Course Title	Research Methodology				
Course Code	MCB600				
Course Type	Compulsory				
Level	Master's (2nd cycle)				
Year / Semester	1st Year / 1st Semester				
Teacher's Name	TBA				
ECTS	10	Lectures / week	3 Hours	Laboratories / week	None
Course Purpose and Objectives	The main objectives of the Research Methodology course are to provide students the required skills to search the scientific literature, critically read and evaluate research articles and acquire knowledge on the basic principles of designing and conducting research in the field of cancer-related sciences. Part of the course will be devoted to planning and organization the Master Thesis proposal / protocol as well as to the description, analysis, documentation and presentation of its content. The ultimate goal of this course is the preparation, completion and successful presentation of the Master Thesis proposal which will serve as a foundation for the implementation of the Master Thesis course (MCB630).				
Learning Outcomes	Upon completion of the course, students will be able to: • List the sequential steps required to organize references in a literature review and perform experimental work. • Describe and explain the structure of scientific articles, summarize their content and consolidate it into a single text. • Define, explain and apply basic principles of biomedical research both in quantitative and qualitative studies, such as in DNA technology, protein analyses and Bioinformatics • Create research questions, formulate hypotheses and design research strategies for pertinent data acquisition. • Propose long term research goals and specific aims and apply rules for basic biomedical research projects. • Describe, distinguish and select the appropriate steps of a research protocol and acquire data both in quantitative and qualitative type of study. • Demonstrate abilities for literature search and analysis of personal reference databases. • Explain the results of systematic reviews in the field of biomedical sciences (PICOS, Search Techniques, Quality: Critical appraisal, Impact Factor, Staying up to date)				

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<tr><td></td><td colspan="3">Evaluate statistical issues in biomedical research, such as effect measure, hypothesis testing and confidence interval.
Utilize the SPSS program as an indispensable research tool in biomedical research.
Understand major ethical issues in human and animal studies and research ethics.
Plan, organize, create and implement a descriptive research proposal on a cancer-related topic in accordance with international standards and using reputable bibliographic systems.
Present, discuss and clearly analyze the problem, purpose, methodology of their research proposal.
Organize and carry out the presentation of their research proposal in written and in the form of oral presentation.</td></tr>
<tr><td>Prerequisites</td><td>None</td><td>Required</td><td>None</td></tr>
<tr><td>Course Content</td><td colspan="3">Description:
Description of the main concepts and types of scientific research, learning the value of ethics in research, as well as defining the scientific approaches related to problem solving in the field of biomedical sciences
Training in searching scientific information using advanced techniques and search strategies in a variety of databases
Clarification of the concept of research hypotheses formulation, research protocol design, and pilot studies conduction
Learning various sampling procedures as well as the concepts of reliability and validity in research
Analysis of problems related to the internal and external validity of an experiment, and provision of ways to address them
Means of data collection and management depending on certain variables and scales
Critical reading and evaluation of the quality of published research work
Methods for writing and presenting research results
Analysis of research data and presentation in the form of tables and charts using the SPSS statistical program
Methods for calculation and evaluation of statistically significant differences between compared experimental groups.
Detailed description of the course content and requirements as listed in the pertinent Master Thesis Guide.
Selected lectures on the subject of the dissertation in which specific issues related to the different types of scientific work, the design as well as the implementation of the literature review and/or biomedical research project are being discussed.</td></tr>
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	Preparation and presentation of the research proposal: • Students should select a Master Thesis topic by week 2, from a list of topics offered by program faculty. Students should prepare and write a research proposal on the topic undertaken under the guidance of their supervisor. The research topic and proposal outline is finalized after the successful defense of their research proposal / protocol both in written form as well as through an oral presentation to the proposal committee members.
Teaching Methodology	Face to face
Bibliography	Michael P. Marder, *Research Methods for Science.* Cambridge University, Latest edition. Laake P., Benestad H.B. and Olsen B.R. *Research methodology in the medical and biological sciences*. Amsterdam; Boston; London: Academic, Latest edition D. Madsen, SUCCESSFUL DISSERTATIONS AND THESES., A GUIDE TO GRADUATE STUDENT RESEARCH FROM PROPOSAL TO COMPLETION, John Wiley, Latest edition Master Thesis Guide, 1st edition, 2018, Department of Life Sciences, European University Cyprus Selected scientific articles in pdf format pertinent to the proposed project EUC Library
Assessment	Mid-Term Examination 20% Final Examination 30% Written proposal 30% Oral presentation 10% Class participation 10% **Total** **100%** *It should be noted that completion of this course requires successful completion of every one of its evaluation components*
Language	English