Course title	**Statistics in Psychology II**				
Course code	**PSY2305**				
Course type	Compulsory				
Level	Bachelors				
Year / Semester	Year 2 /semester 3				
Teacher's name	Dr Eugenia Christoforou/ Professor Janko Mededovic				
ECTS	6	**Lectures / week**	1hr	**Laboratories / week**	2hrs
Course purpose and objectives	This course builds upon *Statistics in Psychology I*, advancing students' understanding of inferential statistics and introducing multivariate analytical approaches commonly used in psychological research. Emphasis is placed on conceptual reasoning, critical evaluation of statistical techniques, and the use of statistical software for data analysis and reporting. Students develop analytical independence, ethical awareness in data handling, and professional reporting skills in line with APA standards. The course prepares students for research projects and advanced quantitative work in later years.				
Learning outcomes	On successful completion of the course and with further independent study, students will be able to: **Knowledge and Understanding** 1. Explain the theoretical principles underlying multiple regression, ANOVA, and factor analysis. 2. Describe assumptions, strengths, and limitations of key multivariate statistical techniques in psychology. **Competencies** 3. Apply appropriate statistical methods to analyze complex psychological data (e.g., factorial ANOVA, regression, reliability analysis). 4. Use statistical software proficiently to manage data, perform analyses, and interpret outputs accurately. **Transferable Skills** 5. Present and interpret statistical findings using APA format, integrating visual and tabular data presentation.				

	6. Evaluate the ethical and methodological implications of statistical choices and data interpretation in psychological research.		
Prerequisites	PSY1105 Statistics in Psychology I	**Required**	PSY2303 Research Methods in Psychology
Course content	**Indicative Content** **1. Review of Inferential Logic** • Recap of hypothesis testing, sampling distributions, and effect size interpretation, Statistical power and sample size considerations. **2. Analysis of Variance (ANOVA)** • Concept of variance partitioning and F-ratio logic. • One-way ANOVA: assumptions, computation, and interpretation. • Post hoc comparisons and contrasts. • Reporting ANOVA results in APA format. **3. Factorial ANOVA** • Two-way and three-way designs; interpreting main effects and interactions. • Simple effects analysis and interaction plots. • Practical application in psychological experimental design. **4. Repeated Measures and Mixed ANOVA** • Within-subject designs: assumptions (sphericity, independence). • Mixed ANOVA (between- and within-subject factors). • Interpreting and visualizing complex effects. **5. Correlation and Regression Analysis** • Review of correlation (Pearson, Spearman). • Simple and multiple regression: coefficients, R^2, adjusted R^2, assumptions. • Interpreting regression models and residuals. • Using regression for prediction and hypothesis testing. **6. Non-Parametric Alternatives** • Interpreting non-parametric effect sizes. • Reporting non-parametric results		

	7. Reliability and Validity in Measurement • Internal consistency (Cronbach's alpha). • Inter-rater and test–retest reliability. • Construct and criterion validity. • Application to psychological scales and test development. **8. Statistical Software Applications** • Performing ANOVA, regression and reliability analysis using SPSS • Managing data files, syntax, and output. • Constructing APA-style tables and figures. **9. Ethical Data Handling and Reporting (**Data integrity, transparency, and reproducibility) **10. Integration and Application** • Case studies using real psychological datasets. • Choosing appropriate analyses for various research questions. • Writing an APA-style results section integrating text, tables, and figures.
Teaching methodology	Teaching will consist of a weekly 1-hour lecture introducing more advanced concepts in statistical analysis. In addition, a weekly 2-hour statistics workshop held in the computer lab will offer hands-on experience with SPSS.
Bibliography	**Core Text:** • Coolican, H. (2024). *Research methods and statistics in psychology* (8th ed.). Routledge. • Howitt, D., & Cramer, D. (2017). *Introduction to SPSS in psychology* (7th ed.). Pearson. **Recommended:** • British Psychological Society. (2021). *Code of Ethics and Conduct*. [Available online] • American Psychological Association. (2017). *Ethical principles of psychologists and code of conduct* [Available online] **Further reading:** A reading list will accompany each lecture, highlighting relevant articles accessible through the library, as well as open-access and e-learning resources.
Assessment	Attendance and participation 164 10%

	In class exercises 20% Practical Report (Methods & Results section) 35% Final Exam 35%
Language	English