MEDICAL STATISTICS AND INFORMATICS

MEDICINE
– INEGRATED ACADEMIC STUDIES

SIXTH YEAR

2024/2025

Course title:

MEDICAL STATISTICS AND INFORMATICS

ECTS: 3
Number of active teaching hours (weekly): 2 (1 lectures teaching class and 1 practical class)

TEACHERS AND ASSOCIATES:

No.	First name and surname	Email	Academic title
1.	Nebojša Zdravković	nzdravkovic@medf.kg.ac.rs	Full Professor
2.	Vladislava Stojić	vladislavastojic@medf.kg.ac.rs	Assistant Professor
3.	Jelena Dimitrijević	jelena.dimitrijevic@medf.kg.ac.rs	Teaching Assistant
4.	Sara Mijailović	sara.mijailovic@medf.kg.ac.rs	Teaching Assistant
5.	Anđela Gogić	andjela.gogic@ medf.kg.ac.rs	Facilitator

COURSE STRUCTURE:

Module	**Name of the course module**	**Weeks**	**Teaching Lectures (weekly)**	**Practice (weekly)**	**Teacher – in charge**
1.	**Informatics**	7	1	1	Prof. dr Nebojša Zdravković
2.	**Statistics**	8	1	1	Prof. dr Nebojša Zdravković
					Σ 15+15=30

Examination Methods:

The student finishes the course in modules. The grade is equivalent to the number of points earned (see tables). Points are earned in two ways:

ACTIVITY DURING THE LESSON: The student can gain up to 30 points, by answering ten written questions from that week's lesson in a special part of the exercise and receiving 0-2 points in accordance with the demonstrated knowledge.

FINAL TESTS BY MODULES: The student can gain up to 70 points according to the attached table.

Determination of final grade		The maximal number of points		
		Activity during the lesson	Final test	Σ
1	Informatics	14	30	44
2	Statistics	16	40	56
Σ		30	70	100

Determination of final grade:

To pass the exam, the student must earn a minimum of 51 total points and pass all modules. To pass the module student must:
1. earn more than 50% points in that module
2. earn more than 50% points for the activity during the lesson in each module
3. pass the module test by having more than 50% correct answers.

Grading system

Final grade	Total number of points Points grade	Description
10	91 – 100	**Excellent**
9	81 – 90	**Exceptionally good**
8	71 – 80	**Very good**
7	61 – 70	**Good**
6	51 – 60	**Passing**
5	< 51	**Falling**

LITERATURE:

Module	The title of the textbook	Authors	Publisher	Library of faculty
1 and 2	Discovering statistics using SPSS.	Field A.	London: Sage, 2009.	
	Inventive biostatistics	Motulsky H.	New York: Oxford University Press, 2010	
	2007 Microsoft Office System Step by Step	Lamber S.	London: Microsoft Press, 2007.	
	Common errors in statistics and how to avoid them.	Good P.	New York: John Wiley & Sons, 2009.	

Program of lectures and practical classes:

THE FIRST MODULE: INFORMATICS

TEACHING UNIT 1 (WEEK 1):

WINDOWS	
Teaching lectures (1 class)	Practical classes (1 class)
Basics of the Windows operating system.	Installing and setting up the Windows operating system.

TEACHING UNIT 2 (WEEK 2):

WINDOWS	
Teaching lectures (1 class)	Practical classes (1 class)
Basics of the Windows operating system.	Working in the Windows operating system

TEACHING UNIT 3 (WEEK 3):

MICROSOFT WORD	
Teaching lectures (1 class)	Practical classes (1 class)
Word processors.	Formatting text, inserting images and tables in Microsoft Word.

TEACHING UNIT 4 (WEEK 4):

MICROSOFT EXCEL	
Teaching lectures (1 class)	Practical classes (1 class)
Spreadsheet program.	Creating and formatting tables, using basic functions in Microsoft Excel.

TEACHING UNIT 5 (WEEK 5):

MICROSOFT POWERPOINT	
Teaching lectures (1 class)	Practical classes (1 class)
Program for creating presentations.	Creating and formatting slides, and inserting images and tables in Microsoft PowerPoint.

TEACHING UNIT 6 (WEEK 6):

INTERNET	
Teaching lectures (1 class)	Practical classes (1 class)
Web. Email and security. Viruses.	Internet browsing, Internet protection, e-mail account opening, Internet communication.

TEACHING UNIT 7 (WEEK 7):

MEDICAL DATABASES	
Teaching lectures (1 class)	Practical classes (1 class)
Overview of databases. PubMed. Medical journals on the Internet.	Browsing medical databases and medical journals on the Internet. Downloading publications from the Internet.

THE SECOND MODULE: STATISTICS

TEACHING UNIT 8 (WEEK 8):

FREQUENCY DISTRIBUTIONS	
Teaching lectures (1 class)	Practical classes (1 class)
Types of data. Frequency distributions. Histograms and other frequency charts.	Getting to know the SPSS program. Basic settings. Creating a data file i data entry.

TEACHING UNIT 9 (WEEK 9):

MEASURES OF CENTRAL TENDENCY	
Teaching lectures (1 class)	Practical classes (1 class)
Forms of frequency distribution. Median and quantiles. Mean. Variance, range and range interquartile range. Standard deviation.	Types of variables. Frequency. Median. Mean. Variance. Standard deviation.

TEACHING UNIT 10 (WEEK 10):

PRESENTATION OF DATA	
Teaching lectures (1 class)	Practical classes (1 class)
Rates and proportions. Significant figures. Presentation of table. Charts.	Charts. Histogram. Bar chart. Line diagram. Scatter diagram. Box plot diagram.

TEACHING UNIT 11 (WEEK 11):

NORMAL DISTRIBUTION	
Teaching lectures (1 class)	Practical classes (1 class)
Normal distribution. Variables that follow Normal distribution. Normal chart.	Tables. Finishing tables. Importing tables into Word documents. Diagrams. Finishing the diagram. Import diagrams into Word documents.

TEACHING UNIT 12 (WEEK 12):

PREDICTION	
Teaching lectures (1 class)	Practical classes (1 class)
Sample distributions. Standard error of the mean sample. Confidence intervals.	Normal distribution. Normal diagram distribution. Assessment of normality of distribution. Detection of atypical points.

TEACHING UNIT 13 (WEEK 13):

HYPOTHESIS TESTING	
Teaching lectures (1 class)	Practical classes (1 class)
Hypothesis testing. Sign test. Principles of significance tests. Significance levels and types errors. One-sided and two-sided tests of significance. Comparing means of large samples.	t distribution. Testing the hypothesis about the mean values. Paired samples t-test.

TEACHING UNIT 14 (WEEK 14):

T DISTRIBUTION	
Teaching lectures (1 class)	Practical classes (1 class)
t distribution. t one-sample method. Comparing means of independent samples. Use of transformations.	t distribution. Independent samples t-test.

TEACHING UNIT 15 (WEEK 15):

CORRELATION AND REGRESSION	
Teaching lectures (1 class)	Practical classes (1 class)
Scatter diagrams. Regression. Method of least square. Standard error of the coefficient regression. Correlation. Using the coefficient correlations.	Regression. The method of least squares. Correlation. Correlation coefficients.

WEEKLY COURSE SCHEDULE

COURSE	THURSDAY	THURSDAY
MEDICAL STATISTICS AND INFORMATICS (1+1)	**LECTURES** **10:20-11:05** (H5)	**PRACTICE** **11:05-15:35** (R1)

LECTURES AND PRACTICAL CLASSES

week	type	Teaching and practice lectures	Teacher
1	**L**	**WINDOWS**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**WINDOWS**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
2	**L**	**WINDOWS**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**WINDOWS**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
3	**L**	**MICROSOFT WORD**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**MICROSOFT WORD**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
4	**L**	**MICROSOFT EXCEL**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**MICROSOFT EXCEL**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
5	**L**	**MICROSOFT POWER POINT**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**MICROSOFT POWER POINT**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
6	**L**	**INTERNET**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**INTERNET**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
7	**L**	**MEDICAL DATABASES**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**MEDICAL DATABASES**	Jelena Dimitrijević Sara Mijailović Anđela Gogić

LECTURES AND PRACTICAL CLASSES

week	type	Teaching and practice lectures	Teacher
8	**L**	**FREQUENCY DISTRIBUTIONS**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**FREQUENCY DISTRIBUTIONS**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
9	**L**	**MEASURES OF CENTRAL TENDENCY**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**MEASURES OF CENTRAL TENDENCY**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
10	**L**	**PRESENTATION OF DATA**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**PRESENTATION OF DATA**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
11	**L**	**NORMAL DISTRIBUTION**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**NORMAL DISTRIBUTION**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
12	**L**	**PREDICTION**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**PREDICTION**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
13	**L**	**HYPOTHESIS TESTING**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**HYPOTHESIS TESTING**	Jelena Dimitrijević Sara Mijailović Anđela Gogić
14	**L**	**T DISTRIBUTION**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**T DISTRIBUTION**	Jelena Dimitrijević Sara Mijailović Anđela Gogić

LECTURES AND PRACTICAL CLASSES

week	type	Teaching and practice lectures	Teacher
15	**L**	**CORRELATION AND REGRESSION**	Prof. dr Nebojša Zdravković Asst. Prof Vladislava Stojić
	P	**CORRELATION AND REGRESSION**	Jelena Dimitrijević Sara Mijailović Anđela Gogić