MCom Advanced Data Analytics (Coursework) (07250066)

Minimum duration of study	2 years
Total credits	180
NQF level	09

Admission requirements

- Relevant honours degree in Statistics with an average of at least 65%

Note:

- Student numbers are limited to a maximum of 26, collectively over all master's programmes in the Department of Statistics.
- Historical performance during prior studies will also be considered in selecting students. Specific attention will be given to modules repeated and duration of study.

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

Core modules

Statistical and machine learning 880 (MVA 880)

Module credits	20.00
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
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
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
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
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.