



SYLLABUS of the MODULE (SUBJECT)
General Information

Module title: Methodology of scientific research	
Module type	Obligatory
Faculty PMU	Faculty of Medicine
Major	Medicine
Level of study	long-cycle (S2J)
Mode of study	full-time studies
Year of studies, semester	Year III, semester V
ECTS credits (incl. semester breakdown)	1
Type/s of training	Lectures (5h), seminars (10 h)
Form of assessment*	<input checked="" type="checkbox"/> graded assessment: <input type="checkbox"/> descriptive <input type="checkbox"/> test <input checked="" type="checkbox"/> practical <input type="checkbox"/> oral <input type="checkbox"/> non-graded assessment <input type="checkbox"/> final examination <input type="checkbox"/> descriptive <input type="checkbox"/> test <input type="checkbox"/> practical <input type="checkbox"/> oral
Head of the Department/ Clinic, Unit	Prof. dr hab. n. zdr. Anna Grzywacz
Tutor responsible for the module	Dr n. med. Aleksandra Suchanecka e-mail: aleksandra.suchanecka@pum.edu.pl
Department's/ Clinic's/ Unit's website	https://www.pum.edu.pl/studia_iii_stopnia/informacje_z_jednostek/wmis/katedra_diagnostyki_laboratoryjnej/samodzielna_pracownia_genetyki_i_epigenetyki_behawioralnej/
Language	English

* replace into where applicable

Detailed information

Module objectives		The aim of the scientific research methodology course is to: acquire basic knowledge about conducting scientific research; acquire basic skills necessary in scientific research (searching for and interpreting the content of articles, planning and conducting research, presenting results)
Prerequisite /essential requirements	Knowledge	Knowledge of the basics of statistics, epidemiology, and the fields of medicine relevant to the research project
	Skills	Ability to use computer equipment; Ability to use MS Office and websites.
	Competences	Ability to work in a team; habit of being systematic and self-educating.

Description of the learning outcomes for the subject /module			
No. of learning outcome	Student, who has passed the (subject) knows /is able to /can:	SYMBOL (referring the standards)	Method of verification of learning outcomes*
W01	principles of conducting scientific, observational and experimental research, as well as in vitro research for the advancement of medicine	B.W 29	K
W02	explains the principles of teamwork.	D.W.18	K
W03	presents the basics of evidence-based medicine.	D.W.23	K
U01	use databases, including online databases, and search for necessary information using available tools	B.U 10	K
U02	explain the differences between prospective and retrospective studies, randomised and clinical control studies, case reports and experimental studies, and rank them according to the reliability and quality of scientific evidence	B.U 12	K
U03	plan and carry out simple scientific investigations, interpret their results and draw conclusions	B.U 13	K
U04	communicates with colleagues, providing feedback and support.	D.U12	K
U05	critically analyses medical literature, including in English, and draws conclusions.	D.U17	K
K01	use of objective sources of information	K.7	O
K02	conclude from one's own measurements or observations	K.8	O
K03	formulate opinions on various aspects of professional activity	K.10	O

Table presenting LEARNING OUTCOMES in relation to the form of classes		
	Learning outcomes	Type of training

No. of learning outcome		Lecture	Seminar	Practical	Clinical classes	Simulations	E-learning	Other...
W01	B.W 29		X					
W02	D.W.18	X						
W03	D.W23	X						
U01	B.U 10		X					
U02	B.U 12		X					
U03	B.U 13		X					
U04	D.U12	X						
U05	D.U17	X						
K01	K.7		X					
K02	K.8		X					
K03	K.10		X					

Table presenting TEACHING PROGRAMME

No. of a teaching programme	Teaching programme	No. of hours	References to learning outcomes
Winter semester			
Seminars			
TK01	Planning scientific research in medicine.	2	B.W 29, B.U 13, K.7, K.8, K.10
TK02	Scientific databases.	2	B.U 10, K.7, K.8, K.10
TK03	Types of research protocols and types of scientific research.	2	B.W 29, B.U 12, K.7, K.8, K.10
TK04	Literature review. Publication structure.	2	B.U 10, K.7, K.8, K.10
TK05	Stages of designing a research study.	2	B.W 29, B.U 13, K.7, K.8, K.10
Lectures			
TK.01	Stages of scientific work. Planning scientific research in medicine. Literature review. Databases.	1	D.W18, D.U17
TK.02	Confounding factors in scientific research. Collaboration between clinicians and researchers working in basic sciences. Bioethics Committee.	1	D.W18, D.U12
TK.03	Basics of reasoning in medical sciences. Data collection and processing.	1	D.W.18, D.U12
TK.04	Observation as a source of measurement data. Measurement error and uncertainty of results in scientific research and clinical practice.	1	D.W23, D.U17
TK.05	Application of results in clinical practice. Evidence-based medicine.	1	D.W23, D.U17

Booklist

Obligatory literature:

1. Wayne C. Booth, Gregory G. Colomb, Joseph M. Williams, Joseph Bizup and William T. FitzGerald. The Craft of Research, Fourth Edition. The University of Chicago Press. 2016

2. Robert A. Day and Barbara Gastel. How to Write and Publish a Scientific Paper: Seventh Edition Cambridge University Press, 2012

Supplementary literature:

1. Denys Wheatley. Scientific Writing and Publishing. A Comprehensive Manual for Authors. Published online by Cambridge University Press: 14 October 2021

Student's workload	
Form of student's activity (in-class participation; activeness, produce a report, etc.)	Student's workload [h]
	Tutor
Contact hours with the tutor	15
Time spent on preparation to seminars/ practical classes	
Time spent on reading recommended literature	8
Time spent on writing report/making project	
Time spent on preparing to colloquium/ entry test	4
Time spent on preparing to exam	
Other	
Student's workload in total	27
ECTS credits for the subject (in total)	1
Remarks	

* Selected examples of methods of assessment:

EP – written examination

EU – oral examination

ET – test examination

EPR – practical examination

K – colloquium

R – report

S – practical skills assessment

RZC – practical classes report, incl. discussion on results

O – student's active participation and attitude assessment

SL – lab report

SP – case study

PS - assessment of student's ability to work independently

W – entry test

PM – multimedia presentation

other...