

<b>Course title</b> Matematyka I / Mathematics I		<b>ECTS code</b> 13.3.0722	
<b>Name of unit administrating study</b> Faculty of Chemistry			
<b>Studies</b>			
<b>Field of study</b>	<b>Type</b>	<b>Form</b>	
Chemical Business	Bachelor / Engineer	Full-time studies	
<b>Teaching staff</b> dr Aleksandra Nowel			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b> 5	
<b>A. Forms of classes, in accordance with the UG Rector's regulations</b> lecture, auditorium classes,		classes - 75 h	
<b>B. The realization of activities</b> in-class learning		tutorial classes – 10 h	
<b>C. Number of hours</b> 75 h (30 h lecture, 45 h auditorium classes)		student's own work – 40 h	
		Total: 125 h - 5 ECTS	
<b>The academic cycle</b> First year, winter semester			
<b>Type of course</b> obligatory		<b>Language of instruction</b> Polish	
<b>Teaching methods</b>  Lecture Problems solving		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
		<b>A. Final evaluation, in accordance with the UG study regulations</b> course completion (with a grade)	
		<b>B. Assessment methods</b> Lecture <ul style="list-style-type: none"> <li>• exam with open/closed questions</li> </ul> Auditorium classes: <ul style="list-style-type: none"> <li>• attendance, active participation, tests and quizzes</li> </ul>	
		<b>C. The basic criteria for evaluation or exam requirements</b>  Lecture: <ul style="list-style-type: none"> <li>• pass the exam with open questions</li> </ul> 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"> <li>• completed all tests</li> </ul> 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	
<b>Required courses and introductory requirements</b> basic mathematics			

### Aims of education

Introduction to differential and integral calculus of, linear algebra, in particular the mathematical tools that can be applied in describing physical and chemical processes  
Teaching the ability of understanding abstract problems

### Course contents

1. Elementary functions
2. Limits of functions, continuity
3. Derivative of a function of one variable
4. Applications of derivatives
5. Integral of a function of one variable
6. Elements of differential and integral calculus of several variables functions

### Bibliography of literature

#### A. 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

W. Krysiński, 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

Classification of elementary functions, their properties

application of main tools of differential and integral calculus to problems solving

verifying properties of one and several variables functions by using main tools of differential and integral calculus

### Skills

ability of solving problems from differential and integral calculus and applications,

connecting these problems with suitable theory,

using main tools of differential and integral calculus 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