Study programme(s): Mathematics (DM)	
Level: bachelor	
Course title: Combinatorics (DM-01)	
Lecturer: Ivica Bošnjak, Vojislav Petrović	
Status: elective	
ECTS: 10	
Requirements: none	

Learning objectives

Introduction of basic concepts, ideas and techniques,of contemporary combinatorics.

Learning outcomes

Students are expected to be able to read and understand papers in combinatorics and to make first steps in their research.

Syllabus

Theoretical instruction

Inclusion-exclusion principle and Möbius inversion. Recerrences. Generating functions. Partitions. Systems of distinct representatives; theorems of Hall, König-Egerváry, von Neumann-Birkhoff. Latin squares. Block designs. Extremal combinatorics. Finite geometries.

Literature

1. R. A. Brualdi, *Introductory combinatorics*, Prentice Hall, New Jersey 2004.
2. D. I. A. Cohen, *Basic techniques of combinatorial theory*, John Willey & Sons, New York 1978.
3. S. Jukna, *Extremal combinatorics with applications in computer science*, Springer-Verlag, Berlin Heidelberg 2001.
4. R.Tošić, *Kombinatorika*, Univerzitetski udžbenik 88, Novi Sad 1999.

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

Teaching methodology

Lectures, discussions, consultings.

Grading method (maximal number of points 100)			
Pre-exam obligations	**points**	**Final exam**	**points**
Homeworks	**20**	Verbal exam	**80**