Study programme(s): Mathematics (MD)

Level: PhD studies

Course title: Stochastic differential equations (AN-13b)

Lecturer: Danijela Rajter-Ćirić, Dora Seleši

Status: elective

ECTS: 10

Requirements:

Learning objectives

Making students familiar with methods of solving stochastic differential equations.

Learning outcomes

Acquiring full knowledge in methods of solving stochastic differential equations.

Syllabus

Ito integral and Ito formula. Stratonovich integral. Stochastic differential equations (SDEs) and methods of solving SDEs. Stochastic partial differential equations (SPDEs) and and methods of solving SPDEs. Modeling with SDEs and SPDEs and various applications.

Literature

1. L. Arnold, *Stochastic Differential Equations: Theory and Applications*, Krieger Pub Co., 1992.
2. B. Oksendal, *Stochastic Differential Equations: An Introduction with Applications*, 6th Ed., Springer Verlag, 2010.
3. B. Oksendal, A. Sulem, *Applied Stochastic Control of Jump Diffusions*, Springer Verlag, 2005.

Weekly teaching load				Other: 0
Lectures: 2	Exercises 0	Other forms of teaching: 0	Student research: 6	

Teaching methodology

Plenary lectures, problem sessions, independent presentations carried out by students.

Grading method (maximal number of points 100)			
Pre-exam obligations	**points**	**Final exam**	**points**
Colloquia	50	Oral exam	50