Course Unit Descriptor

Study Programme: Applied Mathematics – Data Science	
Course Unit Title: Modeling Seminar	
Course Unit Code: MDS12	
Name of Lecturer(s): Sanja Rapajić	
Type and Level of Studies: Master studies	
Course Status (compulsory/elective): Elective	
Semester (winter/summer): Winter	
Language of instruction: English	
Mode of course unit delivery (face-to-face/distance learning): Face-to-face	
Number of ECTS Allocated: 6	
Prerequisites: None	

Course Aims:

The objective of this course is to introduce students to the application of complex mathematical theory to problems in various fields.

Learning Outcomes:

The student will understand basic principles of mathematical modeling. Student will be able to apply the mathematical analysis on complex real problems.

Syllabus:

Theory

Basic principles of mathematical modeling. Phase construction of mathematical models. Types of mathematical models (dynamic and static, deterministic and stochastic, linear and nonlinear). The usefulness of mathematical models for analysis and prediction.

Practice

Tasks and problems are solved, practical lessons follow the content of teaching, with extensive use of software packages and programming skills.

Required Reading:

[1] E.A. Bender, An introduction to Mathematical Modeling, Dover Publications, Inc., 1978

[2] Mathematical Modelling: Classroom Notes in Applied Mathematics, Ed. M. S. Klamkin, SIAM, 1987

[3] D. Edwards, M. Hamson: Guide to Mathematical Modelling, Palgrave,2001

Weekly Contact Hours:	**Lectures:** 2		**Practical work:** 3

Teaching Methods:

Lectures, exercises, analysis of examples with applications, team work on a set of problems yielding written reports by the students.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation		written exam	40
Practical work	30	oral exam	
Preliminary exam(s)	30	…….	

Seminar(s)			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			