

## MSc by Coursework and Research Report in the field of e-Science

This Masters programme aims to train postgraduate students in computational, mathematical and statistical methods to solve data-driven problems. The programme will create opportunities for students in the Computer Science, Statistics, Physics, Electrical Engineering or related fields to gain an interdisciplinary perspective on the emerging fields of Data Science. This programme forms part of the DST-funded National e-Science Postgraduate Teaching and Training Platform (NEPTTP). Students will register with their Home Institution but will attend coursework at Wits University in Johannesburg, Gauteng, in the first year. On completion of the coursework modules, students will move back to their Home Institutions for their second year of study.

### Entry Requirements

Applicants are required to have a Bachelor with Honours degree (NQF level 8 qualification) from a relevant discipline in Science or Engineering (Computer Science, Mathematics, Physics, and Statistics) OR a relevant NQF level 8 qualification or a relevant Professional Engineering Degree with demonstrable knowledge of basic principles of Computing, Calculus, Linear Algebra, Probability and Statistics. Applicants require a minimum of 65 percent in their NQF level 8 qualification and fulfil any additional institutional application requirements of the institution through which they are applying, and must be co-approved by the Consortium.

### Degree Information

The Masters programme extends over eighteen months of full-time study. The programme comprises compulsory and elective modules. Cross-disciplinary data-driven projects are offered both within the University and from a wide range of industry partners. A candidate must undertake modules to the value of 180 credits and must successfully complete the following courses to obtain a Master of Science by *Coursework and Research Report* in the field of e-Science.

#### Coursework Modules (Year 1 at Wits University)

##### 2 COMPULSORY COURSES

- Research Methods and Capstone Project in Data Science (15 credits)
- Data Privacy and Ethics (15 credits)

##### ANY 4 ELECTIVE COURSES ON OFFER

- Adaptive Computation and Machine Learning (15 credits)
- Data Visualisation and Exploration (15 credits)
- Large Scale Computing Systems and Scientific Programming (15 credits)
- Large Scale Optimisation for Data Science (15 credits)
- Mathematical Foundations of Data Science (15 credits)
- Special Topics in Data Science (15 credits)
- Statistical Foundations of Data Science (15 credits)

#### Research Report (Year 2 at Home Institution)

- Research Report: Data Science (90 credits)

## Funding

Competitive DST-CSIR MSc bursaries, covering tuition, accommodation and stipend, are made available by the Department of Science and Technology (DST) to qualifying offer holders with a record of excellent academic achievement. Priority for bursaries will be given to South African Citizens and Permanent Residents.

## Careers

Graduates of the programme can find data-oriented roles within academic institutions, technology, healthcare companies and the finance sector.

## Applications

Students are advised to apply as early as possible due to competition for places. For more information, see your Institution's application webpage.

