



**УНИВЕРЗИТЕТ У БАЊОЈ ЛУЦИ**  
UNIVERSITY OF BANJA LUKA  
**ПРИРОДНО-МАТЕМАТИЧКИ ФАКУЛТЕТ**  
FACULTY OF NATURAL SCIENCES AND MATHEMATICS



CHEMISTRY DEPARTMENT

FIRST CYCLE OF STUDY

Chemistry/Chemistry Education

|                    |                                 |                 |                             |             |
|--------------------|---------------------------------|-----------------|-----------------------------|-------------|
| <b>Course name</b> | <b>Mathematics 1</b>            |                 |                             |             |
| <b>Course code</b> | <b>Course status</b>            | <b>Semester</b> | <b>Hours of instruction</b> | <b>ECTS</b> |
| 1C16HOS333         | required                        | II              | 2+2                         | 7           |
| <b>Teacher(s)</b>  | <b>Prof. Duško Bogdanić PhD</b> |                 |                             |             |

|                               |                           |
|-------------------------------|---------------------------|
| <b>Prerequisite course(s)</b> | <b>Entry requirements</b> |
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| <b>Course goals</b>                                                                                                                                                                                                                                                     |
| The goal of the course is to help students gain the basic knowledge of elementary mathematics (more specifically, linear algebra and analytic geometry) which they need in order to understand the subject matter of other courses they will take during their studies. |

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| <b>Learning outcomes</b>                                                                                                                                                          |
| Students will gain the basic knowledge of mathematics which will make it possible for them to understand the subject matter of other courses they will take during their studies. |

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| <b>Course content</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Sets, numbers, and sequences.<br>Sequence convergence, limits, the number $e$ .<br>Series, convergence criteria.<br>Basic properties of functions. Limits and continuity of functions.<br>Derivative. Properties and the table of derivatives.<br>Differential of a function. Derivatives and higher-order differentials.<br>Basic theorems of differential calculus.<br>Analyzing and sketching the graph of a function.<br>Power series. Taylor series.<br>Definite integral. Indefinite integral.<br>The Newton-Leibniz formula. Partial integration.<br>Table of integrals. Integration of rational trigonometric functions.<br>Application of integrals in geometry.<br>Applications in chemistry. |

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| <b>Teaching methods</b>                    |
| Lectures, practical classes, and revision. |

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| <b>Books and other learning materials</b>                                                                                                                           |
| 1. M. Janjic: <b>Matematika 1</b> , University of Banja Luka, 2000.<br>2. D. Adnadjevic, A. Vucic: <b>Matematika 2 za studente hemije</b> , University of Belgrade. |

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| <b>Course activities and grading method</b> |
| Colloquia, written exam, and oral exam.     |

|                 |           |                   |           |
|-----------------|-----------|-------------------|-----------|
| <b>Activity</b> | <b>10</b> | <b>Tests</b>      | <b>30</b> |
|                 |           | <b>Final exam</b> | <b>60</b> |

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| <b>Additional course notes</b> |
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| <b>Name of the teacher who prepared this form</b> | Duško Bogdanić |
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