



**“CAROL DAVILA” UNIVERSITY
OF MEDICINE AND PHARMACY BUCHAREST**
Faculty of Dentistry
Dental Medicine in English



DISCIPLINE GRID

1. Programme:

1.1.	CAROL DAVILA UNIVERSITY OF MEDICINE AND PHARMACY BUCHAREST
1.2.	FACULTY OF DENTISTRY / 3rd DEPARTMENT
1.3.	DIVISION: MEDICAL INFORMATICS AND BIOSTATISTICS
1.4.	STUDY DOMAIN: Health, sectoral regulated within European Union
1.5.	STUDY LEVEL: LICENCE
1.6.	STUDY PROGRAMME: DENTAL MEDICINE IN ENGLISH

2. Discipline:

2.1.	DISCIPLINE NAME: MEDICAL INFORMATICS AND BIOSTATISTICS						
2.2.	LOCATION: 4 – 6 Eforie St, 5th District, Bucharest						
2.3.	Lectures tenure: Lect. Dr. Eng. Radu ILINCA						
2.4.	Practical classes tenure: Lect. Dr. Eng. Radu ILINCA Lect. Dr. Eng. Ionuț – Adrian CHIRIAC						
2.5. Study year	I	2.6. Semester	II	2.7. Evaluation	Colloquium	2.8. Type of discipline	CD/CD

3. Estimated total time (hours/semester)

No. hours/week	1	out of which	Lectures: 1	Laboratory session: 1
Total hours out of learning schedule	28	out of which	Lectures: 14	Laboratory sessions: 14

Time distribution	hours
Textbook study, lecture support, bibliography and notes	9
Supplementary documentation activity in the library, on online platforms	1
Practical activity support material, homework, portfolio and essays	8
Tutorial activity	1
Examinations	2
Other activities	1
Total hours of individual study	22
Total hours per semester	50
Credits	2



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4. Preconditions

4.1. curriculum	The student must have completed algebra and IT&C courses – "Information Technology and Computers" - high school level (regardless of the route). The student must have basic knowledge of algebra elements, computer editing - high school level and general knowledge of computer work.
4.2. proficiencies	The student must be able to: - to explore the internet - identify documentation and help menus in apps - be able to execute a sequence of steps described in an audio-video and/or writing tutorial - general operation on a computer and digital text editing.

5. Conditions

5.1. for lecture activity	The teaching activity is carried out in the amphitheater. The activity does not imply special environmental conditions. The room must provide a capacity of 90 students. In terms of infrastructure, the room must be equipped with computer (including the necessary software applications), projection screen and video projector. The projection screen must be large enough to allow the slides to be projected in such a way that they are visible from any place in the room. The internet connection and an audio system are optional. If the course activity cannot be carried out in normal regime (the one described above), for reasons of natural disasters, pandemics, etc. it will be carried out online, with synchronous activities on one of the 2 platforms of UMFCG Suite or Moodle.
5.2. for laboratory activity	The didactic activity takes place in the seminar/laboratory room. The activity does not imply special environmental conditions. Complete PC workstations are required in proportion to the number of students in the group. All computer equipment must be connected to the Internet and have installed the computer applications necessary for an optimal performance of the teaching activities. If the laboratory activities cannot be carried out in normal regime (the one described above), for reasons of natural disasters, pandemics, etc. they will be carried out online, with synchronous activities on one of the 2 platforms of UMFCG Suite or Moodle.



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6. Accumulated skills

6.1. Proficiencies (knowledge and abilities)	I. Knowledge (cognitive dimension) - Advanced knowledge of computerized technical editing using the MS-Office suite or equivalent - Advanced spreadsheet calculations knowledge using MS-Office suite (Excel) or equivalent - Knowledge of the implementation using the MS - Office suite (Excel) of the main statistical tests used in dentistry II. Abilities (functional dimension) - Developing skills and online operation skills: educational software Google Classroom, or the Moodle platform https://cursuridentara.umfcd.ro/. Hardware and software use, PC operation access to computer networks (intranet, internet) and internet services in medical education and dental practice. - Deepening of knowledge regarding the classification, coding, organization, structuring, recording and accessing of information in the electronic environment. - Developing skills regarding organization, structuring, ordering, selecting, searching, retrieving, extracting and transferring information in working with computer registers. - Deepening knowledge, training and mastering the ability to use general work programs (text processing, drawing/graphics/images, tables) and clinical and administrative data management computer applications in the dental office/clinic. - Deepening the knowledge, training and mastering the ability to use statistical processing facilities and graphical representation of data with the MS EXCEL program, in medicine and dental practice at the level of the dental office/clinic. - Training and mastering the ability to use the Google Classroom-Forms evaluation system, the Moodle platform https://cursuridentara.umfcd.ro/ or NetOp School, for training and theoretical evaluation and assisted practice.
6.2. Transversal skills (role, professional and personal development)	III. Role skills - Critical thinking - Solving complex problems - Making decisions based on scientific data IV. Professional and personal development skills - The ability to identify, select, classify, codify, organize and structure clinical and administrative medical information, for recording data in the patient's electronic dental health file. - The ability to identify and establish the competences, responsibilities and role of the doctor, members of the dental team in the registration, access and confidentiality of medical information about the patient.



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7. Objectives (based on the grid of acquired specific skills)

7.1. General Objective	- Acquiring knowledge of descriptive statistics and basic statistical analysis. - Acquiring practical knowledge regarding the architectural components of a computer system, the use of digital technology and IT&C tools for: retrieving, classifying, coding, structuring, organizing, recording, processing, transmitting and communicating medical information (administrative and clinical), electronic file of health.
7.2. Specific Objectives	- Theoretical and practical training of students in order to train the skills and abilities of the practical use of digital technology, specific IT applications in dental medicine, for: retrieving, recording, processing, extracting, transmitting and communicating information between dentist-patient, clinicians-technicians dentists, clinicians, dental technicians - Familiarization with the types of statistics commonly used in dentistry (descriptive and inferential) - Emphasizing and underlining the importance and responsibility of competent, current, correct, accurate and complete data entry for their processing in the electronic environment, demonstration, analysis and interpretation of the results of the entered data processing. -Familiarizing students with the advantages of using information and communication technology in medical education, technique and dental practice



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8. Content

8.1. Lectures	No. hrs/topic	Teaching method	Obs.
1.1 Presentation of the Discipline Grid 1.2 Presentation of the Students' Professional Regulation 1.2 Planning a statistical study. Gantt Diagram	2	Didactic project - Exposure, - Information Analysis, Demonstration,	
2.1 Statistics. Biostatistics. Definitions and Concepts 2.2. Data Types (variables and constants) 2.3. Datasets 2.4. Variables' Proprieties 2.5. Study Cases and Practical Examples	2	- Heuristic conversation, - Directed dialogue through interview, - Questionnaire-based interview Classroom/Informatics	
3.1 Types of Statistical Processing (descriptive and inferential) 3.2. Descriptive Statistics. Frequency Analysis, Histograms, Box & Whiskers Objects 3.3. Descriptive Statistics. Central Tendency 3.4. Descriptive Statistics. Measurement Uncertainty 3.5. Study Cases and Practical Examples	2	Laboratory Course support: - Power Point presentation - multimedia educational software - the website of the discipline, accessible only from the local network (intranet)	
4.1. Fundamentals of Probability Theory 4.2. Types of Probability Distributions 4.3. The Normal Distribution 4.4. Confidence Intervals 4.5. Study Cases and Practical Examples	2	- course support manual (electronic, multimedia and printed format) - practical demonstration support (Internet use)	
5.1. Inferential Statistics (I). Formulation of Statistical Hypotheses 5.2. Inferential Statistics (I). P-Value, Critical Values 5.3. Inferential Statistics (I). Types of Errors 5.4. Study Cases and Practical Examples	2	Technical equipment: - local computing network - Internet network and Internet services - independent and networked workstations	
6.1. Inferential Statistics (II). Z Test, T Test 6.2. Inferential Statistics (II). χ^2 Test 6.3. Study Cases and Practical Examples	2	- computer-aided training and assessment software (Veyon and Moodle)	
7.1. Statistici Inferențiale (III). Parametric Statistical Tests vs Non Parametric Statistics Test 7.2. Statistici Inferențiale (III). Pearson Test, Spearman Test 7.3. Study Cases and Practical Examples 7.4. Review of statistical methods used in two scientific articles 7.5. Colloquium Sample Questions	2	- multimedia equipment - video projector - projection screen - blackboard If the course activity cannot be carried out face-to-face, online platforms will be used synchronously: Cloud/Online - Practical work support:	



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		Educational platform Google Classroom" Google Classroom, Google Meet, Google Calendar, Google Forms, Google Drive, The Moodle platform https://cursuridentara.umfcd.ro/	
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8.2 Laboratory Sessions	No. hrs/topic	Teaching method	Obs.
1. Presentation of online use of educational software Google Classroom, Meet, Calendar, Forms, Drive, Moodle Platform https://cursuridentara.umfcd.ro/ . Laboratory - Initiation on how to work and use the local computing network and access to the Internet. Laboratory Work Safety	2	Didactic project - Exposure, - Information Analysis, Demonstration, - Heuristic conversation, - Directed dialogue through interview,	
2. Microsoft PowerPoint program. Practical application for making project presentations.	2	- Questionnaire-based interview	
3. Microsoft EXCEL program (I). General presentation. Data Representation. Data structures	2	Classroom/Informatics Laboratory	
4. Microsoft EXCEL program (II). Graphic representation of data / results. Basic statistic functions	2	Course support: - Power Point presentation - multimedia educational software	
5. Microsoft EXCEL(III) program. Advanced statistical functions, descriptive statistics	2	- the website of the discipline, accessible only from the local network (intranet)	
6. Microsoft EXCEL(IV) program. Advanced statistical functions, inferential statistics	2	- course support manual (electronic, multimedia and printed format) - practical demonstration support (Internet use)	
7. Final evaluation	2	Technical equipment: - local computing network - Internet network and Internet services - independent and networked workstations - computer-aided training and assessment software (Veyon and Moodle) - multimedia equipment - video projector	



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		- projection screen - blackboard If the course activity cannot be carried out face-to-face, online platforms will be used synchronously: Cloud/Online - Practical work support: Educational platform Google Classroom" Google Classroom, Google Meet, Google Calendar, Google Forms, Google Drive, The Moodle platform https://cursuridentara.umfd.ro/	
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8.3. Bibliography for lectures and laboratory/practical sessions

1. Ilinca R, Biostatistics Lecture Notes, 2023 – published online on Google Classroom – in the process of publishing printed physical format
2. ECDL Spreadsheet Manual - Microsoft Excel 2019 - Raluca Constantinescu, Ionuț Dănilă, ISBN / ISSN 978-606-9037-09-6, ECDL Romania Publishing House 2020
3. Excel Rentrop & Practical Guide Straton - Marius Roman ISBN/ISSN, 9786066727570, Editura Rentrop & Straton 2021
4. Microsoft Access 2016 Bible – Michael Alexander, Wiley Ed., USA, ISBN: 978-1-119-08654-3, 2015
5. Ionuț Adrian Chiriac - "Contributions regarding the interaction with medical education systems for persons with auditory disabilities" Politehnica Publishing House Timisoara, 2015
6. Ionuț-Adrian Chiriac, "Statistical Applications - Microsoft Excel - Guide for Practical Works", 2021 – published online on Google Classroom – in the process of publishing printed physical format
7. <http://192.168.0.200> – intranet site updated 2020, Laboratory of Medical Informatics and Biostatistics, Faculty of Dentistry, "Carol Davila" University of Medicine and Pharmacy

9. Corroborating the contents of the discipline with the expectations of epistemic community representatives, professional associations and employers in the fields representative for the program

The content of the Discipline is evaluated annually both in relation to the feedback obtained from students and especially to the expectations of the labor market reflected following the consultations with the



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business environment in the field in the context of the multiparty protocols signed by the Faculty. The content of the Discipline is thus designed to provide professional familiarity and autonomy regarding the Biostatistics for a dentist.



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10. Evaluation

10.1 Evaluation			
Activity type	Evaluation Criteria	Methods of evaluation	% out of final grade
Lecture	A. Knowledge for mark 5: Grade 5 is obtained following the fulfillment of the criteria defined in the Minimum Performance Standard B. Additional knowledge for mark 10 Correct coding of data from a statistical study. Knowing the Stages of a statistical study. Choice and justification of the statistical test used. Correct interpretation of the results obtained.	Colloquium The final assessment is focused on evaluating the knowledge and skills acquired during the semester - The Oral Exam consists of the practical solution of some requested subjects and the demonstration of the theoretical knowledge associated with the subject.	70%
Laboratory Sessions	A. Knowledge for mark 5: Using hyperlinks in a PowerPoint presentation, inserting a complete graphic object (axes, legend) in MS-Excel B. Additional knowledge for mark 10 Use of animations, advanced effects in a PowerPoint presentation, use of all graphic objects (axes, legend) studied in MS-Excel.	Practical assessment Evaluation of projects/tests The continuous evaluation of students is carried out through the periodic evaluation of the portfolio made up of the projects carried out during the semester according to the scales established at the discipline level, for each project and topic. The grade obtained for the practical activity is the result of the arithmetic mean of the grades obtained throughout the semester. Passing involves submitting the projects and obtaining a passing average	30%
Minimum performance standards			
Knowledge of P-value, Critical value, measurement value of a variable, at least one inferential statistical test			



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Date:
03.09.2024

**CHAIR OF MEDICAL INFORMATICS AND
BIostatISTICS DISCIPLINE,**
PhD Lecturer Ionuț-Adrian Chiriac

Date of the approval in Department Board:

Department director,
Prof. Dr. Ecaterina IONESCU