

Course title Matematyka II / Mathematics II		ECTS code 13.3.0843	
Name of unit administrating study Faculty of Chemistry			
Studies			
Field of study	Type	Form	
Chemical Business	Bachelor / Engineer	Full-time studies	
Teaching staff Dr Aleksandra Nowel			
Forms of classes, the realization and number of hours		ECTS credits 6	
A. Forms of classes, in accordance with the UG Rector's regulations lecture, auditorium classes		classes - 60 h tutorial classes – 20 h student's own work – 70 h	
B. The realization of activities in-class learning			
C. Number of hours 60 h (30 h lecture, 30 h auditorium classes)		Total: 150 h - 6 ECTS	
The academic cycle First year, summer semester			
Type of course obligatory		Language of instruction Polish	
Teaching methods Lecture Problems solving		Form and method of assessment and basic criteria for evaluation or examination requirements	
		A. Final evaluation, in accordance with the UG study regulations lecture - exam, auditorium classes – course credit with a grade	
		B. Assessment methods Lecture <ul style="list-style-type: none"> • exam with open/closed questions Auditorium classes: <ul style="list-style-type: none"> • attendance, active participation, tests and quizzes 	
		C. The basic criteria for evaluation or exam requirements Lecture: <ul style="list-style-type: none"> • pass the exam with open questions 91-100%: 5.0 81-90%: 4.5 71-80%: 4.0 61-70%: 3.5 51-60%: 3.0 Less than 51% 2.0 Auditorium classes: <ul style="list-style-type: none"> • completed all tests 91-100%: 5.0 81-90%: 4.5 71-80%: 4.0 61-70%: 3.5 51-60%: 3.0 Less than 51% 2.0	
Required courses and introductory requirements Mathematics I			

Aims of education

Introduction to the notion of series, to linear algebra and statistics, in particular the mathematical tools that can be applied in describing physical and chemical processes and business problems

Teaching the ability of understanding abstract problems

Course contents

1. Complex numbers
2. Matrices
3. Systems of linear equations
4. Linear spaces
5. Sequences and series
6. Elements of statistics

Bibliography of literature

A. Literature required to pass the course

M. Gewert, Z. Skoczylas, Analiza matematyczna 1. Przykłady i zadania

G. Kwiecińska: Matematyka : kurs akademicki dla studentów nauk stosowanych. Cz. 2, Analiza funkcji jednej zmiennej

G. Kwiecińska: Matematyka : kurs akademicki dla studentów nauk stosowanych. Cz. , Analiza funkcji wielu zmiennych

W. Krysicki, L. Włodarski: Analiza matematyczna w zadaniach. 1 i 2

B. Extracurricular readings

Erich Steiner : „Matematyka dla chemików”, Warszawa, Wydaw. Naukowe PWN, 2001.

Halina Pidek-Łopuszańska: „Matematyka dla chemików”, Wiedza Powszechna, Warszawa 1974.

Knowledge

methods of verifying the solvability of linear systems and how to find the solution set

basic operations on matrices

operating on complex numbers

properties of linear spaces over \mathbb{R} and \mathbb{C}

kriterions of series convergence, methods of finding limits of sequences

rules and formulas of statistics and how to apply them to solve problems

Skills

ability of solving problems from linear algebra, statistics, series theory and applications,

connecting these problems with suitable theory,

using main tools of calculus, linear algebra and statistics to describe associations between different variables

Social competence

presentation of a solution of a problem, explaining the details to the other students

working alone and together with other students to understand the theory presented during the lecture and to solve problems during the classes

responsibility for oneself's work as well as for the work of the group, keeping the rules of working together in a team