Univerza v Mariboru

Fakulteta za naravoslovje in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Izbrana poglavja iz verjetnosti in statistike
Course title:	Topics in probability and statistics

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Matematika, 3. stopnja		**1. ali 2.**	**1. ali 4.**
Mathematics, 3rd Degree		**1st or 2nd**	**1st or 4th**

Vrsta predmeta / Course type	izbirni/elective
Univerzitetna koda predmeta / University course code:	

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30					**120**	**5**

Nosilec predmeta / Lecturer:	Dominik Benkovič

Jeziki / Languages:	**Predavanja/Lectures:**	Slovenski in angleški jezik; Slovene and English
	Vaje / Tutorial:	Slovenski in angleški jezik; Slovene and English

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Poznanje temeljnih pojmov iz teorije verjetnosti in statistike	Knowledge of fundamental concepts in probability theory and statistics.

Vsebina:	**Content (Syllabus outline):**
Izbrana so posebna poglavja iz teorije verjetnosti (naključni procesi, časovne vrste) in statistike (univariatne in multivariatne statistične metode) ali katerega drugega raziskovalnega in uporabnega področja, kjer se uporabljata verjetnost in statistika. Izbira poglavij je odvisna od interesa in raziskovalne usmerjenosti študentov. Literatura, ki je navedena spodaj, služi le kot pregledna osnova in je nadgrajena z bolj specializiranimi teksti.	Special topics in probability theory (stochastic processes, time series) and statistics (univariate and multivariate statistics methods) or some other research and applied area of probability and statistics are chosen. The choice depends on students' interests and their research orientation. The literature below in principle serves only as a survey basis, and is combined with more specialized texts.

Temeljni literatura in viri / Readings:

- M. Bilodeau, D. Brenner, *Theory of Multivariate Statistics*, Springer Verlag, 1999.
- P. Bremaud, *Markov Chains: Gibbs fields, Monte Carlo simulations and queues*, 2nd edition, Springer Verlag, 1999.
- P. J. Brockwell, R. A. Davis, *Introduction to Time Series and Forecasting*, Springer Verlag, 2002.
- R.Christensen, *Advanced Linear Modeling*, 2nd edition, Springer Verlag, 2001.
- G. R. Grimmett, D. R. Stirzaker: *Probability and random processes*, Oxford University Press, 1992.
- G. McPearson, *Applying and Interpreting Statistics*, Springer Verlag, 2001.
- H. T. Nguyen, G. S. Rogers, *Fundamentals of Mathematical Statistics*, Springer Verlag, 1989.
- J. R. Norris, *Markov Chains*, Cambridge University Press, 1997.
- S. I. Resnick, *Adventures in Stochastic Processes*, Birkhäuser, Boston, 1992.
- N. Sarapa: *Teorija vjerojatnosti*, Školska knjiga, 2002.
- A. Sen, M. Srivastava, *Regression analysis: Theory, Methods, and Applications*, Springer Verlag, 1990.

Cilji in kompetence:

- študentom predstaviti sodobno in zanimivo področje, kar lahko služi kot uvod v raziskovalno delo;
- Doseči poglobljeno razumevanje teoretskih in metodoloških konceptov s področja verjetnosti in statistike
- Razviti sposobnost za samostojno reševanje najzahtevnejših problemov iz verjetnosti in statistike
- Zmožnost razvijanja kritične refleksije na področju verjetnosti in statistike.

Objectives and competences:

- to present a modern and interesting area, which can serve as an introduction to student's research work;
- To achieve a deeper understanding of theoretical and methodological concepts of probability and statistics
- To develop the ability for solving the most challenging problems in probability and statistics
- Ability to develop critical reflection in probability and statistics

Predvideni študijski rezultati:

Znanje in razumevanje:

- poglobljeno znanje iz izbranega področja verjetnosti in statistike;
- poglobljeno razumevanje obravnavanih metod.

Prenesljive/ključne spretnosti in drugi atributi:

- podlaga za raziskovalno delo na izbranem področju verjetnosti in statistike;
- prenos znanja iz verjetnosti in statistike na različna strokovna in znanstvena področja, kjer se uporabljajo statistične analize

Intended learning outcomes:

Knowledge and understanding:

- a deeper knowledge of a selected topic of probability and statistics;
- a deeper understanding of methods treated in the course.

Transferable/Key Skills and other attributes:

- a basis for research in a selected topics of probability and statistics;
- knowledge transfer of statistical methods into different areas dealing with data analysis.

podatkov.	

Metode poučevanja in učenja:	**Learning and teaching methods:**
• predavanja; • priprava seminarja; • konzultacije; • samostojni študij.	• lectures; • seminar work; • consultations; • self-study.

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt)		Type (examination, oral, coursework, project):
• seminar;	**20 %**	• seminar;
• domače naloge;	**30 %**	• homework;
• ustni izpit.	**50 %**	• oral examination.

Reference nosilca / Lecturer's references:

1. BENKOVIČ, Dominik, GRAŠIČ, Mateja. Generalized derivations on unital algebras determined by action on zero products. *Linear Algebra and its Applications*, ISSN 0024-3795. [Print ed.], 2014, vol. 445, str. 347-368.
2. BENKOVIČ, Dominik, EREMITA, Daniel. Multiplicative Lie n-derivations of triangular rings. *Linear Algebra and its Applications*, ISSN 0024-3795. [Print ed.], 2012, vol. 436, iss 11, str. 4223-4240
3. BENKOVIČ, Dominik, ŠIROVNIK, Nejc. Jordan derivations of unital algebras with idempotents. *Linear Algebra and its Applications*, ISSN 0024-3795. [Print ed.], 2012, vol. 437, iss. 9, str. 2271-2284
4. BENKOVIČ, Dominik. Lie triple derivations on triangular matrices. *Algebra colloquium*, ISSN 1005-3867, 2011, vol. 18, spec. iss. 1, str. 819-826.
5. BENKOVIČ, Dominik. Generalized Lie derivations on triangular algebras. *Linear Algebra and its Applications*, ISSN 0024-3795. [Print ed.], 2011, vol. 434, iss 6, str. 1532-1544.