DISCIPLINE SHEET

1. Study programme

1.1.	"CAROL DAVILA" UNIVERSITY OF MEDICINE AND PHARMACY BUCHAREST
1.2.	FACULTY OF DENTISTRY
1.3.	DEPARTMENT II
1.4.	DISCIPLINE: PATHOPHYSIOLOGY
1.5.	STUDY DOMAIN: Health, sectoral regulated within the European Union
1.6.	STUDY LEVEL: I (Bachelor's degree) and II (Master's degree)
1.7.	STUDY PROGRAMME: DENTAL MEDICINE IN ENGLISH

2. Discipline

2.1.	Discipline name according to the study curriculum: PATHOPHYSIOLOGY				
2.2.	Discipline code: MD02F03EN				
2.3.	Discipline type: FD				
2.4.	Discipline optionality: COD				
2.5.	Lectures tenure: Prof. Dr. Ștefan Sorin Aramă, Assoc. Prof. Dr. Cătălin Tilișcan, Lecturer Dr. Alexandru Croitoru				
2.6.	Practical classes / seminar tenure: Prof. Dr. Ștefan Sorin Aramă, Assoc. Prof. Dr. Cătălin Tilișcan, Lecturer Dr. Alexandru Croitoru				
2.7. Year of study	II	2.8. Semester	III	2.9. Evaluation (E/C/V)	E

3. Estimated total time (hours/ semester of teaching and training activity /individual study)

I. University training						
3.1. Number of hours per week	4	from which:	3.2. lecture	2	3.3. practical class/ seminar	2
3.4. Total hours in the study curriculum	56	from which:	3.5. lecture	28	3.6. practical class/ seminar	28
II. Preparation/ individual study						
Time distribution						hours
Study of lecture materials, textbooks, books, study of the minimum recommended bibliography						35
Additional documentation activity in the library, on online platforms						15
Specific preparation activities for projects, practical classes, preparation of assignments, reports						15
Preparation for presentations or evaluations, preparation for the final examination						21
Tutoring activity						6
Other activities						2
3.7. Total hours of individual study						94
3.8. Total hours per semester (3.4.+3.7.)						150
3.9. Number of credits						5

4. Prerequisites (where appropriate)

4.1. curriculum	The student must have knowledge of anatomy, physiology, general biology, genetics, and biochemistry
4.2. proficiencies	The student must be able to: – identify general aspects related to cellular activity and cellular metabolism; – know the fundamental functions of the human body; – understand the functional parameters associated with the activity of organ systems; – characterize cell lines and associate their structure with their functions; characterize the measurable values of the internal environment parameters.

5. Conditions (where appropriate)

5.1. for lecture activity	Amphitheater with a minimum capacity of 100 seats, computer, video projector.
5.2. for practical class/ seminar activity	Practical workroom, computer, video projector.

6. Learning outcomes*

Knowledge	Skills	Responsibility and autonomy
The student identifies, describes and classifies the mechanisms of disease production, risk factors, biological pathogens (bacteria, viruses, parasites), compensatory and non-specific defense mechanisms, the main syndromes of internal organ failure, as well as principles of pharmacological and genetic approaches, with particularities for dentistry.	The student correctly interprets and applies the fundamental notions regarding the mechanisms of disease production and methods of investigating biological functions. He can correctly interpret analysis reports with pathological values.	The student integrates fundamental notions and methods of investigating biological functions, formulates and assumes reasoned conclusions regarding the general mechanisms of disease production and general principles of treatment.

7. Discipline objectives (correlated with learning outcomes)

7.1. General objective	The Pathophysiology course covers the nonspecific defense mechanisms of the body and the main diseases and syndromes of the organs and systems, with a focus on the impact of systemic diseases on dental medical procedures. In the practical sessions, students learn to interpret test results and ECG traces. Emphasis is placed on lab changes that can signal the risk of accidents (e.g., hemorrhagic) or complications (e.g., infections) during procedures in the dental office.
7.2. Specific objectives	– Establishing the optimal dental treatment plan and health risks in relation to the patients' systemic conditions. – The ability to identify potential systemic diseases suggested by signs and symptoms observed in the oral cavity.

8. Contents

8.1. Lecture	Teaching methods	Observations
1. Pathophysiology of hydroelectrolytic and acid-base balance	Exposition, heuristic conversation, explanation, guided dialogue, demonstration, problematization, algorithmization, case study.	
2. Inflammation (1)		
3. Inflammation (2)		
4. Pathophysiology of thermoregulation and pain		
5. Pathophysiology of carbohydrate metabolisms		
6. Pathophysiology of protein metabolism		
7. Pathophysiology of lipid metabolism		
8. Normal hemostasis. Disorders of primary hemostasis		
9. Disorders of secondary hemostasis. Thrombotic disease		
10. Systemic post-aggressive reaction and shock states		
11. Heart failure		
12. Arterial hypertension		
13. Liver failure		
14. Respiratory failure.		
Recent bibliography: 1. Huether S. E., McCance K. L., Brashers V. L. - Understanding Pathophysiology - E-Book 7th Edition, Kindle Edition. Mosby; 7th edition (2019). ISBN-13: 978-0323639088; ISBN-10: 0323639089 2. Kumar V., Abbas A. K., Aster J. C. - Robbins & Cotran Pathologic Basis of Disease E-Book (Robbins Pathology) 10th Edition, Kindle Edition (2020). ISBN-13: 978-0323531139; ISBN-10: 032353113X		
8.2. Practical classes/ seminar	**Teaching methods**	**Observations**
1. Concepts of cardiovascular physiology and pathophysiology	Exposition, heuristic conversation, explanation, guided dialogue, demonstration, problematization, algorithmization, case study, interpretation of electrocardiograms, and laboratory tests.	
2. Electrocardiographic recording		
3. Heart chamber overload (atrial and ventricular hypertrophies) - mechanisms, semiotics concepts, ECG appearance, treatment principles. Conduction disorders (cardiac blocks and preexcitation syndromes) - mechanisms, semiotics concepts, ECG appearance, treatment principles.		
4. Rhythm disorders (cardiac arrhythmias) - mechanisms, semiotics concepts, ECG appearance, treatment principles.		
5. Heart irrigation disorders (ischemic heart disease and myocardial infarction) - mechanisms, semiotics concepts, ECG appearance, treatment principles.		
6. Analysis of electrocardiographic traces		
7. Hematopoiesis and erythrocyte exploration		
8. Exploration of the white leukocyte series		
9. Functional exploration of hemostasis		
10. Functional exploration of carbohydrate and lipid metabolisms		
11. Functional exploration of the liver. Excretory-biliary syndrome		
12. Interpretation of laboratory test reports		
13. Systemic disease in dental practice. Commented clinical cases		
14. Practical exam		
Recent bibliography: Orwell N. - Lab Values: An Easy Guide to Learn Everything You Need to Know About Laboratory Medicine and Its Relevance in Diagnosing Disease. Independently published.(2021). ISBN-13: 979-8711520320		

9. Assessment

Activity type	9.1. Evaluation criteria	9.2. Evaluation methods	9.3. Percentage of final grade
9.4. Lecture	**Knowledge for grade 5:** The student will be able to: explain simple biological processes; demonstrate the pathophysiological mechanisms of disease onset; reproduce the normal and pathological values of basic biological constants. **Additional knowledge for grade 10** The student will be able to demonstrate an understanding of the mechanisms of the main diseases and syndromes, as well as the implications of certain systemic diseases on the actions of the dentist; to support a debate on fundamental biomedical issues; to interpret the pathological values of internal environment parameters and to correlate the information obtained in practical sessions with the concepts taught in the lectures.	**Exam** Evaluation through multiple-choice test and written essay.	**60%**
9.5. Practical classes/ seminar	**Knowledge for grade 5:** The student will be able to reproduce the normal and pathological values of electrocardiogram parameters and of basic biological constants, as well as to establish a diagnosis without being able to support it with all the necessary arguments. **Additional knowledge for grade 10:** The student will be able to interpret the pathological changes of electrocardiographic traces and biological tests, to correlate the information obtained during practical sessions with the concepts taught in the lectures and to sustain a diagnosis.	**Practical assessment** Evaluation through multiple-choice test and written essay; interpretation of pathological electrocardiograms and laboratory analyses	**40%**
Minimum performance standard			
Acquiring the scientific information presented during the lectures and practical sessions at a passable level (grade 5). The student has to be able to reproduce the normal and pathological values of main electrocardiogram parameters and of basic biological constants (e.g. normal values of blood cells count, interpretation of abnormal values, normal heart rate) as well as to answer simple questions. The student has to understand and to be able to explain the basic theoretical and practical concepts taught in the Pathophysiology course.			