



Syllabus for academic year: 2021/2022														
Training cycle: 2021/2027														
Description of the course														
Course	Basic Information Technology and Biostatistics										Group of detailed education results			
											Group code B	Group name SCIENTIFIC BASIS OF MEDICINE		
Faculty	Faculty of Medicine													
Major	medicine													
Level of studies	<input checked="" type="checkbox"/> uniform magister studies <input type="checkbox"/> 1 st degree studies <input type="checkbox"/> 2 nd degree studies <input type="checkbox"/> 3 rd degree studies <input type="checkbox"/> postgraduate studies													
Form of studies	<input checked="" type="checkbox"/> full-time <input type="checkbox"/> part-time													
Year of studies											Semester:	<input checked="" type="checkbox"/> winter <input checked="" type="checkbox"/> summer		
Type of course	<input checked="" type="checkbox"/> obligatory <input type="checkbox"/> limited choice <input type="checkbox"/> free choice / optional													
Language of study	<input type="checkbox"/> Polish <input checked="" type="checkbox"/> English													
Number of hours														
Form of education														
	Lectures (L)	Seminars (SE)	Auditorium classes (AC)	Major Classes – not clinical (MC)	Clinical Classes (CC)	Laboratory Classes (LC)	Classes in Simulated Conditions (CSC)	Practical Classes with Patient (PCP)	Foreign language Course (FLC)	Physical Education (PE)	Vocational Practice (VP)	Directed Self-Study (DSS)	E-learning (EL)	
Winter semester:														
Statistical Analysis Centre (Dep. in charge of the course)														
Direct (contact) education ¹				15										
Distance learning ²	10													
Summer semester:														
Statistical Analysis Centre (Dep. in charge of the course)														
Direct (contact) education				15										
Distance learning														

¹ Education conducted with direct participation of university teachers or other academics

² Education with applied methods and techniques for distance learning



TOTAL per year:												
Statistical Analysis Centre (Dep. in charge of the course)												
Direct (contact) education				30								
Distance learning	10											
Educational objectives (max. 6 items)												
<p>C1. to familiarize students with the basic types of computer networks, databases, acquisition systems and signal processing,</p> <p>C2. keeping electronic record and presentation of medical data,</p> <p>C3. knowledge of basic statistical concepts, experimental (research) systems and elements of epidemiology,</p> <p>C4. practical application of information technology to information processing and performing some statistical tests in typical systems in medical research,</p> <p>C5. teaching of results interpretation and the skills of critical analysis of the literature.</p> <p>C6. Development social competences needed to practice the medical profession, in accordance with graduate's profile.</p>												
Education result for course in relation to verification methods of the intended education result and the type of class:												
Number of detailed education result	Student who completes the course knows/is able to				Methods of verification of intended education results			Form of didactic class <i>*enter the abbreviation</i>				
B.W26.	the basic IT and biostatistical tools used in medicine, including medical databases, spreadsheets and basic computer graphics;				Final (winter) practical computer test			L, MC				
B.W27.	the basic methods of statistical analysis used in population-based and diagnostic studies;				Oral response			L, MC				
B.W29.	the principles of scientific, observational and experimental research and <i>in vitro</i> studies for the development of medicine.				Oral response			L, MC				
B.U10.	use databases, including online databases, and search for required information using the available tools;				Final (winter) practical computer test			MC				
B.U11.	choose an appropriate statistical test, perform basic statistical analyses, use appropriate methods for the presentation of results, interpret results of meta-analyses and perform survival probability analysis;				Final (summer) practical computer test with biostatistics analysis and medical interpretation of obtained results			MC				
B.U12.	explain the differences between prospective and retrospective, randomised and case-control studies, case reports and experimental studies, and rank them according to the reliability and the quality of scientific evidence;				Oral response			MC				
* L- lecture; SE- seminar; AC- auditorium classes; MC- major classes (non-clinical); CC- clinical classes; LC- laboratory classes; CSC-												



classes in simulated conditions; PCP- practical classes with patient; FLC- foreign language course; PE- physical education; VP- vocational practice; DSS- directed self-study; EL- E-learning

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

Student's workload (class participation, activity, preparation, etc.)	Student Workload
1. Number of hours of direct contact:	30
2. Number of hours of distance learning:	10
3. Number of hours of student's own work:	20,5
4. Number of hours of directed self-study	n/a
Total student's workload	60,5
ECTS points for course	2,5

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.
- ect.

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

<p>situation (measurable properties, dichotomous, dependent, independent, describing various properties of objects) -2 hours</p> <p>8. Discussion and analyzing of results of the test – 1 hour</p>
<p>Other</p> <p>1. 2. 3. ect.</p>
<p>Basic literature (list according to importance, no more than 3 items)</p> <p>1. Rajeev A, Malhotra K. Medical Biostatistics, 4th edition. Chapman and Hall/CRC 2018.</p> <p>Additional literature and other materials (no more than 3 items)</p> <p>1. Pagano M., Gauvreau K. Principles of Biostatistics– Fundamentals of Biostatistics, Chapman and Hall/CRC 2018.</p>
<p>Preliminary conditions: (minimum requirements to be met by the student before starting the course)</p> <p>Knowledge of maths and computer skills at the high school level</p>
<p>Conditions to receive credit for the course: (specify the form and conditions of receiving credit for classes included in the 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)</p> <p>Attention! Attendance can not be a condition for passing the course.</p> <p>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).</p> <p>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.</p> <p>Each student in the group has a different version of the database based on which he solves the task.</p>

Grade:	Criteria for courses ending with a grade ³
Very Good (5.0)	17-20 points obtained in the test
Good Above (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
	Criteria for courses ending with a credit³
Credit	Does not apply to the Faculty of Medicine

Grade:	Criteria for exam ³
Very Good (5.0)	
Good Above (4.5)	
Good (4.0)	
Satisfactory Plus (3.5)	
Satisfactory (3.0)	

Department in charge of the course:	Statistical Analysis Centre
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³ The verification must cover all education results, which are realized in all form of classes within the course



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List of persons conducting specific classes:

Name and surname	Degree/scientific or professional title	Discipline	Performed profession	Form of classes
Agnieszka Rusiecka	doctor of biological sciences	biological sciences	assistant	L, MC

Date of Syllabus development

30.06.2021

Syllabus developed by

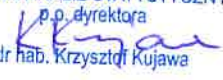
dr Agnieszka Rusiecka

Signature of Head(s) of teaching unit(s)

Dean's signature

Wrocław Medical University
Faculty of Medicine
Vice-Dean for Quality Matters

prof. Beata Słobieszczanska, PhD

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CENTRUM ANALIZ STATYSTYCZNYCH
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