

Title:	Mathematics
Lecture hours:	Classes – 90h Lectures – 90h
Study period:	one semester
Level:	winter semester, first year
Location:	Wroclaw University of Economics
Assessment:	Tasks for independent solution, tests, exam
Language:	English
Prerequisites:	Secondary school mathematics
Learning activities and methods used	Assignments, tasks, problems, examples, slides
Course content:	matrix calculus, determinant, rank of matrix, systems of linear equations, linear space, linear independence of vectors, sequences of numbers, series of numbers, limit of one variable function, derivative of one variable function, local and global extremes of one variable function, indefinite integral, Riemann integral, applications of definite integrals, multivariable functions, partial derivative, gradient, probability space, examples of probabilities, conditional probability, total probability formula, Bayes' formula, random variable, cumulative distribution function, quantile, discrete random variables, binomial distribution, Poisson distribution, geometric distribution, expected value and variance of discrete random variables, continuous random variables, exponential distribution, uniform distribution, normal distribution, expected value and variance of continuous random variables, random vectors, independence of random variables, covariation, correlation
Learning outcomes:	Skill to apply basic notions of algebra and calculus in economic modelling, statistics, econometrics and finance.
International perspective	Basics to study finance at every university
Corporate relevance	Knowledge and skill to apply mathematical tools in statistics, econometrics and financial modelling
Contact person:	Zbigniew Michna
Basic Literature:	

1) *"Mathematics"* Zbigniew Michna, UE, 2008.

2) *"Mathematics Handbook for Science and Engineering"* Lennart Rade and Bertil Westergren, Springer, 2004;