



DISCIPLINE SHEET

1.-Info about the program

FOUNDATION FOR DEVELOPMENT AND MANAGEMENT		
1.2-Faculty	FACULTY OF MEDICINE	
1.3-Departament	Preclinical/Complementary Discipline	
1.4-Study domain	Health	
1.5-Study cycle	Bachelor	
1.6-Study program/ Calification	Medicine-English	

2.- Info about discipline

2.1- Name of the discipline		MEDICAL INFORMATICS. BIostatISTICS						
2.2-Course lecturer		Lect. Dr. SCUTELNICU Andrei , MD, PhD						
2.3-Seminary lecturer		Univ. Teaching Assistant AXINTE Augustin_Marius , PhD(c), MD						
2.4-Year of study	I	2.5 Semester	I	2.6 Evaluation type	Exam	2.7. Discipline regime	Content	DC
							Mandatory	DOB

3.-Total time (hours of didactic activity per semester)

3.1-Number of hours per week	3	3.2 -course	1	3.3- laboratory	2
3.4-Total hours of the curriculum	42	3.5 -course	14	3.6- laboratory	28
Distribution of time					Hours
Study after manual, course support, bibliography and notes					
Additional documentatin in the library, on the specialized electronic platforms and on the field					4
Training seminars/laboratories/projects, themes, papers,portofolios and essays					2
Tutoring					2
Examination					-
Other activities					-
3.7-Individual study hours	8				
3.8-Total hours per semester	50				
3.9-Credit number	2				

4.-Preconditions

4.1 curriculum	no
4.2 skills	no

5.-Conditions

5.1 course progress	-no
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5.1 laboratory progress	-Basic elements of mathematics and computer usage – acquired during high school
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6. Learning outcomes

Knowledge	Demonstrates understanding and analyzes ways of producing, critically evaluating and disseminating scientific data resulting from qualitative and quantitative research methods.
Skills	Correctly interpret, manage and report information technology knowledge for documenting, analyzing and communicating information.
Responsibilities and autonomy	Develops, supports and integrates professional knowledge and values, through presentations and public communications, including in an internationally spoken language.

7. -Objectives of the discipline

7.1 -The general objectives of the discipline	<ul style="list-style-type: none"> -Knowledge and understanding of basic concepts in information and communication technology, together with specific methods and their appropriate application in the biomedical field -Understanding and analyzing the methods of producing, critically evaluating, and disseminating scientific data resulting from qualitative and quantitative research methods.
7.2 -Specific objectives	<ul style="list-style-type: none"> -Theoretical preparation of students for assimilating knowledge through systematized information on functional integration phenomena from the cell to the organism. -Illustrating theoretical concepts through demonstrations of classical experiments in laboratories. -Developing students' practical competencies regarding the correct execution of certain functional explorations based



	<p>on rigorous procedures, as well as mastering the explored concepts and principles of the respective techniques.</p> <ul style="list-style-type: none"> -Educating students in the spirit of medical rigor and understanding the fundamental sciences' crucial role at this level, as well as for their professional training. -Correct interpretation, management, and reporting of information technology knowledge for documenting, analyzing, and communicating information. -Developing, supporting, and integrating knowledge and professional values through presentations and public communications, including in an internationally recognized language.
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8.-Content

8.1-Course	Teaching methods	Hours /week	Obs
1.- Introduction to Medical Biostatistics. Electronic presentation (MS)	Interactive lecture	1	
2.- Methodological concepts of biostatistics for processing and interpreting data using Microsoft Excel		1	
3.- Methods for describing and processing medical data. Applying formulas and functions – Microsoft Excel		1	
4.- Techniques for processing and extracting information from medical databases		1	
5.- Descriptive statistics. Types of variables. Statistical indicators. Frequency distribution – histogram		1	
6.- Types of distributions for medical data. Binomial distribution, discrete distribution, Gauss-Laplace distribution, t-distribution, Chi-square distribution, Fisher distribution		1	
7.- Confidence intervals for estimating parameters at the population level: mean of a continuous real variable, proportion, standard deviation		1	
8.- Inferential statistics – hypothesis testing. Comparison tests for variances – Fisher’s test		1	



9.- Inferential statistics – hypothesis testing. Analysis of continuous variables using t-test and ANOVA		1	
10.- Techniques for evaluating the relationship between two quantitative variables. Pearson correlation and linear regression		1	
11.- Multiple linear regression. Multiple logistic regression		1	
12.- Sampling and techniques for calculating sample size		1	
13.- Methods for evaluating the probability of an event occurring: odds ratio (OR), risk ratio (RR)		1	
14.- Quantifying the accuracy of diagnostic tests: sensitivity, specificity, predictive values, and likelihood ratios		1	
Bibliography: <ul style="list-style-type: none"> ▪-Jyothis, A.R., 2024. Essentials of Biostatistics for Medical Students: Including manual on statistical analysis using SPSS. Notion Press. ▪-Faizi, N. and Alvi, Y., 2023. Biostatistics manual for Health Research: A practical guide to data analysis. Elsevier. ▪-Farnell, D.J. and Mirra, R.M. eds., 2023. Teaching biostatistics in medicine and allied health sciences. Springer. ▪-Saha, I. and Paul, B., 2023. Essentials of biostatistics and research methodology. Academic Publishers. ▪-Pagano, M., Gauvreau, K. and Mattie, H. Principles of biostatistics. Chapman and Hall/CRC, 2022. ▪-Sullivan, L.M., 2022. Essentials of biostatistics for public health. Jones & Bartlett Learning. 			
8.2 -Seminary	Teaching methods	Hours /week	Obs
1.- Medical Biostatistics. Tools for processing and analyzing medical data	PowerPoint, MS Excel	2	
2.- Methods for processing and interpreting data using Microsoft Excel		2	
3.- Statistical analysis methods for medical data. Applying formulas and functions – Microsoft Excel		2	
4.- Techniques for processing and extracting information from medical databases		2	
5.- Descriptive statistical evaluation of medical data. Statistical indicators. Frequency distribution – histogram		2	



6.- Medical data distribution. Binomial distribution, discrete distribution, Gauss-Laplace distribution, t-distribution, Chi-square distribution, Fisher distribution		2	
7.- Calculation of confidence intervals for estimating parameters at the population level: mean of a continuous real variable, proportion, standard deviation		2	
8.- Hypothesis testing for medical data. Comparison tests for variances – Fisher's test		2	
9.- Hypothesis testing applied to medical data. Analysis of continuous variables using t-test and ANOVA		2	
10.- Techniques for evaluating the relationship between two quantitative variables. Pearson correlation and linear regression		2	
11.- Multiple linear regression. Multiple logistic regression			
12.- Sampling and techniques for calculating sample size			
13.- Methods for evaluating the probability of an event occurring: odds ratio (OR), risk ratio (RR)		2	
14.- Quantifying the accuracy of diagnostic tests: sensitivity, specificity, predictive values, and likelihood ratios		2	
Bibliography Mandatory <ul style="list-style-type: none"> -BADUȚ, Mircea - The calculator in three times initiation, use, performance; ed. aVI-a - Iași: Ed. Polirom 2021 -CEOBANU, Ciprian et al. DIGITAL EDUCATION - Iasi: Ed. Polirom 2020 -ROMAN, Marius - Word from A to Z - Rentrop&Straton Publishing House - 2020 -Vlad Tudor. Excel course for beginners. Publisher: L&S Info-Mat. 2023.: 			

9. -Corroborating the contents of the discipline with the expectations of the representatives of the epistemic communities, professional associations and representatives employers in the field related to the program

Knowledge and skills are established as educational objectives and specified as such in annually revised syllabi. After analysis within the course, they are discussed and approved by the Curriculum Office, ensuring alignment with other disciplines. Throughout this process, the correspondence between content and the expectations of the academic community, community representatives, professional associations, and employers is systematically evaluated, as directly as possible. As a primary goal, the course aims to provide students with optimal foundations for the following years of study in the Bachelor's program in Medicine, with the prospect of successfully securing employment immediately after graduation in residency programs in Romania and other EU countries

10.- Evaluation



Activity	10.1 -Evaluation criteria	10.2-Evaluation methods	10.3 % of the final grade
10.4 -Course	<p><i>Knowledge for grade 5:</i></p> <ul style="list-style-type: none"> · <i>understanding of basic ICT concepts (e.g. creation, organization and exploitation of data files);</i> · <i>understanding the basic concepts of ethics in the management of biomedical data;</i> · <i>the ability to discern the validity of biomedical information accessible online.</i> <p><i>Knowledge for grade 10:</i></p> <ul style="list-style-type: none"> · <i>understanding more complex notions, including the concept of eHealth and mHealth;</i> · <i>understanding and ability to apply concepts of ethics, protection and security of biomedical data;</i> · <i>the ability to integrate the concepts and informational tools offered by medical informatics and bioinformatics.</i> 	Written test based on a questionnaire with 50 questions with multiple answers.	50%
10.5 - Laboratory	<p><i>Knowledge for grade 5:</i></p> <ul style="list-style-type: none"> · <i>valid and active e-mail accounts and on the course management platform;</i> · <i>elementary operations with data files;</i> · <i>elementary operations with document type files;</i> · <i>the ability to surf the Internet.</i> <p><i>Knowledge for grade 10:</i></p> <ul style="list-style-type: none"> · <i>ease and fluency in using biomedical data collection and processing applications;</i> · <i>adequate search on the Internet and the appropriate identification of relevant informational resources on a given topic;</i> · <i>the ability to critically interpret the information found and support it with evidence, completed by a report in electronic document format.</i> 	Group and individual assignments in class, with formative feedback throughout the semester (10%). Practical exam in class (15%). Online documentation project with oral presentation (25%).	50%
10.6- Minimum performance standard			
<ul style="list-style-type: none"> - Understanding the basic glossary of specialized terms in Information Technology, including those specific to medical informatics. - Ability to efficiently use online documentation tools and services. 			



- Ability to effectively use advanced office solutions for drafting/editing electronic documents with specific formats.
- Understanding basic terms in biostatistics and the main types of statistical tests.

Data: 05.05.2025	Discipline coordinator signature: Lect. Dr. SCUTELNICU Andrei , <i>Scutelnicu Andrei</i> MD, PhD	Responsible of seminar activities: Univ. Teaching Assistant AXINTE <i>Axinte</i> Augustin_Marius , PhD(c), MD
Date of approval in the Department Council:		
Signature of the department director:		

Reprezentant legal F.D.M.
Presedinte
Prof. Univ. Dr. POSTĂVARU Nicolae

Postăvaru Nicolae