




DISCIPLINE SHEET

1.-Info about the program

FOUNDATION FOR DEVELOPMENT AND MANAGEMENT	
1.2-Faculty	FACULTY OF MEDICINE
1.3-Departament	Preclinical/Fundamental Disciplines
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				PATHOPHYSIOLOGY_I				
2.2-Course lecturer				1.-Lect.Dr. HUNEA Iuliana , MD, PhD 2.-Lect.Dr. PADUREANU Liliana , MD, PhD				
				1.- Lect.Dr. HUNEA Iuliana , MD, PhD 2.- Lect.Dr. PADUREANU Liliana , MD, PhD				
				3.-Asist.Univ.Drd. DIACONU Iulia-Elena				
2.4-Year of study	III	2.5 Semester	I	2.6 Evaluation type	Exam	2.7. Discipline regime	Content	DF
							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					30
Additional documentatin in the library, on the specialized electronic platforms and on the field					20
Training seminars/laboratories/projects, themes, papers,portofolios and essays					4
Tutoring					-
Examination					2
Other activities					2
3.7-Individual study hours	58				
3.8-Total hours per semester	100				
3.9-Credit number	4				

4.-Preconditions (if applicable)

4.1.-Curriculum	Physiology, Anatomy and Embriology, Cellular and Molecular Biology, Biochemistry, Biophysics
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4.2.-Learning Outcomes	This is not the case
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5.-Conditions (where applicable)

5.1. -Course Conduct	Amphitheatre
5.2.-conducting the seminar/laboratory	In the wards, near the patient's bed

6. Learning outcomes

Knowledge	Identifies, describes, explains and classifies the mechanisms of disease production, risk factors, pathogens (bacteria, viruses, parasites) and types of immunological response, as well as the development of pharmacological and genetic approaches.
Skills	Correctly interpret and apply fundamental concepts regarding disease mechanisms and methods for investigating biological functions.
Responsibilities and autonomy	Integrates fundamental notions and methods of investigating biological functions, formulates and assumes reasoned conclusions regarding the general mechanisms of disease production and the general principles of treatment.

7.-Objectives of the discipline (resulting from the grid of specific skills accumulated)

7.1 -General objective of the discipline	To gather basic knowledge about the pathophysiology of the disease that allows the analytical medical thinking necessary for the formulation of the positive and differential diagnosis in medical practice.
7.2- Specific objectives	▪-Understand the pathophysiological mechanisms responsible for the onset and evolution of a disease.



	<ul style="list-style-type: none"> ▪-To explain functional abnormalities, laboratory changes and compensatory mechanisms according to the pathophysiology of the disease. ▪-To differentiate the functional changes underlying the disease from those that occur as consequences of the disease and/or as compensatory changes specific to the disease. ▪-Understand the principles of diagnosis (including the use of diagnostic algorithms) and the rationale for disease therapy according to the underlying pathophysiology.
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8.-Contents

8. 1-Course (homework, number of hours, bibliography)	hours /2 week	Teaching methods
1-2.-Introductory lesson in pathophysiology. Definition and concept of disease. Pathophysiology of the body's response to stress. <ul style="list-style-type: none"> ▪Pathophysiology of defense reactions: Acute and chronic inflammation. Excessive immune response: mechanisms of hypersensitivity reactions and autoimmune diseases. Deficient immune response: mechanisms of primary and secondary immune deficiencies. 	2	Oral takeover supported by a structured, interactive PPT, with a rich and suggestive iconography. PPTs are available on the e-learning platform. The informative material is updated annually with the latest information in the field of pathophysiology of the diseases studied. Each lecture begins with the educational objectives and ends with the summary of the material presented.
3-4.-Thermoregulation pathophysiology: Pathogenesis of fever, hyperthermia and hypothermia. Pathophysiology of pain. Definition, impairment of pain sensitivity, pathogenesis of the main types of pain. <ul style="list-style-type: none"> ▪Pathophysiology of respiratory diseases (I and II): Obstructive pulmonary diseases (bronchial asthma, chronic obstructive pulmonary disease, cystic fibrosis). II. Restrictive pulmonary diseases (pulmonary fibrosis). Atelectasis. Diseases of the pulmonary vessels. 	2	
5-6.-Pathophysiology of respiratory diseases (III): Obstructive sleep apnea syndrome. Respiratory failure syndrome. Adult respiratory distress syndrome. Pathophysiology of the cardiovascular system (I) – Pathophysiology of hypertension. <ul style="list-style-type: none"> ▪Pathophysiology of the cardiovascular system (II) - Atherosclerosis and coronary artery disease. Pathophysiology of the cardiovascular system (III) - Pathophysiology of peripheral vascular diseases: Pathophysiology of arterial circulation (disorders of the aorta, peripheral arterial disease, acute ischemia of the lower limbs).	2	



<p>7-8.-Pathophysiology of the cardiovascular system (IV) - Pathophysiology of cardiomyopathies and valvular diseases. Etiopathogenesis of cardiomyopathies, aortic and mitral valve diseases.</p> <p>Pathophysiology of the cardiovascular system (V) - Pathophysiology of rhythm and conduction disorders. Mechanisms of abnormal impulse generation and abnormal impulse conduction.</p> <ul style="list-style-type: none"> ▪Pathophysiology of the cardiovascular system (VI) – Heart failure (1): Definition, etiology and pathogenesis of heart failure (HF); mechanisms of depressed myocardial contractility; compensatory mechanisms, cardiac remodeling. Pathophysiology of the cardiovascular system (VII) – Heart failure (2): Clinical forms of HF (low ejection fraction vs. conserved ejection fraction, left vs. right). Pathogenesis of pulmonary edema and peripheral edema. 	<p>2</p>	
<p>9-10.-Pathophysiology of circulatory shock: Definition, classification and general pathogenesis of the evolutionary stages of shock; compensatory mechanisms, impairment of cellular metabolism. Etiopathogenesis of the main types of shock: cardiogenic, hypovolemic, distributive (anaphylactic, neurogenic, septic).</p> <ul style="list-style-type: none"> ▪Pathophysiology of cerebral circulation disorders: Pathogenesis of transient ischemic attack, stroke, cerebral infarction, cerebral and subarachnoid hemorrhage. 	<p>2</p>	
<p>11-12.-Pathophysiology of calcium, phosphate and magnesium abnormalities: Etiopathogenesis hyper- and hypocalcemia; hyper- and hypophosphatemia. Pathophysiology of bone diseases: osteomalacia and rickets. Etiopathogenesis hyper- and hypomagnesemia.</p> <ul style="list-style-type: none"> ▪Pathophysiology of major endocrine disorders. Abnormalities of the thyroid gland: hyper- and hypofunction. Abnormalities of the adrenal gland: hyper- and hypofunction. 	<p>2</p>	
<p>13-14.-Pathophysiology of obesity and malnutrition. Etiopathogenesis of obesity, denutrition, and inanition.</p> <ul style="list-style-type: none"> ▪Pathophysiology of selected rheumatic diseases. Etiopathogenesis of systemic lupus erythematosus, rheumatoid arthritis, ankylosing spondylitis 	<p>2</p>	
<p>Bibliography:</p> <ol style="list-style-type: none"> 1.- Pathophysiology - The Biologic Basis for Disease in Adults and Children, 8E, 2019 2.-Pathophysiology of Blood Disorders - Aster & Bunn, 2E, 2017 		



8. 2- Seminar (themes, number of hours, bibliography	hours /week	Teaching methods
1.-Stress assessment. The body's response to stress: defining and assessing burnout syndrome in the medical profession (Medical Students' Stressor Questionnaire). Tumor markers: definition, characteristics, classification, indications and clinical utility of tumor markers. Algorithm for the clinical use of tumor markers in medical practice.	2	Presentation of typical examples of laboratory reports and interactive discussions of clinical cases in small groups of students.
2.-Investigation of inflammatory syndromes and immune pathology. General inflammation tests (leukocyte count, erythrocyte sedimentation rate, protein electrophoresis, acute phase reactants). Laboratory and paraclinical diagnosis in hypersensitivity reactions and major autoimmune diseases (systemic lupus erythematosus and rheumatoid arthritis).	2	At the end of each laboratory, a recapitulative MCQs test is taken.
3.-Investigation of fever and pain. Fever: definition, causes, classification, thermometry, fever curves. Pain: definition, characteristics, classification, methods of assessing nociceptive and neuropathic pain (scales, questionnaires).	2	
4.-Investigation of respiratory function. Pulmonary functional tests (assessment of lung volumes and capacities, respiratory flows). Forced spirometry, bronchotricity tests and PEF monitoring. Complementary functional tests: body plethysmography, measurement of gas transfer. Diagnostic algorithm for pulmonary function tests.	2	
5.-Investigation of hypertension and peripheral artery disease. Algorithm for functional and laboratory investigations in the diagnosis and management of patients with primary and secondary hypertension. Introduction to Cardiovascular Risk Score Assessment. Screening tests to evaluate peripheral arterial circulation (Doppler ultrasound and ankle-brachial index, arteriography indications)	2	
6.-Pathological ECG (I). Brief overview of normal ECG elements. Changes in the electric axis. ECG in atrial and ventricular hypertrophy.	2	
7.-Pathological ECG (II). ECG in coronary artery disease. ECG in myocardial infarction and angina pectoris. ECG in atrioventricular and intraventricular blocks and preexcitation syndromes.	2	
8.-Pathological ECG (III). ECG in heart rhythm disorders. ECG in heart rhythm disorders (sinus, atrial, junctional and	2	



ventricular arrhythmias), ECG in electrolyte imbalances. Effects of the drug on the ECG.		
9.-Cardiopulmonary exercise test. Indications/contraindications and protocols for cardiopulmonary testing; interpretation and diagnostic value.	2	
10.-Serum biomarkers in cardiovascular diseases. Biomarkers of acute myocardial injury, chronic low-grade inflammation, plaque instability/rupture, ventricular remodeling, and heart failure. LABORATORY EVALUATION 1 (Units 1-8)	2	Test consisting of 30 MCQs (ECG interpretation, lab reports, and case studies).
11.-Investigation of abnormalities in calcium and phosphate metabolism. Laboratory and functional evaluation of calcium and phosphate metabolism. Diagnostic algorithm in hyper- and hypocalcemia, hyper- and hypophosphatemia.	2	Presentation of typical examples of laboratory reports and interactive discussions of clinical cases in small groups of students. At the end of each laboratory, a recapitulative MCQs test is taken.
12.-Investigation of major endocrine disorders. Laboratory and functional investigations in hypo- and hyperfunction of the adrenal and thyroid glands.	2	
13.-Investigation of nutrition disorders. Food questionnaire. Anthropometric measurements (BMI, mid-arm circumference, calf circumference, abdominal/gluteal index, abdominal and hip circumference).	2	
14.-Complementary laboratory investigations. Methods of assessing body composition.	2	
Bibliography: 1.- Pathophysiology - The Biologic Basis for Disease in Adults and Children, 8E, 2019 2.-Pathophysiology of Blood Disorders - Aster & Bunn, 2E, 2017		

9.-Corroborating/validating the contents of the discipline with the expectations of the representatives of the epistemic community, professional associations and employers representative of the field related to the program

The contents of the discipline are in accordance with the RNCIS standards.

10. Evaluation

Activity Type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Weight of the final grade
10.4-Course	<ul style="list-style-type: none"> Knowledge for 5: Define, classify and list the causes responsible for the 	30 MCQs from the subjects taught in the lecture until the seminar date	10% (5+5%)




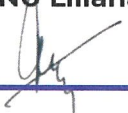
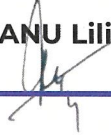

	<p>occurrence of a disorder/dysfunction</p> <ul style="list-style-type: none"> Knowledge for 10: Description of the pathophysiological mechanisms responsible for the occurrence of a disorder, the correlations of the mechanisms with the clinical symptoms/signs 	<ul style="list-style-type: none"> 100 MCQ (for those who did not pass the partial exam) or 50 MCQ (for those who passed the partial exam) 	50%
10.5- Seminar/ laboratory	<p>Knowledge for 5: The ability to recognize normal values and pathological changes in laboratory parameters in a particular disease</p> <p>Knowledge for 10: Identify all pathological changes and list the possible underlying causes of these changes.</p>	<ul style="list-style-type: none"> The evaluation of the laboratory consists of 30 MCQs of the material taught in the practical laboratories. Practical exam at the end of the year which has a written part - 20 MCQs consisting of clinical cases and an oral part - interpretation of 2 bulletins (ECG traces and laboratory report). 	<p>15% (7.5+7.5%)</p> <p>10%</p> <p>15%</p>

10.6.-Minimum standard of performance:

- Knowledge of terminology, description of the main pathophysiological mechanisms underlying cardiovascular, respiratory, hematological, renal, digestive, endocrine, rheumatic, metabolic disorders, acid disorders and hydroelectrolyte imbalances.
- Knowledge of terminology, recognition of pathophysiological changes in parameters used in routine paraclinical diagnosis.

Date: 28.04.2025	Signature of the discipline coordinator:	Holder of the seminar activities: Univ. Teaching Assistant BURLEC Dora , PhD(c), MD
		1.-Lect.Dr. HUNEA Iuliana , MD, PhD



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Date of approval in the Department		
Signature of the Director of Department		

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

