DISCIPLINE SHEET

ACADEMIC YEAR

2022 - 2023

1. DATA ABOUT THE STUDY PROGRAM

1.1 Institution of higher education	UNIVERSITY OF MEDICINE AND PHARMACY OF CRAIOVA
1.2 Faculty	**MEDICINE**
1.3 Department	2
1.4 Study Domain	HEALTH
1.5 Study cycle	LICENCE
1.6 Study program/ Qualification	MEDICINE

2. DATA ABOUT THE DISCIPLINE

2.1 DISCIPLINE NAME				**BIOSTATISTICS**	
2.2. Discipline code				MED1206	
2.3 The holder of course activities				Prof. Alexandru Dragos, M.D., PhD	
2.4 The holder of seminar activities				Prof. Alexandru Dragos, M.D., PhD	
2.5.Academic degree				Prof.	
2.6. Employment (base norm/associate)				Base norm	
2.7. Year of study	**I**	2.8. Semester	**II**	2.9. Course type (content) 2.10. Regime of discipline (compulsoriness)	**CCD**

3. TOTAL ESTIMATED TIME (teaching hours per semester)

3.1 Number of hours per week	**2**	3.2 From which: course	**1**	3.3 seminary/laboratory	**1**
3.4 Total hours in curriculum	**28**	3.5 From which: course	**14**	3.6 seminary/laboratory	**14**
Time found distribution (hours)					
Study by manual, course support, bibliography, and notes					**8**
Additional documentation in the library, specialized electronic platforms and, on the field					**8**
Training seminars / labs, homework, reports, portfolios, and essays					**3**
Tutoring					**1**
Examinations					**1**
Other activities... counselling, student circles					**1**

3.7 Total hours of individual study	**22**
3.9 Total hours per semester	**50**
3.10 Number of credits	**2**

4. PREREQUISITES (where appropriate)

4.1 curriculum	High school basic knowledge is sufficient
4.2 competency	-

5. CONDITIONS (where appropriate)

5.1. of curse deployment	Study in advance of the course topic is welcome, to generate a dialogue during lectures/online
5.2. of seminary/ lab deployment	Preparing in advance for the laboratory activities, through individual study/online

6. SPECIFIC COMPETENCES ACCRUED

PROFESSIONAL COMPETENCES	**C5.** To initiate and conduct a scientific research activity and / or a training activity inside the field of competence

TRANSVERSAL COMPETENCES	**C6**. Autonomy and responsibility • the acquisition of moral reference points, the formation of professional and civic attitudes, that will allow to the students to be fair, honest, helpful, understanding, unconflictuals, to cooperate and to be comprehensive in the face of suffering, to be available to help people, and to be interested in community development; • to know, to respect and to contribute to the development of moral values and professional ethics; • to learn how to recognize the problems when they arise, and provide solutions for solving them. **C7**. Social interaction • to recognize and to have respect for diversity and multiculturalism; • to have or to learn how to develop teamwork skills; • to communicate orally and in writing the manner of work requirements, the obtained results, to consult with the team; • to engage themselves in voluntary activities, to know the essential problems of the community. **C8.** Personal and professional development • to have opening to lifelong learning, • to be aware for self-study as a basis of personal autonomy and professional development; • to derive the optimum and creative potential in their own collective activities; • to know how to use information and communication technologies.

7. DISCIPLINE OBJECTIVES (based on the grid of specific competences acquired)

7.1 The general objective of the discipline	GENERAL OBJECTIVES Training students to have general knowledge of the statistical principles and methods of medical biostatistics Training students to apply the principles and methods of biostatistics in medical work Acquisition of concepts and knowledge, skills, behaviours, attitudes and values needed for medical practice Making precise correlations between educational objectives of the course and previous educational experience, as the basis of new scientific performance that students should acquire Assessment of student performance should be based on continuous, periodic and final measurements, regarding the acquired level of knowledge, skills, abilities, behaviours and values
7.2 The specific objectives of the discipline	1. Training students to acquire the knowledge of how to approach medical statistics 2. Acquiring practical skills in using computer programs for medical statistics 3. Development of a statistical mind-set, as opposed to the exact thinking of classical logic. Upon completion of the course students will be able to acquire these abilities COGNITIVE ABILITIES. to analyse critically variations in biological parameters and to identify factors that induce these variations to interpret deviations from normal of biological parameters and seek clinical relevance; to interpret diagrams, charts, graphs of functions or physiological parameters; to integrate theoretical and practical knowledge gained in the discipline of biostatistics with those obtained from other fundamental disciplines and use them as a basis for clinical training; communicate clearly, rigorously, knowledge gained and the results obtained; to issue hypotheses and verify them by processing experimental data PRACTICAL SKILLS To organize the laboratory activities: to form a team, share tasks, collaborate, communicate requirements, prepare materials, follow a given protocol, record the results, communicating results, discuss them as a team; To use specific teaching material and lab equipment medical informatics; ATTITUDES To be open to acquiring moral guidelines, training of professional and civic attitudes that enable students to be fair, honest, non-confrontational, cooperative and understanding in the face of suffering, available to help people interested in the development of the community; To know, respect and contribute to the development of moral values and professional ethics; To learn to recognize when a problem arises and provide responsible solutions to solve them. To recognize and have respect for diversity and multiculturalism; To have or learn to develop teamwork skills; To communicate orally and in writing requirements, working methods, results, consult with the team; To get involved in volunteering, to know the essential problems of the community. To be open to lifelong learning, To realize the need for individual study as the basis of personal autonomy and professional development; To optimally exploit ones creative potential and collective activities;

	To know how to use information and communication technologies To take initiative, to engage in educational and scientific activities of the discipline

8. CONTENTS

8.1 Course (content units)	Hours
1. Introduction to medical statistics. Populations. Variables. The notion of probability. Contingency tables and their importance in medicine	2
2. Statistical series. Fundamental statistical indicators. Frequency tables. Examples	2
3. Graphics. Types of graphs: bar graphs, line graphs, pie chart, histogram, frequency polygon	2
4. Distribution functions in medical statistics, normal distribution; examples. Other distributions and their usefulness	2
5. Indicators median, mode, quartiles, degrees of freedom. Confidence intervals and their usefulness. Estimators	2
6. Parametric and nonparametric statistical tests by comparing the average of two or more samples. Comparing variants. Chi square test for independence	2
7. The notion of statistical correlation, Pearson correlation coefficient. Interpretation of correlation coefficient	1
8. The notion of regression and applications in biological sciences and medicine	1
TOTAL	**14**
BIBLIOGRAPHY **http://www.umfcv.ro/medicina,studenti-disciplina-biostatistica** **http://www.umfcv.ro/en/medicine,students-biostatistics**	
8.2 Practical work (topics / themes)	
1. Introduction to EXCEL. Commands for sorting, selection	2
2. Designing and building medical databases. Incidence tables	2
3. Statistical indicators. Confidence intervals. Excel Functions	2
4. Excel frequency tables. Charts, histogram, frequency polygon, bar graphs, pie chart	2
5. Statistical tests: Student's t test, ANOVA	2
6. Checking statistical correlation, correlation coefficient, correlation chart (Scatter chart).	2
7. Summary statistics and graphs of experimental data. Final practical test	2
TOTAL	**14**
BIBLIOGRAPHY **http://www.umfcv.ro/medicina,studenti-disciplina-biostatistica** **http://www.umfcv.ro/en/medicine,students-biostatistics**	

9. CORROBORATING THE DISCIPLINE CONTENT WITH THE EXPECTATIONS OF EPISTEMIC COMMUNITY REPRESENTATIVES, PROFESSIONAL ASSOCIATIONS AND EMPLOYEE REPRESENTATIVES RELATING TO THIS PROGRAM

- Biostatistics is a fundamental discipline, mandatory for a student to become a physician able to use computer technology, ubiquitous in current medical practice
- Knowledge, practical skills and attitudes learned in this discipline provide the basis for understanding health issues that will be detailed in other disciplines, involving data acquisition techniques, working with database, data presentation and comparison (charts, statistical tests)

10. MHETODOLOGICAL LANDMARKS

Types of activity	Teaching Techniques / learning materials and resources: lectures, interactive group work, learning problems / projects etc. Lectures, analysis, synthesis, comparison, generalization, learning in order to achieve interactive feedback, explaining the problems highlighted by students, consultations, multimedia presentations. In case of special situations (alert states, emergency states, other types of situations that limit the physical presence of people) the activity can be carried out online using computer platforms approved by the faculty / university. The online education process will be adapted accordingly to ensure the fulfilment of all the objectives provided in the discipline sheet. The teachers, through the agreed electronic platforms, will create virtual classes and will send to the students, on the e-mail addresses provided by them and through other available means of communication (text messages, etc.) the invitations and access data necessary for connection. The lectures will be held by presenting multimedia materials for each topic, accompanied by explanations of teachers. The practical works will consist in direct, online exemplification of the instructions and operations necessary for the practical realization of the concepts presented in the lectures, through computer programs dedicated to each activity (e.g. MS Excel).
Course	Combined used of the following methods: lecture, debate
Practical work	Combined used of the following methods: practical applications, case study projects
Individual study	1.Study and understanding of the lecture notes
	2. Study with manual, lecture written support
	3. Study of the indicated minimal bibliography
	4. Additional documentation in the library

	5. Specific training for seminaries / laboratory Activity
	6. Preparing reports, essays
	7. Preparing for intermediate tests/ projects
	8. Preparing oral presentations
	9. Preparing for final examination
	10. Consultations
	12. Documentation on the Internet
	13. Communication and collaboration on electronic platforms
	14. Other activities

11. RECOVERY PROGRAM

	No. absences that can recover	Place of deployment	Period	In charge	Scheduling of topics
Absences recoveries	2	Department of Medical Informatics and Biostatistics/ online platform.	Last week of semester	All teaching members of the department	According to the internal schedule
Schedule consultations / Students' Scientific Circle	2 h/week	Department of Medical Informatics and Biostatistics/ online platform.	Each Monday – 18:00 to 20:00	All teaching members of the department	According to the internal schedule
Program for students poorly trained	2 h/week	Department of Medical Informatics and Biostatistics/ online platform.	Each Monday – 16:00 to 184:00	All teaching members of the department	According to the internal schedule

12. ASSESMENT

Activity	Types of assesment	Methos of evaluation	Percentage from final grade
Lecture	Formative assesment during the semester, direct dialogue during lectures Summative assesment during the exam	Written exam/ multichoice using online platform	**75%**
Practical work	Formative assesment during the semester Periodic assesment during the semester, Summative assesment in the last week of the semester	In the last week of the semester (oral) / using online platform	**15%**
Periodic assesment			5%
Assement of individual activities			5%
Minimum performance standard			at least 50% for each component of the evaluation

13. GUIDANCE AND COUNSELLING PROGRAMS

Professional guidance and counselling programs (2 hours/monthly)

Scheduling the hours	Place of deployment	In charge
Last Friday of each month of the semester - 16:00 to 17:00	Department of Medical Informatics and Biostatistics/Online	All teaching members of the department

Endorsement date in the department: 27.09.2022

Department Director,	Coordinator of study program,	Discipline holder,
Prof. Eugen OSIAC	Prof. Marius Eugen CIUREA	Prof. Dragos ALEXANDRU