



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: Raziskovalni seminar III
Course title: Research seminar III

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Matematika, 3. stopnja		3.	5.
Mathematics, 3 rd Degree		3 rd	5 th

Vrsta predmeta / Course type

obvezni/obligatory

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
	15			5 (konzultacije)	130	5

Nosilec predmeta / Lecturer:

Habilitirani nosilci predmetov v programu / Teachers listed in the program

**Jeziki /
Languages:**

**Predavanja /
Lectures:** Slovenski jezik; Slovene
Vaje / Tutorial: Slovenski jezik; Slovene

**Pogoji za vključitev v delo oz. za opravljanje
študijskih obveznosti:**

Ni posebnih pogojev.

Prerequisites:

No special requirements.

Vsebina:

Content (Syllabus outline):

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 ustrežno metodo za njegovo reševanje in razviti primeren matematični aparat, ki je zato potreben.

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.

Temeljni literatura in viri / Readings:

- 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 in kompetence:

- 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 and competences:

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

Predvideni študijski rezultati:

Znanje in razumevanje:

Znanje in razumevanje:

- poznavanje splošnih in specifičnih metod za reševanje teoretičnih in praktičnih problemov
- formiranje specifičnega znanja 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
- obvladavanje reševanja strokovnih problemov
- suvereno predstavljanje ključnih spoznanj in spretnost argumentiranja

Intended learning outcomes:

Knowledge and understanding:

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:

Learning and teaching methods:

- konzultacije;
- priprava seminarja;
- samostojni študij.

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

Delež (v %) /

Načini ocenjevanja:

Weight (in %)

Assessment:

<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt)</p> <ul style="list-style-type: none"> • seminarsko predavanje; • pisni izdelek. 	<p>40 % 60 %</p>	<p>Type (examination, oral, coursework, project):</p> <ul style="list-style-type: none"> • seminar talk; • written work.
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Reference nosilca / Lecturer's references:

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