



Przedmiot: Fundamentals of Quantitative Methods				
Forma zajęć: wykład	Semestr: 1	Rok: 1	Wymiar godzin: 30	Punkty ECTS: 9
Forma zaliczenia: zaliczenie na ocenę		Typ przedmiotu: obowiązkowy		Język nauczania: angielski
Kierunek: Międzynarodowe Stosunki Gospodarcze			Tryb: stacjonarne	Rodzaj: licencjackie
Specjalność: International business				
Katedra: Prognoz i Analiz Gospodarczych				
Stopień naukowy wykładowcy: dr		Imię i nazwisko wykładowcy: Wioletta Wolańska, Aleksandra Szpulak		

Wymagania wstępne (przedmioty wprowadzające):

Basic mathematics skills on the Secondary education level

Program przedmiotu:

- Linear algebra: operations with matrix, the determinant of matrix, the inverse of a square matrix, use of matrix inversion to solve linear equations, Cramer's rule, a macroeconomic application of matrix.
- Series of numbers. Limit of the sequence and limit of the function.
- Functions on one variable (limits, derivatives, increase and decrease, relative maxima and minima, , the second derivative).
- Functions of two variables. Economic applications of functions and derivatives: marginal cost, demand, profit maximisation, the elasticity of demand.
- The indefinite integral.
- The definite integral. Economic applications of integrals: deriving the total cost function from the marginal cost function, consumers' surplus, producers' surplus, present value of a continuous stream of income.
- Presenting data in tables and charts
- Numerical descriptive measures (measures of central tendency, measures of variability, measures of skewness and kurtosis)
- Methods for detecting outliers
- Analysis of correlation (Pearson correlation coefficient, Spearman's rank coefficient)
- Time series analysis (measures of dynamics, time series components)
- Linear trend
- Simple linear regression
- Design experiment. Analysis of variance.

Metody dydaktyczne:

Lectures, (metody: podająca, poszukująca, nauczania pojęć), self-study.

Cele przedmiotu:

- to acquire the students' knowledge in the field of mathematics and to develop the students' ability to apply the knowledge of mathematics and make them ready to analyze and solve real economic problems; after course students should be able to: build and characterise data distribution, do analysis of correlation build simple linear regression model, do basic time series analysis, use Excel and STATISTICA

Warunki zaliczenia:

Written test after all lectures

Literatura podstawowa (do 4 pozycji):

Z. Michna, Mathematics, Wrocław, 2008,
G. Renshaw, Maths for economics, Oxford, 2005
J.T.McClave, P.G.Benson, T. Sincich, Statistics for business and economics, Prentice-Hall, 2001

Literatura uzupełniająca (do 4 pozycji):

C. P. Simon, L. Blume, Mathematics for Economists, New York, London, WW Norton and company, 1994