Detailed Course Syllabus

Academic year: 2026/2027	**Semester:** Winter semester
Year of study: 1	**Study Program:** Psihologija (R) (elective) (Diplomski) Komunikologija - Interkulturalna komunikacija i novinarstvo (R) (elective) (Diplomski) Komunikologija - Znanstveno istraživanje medija i odnosi s javnošću (R) (Diplomski) Sociologija - Upravljanje i javne politike (R) (elective) (Diplomski) Povijest (R) (elective) (Diplomski) Sestrinstvo (R) (elective) (Diplomski) Sestrinstvo (I) (elective) (Diplomski)

I. BASIC COURSE INFORMATION

Name: Data Science for Social Scientists	
Abbreviation: IZBD251	
ECTS: 6	**Code:** 252571
Prerequisites: No	
Total Course Workload	
Teaching Mode	**Total Hours**
Lecture	30
Auditory exercise	30
Class Time and Place: HKS - according to the published schedule	

II. TEACHING STAFF

Course Holder	
Name and Surname: Šikić Luka	
Academic Degree:	**Professional Title:** docent
Contact E-mail: luka.sikic@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Course Assistant	
Name and Surname: Šagovac Mislav	
Academic Degree:	**Professional Title:**
Contact E-mail: mislav.sagovac@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	

III. DETAILED COURSE INFORMATION

Teaching Language: English

Course Description	This course covers the fundamentals of data science for social scientists on a graduate level, including data collection, analysis, and visualization. Students will gain hands-on experience using statistical software, data collection, statistical analysis, and machine learning algorithms to analyze data and answer social science research questions. The course will also cover effective communication of data findings, helping students develop skills to communicate their research findings to different audiences effectively.
Educational Outcomes	1. Understand the basics of data science and how it can be applied to social science research. 2. Develop proficiency in using statistical software for data analysis. 3. Learn how to collect, clean, and organize data for analysis. 4. Understand different data visualization techniques and how to communicate data findings effectively. 5. Apply data science techniques to real-world social science problems and research questions.
Textbooks and Materials	
Required	Wickham, H., & Grolemund, G. (2017). R for Data Science: Import, Tidy, Transform, Visualize, and Model Data. O'Reilly Media, Inc.
Supplementary	Provost, F., & Fawcett, T. (2013). Data Science for Social Good: What You Need to Know about Data Mining and Data-Analytic Thinking. O'Reilly Media, Inc. McKinney, W. (2017). Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython. O'Reilly Media, Inc. Healy, K. (2018). Data Visualization: A Practical Introduction. Princeton University Press. Hastie, T., Tibshirani, R., & Friedman, J. (2009). The Elements of Statistical Learning: Data Mining, Inference, and Prediction. Springer

Examination and Grading

To Be Passed DA	**Exclusively Continuous Assessment** NE	**Included in Average Grade** DA

Prerequisites to Obtain Signature and Take Final Exam	Attendance is crucial for success in this course, and students are expected to attend at least 70% of lectures and seminar sessions. This will allow them to stay up-to-date with the course content and participate in discussions and group activities. In addition to attending lectures and seminars, students will be required to complete a data analysis and visualization project, which will be presented as an oral seminar presentation. This project will allow students to apply the data science skills they have learned to a real-world social science research problem. To successfully complete the course, students must accumulate at least 35% of their grade through class activities, including written and presented and seminar project. This will ensure that students are regularly engaging with the course content and actively working towards mastering the skills and concepts covered in the course.

Examination Manner	Final course grade is based on 100 points earned through student's continuous involvement in class activities: Fair (2) – 50 to 64 points Good (3) – 65 to 79 points Very good (4) – 80 to 89 points Excellent (5) – 90 to 100 points Earning credits: Class activities contribute to 70% of the grade: Midterm exam – maximum 40 points Seminar – maximum 20 points Seminar presentation – maximum 10 points Final exam contributes to 30% of the grade: Final exam – maximum of 30 points
Grading Manner	Class activities: Midterm exam (written), seminar presentation (written and oral) and final exam (oral)

Detailed Overview of Grading within ECTS

VRSTA AKTIVNOSTI	ECTS bodovi - koeficijent opterećenja studenata	UDIO OCJENE (%)
Pohađanje nastave	1.5	0
Kolokvij-međuispit	1.8	40
Seminarski rad	0.9	20
Seminarsko izlaganje	0.45	10
Ukupno tijekom nastave	4.65	70
Završni ispit	1.35	30
UKUPNO BODOVA (nastava+zav.ispit)	6	100

IV. WEEKLY CLASS SCHEDULE

[Predavanja]

#	Topic
1	Introduction to the Course.
2	Traditional Data Types
3	Modern Data Sources.
4	Basics of the R Programming Language.
5	Data Manipulation and Preparation.
6	Collecting Data from the Internet I.
7	Collecting Data from the Internet II.

8	Working with Databases.
9	Descriptive Statistics.
10	Univariate Statistical Analysis.
11	Multivariate Statistical Analysis.
12	Introduction to Machine Learning.
13	Machine Text Analysis.
14	Presentation, Publication, and Sharing of Results.
15	Final Exam.
[Auditorne vježbe]	
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1	Introduction to the Course
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