Study programme(s): Applied Mathematics – Data Science

Level: master studies

Course title: Modelling Seminar

Lecturer: Sanja Rapajić

Status: elective

ECTS: 6

Requirements:

Learning objectives

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

Theoretical instruction

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.

Practical instruction

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

Literature

[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 teaching load				Other:
Lectures: 2	Exercises: 3	Other forms of teaching:	Student research:	

Teaching methodology

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

Grading method (total number of points 100)

Pre-exam oblications	**points**	**Final exam**	**points**
practical problems	30	oral exam	
tests		written exam	40
colloquia	30	(add/remove categories if necessary)	
(add/remove categories if necessary)			