



University of Pretoria Yearbook 2018

Mathematical statistics 221 (WST 221)

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 Natural and Agricultural Sciences

Prerequisites WST 211 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 2

Module content

Stochastic convergence: Asymptotic normal distributions, convergence in probability. Statistics and sampling distributions: Chi-squared distribution. Distribution of the sample mean and sample variance for random samples from a normal population. T-distribution. F-distribution. Beta distribution. Point estimation: Method of moments. Maximum likelihood estimation. Unbiased estimators. Uniform minimum variance unbiased estimators. Cramer-Rao inequality. Efficiency. Consistency. Asymptotic relative efficiency.

Bayes estimators. Sufficient statistics. Completeness. The exponential class. Confidence intervals. Test of statistical hypotheses. Reliability and survival distributions. Practical applications. Practical statistical modelling and analysis using statistical computer packages and the interpretation of the output.

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