



Univerza v Mariboru
University of Maribor

Fakulteta za naravoslovje in
matematiko

Faculty of natural sciences and
mathematics



UČNI NAČRT PREDMETA / SUBJECT SPECIFICATION

Predmet:	Sociofizika
Subject Title:	Sociophysics

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
FIZIKA PHYSICS	/	1 ali 2	1 ali 2

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Labor work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
15	10				125	5

Nosilec predmeta / Lecturer:

Jeziki / Languages:	Predavanja / Lecture:	Slovenski / Slovene
	Vaje / Tutorial:	Slovenski / Slovene

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

Osnovno razumevanje načel evolucije in poznavanje osnov modeliranja.

Prerequisites:

Basic understanding of principles of evolution and familiarity with basics of modelling.

Vsebina:

Teorija iger, fizikalna interpretacija Darwinovega zakona evolucije, uspešnost različnih vedenjskih vzorcev v luči fizike, vpliv vedenjskih vzorcev na uspešnost družbe kot celote, nastanek kompleksnih mrež in pojav malega sveta.

Content (Syllabus outline):

Game theory, physical interpretation of the Darwinian law of evolution, successfulness of different behavioural patterns in terms of physics, impacts of different behavioural patterns on the prosperity of society as a whole, emergence of complex networks and the small-world phenomenon.

Temeljni literatura in viri / Textbooks:

K. Sigmund, *Games of life* (Oxford University Press, Oxford, 1993).
R. Axelrod, *The evolution of cooperation* (Basic Books, New York, 1984).
J. Hofbauer and K. Sigmund, *Evolutionary games and population dynamics* (Cambridge University Press, Cambridge, 1998).

Cilji:

Poglobiti znanje o vedenjskih strategijah v družbi in razumeti njihov uspeh (ali neuspeh) na podlagi fizike.

Objectives:

Deepen the knowledge about behavioural patterns in society and understand their success (or failure), in view of the underlying mechanisms of physics.

Predvideni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje:

Poglobljeno razumevanje učinkov in potencialov različnih vedenjskih vzorcev v družbi.

Prenesljive/ključne spretnosti in drugi atributi:

Sposobnost prepoznati in analizirati različne vedenjske vzorce in strategije ter predvideti njihov vpliv na družbo (ali skupino ljudi), ki jim je podvržena.

Knowledge and Understanding:

A deeper understanding of effect and potentials of different behavioural patterns in society.

Transferable/Key Skills and other attributes:

The ability to recognize and analyse different behavioural patterns and strategies, and foretell their impact on the affected society (or group of people).

Metode poučevanja in učenja:

Predavanja in individualno raziskovalno delo.

Learning and teaching methods:

Lectures individual research work.

Načini ocenjevanja:

Delež (v %) /

Weight (in %)

Assessment:

Ustni izpit	80%	Oral exam
Seminarska naloga	20%	Written seminar work