



# University of Pretoria Yearbook 2025

## Mathematical statistics 211 (WST 211)

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| <b>Qualification</b>          | Undergraduate  |
| <b>Faculty</b>                | <a href="#">Faculty of Economic and Management Sciences</a>  |
| <b>Module credits</b>         | 24.00  |
| <b>NQF Level</b>              | 06   |
| <b>Programmes</b>             | <a href="#">BCom 3-year programme</a><br><a href="#">BCom Econometrics</a><br><a href="#">BCom Statistics</a><br><a href="#">BSc Computer Science</a><br><a href="#">BSc Actuarial and Financial Mathematics</a><br><a href="#">BSc Applied Mathematics</a><br><a href="#">BSc Chemistry</a><br><a href="#">BSc Mathematical Statistics</a><br><a href="#">BSc Mathematics</a><br><a href="#">BSc Meteorology</a><br><a href="#">BSc Physics</a><br><a href="#">BSc specialising in Chemistry 4-year programme</a><br><a href="#">BSc specialising in Mathematics 4-year programme</a><br><a href="#">BSc specialising in Meteorology 4-year programme</a><br><a href="#">BSc specialising in Physics 4-year programme</a> |
| <b>Service modules</b>        | Faculty of Engineering, Built Environment and Information Technology<br>Faculty of Economic and Management Sciences<br>Faculty of Natural and Agricultural Sciences  |
| <b>Prerequisites</b>          | WST 111, WST 121, WTW 114 GS and WTW 124 GS  |
| <b>Contact time</b>           | 2 practicals per week, 4 lectures per week   |
| <b>Language of tuition</b>    | Module is presented in English   |
| <b>Department</b>             | Statistics   |
| <b>Period of presentation</b> | Semester 1   |



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## Module content

Set theory. Probability measure functions. Random variables. Distribution functions. Probability mass functions. Density functions. Expected values. Moments. Moment generating functions. Special probability distributions: Bernoulli, binomial, hypergeometric, geometric, negative binomial, Poisson, Poisson process, discrete uniform, uniform, gamma, exponential, Weibull, Pareto, normal. Joint distributions: Multinomial, extended hypergeometric, joint continuous distributions. Marginal distributions. Independent random variables. Conditional distributions. Covariance, correlation. Conditional expected values. Transformation of random variables: Convolution formula. Order statistics. Stochastic convergence: Convergence in distribution. Central limit theorem. Practical applications. Practical statistical modelling and analysis using statistical computer packages and the interpretation of the output.

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## General Academic Regulations and Student Rules

The [General Academic Regulations \(G Regulations\)](#) and [General Student Rules](#) apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations. The G Regulations are updated annually and may be amended after the publication of this information.

## Regulations, degree requirements and information

The faculty regulations, information on and requirements for the degrees published here are subject to change and may be amended after the publication of this information.

## University of Pretoria Programme Qualification Mix (PQM) verification project

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQSF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.