Course Title	**ADVANCED RESEARCH METHODS & STATISTICS I**				
Course Code	ESSRE601				
Course Type	MANDATORY				
Level	PhD (Level 3)				
Year / Semester	1st / Fall				
Teacher's Name	Dr Panos Constantinides, Dr Panayiotis Paoullis				
ECTS	10	Lectures / week	6	Laboratories/week	
Course Purpose	The course aims to enable students to construct a comprehensive understanding of research methods in exercise science, sports and rehabilitation. Furthermore, the course aims to facilitate students to develop skills and competences related to the planning and materialisation of doctoral dissertation and other research activities. The course covers the fundamental methodological approaches to exercise science, sports and rehabilitation research, quantitative and qualitative, as well as mixed methods approaches. The course adopts a critical approach towards research methods, through which it presents students with their advantages, disadvantages, limitations and epistemological differences. Regarding qualitative data elicitation and analysis, students are given opportunities to develop their interviewing/observation skills and are given various qualitative data analysis techniques (i.e. constant comparative method). The course also focuses on sampling methods and techniques, as well as various methods for collecting and/or eliciting data, either using qualitative or quantitative data collection tools. Emphasis is given on the evaluation of the validity and reliability of quantitative and qualitative data.				
Learning Outcomes	Students are expected to: 1. Analyze and use the basic principles of research methodology and apply appropriate methodological approach for the collection, organization, coding and analysis of quantitative data. 2. Analyze and use electronic bibliography search databases and apply effective research for the appropriate bibliography on the internet. 3. Collect data from interviews by applying basic principles such as: building a relationship, asking open-ended questions, avoiding bias, adopting a protocol of dynamic questions. 4. Consider the advantages and limitations of quantitative research. 5. Analyze and examine ethical issues that arise when collecting, analyzing data, and when presenting research results. 6. Apply mixed-methods approach. 7. Use triangulation to maximize the validity of research results. 8. Design experimental studies to investigate the research hypothesis and/or answer research questions. 9. Select the appropriate method and/or sampling technique with a representative sample and determine the population investigated by a survey				

	10. Design valid and reliable questionnaires, tests, observations and other data collection tools and evaluate the validity and reliability of the data they collect or those collected from others. 11. Evaluate the validity and reliability of measurement tools, using statistical analysis (e.g. factor analysis, reliability check). 12. Analyze the basic principles of Statistics and apply and utilize the correct statistical analyses and methods on a case-by-case basis. 13. Perform simple and complex statistical checks of both descriptive and inferential statistics. 14. Check the regularity of data and determine outliers.		
Prerequisites	N/A	Corequisites	N/A
Course Content	1. Comparison between Qualitative and Quantitative research 2. Ethics in data collection and results disseminations. Ethics in conducting research with children. 3. Mixed methods approaches. Triangulation. 4. Reviewing the literature and Literature Review using online databases and search tools. Strategic literature review. 5. Linking research questions with data collection. Identifying variables and planning research. 6. Quantitative research tools: questionnaires, tests, structured observations, rubrics. Validity assessment before and after data collection. 7. Qualitative research tools: qualitative interview, group interview, clinical interview, observation, field notes. Reflexivity and validity of data in qualitative research. 8. Sampling methods and techniques. Representativeness issues. Appropriate sample size. Sampling in qualitative research. 9. Types of variables and measurement scales. Data normality and outliers.		
Teaching Methodology	The class is taught using a variety of teaching methodologies that include lecturing, project-based learning, hands-on training, collaborative approach.		
Bibliography	**Textbooks:** 1. Thomas, J.R., Martin, P., Etnier, J., & Silverman, S.J. (2023). Research Methods in Physical Activity (8th ed.). Human Kinetics, Champaign, IL. 2. Silverman, S. J., Locke, L. F., & Spirduso, W. W. (2007). Proposals that work: A guide for planning dissertations and grant proposals. London: Sage Publications. 3. Silverman, D. (2006). Interpreting qualitiative data, (3rd ed.). London:		

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4. Silverman, D. (2009). Doing qualitative research: A practical handbook, (3rd ed.). London: Sage.
5. Creswell, J. W. (2016). Η έρευνα στην εκπαίδευση: Σχεδιασμός, διεξαγωγή και αξιολόγηση της ποσοτικής και ποιοτικής έρευνας (Επιμέλεια Χαράλαμπος Τσορμπατζούδης). Αθήνα: Ίων.
6. Λαγουμιντζής, Γ., Βλαχόπουλος, Γ., & Κουτσογιάννης, Κ. (2015). Μεθοδολογία της έρευνας στις επιστήμες υγείας. Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών. https://repository.kallipos.gr/handle/11419/5356
7. Χαλικιάς, Μ., Μανωλέσου, Α., & Λάλου, Ρ. (2015). Μεθοδολογία Έρευνας και Εισαγωγή στη Στατιστική Ανάλυση Δεδομένων με το IBM SPSS Statistics. Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών. https://repository.kallipos.gr/handle/11419/5075
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9. Αποστολάκης Ι., Δάρας Τ., Μ.Α. Σταμούλη, Ασκήσεις Υπολογιστικής Στατιστικής στην Υγεία, Τεύχος Α', Εκδόσεις Παπαζήση, Αθήνα, 2007.

References:

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2. Παπαναστασίου, Κ. & Παπαναστασίου, Ε.(2014). Μεθοδολογία εκπαιδευτικής έρευνας (2η έκδοση). Λευκωσία.
3. Beins, B. (2012). APA style simplified: Writing in psychology, education, nursing, and sociology. Oxford: Wiley-Blackwell.
4. Cohen, L. & Manion, L. & Morisson, K. (2008). Μεθοδολογία Εκπαιδευτικής Έρευνας. (Μετάφραση Σ. Κυρανάκης κ.α.). Αθήνα: Μεταίχμιο.
5. Cohen, L., Manion, L., & Morisson, K. (2007). Research methods in education. New York: Routledge.In English.
6. Green, J., Camilli, G., & Elmore, P. (Eds.). (2006). Handbook of

	Complementary Methods in Education Research. New Jersey: Lawrence Erlbaum Associates, Inc., Publishers. 7. Kazdin, A. E. (1995). Preparing and evaluating research reports. Psychological Assessment, 7(3), 228-237. doi:10.1037/1040-3590.7.3.228 8. Μακράκης, Β. (2005). Ανάλυση δεδομένων στην επιστημονική έρευνα με τη χρήση του SPSS. Αθήνα: Gutenberg. 9. Wiersma, W., & Jurs, S. (2008). Research methods in education: An introduction. F.E. Peacock Publishers.
Assessment	Final Written Examination (50%) Qualitative Research Project (20%) Quantitative Research Project (30%)
Language	Greek - English