

University of Pretoria Yearbook 2017

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	4 lectures per week, 2 practicals per week
Language of tuition	Module is presented in English
Academic organisation	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.

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to



familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.