

Course Title	Methods in Basic Science and Clinical Research				
Course Code	PMS700				
Course Type	Compulsory				
Level	Doctoral (3 rd cycle)				
Year / Semester	1 st year / 1 st semester				
Teacher's Name	TBA				
ECTS	10	Lectures / week	3 hours/14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	<p>The purpose of this course is to provide an overview of research designs with an emphasis on observational studies and evidence synthesis methods. Further, to peer into statistics for execution and appraisal of clinical research, to present methodological tools and resources for performing observational studies and evidence synthesis, and to provide the opportunity for hands-on training with statistical and evidence appraisal platforms. Finally, to delineate principles of scientific writing and submission for publication in peer-reviewed journals, and to provide information on how to communicate scholarly work in scientific events and through the media</p>				
Learning Outcomes	<p>Upon successful completion of the course students should be able to:</p> <ul style="list-style-type: none"> • Formulate a research question • Select the appropriate study design and resources appropriate for the research question • Know how to prepare a study protocol • Identify and interpret the value of research methodology in the various areas of medical science • Identify and interpret both advanced quantitative and qualitative studies • Recognize and analyze and describe steps of the research design - protocol and collection of data in both quantitative and qualitative studies • Recognize ways in creating or/and weighing survey questions or assessment tools, taking into account the importance of concepts of reliability and validity in both research and clinical practice, thus avoiding any systematic errors • Apply various sampling procedures 				

	<ul style="list-style-type: none"> • Analyze problems related to the internal and external validity of a research and provide ways to solve those problems • Critically read and evaluate the quality of published research work with various assessment tools in the field of medical sciences so that they can understand limitations of research in an article • Collect available data on both published and unpublished studies (grey-literature) responding to a specific and pre-determined research question, to interpret results of systematic reviews and meta-analysis in basic and clinical medical science. 		
Prerequisites	None	Co-requisites	None
Course Content	<p>Students will be introduced to the various research methodologies applied in medical science, including basic research, observational studies, clinical studies and trials, epidemiologic studies and qualitative research. In addition, students will learn to assess the available knowledge using advanced search strategies across a variety of electronic medical databases, in order to synthesize the available evidence and assess the quality of the evidence. The concepts of the research problem, testable hypotheses and protocols, as well as pilot research will be addressed. The various sampling methods and the concepts of reliability and validity will be introduced, and the various threats that may affect the internal and external validity of an experiment and how to deal with them will be analyzed. Students will be exposed to the various data collection tools, as well as data handling according to the relevant variables and scales. Students will be introduced to systematic reviews and meta-analysis, the hierarchy of scientific documentation and how to critically review the quality of published articles.</p>		
Teaching Methodology	Face-to face		
Bibliography	<ol style="list-style-type: none"> 1. Laake P., Benestad H. and Olsen B. (2015) Research in Medical and Biological Sciences: From Planning and Preparation to Grant Application and Publication. Elsevier 2. Supino, P.G., Borer, J.S. (2012) Principles of Research Methodology: A Guide for Clinical Investigators. Springer 		

Assessment	<table border="1"> <tr> <td>Final Exam</td> <td>40%</td> </tr> <tr> <td>Class Participation and attendance</td> <td>10%</td> </tr> <tr> <td>Assignment 1</td> <td>25%</td> </tr> <tr> <td>Assignment 2</td> <td>25%</td> </tr> <tr> <td>Total</td> <td>100%</td> </tr> </table>	Final Exam	40%	Class Participation and attendance	10%	Assignment 1	25%	Assignment 2	25%	Total	100%
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