



University of Pretoria Yearbook 2018

Mathematical statistics 211 (WST 211)

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| Qualification | Undergraduate |
| Faculty | Faculty of Economic and Management Sciences |
| Module credits | 24.00 |
| Programmes | BCom BCom Econometrics BCom Statistics BSc Computer Science BSc Actuarial and Financial Mathematics BSc Applied Mathematics BSc Mathematical Statistics BSc Mathematics |
| Service modules | Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences Faculty of Natural and Agricultural Sciences |
| Prerequisites | WST 111, WST 121, WTW 114 GS and WTW 124 GS |
| Contact time | 2 practicals per week, 4 lectures per week |
| Language of tuition | Module is presented in English |
| Department | Statistics |
| Period of presentation | Semester 1 |

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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