



**UČNI NAČRT PREDMETA / SUBJECT SPECIFICATION**

**Predmet:** Raziskovalni seminar III

**Subject Title:** Research seminar III

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Matematika		3	5
Mathematics		3	5

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Konzultacije Tutorial	Lab. vaje Labor work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
	15	5			130	5

**Nosilec predmeta / Lecturer:** Habilitirani nosilci predmetov v programu / Teachers listed in the program

**Jeziki / Predavanja / Lecture:** Slovenski jezik; Slovene

**Languages: Vaje / Tutorial:** Slovenski jezik; Slovene

**Pogoji za opravljanje študijskih obveznosti:**

Ni posebnih pogojev.

**Prerequisites:**

No special requirements.

**Vsebina:**

Študent usvoji zahtevnejše metode samostojnega raziskovalnega dela na svojem znanstvenem področju ter se nauči realizirati dobljene rezultate v praksi. Pridobi sposobnost prepoznati matematično vsebino konkretnega problema, izbrati ustrezno metodo za njegovo reševanje in razviti primeren matematični aparat, ki je zato potreben.

**Content (Syllabus outline):**

Student gets familiar with advanced methods of independent research work in his scientific area and learns how to apply the results of his research in practice. He/she must be able to recognize the mathematical contents of a concrete problem, to choose the appropriate method(s) for its solving and to develop the necessary mathematical apparatus for this purpose.

**Temeljna literatura in viri / Textbooks:**

- Kandiller, L. Principles of mathematics in operations research, Berlin: Springer-Verlag 2007.
- Sethuraman, B. A. Rings, fields, and vector spaces, Berlin: Springer-Verlag
- Kreps, D. M. Game Theory and Economic Modeling, Oxford: Oxford University Press
- Atkinson, F. V. Multiparameter Eigenvalue Problems, New York: Academic Press
- M. Aigner, Discrete Mathematics, American Mathematical Society, Providence, 2007.
- R. Diestel, Graph Theory, Third Edition, Springer, Berlin, 2005.
- Zomorodian, A. J. Topology for computing, Cambridge: Cambridge University Press
- Mackiw, G. Applications of abstract algebra, New York: John Wiley & Sons

**Cilji:**

- pripraviti študente za bodoče raziskovalno in aplikativno delo – prenos znanstvenih spoznanj v prakso in razvoj matematičnih metod, potrebnih za rešitev konkretnega problema.
- študent se usposobi za individualno in skupinsko delo pri reševanju matematičnih problemov, pridobi sposobnost sodelovanja na obsežnejšem projektu in vodenja skupine raziskovalcev.

**Objectives:**

- to prepare students for their future independent research and applicative work – the transfere of scientific knowledge to practice and the development of mathematical methods, necessary to solve a concrete probleme
- students acquaintain the ability of individual and team work at solving mathematical problems and get able to participate in a larger project or rule a research team.

**Predvideni študijski rezultati:**Znanje in razumevanje:

- poznavanje splošnih in specifičnih metod za reševanje teoretičnih in praktičnih problemov
- formiranje specifičnega znanje ter njegovo apliciranje na konkretne probleme
- sposobnost oblikovati nove znanstvene koncepte ter metodološke pristope za reševanje različnih problemov

Prenesljive/ključne spretnosti in drugi atributi:

- strokovno zapisovanje in izražanje matematičnih vsebin
- obvladanje reševanja strokovnih problemov
- suvereno predstavljanje ključnih spoznanj in spretnost argumentiranja

**Intended learning outcomes:**Knowledge and understanding:

- the knowledge of general and specific methods for solving theoretical and practical problems
- the development of special knowledge and its application to concrete examples
- the ability to formulate new scientific concepts and methodological approaches for solving various problems

Transferable/Key Skills and other attributes:

- expressing mathematical contents in oral and written form
- ability to solve specific mathematical problems
- clear presentation of the results of research work and efficient argumentation

**Metode poučevanja in učenja:**

- konzultacije;
- priprava seminarja;
- samostojni študij.

**Teaching and learning methods:**

- consultations;
- seminar work;
- self-study.

**Načini ocenjevanja:**Način (pisni izpit, ustno izpraševanje, naloge, projekt):

- seminarsko predavanje;
- pisni izdelek.

Delež (v %) /  
Weight (in %)**40 %**  
**60 %****Assessment methods:**Type (examination, oral, coursework, project):

- seminar talk;
- written work.