



University of Pretoria Yearbook 2020

Mathematical statistics 211 (WST 211)

Qualification Undergraduate

Faculty Faculty of Economic and Management Sciences

Module credits 24.00

Programmes BCom

BCom Econometrics

BCom Statistics

BCom Statistics and Data Science

BSc Actuarial and Financial Mathematics

BSc Applied Mathematics

BSc Mathematical Statistics

BSc Mathematics

BSc Meteorology

BSc Physics

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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