Management	02240412
Geoinformatics	02240408
Geology	02240141
Mathematical Statistics	02240191
Mathematics of Finance	02240272
Mathematics	02240181
Meteorology	02240070
Microbiology	03240911
Nutrition and Food Sciences	02240373
Physics	02240231
Plant Pathology	03240931
Plant Physiology	03241081
Soil Science	03240901
Teaching of Mathematics	02240271
Wildlife Management	03241001
Zoology	03241021

Sc.10.2 BACCALAUREUS INSTITUTIONIS AGRARIAE HONORES [BInstAgrar(Hons)]

Also consult General Regulations G.16 to G.29

(a) Admission requirements

Subject to the stipulations of General Regulations G.1.3 and G.62, a candidate must hold the BInstAgrar degree or an appropriate bachelor's degree to be admitted to the BInstAgrar(Hons). Additional modules, other than the honours modules may be prescribed by the Dean, on the recommendation of the head(s) of the department(s) concerned.

(b) Duration

Training is offered full-time, and in certain fields of specialization also on parttime basis. The module extends over at least two semesters for full-time students, while the part-time module extends over at least four semesters.

(c) Curriculum

The curriculum consists of a minimum of eight modules, which include the following:

- A common core of modules, ARD 780 and 783, is compulsory for all fields of specialization, except in the case of the Extension option, for which only ARD 781 and 782 are compulsory. Credit for equivalent modules already passed may be considered, in which case suitable alternative modules will be prescribed by the Dean in consultation with the relevant head of the department concerned.
- The prescribed module work in the student's field of specialization. Credit for equivalent modules already passed may be considered, in which case suitable alternative modules will be prescribed by the Dean in consultation with the head of the department concerned.
- Additional modules required for the particular field of specialization, as stipulated by the Dean in consultation with the head of the department concerned.
- •

(d) Degree with distinction

A student must obtain a weighted average of at least 75 % in all the prescribed modules, with a minimum of 65 % in each of the modules to pass the degree with distinction.

(e) Degrees

<u>Discipline</u>	Degree code
Agricultural Economics	03242021
Crop Protection	03242062
Extension	03242011
Food Production and Processing	03242172
Rural Development	03242121
Land-use Planning	03242051
Plant Production	03242031
Plant Protection	03242061
Plant Quarantine	03242183
Rural Development and Ecotourism	03242152
Rural Development Planning	03242023
Rural Engineering Technology	03242141
Rural Household Development	03242182
Sustainable Ecological Management	03242131
Sustainable Insect Management	03242101

Sc.11 MASTER'S DEGREES

Sc.11.1 MAGISTER SCIENTIAE (MSc)

Also consult General Regulations G.30 - G.44.

(a) Admission requirements

MSc degree: Subject to the stipulations of General Regulations G.30, G.1.3 and G.62, an applicable honours degree is a prerequisite for admission. Additional requirements may be set by the Dean on the recommendation of the head of department. A candidate with an average mark of less than 60% for the honours

degree will only be admitted to the MSc degree study with the approval of the Dean on the recommendation of the head of department.

(b) Conferment of degree

The MSc degree is conferred by virtue of a dissertation and such additional postgraduate modules as may be prescribed.

(c) Pass requirements

- A pass mark of at least 50% must be obtained in both the dissertations and the additional prescribed modules, if such additional module work is prescribed.
- Preparation, evaluation and examination of dissertation is available from the Head of Department on request. The passmark for dissertations is 50%.

The stipulations with regard to pass requirements for dissertations in G.60.2.1.2 (a) apply *mutatis mutandis*.

(d) Degree with distinction

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/research report and provided that all the members of the Examination Commission indicate in writing that the degree be conferred with distinction.

(e) General

Students should take particular note of the maximum period of registration (General Regulation G.32.4), as well as of the requirement regarding submission of a draft article/articles for publication (General Regulation G. 61).

(f) Degrees

Degrees	
Discipline	Degree code
Actuarial Science	02250395
Applied Mathematics	02250171
Applied Mineralogy	02250381
Biochemistry	03251011
Bioinformatics	03251011
Biotechnology	03251052
Botany	03251091
Chemistry	02250121
Conservation Ecology and Planning	03251028
Earth Science Practice and Management	02250072
Engineering and Environmental Geology	02250372
Entomology	03251031
Environment and Society (Coursework)	03251032
Environmental Ecology (Coursework)	03251033
Environmental Economy (Coursework)	03251034
Environmental Education (Coursework)	02250443
Exploration Geophysics	02250431
Food Science	02250444
Genetics	03251051
Geography	02250411
Geo-Informatics	02250412
Geology	02250141
Integrated Pest and Disease Management	03251024

Mammology (Coursework)	03251027
Mathematical Statistics	02250191
Mathematics Education	02250183
Mathematics of Finance	02250182
Mathematics	02250181
Meteorology	02250070
Microbiology	03250911
Physics	02250231
Plant Pathology	03250881
Post Harvest Technology	03251102
Science Education	02250442
Soil Science	03250901
Systematics and Conservation Evaluation	03251026
Water Resource Management	03251035
Wildlife Management	03251001
Zoology	03251021

Sc.11.2 MAGISTER PHILOSOPHIAE [MPhil] (Code: 03250700)

Also consult General Regulation G. 62

(a) Admission requirements

Students wishing to enroll for the MPhil(Wildlife Management) should have a approved four-duration first degree at a recognized university or any qualification that is accepted by the Senate as equivalent to it in terms of Regulation G. 62.

(b) Duration

The duration of the internet-based part-time programme is two years. The theoretical component forms 40%, the research project and thesis 35% and the practical component 25% of the course.

(c) Curriculum

This programme aims to educate candidates interested in this field but who come from non-biological backgrounds. It is a postgraduate course focusing on the philosophy, ethics, ecological principles and application of wildlife management.

Sc.11.3 MAGISTER SCIENTIAE AGRICULTURAE [MSc(Agric)]

Also consult General Regulations G.30 to G.44.

(a) Requirements for admission

Subject to the stipulations of General Regulations G.1.3 and G.62, the four-year BSc(Agric) degree with an average of 60% in the final year of the major subject is a requirement for admission to the MSc(Agric) degree. Additional requirements may be stipulated by the head of department.

(b) Duration

Duration of study is at least two years of uninterrupted full-time study (or the part-time equivalent) at this University.

(c) Residence

The Dean may on the recommendation of the head of the department concerned, set particular requirements concerning residence during master's degree studies.

(d) Curricula

The curriculum for the MSc(Agric) degree consists of:

(i) a dissertation; and

further study in the major subject, supplemented by ancillary module/s as may be required by the Dean, on the recommendation of the Head of Department. Students who hold the BSc(Agric)(Hons) degree may be exempted from further ancillary modules.

- (ii) A total of 240 credits is required for the MSc(Agric) degree, of which 120 are for the dissertation.
- (iii) A student who has been registered for at least two semesters and who has obtained at least half of the credits for the MSc(Agric) degree, including the research project, may apply to have a BSc(Agric)(Hons) degree conferred on him or her pro forma.

(e) Examinations and pass requirements

- The final examinations for the MSc(Agric) may only be taken at the end of the second year of study.
- (ii) The examinations in the ancillary modules, if required, must be passed before or concurrent with the examinations in the major subject, unless the Board of the Faculty decides differently.
- (iii) General Regulation G.12.2, as well as paragraph 5 of the Faculty regulations pertaining to examination admission and pass requirements, are applicable to the calculation of marks.
- (iv) A student must pass all prescribed modules as well as the dissertation to obtain the MSc(Agric) degree.
- (iv) The degree is conferred with distinction on a student who obtains a final mark of at least 75%, as well as at least 75% for the dissertation/research report and provided that all the members of the Examination Commission indicate in writing that the degree be conferred with distinction.

(f) General

Students should take particular note of the maximum period of registration (General Regulation G.32.4), as well as of the requirement regarding submission of a draft article/articles for publication (General Regulation G.61).

(g) Degrees

<u>Discipline</u>	Degree code
Agricultural Economics	03250041
Agricultural Extension	03251030
Agronomy	03250454
Animal Science: Production Management	03250441
Animal Science: Animal Breeding and Genetics	03250457
Animal Science: Livestock Nutrition	03250341
Animal Science: Meat Science	03250122
---------------------------------------	----------
Animal Science: Production Physiology	03250391
Food Science and Technology	03250261
Horticulture	03250091
Mechanized Agriculture	03250453
Pasture Science	03250455
Plant Breeding	03250452
Soil Science	03250456

Sc.11.4 MAGISTER INSTITUTIONIS AGRARIAE [MInstAgrar]

Also consult General Regulations G. 30 to G. 44.

(a) Admission requirements

Subject to the stipulations of General Requirements G.1.3 and G. 62, a candidate must hold the BInstAgrar, an appropriate four-year degree or an appropriate honours degree for admission to the MInstAgrar degree study. Additional modules may be prescribed by the Dean on the recommendation of the head of department. A candidate with an average mark of less than 60 % for the honours degree will only be admitted to MInstAgrar study with the approval of the Dean, on the recommendation of the head of the department.

(b) Curriculum

The curriculum consists of further study in the field of specialization and a dissertation, or alternatively an essay, which encompasses research conducted by the student under supervision of a member of the academic staff.

(c) Degree with distinction

The degree is conferred with distinction on a student who obtains a final mark of at least 75%, as well as at least 75% for the dissertation/research report and provided that all the members of the Examination Commission indicate in writing that the degree be conferred with distinction.

(d) General

Students must take particular note of the maximum period of registration (General Regulation G.32.4), as well as of the requirement regarding submission of a draft article/articles for publication (General Regulation G. 61).

(e) Degrees

Discipline	Degree code
Agricultural Economics	03252021
Agronomy	03252072
Animal Production Management	03252093
Crop Protection	03252062
Environmental Management (Coursework)	03252132
Extension	03252011
Food Production and Processing	03252112
Horticulture	03252082
Rural Development and Ecotourism	03252152
Rural Development Planning	03252023
Rural Development	03252121

Land-use Planning	03252051
Pasture Science	03252092
Plant Protection	03252061
Plant Quarantine	03252141
Rural Engineering Technology	03252191
Rural Household Development (Coursework)	03252162
Rural Household Development	03252163
Sustainable Ecological Management	03252131
Sustainable Insect Management	03252101

Sc.11.5 MASTER'S IN CONSUMER SCIENCE [MConsSc]

(a) Admission requirements

A four-year BConsumer Science or other applicable degree.

(b) Duration

A minimum of two years full-time and a maximum of four years part-time study

(c) Programme options

There are four disciplines with a further option to choose from, each with a minimum of 240 credits:

(i)	Dissertation option	
	Interior Merchandise Management	02253004
	Clothing Management	02253006
	General	02253009
	Food Management	02253008
(ii)	Coursework option with essay	
()	Interior Marchandisa Managamant	02252002
	intenor merchanuse management	02255005
	Clothing Management	02253005
	General	02253010
	Food Management	02253007

(d) Curriculum (a minimum of 240 credits)

(i) Dissertation option

Research Methodology 814 (30 credits) Theoretical Orientation (30 credits)* Electives (a minimum of 60 credits) HHK890 (Dissertation) (120 credits)

(ii) Coursework option

Research Methodology 814 (30 credits) Theoretical Orientation (30 credits)* Electives (4x30=120 credits) HHK892 (Dissertation) (60 credits)

*To earn credits for the Theoretical Orientation, at least one of the following options must be taken:

HSK 810: Social-cultural studies (Cultural orientation) (15 credits) HSK 812: Social-cultural studies (Consumer orientation) (15 credits) HSK 813: Social-cultural studies (Social and cognitive orientation) (15 credits) HSK 811: Social-cultural studies (Alternative orientation. Other applicable orientations offered in and outside the Department can be taken additionally) (15-30 credits).

Students choose electives on 800-level from the following four electives groupings:

- Clothing and Textiles
- Foods, Nutrition and Food Service Management
- Interior Merchandising and Consumer Facilitation
- Resource Management, Development and Education

Depending on the field of study, a maximum of two postgraduate modules may be selected from disciplines from other departments.

Students who already have an honours degree related to one of the chosen areas of study, may apply for exemption of certain modules.

Depending on the academic background of the student and the chosen area of study, it may be required of the student to take additional modules.

Work on the dissertation/essay consists of three parts, namely the research proposal, project execution and an oral presentation of the research results.

A basic module in Statistics is compulsory when a quantitative approach is used for a research project.

(e) Prerequisites for the dissertation/essay

The Department can be consulted for more information on the structuring of programmes, the content of the theoretical orientations, and electives including their prerequisites.

(f) Degrees

Discipline	Degree code
Interior Merchandise Management	02253004
Interior Merchandise Management (Taught)	02253003
Clothing Management	02253006
Clothing Management (Taught)	02253005
General	02253009
General (Taught)	02253010
Food Management	02253008
Food Management (Taught)	02253007

DOCTORATES

Sc.12 PHILOSOPHIAE DOCTOR [PhD]

Also consult General Regulations G.45 to G.55.

(a) Admission requirements

(i) PhD degree

Subject to the stipulations of General Regulations G.1.3, G.45 and G.62, no student will be admitted to the study for a doctor's degree unless he or she holds a masters degree or has been admitted to the status thereof. Further requirements for admission, if any, are set out in the syllabi of the various Departments.

(ii) PhD in Consumer Science

MConsumer Science or applicable Master's degree with a pass mark of at least 60%.

To proceed with the thesis, a student should have fulfilled the requirements for the Masters degree regarding:

- Theoretical Orientation
- Research Methodology (NME 814)
- The student should also have published at least one article in a research journal during the two years prior to registration for the PhD degree or have proof that the article has been accepted for publication in a refereed journal.Furthermore, it should also be evident from the masters thesis or publications that research can be undertaken independently.NB The student may be required to do additional modulework.

(b) Duration

A minimum of two years full-time study

(c) Residence

Doctoral students may be required to reside at the University for further study on the recommendation of the head of department and with the approval of the Dean.

(d) Curriculum

The curriculum for the PhD degree consists of:

- theoretical knowledge of the major subject and such ancillary modules as may be required; and
- (ii) a thesis.

(e) Conferring of degree

- A PhD student must submit a thesis which deals with a topic from the list of subject disciplines.
- (ii) The doctoral examination, either written and/or oral, is compulsory and covers the content of the thesis as well as the subdivisions of the field of study on which the thesis is based.

(f) General

Students must take particular note of the maximum period of registration (General Regulation G. 47), as well as of the requirements regarding the submission of a draft article/articles for publication (General Regulation G. 61).

(g) Degrees

Discipline	Degree code
Agrarian Extension	03262002
Agricultural Economics	03260042
Agronomy	03262164
Animal Production Management	02260545
Animal Science	03260141
Biochemistry	03260012
Biotechnology	03262162
Botany	03261091
Chemistry	02260451
Consumer Science: Development	02263003
Consumer Science: Food Management	02263004
Consumer Science: Interior Merchandise	
Management	02263001
Consumer Science: Clothing Management	02263002
Crop Protection	03262021
Engineering and Environmental Geology	02260542
Entomology	03260121
Environmental Studies	03260127
Exploration Geophysics	02260531
Food Science	03260272
Genetics	03260292
Geography	02260511
Geo-Informatics	02260512
Geology	02260521
Horticulture	02260544
Land Development	03262121
Land-Use Planning	03262012
Mathematical Science	02260761
Mechanized Agriculture	03262163
Meteorology	02260630
Microbiology	03260072
Pasture Science	03262165
Physics	02260481
Plant Breeding	02260543
Plant Pathology	03260302
Plant Protection	03262151
Plant Quarantine	03262141
Rural Development and Ecotourism	03262152
Rural Development Planning	03262023
Rural Engineering Technology	03262191
Science and Mathematics Education	02260753
Soll Science	03262166
Sustainable Ecological Management	03262131
Sustainable Insect Management	03262132

Wildlife Management Zoology

03261001 03261021

Sc.13 DOCTOR SCIENTIAE DSc [Code 03260001]

Consult General Regulation G.56.

This degree usually follows on the PhD degree and is conferred by virtue of publications emanating from independent research. The publication must represent a meaningful contribution to a specific subdiscipline.

(a) Guidelines for evaluation

(i) **Disciplines**

The DSc degree in the Faculty of Natural and Agricultural Sciences is conferred by virtue of published research work in one of the disciplines in the faculty.

(ii) Criteria

The work submitted for the DSc must constitute an original and important contribution to scientific knowledge and insight in that it is

- regarded as a substantial and coherent contribution to the advancement of the frontiers of knowledge and insight into the specific subdiscipline, and
- proof of the candidate's achievement with regard to international leadership in the specific field of scientific research.

The emphasis in the assessment of the work of a DSc candidate must be placed on originality, substance and excellence.

(iii) Presentation

The document submitted for examination must consist of a selection of published articles as well as a substantiated representation in which the grounds for submission and coherency of the work presented is evident.

Name	Donor	Award
A.M. Bosman Medal	Farmers' Weekly	To the most deserving postgraduate student in Animal Science
ABSA Consultants & Actuaries	ABSA	Best performance in Acturial Science AKM702
AEASA Prize	Agricultural Economics Association of South Africa	To the best undergraduate student in Agricultural Economics, BSc(Agric), or BCom, who achieves an average mark of at least 70% in Agricultural Economics throughout the years of study
Capespan Prize	Capespan International	To the best student in Plant Pathology or Microbiology in the final year of the BSc(Agric) or BSc degree
Department of Chemistry Prize	Department of Chemistry, UP	Best achievement in Chemistry at 100 level. Best achievement in Chemistry at 200 level.
Department of Physics Prize	Department of Physics, UP	Best achievement in Physics at first-year level. Best achievement in Physics at second-year level. Best achievement in Physics at third-year level Best achievement in Physics at BSc(Hons) level.
Dewald Hattingh Book Prize	Mrs ASJ Hattingh	For the best third-year student in Mathematics.
Dr and Mrs Geyer Floating Trophy	Dr and Mrs J W Geyer	Awarded to a student in the Faculty of Natural and Agricultural Sciences for academic excellence as well as other achievement
Financial Planning Institute	FPI	Best performance in Insurance Science IAS361 & Insurance Science IAS362
Financial Planning Institute	FPI	Best performance in IAS261 & IAS262
Genetics Honours Achievement Award	Genetics Department	To the best Honours student in Genetics
GENSEC Prize	GENSEC	Most outstanding honours student in the Actuarial and Financial Mathematics study programme.
H.B. Davel Medal	Farmers' Weekly	To the student who completes the BSc(Agric) degree most successfully
Hannover Reinsurance	Hannover Reinsurance	Best performance in Actuarial Science AKM704
Hollard Insurance	Hollard Insurance	Best performance in Actuarial Statistics AKT780
J J Veenstra Floating Trophy	Mr J J Veenstra	To the Animal Science student who displays the most zeal in both the theoretical as well as the practical training of the degree

MEDALS AND PRIZES IN THE FACULTY

Jan F Celliers Book Prize	Dr IB Celliers	Awarded to the best student in Geology on 100-level in the study programmes Geology, Exploration Geophysics or Environmental and Engineering Geology.
Johan and Sophie van Heerden Floating Trophy	Johan and Sophie van Heerden	A student that achieves the highest average mark for Meteorology modules at second and third year level and who passes the third year level modules in a period of one year.
Johan J Theron Trophy	Prof Johan J Theron	The best BSc student with Human Physiology as a major subject (average of second- and third-year modules)
Koos van der Merwe/ AFMA Prize	Animal Feed and Manufacture Association	To a student in the final year of study for the best achievement in Animal Nutrition at any South African university
Margaretha Mes Medal	Botany Department	For the best BSc(Hons) student who obtains the degree with a pass mark of at least 70% and whose essay is based on an aspect of Plant Physiology
Margaretha Mes Memorial Prize	Botany Department	For a female Botany student with the best average (minimum 70%) over four third-year modules in Botany.
Medal of the South African Society of Crop Production	South African Society of Crop Production	To the best BSc(Agric) student in Crop Production
Medal: Vice Chancellor and Principal	UP	Best achievement over all the undergraduate study years in any first degree at the University of Pretoria
Meiring Naudé Medal	Dr S M Naude	For the best student who obtained at least 75% in all the theoretical and practical modules for the BSc(Hons) with specialization in Physics.
Merck Merit Award for Bio- chemistry (Hons)	Merck Chemicals (South Africa)	To the best student who obtains the Honours degree in Biochemistry with distinction
Merck Prize	Merck (Pty) Ltd	Best achievement in Chemistry at 300 level. Best achievement in Analytical Chemistry at 300 level.
Munich Reinsurance	Munich Reinsurance	Best performance in IAS351 & IAS352
Novartis Prize	Novartis	To the best student in Plant Pathology in the final year of the BSc, BSc(Agric) or BInstAgrar degree module
Omnia Fertilizer Award	Omnia Fertilizer Incorporated	To the best final year student in Plant Production and Soil Science
Pierre du Plessis Prize	A group of friends and family of the late Pierre du Plessis.	Student in Physics at 300 level, on condition that the student passes with distinction.
Rentmeester	Rentmeester	Best performance in IAS211 & IAS221
Richards Bay Minerals Junior Prestige Award	Richards Bay Minerals	For best Honours student in Zoology

Richards Bay Minerals Senior Prestige Award	Richards Bay Minerals	For best achievement in Zoology at Master's level
Richards Bay Minerals Senior Prestige Award	Richards Bay Minerals	For best achievement in Zoology at doctoral level
Rüsch and Van Biljon-Price	Pieter Rüsch and Gert van Biljon	For the final year project by a B Eng or BSc(Agric) student which shows the best economic potential
Ryan Warren Award	Ryan Warren	Best performance in Actuarial and Financial Mathematics
SA Genetics Society Hofmeyer- Van Schaik Prize	South African Genetics Society	To the best BSc(Agric) or BSc(Hons) student in the fourth year of study who achieves a final mark of at least 75% in Genetics
SA Mathematical Society Bronze Medal	SA Mathematical Society	Best honours student in Mathematics or Applied Mathematics.
SAAB Junior Medal for Botany	South African Association for Botany	For the best doctoral thesis submitted at a South African university by a person not older than 35 years
SAAFoSt Academic Merit Award	South African Association for Food Science and Technology	To the most outstanding student in the final year of the BSc(Agric) degree with specialization in Food Science
Sanlam Financial Advisory Service	Sanlam	Best performance on first-year level in all modules in the Insurance & Actuarial Sciences
SAPBA Prize	South African Plant Breeders Association	To the best final year student in Plant Breeding
SASAS Prize	South African Society of Animal Science	To the most outstanding undergraduate in Animal Science
SASAS Prize	South African Society of Animal Science	To the most outstanding postgraduate student(s) in Animal Science at Master's and Doctoral level at any South African university
SASAS Transvaal Branch Award	South African Society of Animal Science	To the most outstanding student in the third year of study in Animal Science
SASDT Meritorious Award	South African Society of Dairy Technology	To a student in the department of Food Science who achieves outstanding academic results, and who displays exceptional enthusiasm for the dairy component of the syllabus
Sasol Prize	Sasol Ltd	Best achievement in Chemistry at 100 level, on condition that the student continues studies in Chemistry. Best achievement in Chemistry at 200 level, on condition that the student continues studies in Chemistry. Best achievement in Chemistry at 300 level. Best achievement in Chemistry at BSc(Hons) level.
Schutte & Associates	Schutte & Associates	Best performance on second year level in compulsory modules in the Insurance & Actuarial Sciences
Schweickerdt Medal for Botany	The late Prof H G W J Schweickerdt	To the best BSc(Hons) student who obtained the degree with a pass mark of at least 70% and whose essay is based on an aspect of Botany other than Plant Physiology

	1818	
The ISIS Software	ISIS	For the best BSc(II) group project in Software
Engineering Prize		Engineering
Zoological Society	Zoological Society of	To the Honours student who obtains the
of Southern Africa	Southern Africa	BSc(Hons) degree with the highest average
Prize		mark.
Zoological Society	Zoological Society of	To the best student in Zoology at 300 level
of Southern Africa	Southern Africa	
Prize		
Department of Cons	sumer Science	
Benjamin Woollens	Benjamin Woollens	Top achiever in Clothing Construction 310
Achievement Prize		(theory and practice).
Bernina	Bernina Saskor JHB	Achievement in Garment Construction 310
Achievement Prize		(Theory and Practice)
Bernina	Bernina Saskor IHB	Best achievement in Clothing Construction
Achievement Prize	Dernina Gaskor, on D	310 (design and creativity)
Romine Achieve	Porning Sackor JUP	Boot aphiovement in Comment Construction
Berlina Achieve-	Demina Saskur, JHD	210 (prostice)
	Next's On the Markinson	STO (practice).
Husqvarna	Nordic Sewing Machines	Best achievement in VLG 310, 320
Achievement Prize		concurrently.
Rees Mann	Mannettes, JHB	Best student in the commercial production
Achievement Prize		component of Clothing Construction 310.
Award in		
Agrarian		
Extension		
Bronze Medal of	South African Society for	To the best Honours student in Agricultural
Honour from the	Agricultural Extension	Extension
South African	-	
Society for Agri-		
cultural Extension		
Wildlife Manageme	nt	
Van Schaik Prize	J L van Schaik	For the best achievement by a BSc(Hons)
in Wildlife	Publishers	student in the final examination with
Management		specialization in Wildlife Management
Welder Wildlife	Centre for Wildlife	To the best BSc(Hons) student with
Foundation Texas	Research	specialization in Wildlife Management who
Merit Award	1.000aron	achieved a final mark of at least 70%
Not limited to the F	aculty of Science	
SPC Honorary	Student Penrecentative	Student who delivered the best service to the
Model		
	Council	Community.
S ₂ A ₃ Bronze	South African Society for	To a student who completed an extremely
Medal	the advancement of	good master's study in the field which is
	science (donor:	traditionally part of the activities of the South
	Sentrachem Ltd)	Atrican Society for the Advancement of
		Science ($S_2 A_3$) members of the Convocation
		of the University of Pretoria.

The Afrikaans text of this publication is the official version and will be given precedence in the interpretation of the content.