

Universiteit van Pretoria Jaarboek 2017

MSc Wiskundige Statistiek (Gedoseer) (02250192)

Duur van studie 2 jaar

Totale krediete 180

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

Details of compilation of curriculum are available from the Head of the Department of Statistics as well as from the departmental postgraduate brochure.

A candidate must compile his/her curriculum in consultation with the head of department or his representative. Refer to the Departmental website for further information.

The MSc degree is conferred on the grounds of a dissertation and such additional postgraduate coursework as may be prescribed.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation that is supported by the head of department and Postgraduate Studies Committee.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Toelatingsvereistes

- 'n toepaslike honneursgraad in Wiskundige Statistiek word vereis.
- Vir MSc (Wiskundige Statistiek) 'n gemiddelde punt van 65 % of meer in die BScHons in Wiskundige Statistiek.
- Studente van ander geakkrediteerde instellings moet voldoen aan dieselfde vereistes gebaseer op ekwivalent modelle op hul instellings. Daarbenewens studente van ander geakkrediteerde instellings moet ook 'n ingang evaluering.
- Student getalle is beperk tot 'n maksimum van 20 , gesamentlik oor al meester " s programme in die Departement van Statistiek.
- Toelating is ook onderhewig aan die beskikbaarheid van 'n geskikte studieleier vir die studie.
- Historiese prestasie gedurende vorige studies sal ook oorweeg word in studente kies . Spesifieke aandag sal gegee word aan modules herhaal en duur van studie.
- Die navorsingsvoorstel van kandidate moet in lyn wees met die navorsingsfokus van die departement.
- Enige verdere addisionele toelatingsvereistes soos deur die departementshoof in oorleg met die departementele nagraadse keurkomitee.
- Die hoof van die departement , in oorleg met die departementele nagraadse keurkomitee behou die reg om

addisionele modules voor te skryf.

Ander programspesifieke inligting

As long as progress is satisfactory, renewal of registration of a master's student will be accepted for a second year of study in the case of a full-time student. Renewal of registration for a third and subsequent years for a full-time student will only take place when Student Administration of the Faculty receives a written motivation (the required form can be obtained from the Head of Department) that is supported by the Head of Department and Postgraduate Studies Committee. (Also see the General Regulations.)

Details of compilation of curriculum are available from the Head of the Department of Statistics as well as from the departmental postgraduate brochure.

A candidate must compile his/her curriculum in consultation with the head of department or his representative. Refer to the Departmental website for further information.

Bevordering tot volgende studiejaar

The progress of all master's candidates is monitored biannually by the supervisor and the postgraduate coordinator. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

Subject to exceptions approved by the dean, on recommendation of the head of department, and where applicable, a student may not enter for the master's examination in the same module more than twice.

Slaag met lof

The MSc degree is conferred with distinction to candidates who obtain a final average mark of at least 75% and a mark of at least 75% for the dissertation/mini-dissertation from each of the members of the examination panel. Where a member of the examination panel awards a mark of less than 75% for the dissertation/mini-dissertation, that member of the examination panel must offer, in writing, support for his/her decision, or indicate in writing that he/she supports the examination committee's decision to confer the degree with distinction.



Kurrikulum: Jaar 1

Kernmodules

Miniverhandeling: Wiskundige statistiek 895 (WST 895)

Modulekrediete	100.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Jaar

Keusemodules

Capita selecta: Statistiek 880 (STK 880)

Modulekrediete	20.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 ander kontak per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The module is primarily an article based on and covers the most recent literature that discusses the developments and research in, for example, Shewhart charts, Exponentially Weighted Moving Average (EWMA) charts, Cumulative Sum (CUSUM) charts, Q-charts, Parametric and Nonparametric charts, Univariate and Multivariate charts, Phase I and Phase II control charts, profile monitoring and other research topics.

Toegepaste regressie-analise 880 (TRG 880)

Modulekrediete	20.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2



Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Regression introduction: Simple and multiple regression. Multicollinearity, Heteroscedasticity, Ridge regression. Logistic regression: Estimation, inference and applications. Non Linear regression: Estimation, inference and applications. Text mining: Topic modelling with applications. Survival regression: Survival models applied in regression. Regression extensions: CART, MARS and Conjoint analysis.

Kuber ontledings tegnieke 802 (WST 802)

Modulekrediete	20.00
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Reviewing, from a statistical perspective, the cyberinfrastructure ecosystem including distributed computing, multi node and distributed file eco systems. Structured and unstructured data sources, including social media data and image data. Setting up of large data structures for analysis. Algorithms and techniques for computing statistics and statistical models on distributed data. Software to be used include, Hadoop, Map reduce, SAS, SAS Data loader for Hadoop.

Tydreeksanalise 880 (TRA 880)

Modulekrediete	20.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 321 of TRA 720
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Difference equations. Lag operators. Stationary ARMA processes. Maximum likelihood estimation. Spectral analysis. Vector processes. Non-stationary time series. Long-memory processes.

Meerveranderlike analise 880 (MVA 880)

Modulekrediete	20.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.

Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Supervised and unsupervised methods, including computational methods, within the broader context of data mining. Supervised learning. Linear methods for Regression, Classification and Prediction. Basis Expansions, Regularisation, Smoothing, Additive models and Support Vector Machines.

Unsupervised learning: Clustering, principal components, dimensional reduction. Data methods: Organisation of data and exploratory data analysis.



Kurrikulum: Finale jaar

Kernmodules

Miniverhandeling: Wiskundige statistiek 895 (WST 895)

Modulekrediete	100.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Jaar

Keusemodules

Capita selecta: Statistiek 880 (STK 880)

Modulekrediete	20.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 ander kontak per week, 1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The module is primarily an article based on and covers the most recent literature that discusses the developments and research in, for example, Shewhart charts, Exponentially Weighted Moving Average (EWMA) charts, Cumulative Sum (CUSUM) charts, Q-charts, Parametric and Nonparametric charts, Univariate and Multivariate charts, Phase I and Phase II control charts, profile monitoring and other research topics.

Tydreeksanalise 880 (TRA 880)

Modulekrediete	20.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	WST 321 of TRA 720
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2



Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Difference equations. Lag operators. Stationary ARMA processes. Maximum likelihood estimation. Spectral analysis. Vector processes. Non-stationary time series. Long-memory processes.

Kuber ontledings tegnieke 802 (WST 802)

Modulekrediete	20.00
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Reviewing, from a statistical perspective, the cyberinfrastructure ecosystem including distributed computing, multi node and distributed file eco systems. Structured and unstructured data sources, including social media data and image data. Setting up of large data structures for analysis. Algorithms and techniques for computing statistics and statistical models on distributed data. Software to be used include, Hadoop, Map reduce, SAS, SAS Data loader for Hadoop.

Toegepaste regressie-analise 880 (TRG 880)

Modulekrediete	20.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.
Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Regression introduction: Simple and multiple regression. Multicollinearity, Heteroscedasticity, Ridge regression. Logistic regression: Estimation, inference and applications. Non Linear regression: Estimation, inference and applications. Text mining: Topic modelling with applications. Survival regression: Survival models applied in regression. Regression extensions: CART, MARS and Conjoint analysis.

Meerveranderlike analise 880 (MVA 880)

Modulekrediete	20.00
Diensmodules	Fakulteit Natuur- en Landbouwetenskappe
Voorvereistes	Geen voorvereistes.

Kontaktyd	1 lesing per week
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Statistiek
Aanbiedingstydperk	Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Supervised and unsupervised methods, including computational methods, within the broader context of data mining. Supervised learning. Linear methods for Regression, Classification and Prediction. Basis Expansions, Regularisation, Smoothing, Additive models and Support Vector Machines.

Unsupervised learning: Clustering, principal components, dimensional reduction. Data methods: Organisation of data and exploratory data analysis.

Die inligting wat hier verskyn, is onderhewig aan verandering en kan na die publikasie van hierdie inligting gewysig word.. Die [Algemene Regulasies \(G Regulasies\)](#) is op alle fakulteite van die Universiteit van Pretoria van toepassing. Dit word vereis dat elke student volkome vertrouwd met hierdie regulasies sowel as met die inligting vervat in die [Algemene Reëls](#) sal wees. Onkunde betreffende hierdie regulasies en reëls sal nie as 'n verskoning by oortreding daarvan aangebied kan word nie.