

**UČNI NAČRT PREDMETA / COURSE SYLLABUS**

|                      |            |
|----------------------|------------|
| <b>Predmet:</b>      | STATISTIKA |
| <b>COURSE TITLE:</b> | STATISTICS |

| Študijski program in stopnja<br>Study programme and level               | Študijska smer<br>Study field | Letnik<br>Academic year | Semester<br>Semester |
|---|-------------------------------|-------------------------|----------------------|
| Varstvo okolja in ekotehnologije,<br>1. stopnja                         | /                             | 2.                      | 1.                   |
| Environmental Protection and<br>Eco-technologies, 1 <sup>st</sup> level | /                             | 2 <sup>st</sup>         | 1 <sup>st</sup>      |

**Vrsta predmeta / Course type** Obvezni predmet / Obligatory subject

**Univerzitetna koda predmeta / University course code:** STAT

| Predavanja<br>Lectures | Seminar<br>Seminar | Sem. Vaje<br>Tutorial | Lab. vaje<br>Laboratory<br>work | Teren. vaje<br>Field work | Samost. delo<br>Individ. work | ECTS |
|------------------------|--------------------|-----------------------|---------------------------------|---------------------------|-------------------------------|------|
| 30                     | /                  | 15                    | /                               | /                         | 80                            | 5    |

**Nosilec predmeta / Lecturer:** prof. dr. Kristijan Breznik Kristijan / Kristijan Breznik, Ph.D, Full Prof.

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

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

Študent mora (praviloma) imeti opravljen izpit iz Matematike.

**Prerequisites:**

The student must have passed the mathematics exam.

**Vsebina:**

1. Uvod v verjetnost.
2. Urejanje podatkov
3. Temelji opisne statistike
4. Srednje vrednosti
5. Mere variabilnosti.
6. Prikazovanje podatkov
7. Diskretne in zvezne porazdelitve.
8. Bivariatne metode
9. Časovne vrste.

**Content (Syllabus outline):**

1. Introduction to probability.
2. Data editing
3. Basics of descriptive statistics.
4. Measures of central tendency
5. Measures of variability
6. Data visualization
7. Discrete and continuous distributions.
8. Bivariate methods.
9. Time series.

**Temeljni literatura in viri / Textbooks:**

1. Turk, G. (2012). Verjetnostni račun in statistika. Ljubljana: Fakulteta za gradbeništvo in geodezijo.
2. Košmelj, K. (2007). Uporabna statistika. Ljubljana: Biotehniška fakulteta.
3. Diez, D. M., Barr, C. D., Cetinkaya-Rundel, M. (2015). OpenIntro Statistics. Dostopno na: <https://www.openintro.org/stat/>
4. Field, A. (2013). Discovering Statistics Using IBM SPSS Statistics. SAGE Publications Ltd

**Cilji in kompetence:**

Študent bo pridobil znanje in spretnosti na naslednjih splošnih vsebinskih področjih:

Delo s podatki in informacijami;  
Osnovne računalniške spretnosti;  
Spretnosti kritičnega mišljenja;

Študent bo pridobil znanje in spretnosti na naslednjih specifičnih vsebinskih področjih:

Matematika in statistika na vsebinskem področju predmeta;  
Splošna razgledanost na vsebinskem področju predmeta.

**Objectives and competences:**

Student will acquire knowledge and skills in the following general areas:

Work with data and information;  
Basic computer skills;  
Critical thinking;

Student will acquire knowledge and skills in the following specific areas:

Mathematics and statistics in the fields of the course;  
General overview of the course content area.

**Predvideni študijski rezultati:**

1. zna izračunati srednje vrednosti statističnih spremenljivk
2. zna izračunati mere variabilnosti statističnih spremenljivk
3. zna pravilno grafično predstaviti statistične spremenljivke
4. uporaba statističnih programov

**Intended learning outcomes:**

1. (s)he is able to calculate measures of central tendency of statistical variables
2. (s)he is able to calculate measures of variability of statistical variables
3. (s)he is able to properly visualize statistical variables
4. the use of statistical software

**Metode poučevanja in učenja:**

Frontalna oblika poučevanja; Delo v manjših skupinah;  
Samostojno delo študenta;

Razlaga; Razgovor/diskusija/debata;

**Learning and teaching methods:**

Frontal teaching; Work in smaller groups or pairs;  
Independent student work;

Explanation; Conversation/discussion/debate;

**Načini ocenjevanja:**

Daljši pisni izdelek  
Končni pisni izpit

Ocenjevalna lestvica:

- zadostno 6: 50-59%
- dobro 7: 60-69%
- prav dobro 8: 70-79%
- prav dobro 9: 80-89%
- odlično 10: 90-100%

Delež (v %) /

Weight (in %) /

**Assessment:**

Longer written casework  
Final written examination

Grading system:

- Sufficient D (6): 50-59%
- Good C (7): 60-69%
- Very good B (8): 70-79%
- Very good B+ (9): 80-89%
- Excellent A (10): 90-100%

**Materialni pogoji za izvedbo predmeta :**

Za izvajanje predavanj je potrebna predavalnica z multimedijско opremo, za vaje računalniška učilnica.

**Material conditions for subject realization:**

A lecture room with the multimedia equipment is required for the lectures, for the exercises computer classroom.

**Obveznosti študentov:****Student's commitments:**

Obvezna udeležba na vajah.  
Oddane sprotne naloge in daljši pisni izdelek.

Mandatory attendance at exercises.  
Written assessments and longer written casework.

#### Reference nosilca predmeta:

BREZNIK, Kristijan, SKRBINJEK, Vesna. Citation network analysis of documents on engineering and technology education. *Global journal of engineering education*, ISSN 1328-3154, 2017, vol. 19, no. 3, str. 213-218, ilustr. <http://www.wiete.com.au/journals/GJEE/Publish/vol19no3/06-Breznik-K.pdf>. [COBISS.SI-ID 39336965]

LAW, Kris, BREZNIK, Kristijan. Impacts of innovativeness and attitude on entrepreneurial intention : among engineering and non-engineering students. *International journal of technology and design education*, ISSN 0957-7572, Dec. 2017, vol. 27, iss. 4, str. 683-700, ilustr. <http://link.springer.com/article/10.1007/s10798-016-9373-0>, doi: 10.1007/s10798-016-9373-0. [COBISS.SI-ID 38712325]

MAROV, Janko, BREZNIK, Kristijan. *Praktikum iz poslovno-finančne matematike*. Spremenjena in dopolnjena izd. Maribor: Fakulteta za naravoslovje in matematiko, 2014. 132 str., graf. prikazi, tabele. ISBN 978616570. [COBISS.SI-ID 79521025]

BREZNIK, Kristijan, MAROV, Janko. *Praktikum iz poslovno-finančne matematike*. Maribor: Fakulteta za naravoslovje in matematiko, 2011. 129 str. ISBN 978616573. [COBISS.SI-ID 65332993]

MAROV, Janko, BREZNIK, Kristijan. Anticipativno obrestovanje = Anticipative interest rate. *Matematika v šoli*, ISSN 1318-010X, 2010, letn. 16, št. 3/4, str. 796. [COBISS.SI-ID 15773017]

BREZNIK, Kristijan, MAROV, Janko. Nekaj več o praštevilih = More about the prime numbers. *Matematika v šoli*, ISSN 1318-010X, 2012, letn. 18, št. 1/2, str. 906. [COBISS.SI-ID 16283737]

BREZNIK, Kristijan. Using social network analysis to identify innovation clusters. *International journal of innovating and learning*, ISSN 1471197, 2016, vol. 19, no. 3, str. 27285. [COBISS.SI-ID 38308869]

BREZNIK, Kristijan, RAGOZINI, Giancarlo. Exploring the Italian Erasmus agreements by a network analysis perspective. V: *ASONAM 2015 : proceedings of the 2015 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, Paris, France, August 258, 2015, 2015 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, Paris, France, August 258, 2015. [S. l.: s. n.], cop. 2015, str. 83738, graf. prikazi. <http://dl.acm.org/citation.cfm?doid=2808797.2808864>, doi: 10.1145/2808797.2808864. [COBISS.SI-ID 13878945]

Glavni urednik mednarodne revije IJMKL in član uredniških odborov 6-ih indeksiranih (SCI in/ali Scopus) mednarodnih revij.

#### Lecturer's references:

BREZNIK, Kristijan, SKRBINJEK, Vesna. Citation network analysis of documents on engineering and technology education. *Global journal of engineering education*, ISSN 1328-3154, 2017, vol. 19, no. 3, str. 213-218, ilustr. <http://www.wiete.com.au/journals/GJEE/Publish/vol19no3/06-Breznik-K.pdf>. [COBISS.SI-ID 39336965]

LAW, Kris, BREZNIK, Kristijan. Impacts of innovativeness and attitude on entrepreneurial intention : among engineering and non-engineering students. *International journal of technology and design education*, ISSN 0957-7572, Dec. 2017, vol. 27, iss. 4, str. 683-700, ilustr. <http://link.springer.com/article/10.1007/s10798-016-9373-0>, doi: 10.1007/s10798-016-9373-0. [COBISS.SI-ID 38712325]

MAROV, Janko, BREZNIK, Kristijan. *Praktikum iz poslovno-finančne matematike*. Spremenjena in dopolnjena izd. Maribor: Fakulteta za naravoslovje in matematiko, 2014. 132 str., graf. prikazi, tabele. ISBN 978616570. [COBISS.SI-ID 79521025]

BREZNIK, Kristijan, MAROV, Janko. *Praktikum iz poslovno-finančne matematike*. Maribor: Fakulteta za naravoslovje in matematiko, 2011. 129 str. ISBN 978616573. [COBISS.SI-ID 65332993]

MAROV, Janko, BREZNIK, Kristijan. Anticipativno obrestovanje = Anticipative interest rate. *Matematika v šoli*, ISSN 1318-010X, 2010, letn. 16, št. 3/4, str. 796. [COBISS.SI-ID 15773017]

BREZNIK, Kristijan, MAROV, Janko. Nekaj več o praštevilih = More about the prime numbers. *Matematika v šoli*, ISSN 1318-010X, 2012, letn. 18, št. 1/2, str. 906. [COBISS.SI-ID 16283737]

BREZNIK, Kristijan. Using social network analysis to identify innovation clusters. *International journal of innovating and learning*, ISSN 1471197, 2016, vol. 19, no. 3, str. 27285. [COBISS.SI-ID 38308869]

BREZNIK, Kristijan, RAGOZINI, Giancarlo. Exploring the Italian Erasmus agreements by a network analysis perspective. V: *ASONAM 2015 : proceedings of the 2015 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, Paris, France, August 258, 2015, 2015 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, Paris, France, August 258, 2015. [S. l.: s. n.], cop. 2015, str. 83738, graf. prikazi. <http://dl.acm.org/citation.cfm?doid=2808797.2808864>, doi: 10.1145/2808797.2808864. [COBISS.SI-ID 13878945]

Editor-in-chief of the international journal IJMKL and a member of editorial boards of 6 indexed (SCI and/or Scopus) international journals.