

Department of Pathophysiology														
TOTAL per year: 40														
Biostatistics and Medical Informatics Unit Department of Pathophysiology	10				30								15	

Educational objectives (max. 6 items)

- C1. to familiarize students with the basic types of computer networks, databases, acquisition systems and signal processing,
- C2. keeping electronic record and presentation of medical data,
- C3. explore the possibilities of telemedicine,
- C4. knowledge of basic statistical concepts, experimental (research) systems and elements of epidemiology,
- C5. practical application of information technology to information processing and performing some statistical tests in typical systems in medical research,
- C6. teaching of results interpretation and the skills of critical analysis of the literature.

Education result matrix for module/course in relation to verification methods of the intended education result and the type of class

Number of course education result	Number of major education result	Student who completes the module/course knows/is able to	Methods of verification of intended education results (forming and summarising)	Form of didactic class <i>**enter the abbreviation</i>
K 01	B.W26.	student knows the basic computer and biostatistical methods used in medicine, medical database, worksheets and basis of computer graphics	Final (winter) practical computer test	L, LC
K 02	B.W27.	student knows the basic methods of statistical analysis used in the study population and diagnostic investigations	Oral response	L, LC
K 03	B.W28.	knows the capabilities of modern telemedicine as a tool to support the work of a doctor;	Oral response	L, LC
K 04	B.W29.	knows the rules of scientific research (observational and experimental)	Oral response	L
S 01	B.U10.	student uses the databases, including the Internet, and searches for the required information using available tools	Final (winter) practical computer test	LC
S 02	B.U11.	student selects an appropriate statistical test, performs basic statistical analyzes and uses appropriate methods to present the results; interprets the results of meta-analyzes and assesses probability of survival	Final (summer) practical computer test with biostatistics analysis and medical interpretation of obtained results	LC

S 03	B.U12.	student explains the differences between prospective and retrospective studies, randomized and case-control, case descriptions and experimental researches; ranks them according to the reliability and quality of the scientific evidences	Oral response	LC
S 04	B.U13.	student plans and performs a simple scientific study; interprets the results and draws conclusions	Final (summer) practical computer test with biostatistics analysis and medical interpretation of obtained results	LC

** L - lecture; SE - seminar; AC – auditorium classes; MC – major classes (non-clinical); CC – clinical classes; LC – laboratory classes; SCM – specialist classes (magister studies); CSC – classes in simulated conditions; FLC – foreign language course; PCP practical classes with patient; PE – physical education (obligatory); VP – vocational practice; SS – self-study, EL – E-learning.

Please mark on scale 1-5 how the above effects place your classes in the following categories:
communication of knowledge, skills or forming attitudes:

Knowledge: 5

Skills: 5

Student's amount of work (balance of ECTS points)

Student's workload (class participation, activity, preparation, etc.)	Student Workload (h)
1. Contact hours:	40
2. Student's own work (self-study):	15
Total student's workload	55
ECTS points for module/course	3
Comments	

Content of classes (please enter topic words of specific classes divided into their didactic form and remember how it is translated to intended educational effects)

Lectures

1. Introduction, history, computer systems in healthcare and medical research -2.5 hours.
2. Medical robots, artificial intelligence, telemedicine and e health -2.5 hours.
3. The basic biostatistical concepts, types of random variables, random events -2.5 hours.
4. The experimental systems used in medical research, prospective and retrospective. The normal distribution and confidence intervals for the mean -2.5 hours.

Seminars

- 1.
- 2.
- 3.

Practical classes

Winter semester

1. Terms and Conditions of the computer lab, familiarize yourself with the operating system, search for information on the University websites, using e-mail, image files -2 hours
2. Editing of medical texts in MS Word - text formatting, working with tables, references -2 hours
3. Excel Sheets - tables and graphs, importing data, standard functions, creating your own functions -2 hours
4. Databases - MS Excel / MS Word - archiving, searching, sorting, filtering, communication between MS Office programs -2 hours

5. Support for the medical clinic and practice, electronic medical history - creating tables and reports -2 hours
6. Creating a presentation in MS Power Point - slides, templates, text and tables, presentation of images and figures, full-service presentation with sound and animation -2 hours
7. The practical test at the computer; problem-solving skills in unusual situations -2 hours
8. Discussion and analyzing of results of the test – 1 hour

Summer semester

1. Frequency tables, histograms and probability distributions -2 hours
2. Graphical presentation of relationships between to variables. Elements of epidemiology: relative risk, odds ratio, sensitivity and specificity of diagnostic tests -2 hours
3. Cross tabulation and Chi-square test -2 hours
4. Comparing two means in two independent samples, t test -2 hours
5. T test for dependent samples and analysis of variance -2 hours
6. The use of linear regression and correlation coefficients in medical research -2 hours
7. Practical test expanding selection skills of known biostatistical tests to analyze clinical data in real situation (measurable properties, dichotomous, dependent, independent, describing various properties of objects) -2 hours
8. Discussion and analyzing of results of the test – 1 hour

Other

1.
etc. ...

Basic literature (list according to importance, no more than 3 items)

1. B.R. Kirkwood, J.A. Sterne – Essential Medical Statistics, Blackwell Science 1988, 2003

Additional literature and other materials (no more than 3 items)

1. B. Rosner – Fundamentals of Biostatistics, Duxbury Thomson Learning 2000

Didactic resources requirements (e.g. laboratory, multimedia projector, other...)

Computer laboratory, multimedia projector, dry eraser board + markers

Preliminary conditions (minimum requirements to be met by the student before starting the module/course)

Knowledge of maths and computer skills at the high school level

Conditions to receive credit for the course (specify the form, criteria and conditions of receiving credit for classes included in the module/course, admission terms to final theoretical or practical examination, its form and requirements to be met by the student to pass it and criteria for specific grades).

The condition for receiving a credit each semester is to pass a practical test on a computer. To take the test, the student must have 100% attendance. Each absence must be made up, including rector days and dean's hours (the form of making up for absence should be agreed with the teacher).

The final test consists of a few tasks. Student can get up to 20 points. To pass the subject, student must score at least 10 points.

Each student in the group has a different version of the database based on which he solves the task.

Grade:	Criteria for course
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Very Good (5.0)	17-20 points obtained in the test
Good Plus (4.5)	15-16 points obtained in the test
Good (4.0)	13-14 points obtained in the test
Satisfactory Plus (3.5)	11-12 points obtained in the test
Satisfactory (3.0)	At least 10 points obtained in the test
Grade:	Criteria for exam (if applicable)
Very Good (5.0)	
Good Plus (4.5)	
Good (4.0)	
Satisfactory Plus (3.5)	
Satisfactory (3.0)	

Name of unit teaching course:	Biostatistics and Medical Informatics Unit Department of Pathophysiology
Address	ul. Tytusa Chalubińskiego 6a (building D-10), 50-368 Wrocław
Phone	71-784-12-70
E-mail	agnieszka.rusiecka@umed.wroc.pl (www.bim.umed.wroc.pl)

Person responsible for course:	Dr Agnieszka Rusiecka
Phone	71-784-12-70
E-mail	agnieszka.rusiecka @umed.wroc.pl (www.bim.umed.wroc.pl)

<i>List of persons conducting specific classes:</i>	<i>degree/scientific or professional title</i>	<i>Discipline</i>	<i>Performer profession</i>	<i>Form of classes</i>
Agnieszka Rusiecka	doctor of biological sciences	biological sciences	assistant	L, LC

Date of Syllabus development

May, 31st, 2020

Syllabus developed by

Dr Lesław Rusiecki

Signature of Faculty Dean



 prof. Beata Sołtyszczńska, PhD

Signature of Head of teaching unit

Uniwersytet Medyczny we Wrocławiu
 KATEDRA PATOFIZJOLOGII
 ZAKŁAD PATOFIZJOLOGII
 kierownik

 prof. dr hab. n. med. Witold Piłecki

