DISCIPLINE GRID

1. Programme:

1.1.	**CAROL DAVILA UNIVERSITY OF MEDICINE AND PHARMACY BUCHAREST**
1.2.	**FACULTY OF DENTISTRY / 2nd DEPARTMENT**
1.3.	DIVISION: **PATHOPHYSIOLOGY**
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: **PATHOPHYSIOLOGY**						
2.2.	LOCATION: **HIV ACADEMY – "MATEI BALȘ" NATIONAL INSTITUTE OF INFECTIOUS DISEASES**						
2.3.	Lectures tenure: **Prof. Dr. Ștefan Sorin Aramă, Assoc. Prof. Dr. Cătălin Tilișcan, Lecturer Dr. Alexandru Croitoru**						
2.4.	Practical classes tenure: **Prof. Dr. Ștefan Sorin Aramă, Assoc. Prof. Dr. Cătălin Tilișcan, Lecturer Dr. Alexandru Croitoru**						
2.5. Study year	**2**	**2.6.** Semester	**3**	**2.7.** Evaluation	**Exam**	**2.8.** Type of discipline	**CD/ FD**

3. Estimated total time (hours/semester)

No. hours/week	**4**	out of which	**Lectures: 2**	**Laboratory session: 2**
Total hours out of learning schedule	**56**	out of which	**Lectures: 28**	**Laboratory sessions: 28**

Time distribution	**hours**
Textbook study, lecture support, bibliography and notes	25
Supplementary documentation activity in the library, on online platforms	15
Practical activity support material, homework, portfolio and essays	15
Tutorial activity	10
Examinations	3
Other activities	1
Total hours of individual study	**69**
Total hours per semester	**125**
Credits	**5**

4. Preconditions

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

5.1. for lecture activity	Amphitheater with a minimum capacity of 100 seats, computer, video projector.
5.2. for laboratory activity	Practical workroom, laptop, video projector.

6. Accumulated skills

6.1. Proficiencies ***(knowledge and abilities)***	**I. Knowledge (cognitive dimension)** Knowledge regarding the main nonspecific defense mechanisms of the body (fever, pain, inflammation, hemostasis), the main syndromes and systemic diseases that might affect dental medical procedures, as well as the primary laboratory tests. **II. Abilities (functional dimension)** – Identification and understanding of the main nonspecific defense mechanisms of the body (inflammation, hemostasis). – Understanding the impact of the main syndromes and systemic diseases on dental medical procedures and the need for treatment adjustment. – Analyzing the changes in laboratory/hematological tests that may signal the risk of accidents or complications during procedures in the dental office.
6.2. Transversal skills ***(role, professional and personal development)***	**III. Role skills** – Identifying the objectives to be achieved, available resources, and conditions for their completion, taking into account the patient's condition. – Developing skills for independent learning, analysis and synthesis, and making correct medical decisions. **IV. Professional and personal development skills** – Identifying roles and responsibilities within a multidisciplinary team and applying techniques for effective relationship building and teamwork based on the status of each individual patient. – Efficiently using informational sources and communication and assisted professional training resources.

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

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 in relation to the patients' systemic conditions. – The ability to identify potential systemic diseases that produce signs and symptoms in the oral cavity.

8. Content

8.1. Lectures	No. hrs/topic	Teaching method	Obs.
1. Inflammation (1)	2	Exposition, heuristic conversation, explanation, guided dialogue, demonstration, problematization, algorithmization, case study.	
2. Inflammation (2)	2		
3. Pathophysiology of acid-base and hydroelectrolytic balance	2		
4. Pathophysiology of thermoregulation and pain	2		
5. Pathophysiology of carbohydrate and lipid metabolisms	2		
6. Pathophysiology of protein metabolism	2		
7. Normal hemostasis. Disorders of primary hemostasis	2		
8. Disorders of secondary hemostasis. Thrombosis	2		
9. Systemic post-aggressive reaction and shock states	2		
10. Heart failure	2		
11. Arterial hypertension	2		
12. Liver failure	2		
13. Acute and chronic renal failure	2		
14. Respiratory failure.	2		

8.2 Laboratory Sessions	No. hrs/topic	Teaching method	Obs.
1. Concepts of cardiovascular physiology and pathophysiology	2	Exposition, heuristic conversation, explanation, guided dialogue, demonstration, problematization, algorithmization, case study, interpretation of electrocardiograms, and laboratory tests.	
2. Electrocardiographic recording	2		
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.	2		
4. Rhythm disorders (cardiac arrhythmias) - mechanisms, semiotics concepts, ECG appearance, treatment principles.	2		
5. Heart irrigation disorders (ischemic heart disease and myocardial infarction) - mechanisms, semiotics concepts, ECG appearance, treatment principles.	2		
6. Analysis of electrocardiographic traces	2		
7. Cardiac syndromes with implications in dental practice	2		
8. Hematopoiesis and erythrocyte exploration	2		
9. Exploration of the white leukocyte series	2		
10. Functional exploration of fluid-coagulant balance	2		
11. Functional exploration of carbohydrate and lipid metabolisms	2		
12. Functional exploration of the liver. Excretory-biliary syndrome	2		
13. Interpretation of laboratory test reports	2		
14. Commented clinical cases	2		

8.3. Bibliography for lectures and laboratory/practical sessions
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 3. 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. ISBN-13: 979-8711520320

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

Understanding clinical pathophysiological mechanisms is essential for logically comprehending the cellular events underlying the onset of diseases. This allows for the learning of the clinical and paraclinical expression of diseases and enables the practical application of this knowledge in the dentist's practice.

10. Evaluation

10.1 Evaluation

Activity type	Evaluation Criteria	Methods of evaluation	% out of final grade
Lecture	**A. Knowledge for mark 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. **B. Additional knowledge for mark 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%**
Laboratory Sessions	**Periodic assessment – Colloquium** **A. Knowledge for mark 5:** The student will be able to reproduce the normal and pathological values of electrocardiogram parameters and to establish a diagnosis without being able to support it with all the necessary arguments.	**Practical assessment** Evaluation through multiple-choice test and written essay; interpretation of normal and pathological electrocardiograms.	**20%**

	B. Additional knowledge for mark 10: The student will be able to interpret the pathological changes of electrocardiographic traces and to correlate the information obtained during practical sessions with the concepts taught in the lectures.		
	Periodic assessment – Practical exam **A. Knowledge for mark 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. **B. Additional knowledge for mark 10:** The student will be able to interpret the pathological changes of electrocardiographic traces and biological tests, and to correlate the information obtained during practical sessions with the concepts taught in the lectures.	**Practical assessment** Evaluation through multiple-choice test and written essay; interpretation of pathological electrocardiograms and laboratory analyses.	**20%**
Minimum performance standards			
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.			

Date:
08.09.2023

Chair of Pathophysiology Division,
Prof. dr. Ștefan Sorin Aramă

Date of the approval in Department Board:

Department director,
Prof. dr. Alexandru Bucur