University of Pretoria Yearbook 2021

MCom Advanced Data Analytics (Coursework) (07250067)

Department	Statistics
Minimum duration of study	1 year
Total credits	180
NQF level	09

Admission requirements

1. Relevant BComHons degree
2. A cumulative weighted average of at least 65% for the honours degree
3. At least 65% for the research component at honours level

Other programme-specific information

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 relevant head of department) that is supported by the relevant head of department and Postgraduate Studies Committee.(See Regulations G.32 and G.36.)

Curriculum: Final year

Minimum credits: 180

Fundamental modules

Research orientation 899 (STK 899)

Module credits	0.00
NQF Level	09
Service modules	Faculty of Economic and Management Sciences
Prerequisites	Admission to the relevant programme.
Contact time	Ad Hoc
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Year

Module content

A compulsory bootcamp must be attended as part of this module – usually presented during the last week of January each year. Details regarding the venue and specific dates are made available by the department each year. The bootcamp will cover the basics of research to prepare students for the research component of their degree. Students can be exempt from the bootcamp if it was already attended in a previous year or for a previous degree. Each year of registration for the master's degree will also require the attendance of three departmental seminars. Students should ensure that their attendance is recorded by the postgraduate co-ordinator present at the seminars. The department approves the seminars attended. Students are also required to present their mini-dissertation research proposal within the department or at a conference.

Elective modules

Statistical and machine learning 880 (MVA 880)

Module credits	20.00
NQF Level	09
Service modules	Faculty of Natural and Agricultural Sciences
Prerequisites	Admission to the relevant programme.
Contact time	1 lecture per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 1 or Semester 2

Module content

Unsupervised learning: deterministic clustering, model-based clustering, latent class and behavioural analytics, dimension reduction. Natural language processing and topic modelling; recommender systems. Organisation of data, data wrangling and data structure exploration.

Capita selecta: Statistics 880 (STK 880)

Module credits	20.00
NQF Level	09
Service modules	Faculty of Natural and Agricultural Sciences
Prerequisites	Admission to the relevant programme.
Contact time	1 lecture per week, 1 other contact session per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 1 or Semester 2

Module content

This module covers the most recent literature that discusses current and contemporary research topics in advanced data analytics.

Mini-dissertation: Statistics 895 (STK 895)

Module credits	100.00
NQF Level	09
Prerequisites	Admission to relevant programme.
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Year

Data science: analytics and visualisation 880 (TRG 880)

Module credits	20.00
NQF Level	09
Service modules	Faculty of Natural and Agricultural Sciences
Prerequisites	Admission to relevant programme.
Contact time	1 lecture per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 1 or Semester 2

Module content
Supervised learning and applications. Multicollinearity, ridge regression, the LASSO and the elastic net. Parametric and nonparametric logistic regression and nonlinear regression. Survival regression. Regression extensions: Random forests MARS and Conjoint analysis. Neural networks.

Cyber analytics 802 (WST 802)

Module credits	20.00
NQF Level	09
Service modules	Faculty of Natural and Agricultural Sciences
Contact time	1 lecture per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 1 or Semester 2

Module content
Reviewing, from a statistical perspective, the cyber-infrastructure ecosystem including distributed computing, multi node and distributed file eco systems, such as Amazon Web Services. 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.

The information published here is subject to change and may be amended after the publication of this information. The General Regulations (G Regulations) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the General Rules section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.