



University of Cyprus

Department of Mathematics and Statistics

ACADEMIC YEAR 2019-2020

Courses that could be offered in the English Language (depending on the number of registered Erasmus students in these)

MAS191 - Mathematics with computers

MATLAB's environment. MATLAB functions. For, while and if loops. Graphics in two and three dimensions. Programming. Polynomials. Reading from and writing in files. Computer arithmetic and error propagation. Symbolic computing. Special topics and applications (solution of nonlinear algebraic equations and linear systems, eigenvalue problems, numerical integration, ordinary differential equations).

MAS261 - Probability I

Counting methods, combinatorics, probability measure space through σ -algebras, independence of events, random variables, cumulative distribution function, discrete and continuous random variables, mean value, multivariable distributions, multivariable normal distribution, sums of random variables, distributions of functions of random variables, covariance function, independence of random variables through the cumulative distribution function, moment generating function, characteristic function, introduction to the law of large numbers, introduction to the central limit theorem.

MAS262 - Statistics I

Random samples, statistical experiments, statistics, estimation methods (e.g., method of moments, method of maximum likelihood), properties of estimators (e.g., unbiasedness, sufficiency, completeness), exponential families, Rao-Blackwell theorem, Lehmann-Scheffe theorem, Cramer-Rao variance lower bound, confidence intervals, minimum length confidence intervals, hypotheses testing, properties of tests. Statistics, sufficiency, completeness, exponential families, unbiasedness, uniformly minimum variance unbiased estimators, Cramer- Rao lower bound, moment estimators, maximum likelihood estimators, confidence intervals, hypothesis testing.

MAS271 - Numerical Analysis I

Sources and propagation of error. Numerical solution of non-linear equations.

Numerical

solution of linear systems of equations. Polynomial interpolation. Numerical quadra

MAS302 - Complex variables I

Complex numbers, analytic functions, Cauchy-Riemann equations. Harmonic functions.

Exponential, trigonometric and logarithmic functions. Integration, Cauchy's theorem, Cauchy's

integral formulas and inequalities. Liouville theorem and the fundamental theorem of Algebra.

Maximum modulus principle. Taylor and Laurent series, residues. The argument principle.

Conformal mappings and Mobius transformations.