



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	<b>Individualno raziskovalno delo 4</b>
<b>Course title:</b>	<b>Individual Research Work 4</b>

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Matematika, 3. stopnja		2.	4.
Mathematics, 3 <sup>rd</sup> cycle		2 <sup>nd</sup>	4 <sup>th</sup>

Vrsta predmeta / Course type

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
					630	21

Nosilec predmeta / Lecturer:

Jeziki / Languages: **Predavanja / Lectures:**   
**Vaje / Tutorial:**

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

Individualno raziskovalno delo študenta predvideva vključitev v projekt in raziskavo zastavljenega problema pod vodstvom mentorja kot pripravo za doktorsko nalogo.

**Prerequisites:**

Individual research work proposes the student's participation in a project and research of a particular problem with support from a supervisor. This is seen as preparation for a PhD thesis.

**Vsebina:**

Študent se podrobneje seznanja z načinom izdelave doktorske naloge in predela okvirno literaturo. Skupaj z mentorjem oblikuje dispozicijo doktorske naloge in prediskutira njeno vsebino z ostalimi študenti na seminarju. Študent nadaljuje s pripravo izvirnega znanstvenega članka, ki bo vseboval rezultate raziskovalnega dela.

**Content (Syllabus outline):**

Student learns the detailed procedure of elaboration of PhD thesis and gets familiar with basic written sources related to the content of his research. He creates a disposition of his future PhD thesis and discusses its contents with other students on the seminar. The student continues with the preparation of the original scientific article, which will contain the results of the research work.

**Temeljni literatura in viri / Readings:**

- Kandiller, L. Principles of mathematics in operations research, Berlin: Springer-Verlag, 2007.
- Makarovič, J. Misel in sporocilo: Kako uspešno študirati, raziskovati in predstaviti svoje ideje. Ljubljana: DDU Univerzum, 1984.
- Toporišič, J. (ur.). Slovenski pravopis. Pravila. Ljubljana: SAZU, DZS, 1990.
- Gill, J. Essential mathematics for political and social research, Cambridge: Cambridge University Press, 2006.
- Mackiw, G. Applications of abstract algebra, New York: John Wiley & Sons, 1985.
- Druga literatura iz raziskovalnega področja.

**Cilji in kompetence:**

- pripraviti študente za izdelavo doktorskega dela, s katerim bodo pokazali sposobnost uporabe teoretičnih znanj in v praksi pridobljenih izkušenj pri reševanju problemov, nakazanih v prijavi teme doktorskega dela
- v doktorski disertaciji naj bi študent pokazal sposobnost izbire in uporabe domače ter tuje strokovne literature in dodatnih virov za reševanje izbranega problema

**Objectives and competences:**

- the intention is to prepare students for elaboration of their PhD thesis by which the student must prove his ability to use the theoretical knowledge and his practical work achieved experiences in resolving problems announced in the theme of his/her PhD thesis
- in his/her PhD thesis student should present the ability to choose and use his national and foreign professional scientific publications and additional sources in order to solve the chosen problem

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

- poznavanje širšega strokovnega področja, na katero bo sodila bodoča doktorska disertacija
- formiranje specifičnega znanja ter razumevanje pojmovnika predvidenega doktorskega dela
- poudarek je na sposobnosti kandidata oblikovati koncept doktorske naloge ter metodološke pristope za zajemanje, obdelovanje in prikazovanje podatkov

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

- the knowledge of the wider mathematical field to which the dissertation will belong
- the development of special knowledge and working out the dictionary (notation) for the subject of the future doctoral thesis
- emphasis will be on the student's ability to formulate the topic of the investigation and methodological approaches towards collecting, analysing and presenting the related data.

**Prenesljive/ključne spretnosti in drugi atributi:**

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

**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;
- samostojni študij.

**Learning and teaching methods:**

- consultations;
- self-study.

Delež (v %) /

Weight (in %)

**Načini ocenjevanja:****Assessment:**

Način (pisni izpit, ustno izpraševanje, naloge, projekt)

- Ustni zagovor.
- Pisno poročilo.

Se oceni: opravljen / ni opravljen.

**30 %****70 %**

Type (examination, oral, coursework, project):

- Oral exam.
- Written report.

Evaluate: passed / not passed.

**Reference nosilca / Lecturer's references:**

Habilitirani nosilci predmetov v programu / Teachers listed in the program