



Pomeranian Medical University in Szczecin

SYLLABUS of the MODULE (SUBJECT) General Information

Module title:	Basic computer science with biostatistics
Module type	<i>Obligatory</i>
Faculty PUM	<i>Faculty of Medicine and Dentistry</i>
Major	<i>Dentistry</i>
Level of study	<i>long-cycle (S2J)</i>
Mode of study	<i>full-time studies</i>
Year of studies, semester	<i>year I, semester I</i>
ECTS credits (incl. semester breakdown)	<i>1,5</i>
Type/s of training	<i>lectures (5h), laboratory classes (20h)</i>
Form of assessment ¹	<input checked="" type="checkbox"/> graded assessment: <input type="checkbox"/> descriptive <input checked="" type="checkbox"/> test <input type="checkbox"/> practical <input checked="" type="checkbox"/> oral
Head of the Department/ Clinic, Unit	<i>prof. dr hab. n. med. Krzysztof Safranow</i>
Tutor responsible for the module	<i>dr n. tech. inż. Janusz Paweł Kowalski-Stankiewicz</i>
Department's/ Clinic's/ Unit's website	<i>Mail: biostat@pum.edu.pl</i>
Language	<i>English</i>

¹ replace into where applicable

Detailed information

Module objectives		<i>The aim of the module is teaching of the analysis of measurement data, teaching of the stochastic phenomena description and evaluation and conclusions based on the data collected</i>
Prerequisite /essential requirements	Knowledge	<i>Basic knowledge of the probability theory</i>
	Skills	<i>Basic ability to use any web browser and the ability to use bibliographic sources</i>
	Competences	<i>Ability to work in a team</i>

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	knows and understands basic IT and biostatistical tools used in medicine, including medical databases, spreadsheets, and basic computer graphics	B.W23.	K, S, PS
W02	knows and understands basic statistical analysis methods used in population and diagnostic studies	B.W24.	K, S, PS
U01	is able to critically review medical literature, including English-language literature and draw conclusions	B.U11.	K, S, PS
U02	can select an appropriate statistical test, perform basic statistical analyses, use appropriate methods of presenting results, and interpret the results of a meta-analysis	B.U12.	K, S, PS
K01	is ready to use reliable sources of information	K.7.	K, S, PS
K02	is ready to draw conclusions from own measurements or observations	K.8.	K, S, PS

Table presenting LEARNING OUTCOMES in relation to the form of classes							
No. of learning outcome	Learning outcomes	Type of training					
		Lecture	Seminar	Practical classes	Clinical classes	Simulations	E-learning
W01	B.W023.	x		x			x
W02	B.W024.	x		x			
U01	B.U11.			x			
U02	B.U12.			x			
K01	K.7.			x			
K02	K.8.			x			

Table presenting TEACHING PROGRAMME			
No. of a teaching programme	Teaching programme	No. of hours	References to learning outcomes
Winter semester			
Lectures			
TK01	The basics of biostatistics. Statistical distributions.	4	W01, W02
Practical classes			
TK01	Population, random sample, distribution series. Location characteristics. Measures of dispersion and symmetry	4	W01, W02, U01, U02, K01, K02
TK02	Statistical hypotheses. Estimation and verification of statistical hypotheses. p-value. Normality test. Parametric tests: z test, Student's t tests, F test	4	W01, W02, U01, U02, K01, K02
TK03	ANOVA, post-hoc tests	2	W01, W02, U01, U02, K01, K02
TK04	Nonparametric tests: chi-square test, character test, median test (Mood's test). Wilcoxon test (MannWhitney test). Kruskal-Wallis test. Post-hoc tests.	8	W01, W02, U01, U02, K01, K02
TK05	Correlation and regression. Linear correlation coefficient. Linear Regression. Spearman's correlation coefficient	2	W01, W02, U01, U02, K01, K02
E-learning			
TK01	Statistical calculations in the Statistica environment	1	W01

Booklist

Obligatory literature:

1. J. H. Zar Biostatistical analysis Prentice Hall International Inc. 1999
2. J.S.Bulman, J.F.Osborn.Statistics In Dentistry. Copyright British Dental Journal, First printing 1989, Reprinted 1997. Printed in Great Britain by Biddles Ltd, Guildford and King's Lynn

3. https://www.pum.edu.pl/images/uploads/studia/jednostki/wmis/WMiS_KBiCM_SPB/Biostatistics_for_PMU_students.pdf
Supplementary literature:
1. Wayne W. Daniel. Biostatistics. A Foundation for Analysis In the Health Sciences. Sixth editio. New York, Chichester, Brisbane, Toronto, Singapore. Copyright 1995, by John Wiley&Sons. Inc.2

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	25
Time spent on preparation to seminars/ practical classess	2
Time spent on reading recommended literature	2
Time spent on writing report/making project	0
Time spent on preparing to colloquium/ entry test	2
Time spent on preparing to exam	0
Other	0
Student's workload in total	31
ECTS credits for the subject (in total)	1,5
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

RZĆ – 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 – multimedial presentation other...