

## COURSE SYLLABUS AND COURSE REQUIREMENTS

ACADEMIC YEAR: 2024-2025 SEMESTER: 1.

<i>Course title</i>	<i>Research Methodology</i>
<i>Course Code</i>	MSM618MNEG
<i>Hours/Week: le/pr/lab</i>	3/0/0
<i>Credits</i>	3
<i>Degree Programme</i>	Biomedical Engineering MSc
<i>Study Mode</i>	Full-time
<i>Requirements</i>	Mid-term exam
<i>Teaching Period</i>	Fall
<i>Prerequisites</i>	-
<i>Department(s)</i>	Department of Applied Informatics
<i>Course Director</i>	Prof. Dr. Nyitrai Miklós
<i>Teaching Staff</i>	Prof. Molnar F. Tamás, Dr. Schiffer Ádám

## COURSE DESCRIPTION

A short description of the course (max. 10 sentences).

Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description

The aim of the course is to provide students the knowledge and skills required for research activities. During the semester the participants will learn the steps of professional literature research and get acquainted with the most important internet databases. Students will be introduced to the structure of scientific works, students will also obtain methodological knowledge, as well as the skills to evaluate and interpret data, preparing them for the critical, analytical thinking required for scientific work. Completion of the semester requires the preparation of an independent research plan by the end of the semester, which can serve as a basis for their later project work or thesis.

## SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

### 1. GOALS AND OBJECTIVES

Goals, student learning outcome.

Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

The goals are helping these students to develop the subject of their research, encourage the formation of higher level of trained intellectual ability, critical analysis, accuracy, and independence of thought, foster individual judgement, and skill in the application of research theory and methods, and develop skills required in writing research proposals, reports, and dissertation. The students should be familiar with the basics of scientific research tactics and strategies. How to produce high quality science and how to publish it. You are to be familiar with the basic research terminology, categories. A sort of mental compass is offered to pocket it – be ready when needed. You can start walking on your own pathway.

### 2. COURSE CONTENT

Neptun: Instruction/Subjects/Subject Details/Syllabus/Subject content

#### TOPICS

#### LECTURE

1. *Meaning and objectives of the research, scientific thinking*
2. *Typology of research*
3. *Medicine and technology. Vulcanus and Aesculapius: Greek Medtech?*
4. *Dynamics of an idea; start from square one.*
5. *Legal aspects and moral questions. Basics of publication policy: tactics and strategy.*
6. *The review of the literature*
7. *The Research Hypotheses*
8. *Statistics and MATLAB basics*

**PRACTICE  
LABORATORY  
PRACTICE**

## DETAILED SYLLABUS AND COURSE SCHEDULE

ACADEMIC HOLIDAYS INCLUDED

### LECTURE

week	Topic	Compulsory reading; page number (from ... to ...)	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	Introduction	...	...	
2.	Meaning and objectives of the research, scientific thinking			
3.	Typology of research			
4.	Medicine and technology. Vulcanus and Aesculapius: Greek Medtech?			
5.	Dynamics of an idea; start from square one.			
6.	Legal aspects and moral questions. Basics of publication policy: tactics and strategy.		Literature research document	6. week
7.	The Research Hypotheses			
8.	Statistics and MATLAB basics I			
9.	HOLIDAY			
10.	Statistics and MATLAB basics II			
11.	LaTeX basics I.			
12.	LaTeX basics II.		Statistics homework	12. week
13.	Project work consultancy			

### 3. ASSESSMENT AND EVALUATION

(Neptun: Instruction/Subjects/Subject Details/Syllabus/Examination and Evaluation System)

#### ATTENDANCE

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description.

**Method for monitoring attendance** (e.g.: attendance sheet / online test/ register, etc.)

Attendance sheet

#### ASSESSMENT

Cells of the appropriate type of requirement is to be filled out (course-units resulting in mid-term grade or examination). Cells of the other type can be deleted.

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**Course resulting in mid-term grade (PTE TVSz 40§(3))**

**Mid-term assessments, performance evaluation and their ratio in the final grade**

Type	Assessment	Ratio in the final grade
Statistics homework in MATAB	40 points	50 %
Research plan	40 points	50 %

**Opportunity and procedure for re-takes** (PTE TVSz 47§(4))

The statistic and the research plan can be improved.

### **Grade calculation as a percentage**

*based on the aggregate performance according to the following table*

<b>Course grade</b>	<b>Performance in %</b>
excellent (5)	85 % ...
good (4)	70 % ... 85 %
satisfactory (3)	55 % ... 70 %
pass (2)	40 % ... 55 %
fail (1)	below 40 %

The lower limit given at each grade belongs to that grade.

## **4. SPECIFIED LITERATURE**

*In order of relevance. (In Neptun ES: Instruction/Subject/Subject details/Syllabus/Literature)*

### **COMPULSORY READING AND AVAILABILITY**

- [1.] ☐ Ranjit Kumar: Research Methodology: A Step-by-Step Guide for Beginners, SAGE Publication, 2010
- [2.] ☐ Ranjan Das: Biomedical Research Methodology: Including Biostatistical Applications 1st Edition, Jaypee, 2010

### **RECOMMENDED LITERATURE AND AVAILABILITY**

- [3.] .....
- [4.] .....
- [5.] .....