

5.3.2.5 MSc in Biostatistics

Specific admission requirements

The MSc in Biostatistics programme targets students with either mathematical/statistical or biomedical background.

The following specific admission requirements are applicable:

- The National Senior Certificate with Mathematics (or equivalent) and one of the following at NQF level 8:
 - an honours degree in Mathematics or Statistics or Biostatistics;
 - an honours degree in a field related to the Biomedical Sciences;
 - a medical degree (MBChB); or
 - any other qualification deemed adequate by Senate.
- Depending on your field of study, additional work and/or proof of competency may be required.

Selection criteria

Specific selection criteria include an average mark of at least 65% for the last qualification obtained. You must also show competence in Linear Algebra and Calculus by completing a short course and passing with a minimum mark of 65%.

Application procedure and closing date

Apply online at www.maties.com by **30 September** of the previous year. Applications for prospective international students close on **31 August**. All applications are reviewed by a selection committee. Candidates are selected on academic merit and only a limited number of candidates are admitted to the programme.

Duration of programme

The programme extends over two years on a full-time basis or three years on a part-time basis.

Programme description

The objectives of the programme are to:

- develop highly qualified and skilled biostatisticians with the technical competence to contribute significantly to addressing the public health problems and challenges of their communities;
- prepare you, if you are aspiring to move to a higher level of academic research work, for doctoral studies and to promote an approach based on academic integrity and professional ethics;
- contribute to the pool of academics and professionals with the competence and critical intellectual abilities to ensure advancement in the field of biostatistics and to fulfil the need in the country for a skilled scientific workforce of the highest calibre;
- prepare you to apply principles of statistical reasoning in addressing critical questions in public health and biomedical science; and
- educate and train you to be an independent thinker and lead the data management and statistical analyses of research studies to advance knowledge and guide policy.

Programme outcomes

On completion of the programme, you will have:

- developed a sound understanding of epidemiological study design and the theory and application of the major areas of biostatistics relevant to professional practice;
- acquired skills in complex statistical analyses to handle a variety of practical problems using modern statistical techniques and software;
- acquired skills in data management, including quality control procedures and the ethical handling of data;
- developed skills to identify the relevant statistical issues in practical problems in medical/health settings and to propose and implement an appropriate statistical design and/or analytical methodology;

- developed skills and gained experience in discussing biostatistical issues with clinical/health personnel and in the presentation of statistical results in a format suitable for publication in health-related journals or professional reports;
- acquired the technical skills to be able to understand and critique methodological papers in the biostatistical literature and apply the methods described in those papers to practical problems;
- developed the practical and technical skills to commence a professional career as an independent biostatistician and/or to progress to further postgraduate research studies; and
- developed problem-solving abilities in biostatistics, characterised by flexibility of approach.

Programme content

Compulsory modules

Analysis of Observational Data: Causal Inference	875(12)
Analysis of Survival Data	875(12)
Biostatistical Consulting	875(12)
Categorical Data Analysis and Generalised Linear Models	875(12)
Data Management and Statistical Computing	875(6)
Fundamentals of Epidemiology	876(6)
Linear Models	875(6)
Longitudinal Data Analysis	875(12)
Mathematical Statistics	875(6)
Practical Assignment	875(60)
Principles of Statistical Inference	875(12)

Elective modules

Please note:

An elective module will only be offered if a minimum of five students have enrolled for the module.

Choose two of the following modules.

Bayesian Data Analysis	875(12)
Clinical Biostatistics	875(12)
Design and Analysis of Clinical Trials	875(12)
Multivariate Statistics	875(12)
Systematic Reviews and Meta-analysis	875(12)

Assessment and examination

- Flexible assessment occurs throughout the study period.
- You must obtain a class mark of at least 50% in each module to qualify for the examination in the module. The class mark and the examination mark will each contribute 50% towards the final mark for the module. A final mark of 50% must be achieved in each module.
- You will only be permitted to begin with the practical assignment on satisfactory completion of the compulsory and elective modules. The practical assignment will be assessed from a portfolio of projects that demonstrate biostatistical expertise in the design and analysis of biomedical studies. A mark of at least 50% must be achieved for the assignment.
- The final mark for the MSc in Biostatistics degree will be a weighted average of the marks for the individual modules and the assignment.

Enquiries

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5.3.2 Master of Science

General admission and selection requirements for MSc programmes

- For admission to the MSc degree programmes, you must have an honours degree in Science of this University, or another honours degree approved for such purposes by Senate, or you must otherwise have attained a standard of competence deemed adequate for such purpose by Senate.
- The initial research proposal is approved by a departmental research committee, as well as by the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences. In instances where research is conducted on animals, the proposal is approved by the Committee for Experimental Animal Research of the Faculty.

Programme description

Thesis MSc programmes entail an independent research project, resulting in a thesis that constitutes 100% of the final mark of the programme. The subject of the research project is selected to support the Faculty's research focus areas.

The following overarching objectives are set for the MSc programmes:

- to equip you with more advanced knowledge and a deeper insight into your chosen subject within the field of study;
- to promote mastery of the chosen topic, with the aid of higher levels of analysis of new information, and to develop the ability to handle complexities and to find solutions to such problems;
- to enable you to do advanced and independent research by means of rigorous training in research methods and to familiarise you with the skills needed for academic communication;
- to prepare you, if you are aspiring to higher levels of academic research work, for doctoral study and to foster an approach marked by academic integrity and ethics;
- to contribute to the pool of academics and professionals through the development of capabilities and critical intellectual skills aimed at ensuring the healthy continuance of the relevant discipline or profession; and
- to prepare you to utilise your skills to help solve the problems and challenges of the country that fall within the scope of your particular field.

Disclaimer:

The content above comes from the 2024 Medicine and Health Sciences Yearbook. Make sure to consult the full **Medicine and Health Sciences Yearbook** to see this extract in context and to check if there have been any changes. Take special note of additional information in the yearbook under section *Postgraduate programmes*.