

Prowadzący (lecturer)	Dr. Alexis Naho
Oferta PJO*	TAK
Oferta PJOE*	TAK
Kierunek, rok, stopień dla PJO (*obowiązkowe)	Wszystkie kierunki i stopnie
Semestr roku 2025/2026	letni**

* PJO – przedmiot w języku obcym dla studentów polskich / PJOE – przedmiot w języku obcym dla studentów Erasmus+

** zostawić właściwe

BASIC INFORMATION ABOUT THE SUBJECT (INDEPENDENT OF THE CYCLE)

Module name	Quantitative methods
Erasmus code	
ISCED code	
Language of instruction	ENGLISH
Website	
Prerequisites	NONE
ECTS points hour equivalents	Contact hours (work with an academic teacher): 15 Total number of hours with an academic teacher: 15 Number of ECTS points with an academic teacher: 1 Non-contact hours (students' own work): 30 Total number of non-contact hours: 30 Number of ECTS points for non-contact hours: 2 Total number of ECTS points for the module: 3
Educational outcomes verification methods	Lectures, Group Discussions, Tests, Exams
Description	The aims of this course are to give you in-depth understanding of applications of mathematics in Economics. It introduces the basic concepts in Mathematics for Economists in undergraduate studies in order to familiarize students with the basic topics in the course. This way the course stimulates students' understanding in the applications of mathematics in decision-making. It also prepares students for course requiring higher level of capacity in mathematics in economic and business applications.
Reading list	<i>Required Readings</i> 1. Jacques, Ian (2015). Mathematics for Economics and Business (8th edition). Pearson Education Limited. Harlow CM20 2JE United Kingdom 2. Chiang, A.C. & Wainwright, K. (2005). Fundamental Methods of mathematical Economics (4th edition): McGraw-Hill/Irwin, New York, NY, USA. <i>Recommended Readings</i> 1. Sydsaeter, K., & Hammond, P. (2002). Essential Mathematics for Economic Analysis: Pearson education Ltd, Edinburgh gate, England. 2. Dowling, E. T. (2001). Introduction to Mathematical Economics (3rd): Schaum's outline Series, McGraw-Hill, USA. 3. Dowling, E. T. (2001). Introduction to Mathematical Economics (3rd): Schaum's outline Series, McGraw-Hill, USA.

Educational outcomes	<i>Course Expected learning outcomes</i> KNOWLEDGE <i>Knowledge based learning outcomes</i> At the end of the course, Students should be able to: a) Define and explain the concept of derivative. b) State the rules of differentiation c) Apply it in economics. d) Define and understand integration e) Differentiate between integration and differentiation. f) Learn the rules of integration, and apply it accordingly g) Know the difference between function of single variable and multi-variables models. h) Define and explain linear/matrix algebra. SKILLS <i>Skills based learning outcomes</i> At the end of the course, Students should be able to: a) State and apply the laws of matrix and, its operations. b) Use matrix to solve complex systems of equations, and a lot more. ATTITUDES <i>Attitude based learning outcomes</i> At the end of the course, Students should be able to: a) Apply principles of mathematics in solving economic problems.
Practice	n/a

INFORMATION ABOUT CLASSES IN THE CYCLE

Website	https://www.umcs.pl/en/courses-in-english,21103.htm (dla PJOE)
Educational outcomes verification methods	Lectures, Group Discussions, Tests, Exams
Comments	The classes will be concentrated in one week
Reading list	As indicated above
Educational outcomes	All shown above KNOWLEDGE 1. SKILLS 1. ATTITUDES 1.
A list of topics	1. Linear Algebra a) Matrix b) Matrix operations c) Matrix Inversion d) Economics applications of matrix 2. Calculus a) Derivate I b) Derivate II
Teaching methods	Lectures, Class exercises, Class discussions
Assessment methods	Assignments, Tests, Exams.