



KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez
Unię Europejską w ramach
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Course title		ECTS code	
Mathematics		13.3.0455	
Name of unit administrating study			
null			
Studies			
faculty	field of study	type	pierwszego stopnia
Wydział Chemii	Chemia	form	stacjonarne
		specjalty	wszystkie
		specialization	wszystkie
Teaching staff			
dr Aleksandra Nowel; dr Jacek Tryba; dr Marek Halenda; prof. UG, dr hab. Błażej Szepietowski; dr Adrian Karpowicz; dr Michał Jabłonowski; dr Marta Leśniak; dr Adam Kwela; dr Janusz Przewocki; dr Ewa Tyszkowska; dr Monika Wrzosek; dr Piotr Karwasz; dr Agnieszka Demby; prof. UG, dr hab. Antoni Augustynowicz; dr Elżbieta Mrozek; dr Marta Kwela; dr Michał Stukow; dr Iwona Krzyżanowska; dr Milena Matusik			
Forms of classes, the realization and number of hours		ECTS credits	
Forms of classes		8	
Auditorium classes, Lecture			
The realization of activities			
classroom instruction			
Number of hours			
Lecture: 30 hours, Auditorium classes: 60 hours			
The academic cycle			
2023/2024 winter semester			
Type of course		Language of instruction	
obligatory		Polish	
Teaching methods		Form and method of assessment and basic criteria for eveluation or examination requirements	
<ul style="list-style-type: none"> - lecture - problem solving 		Final evaluation	
		<ul style="list-style-type: none"> - Graded credit - Examination 	
		Assessment methods	
		<ul style="list-style-type: none"> - written exam (possibly divided into parts) tests - (mid-term / end-term) test - graded course credit based on individual grades obtained during the semester 	
		The basic criteria for evaluation	
		<p>The credit from classes is obtained if more than 50% of the maximum sum of points from all tests is obtained.</p> <p>The credit from lecture is obtained if a written exam is passed, one must get more than 50% of the maximum sum of points from the exam.</p> <p>Criteria for grades in accordance with the University of Gdansk study regulations.</p>	
Method of verifying required learning outcomes			

Method of verifying the acquisition of knowledge:

During the tests and the exam, the student's knowledge is checked (K_W01, K_W06 and K_W08).

How to verify the acquisition of skills:

During the tests and the exam, it is checked, among others, the ability to independently prepare to solve the problems presented to the student. (K_U09)

Required courses and introductory requirements

A. Formal requirements

none

B. Prerequisites

typical high school course

Aims of education

To familiarize students with the elementary concepts of differential and integral calculus (real functions of one and many variables) and linear algebra; developing the ability to solve basic tasks related to higher mathematics to the extent necessary to understand and describe chemical and physical processes. Educating students in the ability to abstractly understand problems.

Course contents

- Introduction and elementary functions
- Concepts of sequence, limit of sequence, limit and continuity of functions
- Elements of the calculus of functions of one variable with selected applications
- Elements of the integral calculus of functions of one variable
- Elements of multi-variable calculus
- Elements of the integral calculus of functions of many variables
- Operations on matrices, determinant of a matrix, other selected elements of linear algebra
- Complex numbers

Bibliography of literature

Bibliography of literature

Literature required to pass the course

- T. Jurlewicz, Z. Skoczylas, Algebra liniowa 1. Przykłady i zadania
- M. Gewert, Z. Skoczylas, Analiza matematyczna 1. Przykłady i zadania
- G. Kwiecińska: Matematyka : kurs akademicki dla studentów nauk stosowanych. Cz. 1, Wybrane zagadnienia algebry liniowej
- 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. 3, Analiza funkcji wielu zmiennych
- W. Kryszicki, L. Włodarski: Analiza matematyczna w zadaniach. 1 i 2

Extracurricular readings

- Erich Steiner : „Matematyka dla chemików”, Warszawa, Wydaw. Naukowe PWN, 2001.
- Halina Pidek–Łopuszańska: „Matematyka dla chemików”, Wiedza Powszechna, Warszawa 1974.

The learning outcomes (for the field of study and specialization)

Knowledge

- classifies basic elementary functions and lists their properties
- lists the basic formulas of differential and integral calculus and uses them to solve problems
- uses differential and integral calculus to study the properties of univariate and multivariate functions
- lists the basic matrix calculus formulas and uses them to solve tasks

Skills

- is able to relate a problem in the field of linear algebra and mathematical analysis and their applications with a relevant theoretical problem

Social competence

- can learn independently

Contact

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