Pomeranian Medical University in Szczecin

SYLLABUS of the MODULE (SUBJECT)
General Information

Module title:	**Basic computer science with biostatistics**
Module type	*Obligatory*
Faculty PMU	*Faculty of Medicine and Dentistry*
Major	*Dentistry*
Level of study	*long-cycle (S2J)*
Mode of study	*full-time studies*
Year of studies, semester	*year I, semester I*
ECTS credits (incl. semester breakdown)	*2*
Type/s of training	*lectures (5h), laboratory classes (20h)*
Form of assessment*	☒graded assessment: ☒descriptive ☒test ☒practical ☐oral
Head of the Department/ Clinic, Unit	*prof. dr hab. n. med. Krzysztof Safranow*
Tutor responsible for the module	*dr n. tech. inż. Janusz Paweł Kowalski-Stankiewicz*
Department's/ Clinic's/ Unit's website	*https://edu.pum.edu.pl/edu*
Language	*English*

* replace ☐ into ☒ where applicable

Detailed information

Module objectives		*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*
Prerequisite /essential requirements	Knowledge	*Basic knowledge of the probability theory*
	Skills	*Basic ability to use any web browser and the ability to use bibliographic sources*
	Competences	*Ability to work in a team*

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 imaging techniques of tissues and organs and operating principles of appropriate diagnostic equipment	B.W09.	K, S, PS
U01	use and process information using IT tools and using modern sources of medical knowledge	D.U13.	K, S, PS
U02	critically analyze medical literature and draw conclusions	D.U16.	K, S, PS
U03	interpret basic epidemiological indicators, define and evaluate the reliability and validity of tests used in screening	G.U17.	K, S, PS
K01	is able to use objective sources of information	K.7.	K, S, PS
K02	is able to formulate 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	Other…
W01	B.W09.	x					x	
U01	D.U13.			x				
U02	D.U16.			x				
U03	G.U17.			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	Analog and digital form of information. A / C conversion. Digital images. Properties of light.	2	W01
TK02	Human psychovisual model. Illusion. Sound properties. Frequency analysis. Formants	3	W01
	Practical classes		
TK03	Population, random sample, distribution series. Location characteristics. Measures of dispersion and moments of statistical distribution	4	U01, U02, U03, K01, K02
TK04	Correlation and regression. Linear correlation coefficient. Linear Regression. Spearman's correlation coefficient	4	U01, U02, U03, K01, K02
TK05	Estimation and verification of statistical hypotheses. Parametric tests: U test for mean value in the population. Student's t test, test F	4	U01, U02, U03, K01, K02
TK06	ANOVA	4	U01, U02, U03, K01, K02
TK07	Nonparametric tests: chi-square test, character test and maximum test. Wilcoxon test (Mann-Whitney U test)	4	U01, U02, U03, K01, K02

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
Supplementary literature:
1. Handbook of Medical Informatics by J. van Bemmel (Editor), M.A.Musen (Editor), Springer:2002
2. 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	3
Time spent on reading recommended literature	4
Time spent on writing report/making project	0
Time spent on preparing to colloqium/ entry test	6
Time spent on preparing to exam	0
Other …..	0
Student's workload in total	38
ECTS credits for the subject (in total)	2
Remarks	

* Selected examples of methods of assessment:
EP – written examination
EU – oral examination
ET – test examination
EPR – practical examination
K – colloqium
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…