



UNIwersYTET GDAŃSKI



WYDZIAŁ ZARZĄDZANIA
UNIwersYTET GDAŃSKI

Mathematics for Economics					Code: 11.1.0615
ECTS points: 6	Hours: 60	Year: 2021/22	Semester: winter	Status: Elective	Language: English
Lecturer: prof. Ewa Majerowska Email: ewa.majerowska@ug.edu.pl					
<p style="text-align: center;">Course description:</p> <ol style="list-style-type: none"> 1. Matrix algebra: Matrices and Vectors, Matrix Operations, Commutative, Associative and Distributive Laws, Identity and Null Matrices, Transposes and Inverses, Conditions for Nonsingularity of a Matrix, Basic Properties of Determinants 2. Linear Models and Matrix Algebra: Finding the Inverse Matrix, Cramer's Rule, Application to Market and National-Income Models, Limitations of Static Analysis 3. Functions, Graphs, and Models: Functions and Models, Finding Domain and Range, Slope and Linear Functions, Nonlinear Functions and Models, Mathematical Modeling and Curve Fitting 4. Differentiation: Limits: A Numerical and Graphical Approach, Algebraic Limits and Continuity, Average Rates of Change, Differentiation Using Limits of Difference Quotients, Differentiation Techniques: The Power and Sum-Difference Rules, Differentiation Techniques: The Product and Quotient Rules, The Chain Rule, Higher-Order Derivative 5. Applications of Differentiation: Using First Derivatives to Find Maximum and Minimum Values and Sketch Graphs, Using Second Derivatives to Find Maximum and Minimum Values and Sketch Graphs, Graph Sketching: Asymptotes and Rational Functions, Using Derivatives to Find Absolute Maximum and Minimum Values, Maximum-Minimum Problems, Business and Economics Applications, Marginals and Differentials, Implicit Differentiation and Related Rates 6. Integration: Antidifferentiation, Antiderivatives as Areas, Area and Definite Integrals, Properties of Definite Integrals, Integration Techniques Substitution and by Parts 7. Applications of Integration: Consumer Surplus and Producer Surplus, Integrating Growth and Decay Models, Improper Integrals, Probability and Expected Value, The Normal Distribution 					
<p style="text-align: center;">Reading list:</p> Bittinger M.L., Ellenbogen D.J., Surgent S.A., Calculus and its applications, Pearson Addison-Wesley, 2012 Gruber M.H.J., Matrix Algebra for Linear Models, Wiley, 2013					
<p style="text-align: center;">Grading:</p> The final grades are based on the score according the University terms of study: 50% or less - 2,0 (fail) >50% - 3,0 (pass) >60% - 3,5 (pass +) >70% - 4,0 (good) >80% - 4,5 (good+) >90% - 5,0 (very good)					
<p style="text-align: center;">Prerequisites:</p> There are no pre-requisites for this course					