Detailed Course Syllabus

Academic year: 2024/2025	**Semester:** Summer semester
Study Program: Psihologija (R) (elective) Komunikologija (R) (elective) Povijest (R) (elective) Sestrinstvo (R) (elective) Sociologija (R) (elective) Sestrinstvo (I) (elective)	**Year of study:** 1

I. BASIC COURSE INFORMATION

Name: Applied Statistics		
Abbreviation: IZBP232		
Status: Compulsory	**ECTS:** 6	**Code:** 252565
Prerequisites: No		
Total Course Workload		
Teaching Mode	**Total Hours**	
Lecture	30	
Seminar	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	

III. DETAILED COURSE INFORMATION

Teaching Language: English	

Course Description	Course Objectives: This course delves into the practical aspects of applied statistics, encompassing the formulation of research questions, hypothesis generation, research design, and data analysis. Students will acquire hands-on experience utilizing statistical software and the correct application of various statistical tests. Furthermore, the course emphasizes the significance of effectively communicating research findings to diverse audiences, equipping students with the necessary skills to present their results coherently. By the conclusion of the course, students are expected to independently design and execute experiments, analyze the gathered data using suitable statistical methodologies, and proficiently convey their findings to a scientific audience. This fosters an active engagement with the course material and encourages participation in discussions and group tasks. In addition to attending lectures and seminars, students are required to complete a data analysis project, culminating in an oral seminar presentation. This project offers students the opportunity to apply their acquired data analysis skills to a real-world problem in the context of social science research. To successfully complete the course, students must obtain at least 70% of their grade through various class activities, including midterm exams, oral presentations, and the seminar project. This ensures consistent engagement with the course content and promotes the ongoing development of mastery of the skills and concepts explored throughout the course. Course Content: Foundations of Applied Statistics: Introduction to the key concepts and principles of applied statistics in contemporary research contexts. Statistical Programming Essentials: Familiarization with programming language for statistical analysis, including basic syntax and functionality. Statistical Concepts Refresher: A review of essential statistical concepts, including probability theory, distributions, hypothesis testing, and parametric and nonparametric methods. Exploratory Data Analysis Techniques: In-depth exploration of data visualization, descriptive statistics, and methods for detecting patterns and relationships in data sets. Confirmatory Data Analysis Approaches: A comprehensive study of inferential statistical techniques, such as regression analysis, ANOVA, and hypothesis testing, for validating research hypotheses. Empirical Research Project: Application of acquired statistical knowledge and skills in designing, conducting, and analyzing a real-world research problem, culminating in an oral seminar presentation.

Educational Outcomes	1. Develop research questions and hypotheses appropriate for empirical research in social science. 2. Design research studies that incorporate appropriate research methods and sampling techniques. 3. Conduct statistical analyses using advanced statistical techniques to answer research questions. 4. Use statistical software to effectively manage and analyze data. 5. Evaluate statistical models for their appropriateness in answering research questions. 6. Interpret statistical results and conclude them in the context of the research questions. 7. Communicate research findings effectively to different audiences using appropriate visual aids. 8. Develop critical thinking skills to evaluate the appropriateness of statistical analyses for different research questions. 9. Design and conduct an independent data analysis project and present the findings orally to the class.
Textbooks and Materials	
Required	Navarro, D. J. (2019). Learning Statistics with R: A tutorial for psychology students and other beginners. Adelaide, Australia: University of Adelaide Press. Avaliable online: https://learningstatisticswithr.com/
Supplementary	Field, A., Miles, J., & Field, Z. (2012). Discovering Statistics Using R. London: SAGE Publications Ltd. James, G., Witten, D., Hastie, T., & Tibshirani, R. (2013). An Introduction to Statistical Learning: with Applications in R. New York: Springer. Freedman, D. A. (2009). Statistical Models: Theory and Practice. Cambridge: Cambridge University Press. Everitt, B. S., & Hothorn, T. (2011). An Introduction to Applied Multivariate Analysis with R. New York: Springer. Tabachnick, B. G., & Fidell, L. S. (2018). Using Multivariate Statistics. Boston: Pearson. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2018). Multivariate Data Analysis. London: Cengage Learning.
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.
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

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

Midterm exam dates:

Exam period dates:

IV. WEEKLY CLASS SCHEDULE

[Predavanja]

#	Topic
1	Introduction to the course.
2	Introduction to the R programming language.
3	Descriptive statistics.
4	Graphs and visualization.
5	Basics of probability theory.
6	Estimating population parameters.
7	Testing statistical hypotheses.
8	Midterm exam.
9	Categorical data analysis.
10	Comparing means.
11	Linear regression.
12	ANOVA.
13	Factorial ANOVA.
14	Multivariate statistical models.
15	Final exam.

[Seminari]

#	Topic
1	Introduction to the course.

2	Introduction to the R programming language.
3	Descriptive statistics.
4	Graphs and visualization.
5	Basics of probability theory.
6	Estimating population parameters.
7	Testing statistical hypotheses.
8	Midterm exam.
9	Categorical data analysis.
10	Comparing means.
11	Linear regression.
12	ANOVA.
13	Factorial ANOVA.
14	Multivariate statistical models.
15	Final exam.