**Incoming student mobility**

**UNIOS University Unit: DEPARTMENT OF MATHEMATICS**

**COURSES OFFERED IN FOREIGN LANGUAGE**

**FOR ERASMUS+ INDIVIDUAL INCOMING STUDENTS**

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| **Department or Chair within the UNIOS Unit**  | **Department of Mathematics** |

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| **Study program**  | ***Graduate university study programme in mathematics (Master level)*** ***Branch:*** * ***Financial Mathematics and Statistics-elective***
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| **Study level** | **Graduate (master)** |

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| **Course title** | **Metric Spaces** |
| **Course code (if any)** |  |
| **Language of instruction** | **English** |
| **Brief course description** | **Syllabus.**1. Introduction: real numbers, sequences, limits of functions, continuity.
2. Metric spaces: motivation, examples, open sets, equivalent metrics, continuity.
3. Topological spaces: definition, basis, subbasis, subspace, product, homeomorphism, quotient space.
4. Separation axioms.
5. Compactness: definition, compactness of the closed interval, continuous functions on compact spaces, compactness in **R***n*, compactness and uniform continuity.
6. Connectedness, path connectedness, components.
7. Convergence in metric spaces.
8. Uniform convergence.
9. Complete metric spaces: definition and examples, Banach's fixed point theorem, applications, Cantor and Baire theorems.
10. Compactness criteria in metric spaces, Arzelà-Ascoli theorem
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| **Form of teaching** | Consultative teaching. |
| **Form of assessment** | The final exam, which consists of a written and an oral part, has to be taken after the completion of all lectures and problem sessions. Acceptable mid-term exam scores replace the written examination. |
| **Number of ECTS** | **6** |
| **Class hours per week** | **2+2+0** |
| **Minimum number of students**  |  |
| **Period of realization**  | **Winter semester**  |
| **Lecturer** | ***Dr. Krešimir Burazin, Associate Professor*** |