Appendix 5
to Resolution No. 15630
of Senate of Wroclaw Medical University
of 30 March 2016

Syllabus 2017/2018														
Description of the course														
Module/Course	***Basic Information Technology and Biostatistics***										Group of detailed education results			
											Group code **B**	Group name ***SCIENTIFIC BASIS OF MEDICINE***		
Faculty	Medicine													
Major	medicine													
Specialties	Not applicable													
Level of studies	Uniform magister studies X* 1st degree studies ☐ 2nd degree studies ☐ 3rd degree studies ☐ postgraduate studies ☐													
Form of studies	X full-time X part-time													
Year of studies	I									Semester	X Winter X Summer			
Type of course	X obligatory ☐ limited choice ☐ free choice / elective													
Course	☐ major ☐ basic													
Language of instruction	☐ Polish X English ☐ other													
* mark ☐ with an X														
Number of hours														
Form of education														
Unit teaching the course	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)	Specialist Classes – magister studies (SCM)	Foreign language Course (FLC)	Physical Education obligatory (PE)	Vocational Practice (VP)	Self-Study (Student's own work)	E-learning (EL)
Winter Semester														
Biostatistics and Medical Informatics Unit Department of Pathophysiology	10					15							7,5	
Summer Semester														

Biostatistics and Medical Informatics Unit Department of Pathophysiology						15							7,5	
TOTAL per year: 40														

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 ***enter the abbreviation*
W 01	**B.W30.**	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
W 02	**B.W31.**	student knows the basic methods of statistical analysis used in the study population and diagnostic investigations	Final (summer) practical computer test with biostatistics analysis and medical interpretation of obtained results	L, LC
W 03	**B.W32.**	knows the basic methods of statistical analysis used in population and diagnostic studies	Oral response	L, LC

W 04	**B.W33.**	knows the capabilities of modern telemedicine as a tool to support the work of a doctor;	Oral response	L, LC
W 05	**B.W34.**	knows the rules of scientific research (observational and experimental)	Oral response	L
U 01	**B.U11.**	student uses the databases, including the Internet, and searches for the required information using available tools	Final (winter) practical computer test	LC
U 02	**B.U12.**	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
U 03	**B.U13.**	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
U 04	**B.U14.**	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
		student willingly participates in searching for medical information in Internet	solving some practical problems during classes	
W 01		student actively participates in creation of simple biostatistics tools	solving some practical problems during classes	

U 01				
K 01				

** 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: +++++
Skills: +++++
Social competences: +++

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. medical robots, artificial intelligence, telemedicine and e health
3. The basic biostatistical concepts, types of random variables, random events
4. The experimental systems used in medical research, prospective and retrospective. The normal distribution and confidence intervals for the mean.

Seminars

1.
2.
3.

Practical classes

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. Editing of medical texts in MS Word - text formatting, working with tables, references
3. Excel Sheets - tables and graphs, importing data, standard functions, creating your own functions
4. Databases - MS Excel / MS Word - archiving, searching, sorting, filtering, communication between MS Office programs
5. Support for the medical clinic and practice, electronic medical history - creating tables and reports
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
7. The practical test at the computer; problem-solving skills in unusual situations

8. Frequency tables, histograms and probability distributions
9. Graphical presentation of relationships between to variables. Elements of epidemiology: relative risk, odds ratio, sensitivity and specificity of diagnostic tests.
10. Cross tabulation and Chi-square test.
11. Comparing two means in two independent samples, t test.
12. T test for dependent samples and analysis of variance.
13. The use of linear regression and correlation coefficients in medical research.
14. 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).

Other

1.

2.

3.

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)

No preliminary conditions

Conditions to receive credit for the course (specify the form 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 med by the student to pass it and criteria for specific grades)

Attendance during classes (according to the study regulations) and passing the theoretical and the final practical tests after each semester.

Grade:	**Criteria** (only for courses/modules ending with an examination)
Very Good (5.0)	*Credit without note*
Good Plus (4.5)	
Good (4.0)	

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Satisfactory Plus (3.5)	
Satisfactory (3.0)	

Name and address of module/course teaching unit, contact: telephone and e-mail address

Biostatistics and Medical Informatics Unit in Department of Pathophysiology
Tel.71-784-12-69, -62, e-mail: leslaw.rusiecki@umed.wroc.pl (www.bim.umed.wroc.pl)

Coordinator / Person responsible for module/course, contact: telephone and e-mail address

Dr Lesław Rusiecki, phone71-784-12-69, -62,
e-mail: leslaw.rusiecki@umed.wroc.pl,(www.bim.umed.wroc.pl)

List of persons conducting specific classes: full name, degree/scientific or professional title, discipline, performed profession, form of classes.

Lesław Rusiecki, dr, adiunkt, L, LC

Date of Syllabus development

30th June 2017

Syllabus developed by

Dr Lesław Rusiecki.

Signature of Head of teaching unit

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KATEDRA PATOFIZJOLOGII
ZAKŁAD PATOFIZJOLOGII
kierownik
prof. dr hab. n. med. Witold Pilecki

Signature of Faculty Dean

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Wroclaw Medical University
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