



DISCIPLINE SHEET

1. Data about the programme

1.1.	“CAROL DAVILA” UNIVERSITY OF MEDICINE AND PHARMACY
1.2.	FACULTY OF MEDICINE
1.3.	DEPARTMENT : 2 nd PRECLINICAL DEPT. - MORPHOLOGICAL SCIENCES
1.4.	DISCIPLINE : Cellular and Molecular Biology and Histology
1.5.	DOMAIN OF STUDY: HEALTH – Sectorally regulated within the European Union
1.6.	STUDY CYCLE: LICENCE
1.7.	STUDY PROGRAME: MEDICINE – ENGLISH MODULE

2. 2. Data about discipline

2.1.	Name of the discipline in the educational plan: Histology				
2.2.	Discipline code: DFII 2 S3M DFII 2 S4M				
2.3.	Discipline type (FD/SD/CD): DF				
2.4.	Discipline regimen (MD/OPD/): DOB				
2.5.	The holder of the course activities 1. Crețoiu Sanda Maria, Associate Professor, tenured 25-30 years 2. Ceafalan Laura Cristina, Associate Professor, tenured 20-25 years				
2.6.	The holder of the seminar activities : 1. Crețoiu Sanda Maria - Associate Professor, tenured 25-30 years 2. Ceafalan Laura Cristina - Associate Professor, tenured 20-25 years 3. Manole Cătălin Gabriel - Lecturer, tenured, 20-25 years 4. Popa Maria Linda - Lecturer, tenured, 20-25 years 5. Curici Antoanela - Lecturer, tenured, 20-25 years 6. Caravia Laura - Assistant professor, tenured, 20-25 years 7. Pîrvuleț Viviana - Assistant professor, tenured, 20-25 years 8. Pavelescu Luciana - Assistant professor, tenured, 15-20 years 9. Popescu Alexandru Cristian - Asistent universitar, vechime 35-40 ani				
2.7. Year of study	II	2.8. Semester	III&IV	2.9. Type of evaluation (E/C)	E/C

3. Total estimated time (hours/semester of didactic activity an self preparation/study

I. Academic training (teaching, practical application, assessment)						
3.1. Nr hours/week	4	From which:	3.2. lecture	2	3.3. seminary/ laboratory	2
3.4. Total hours of educational plan	56	From which:	3.5. lecture	28	3.6. seminary/ laboratory	28
Evaluation (nr. of hours) : 7						
II. Self preparation/study						
Time allocation						hours
Study of course materials, textbooks, books, study of the recommended minimal bibliography						42
Additional research in the library, research through the internet						15
Performing specific activities for preparing projects, laboratories, elaborating reviews or other tasks						12

Specific preparation activities for projects, laboratory work, assignments, and reports	22
Tutoring	3
Other activities	
3.7. Total individual study hours	94
3.9. Total hours per semester (3.4.+ 3.7.)	150/300
3.10. Number of credits	10 1 st semester: 5; 2 nd semester: 5

4. Preconditions (where applicable)

4.1. of curriculum	Cell Biology, Anatomy, Biochemistry, Biophysics
4.2. of competences	Not required

5. Conditions (where applicable)

5.1. to conduct the lecture	Lecture Hall with video projection system and internet access
5.2. to conduct the seminar / laboratory	Laboratories equipped with light and digital microscopes, a video projection system, and internet access

6. Learning outcomes

Knowledge	Skills	Responsibility and autonomy
The student identifies, describes and explains fundamental notions regarding the characteristics of the healthy human body, structural (anatomical, histological, cellular and molecular) and functional (physiological, biochemical, biophysical), as well as the principles of methods for investigating biological functions.	The student correctly interprets and applies the fundamental notions regarding the structure and functions of the human body and the methods of investigating biological functions.	The student integrates fundamental concepts and methods for investigating biological functions, formulates and assumes reasoned conclusions regarding the state of health or disease.

7. Course objectives (aligned with the learning outcomes)

7.1. General objective	Integration of morphological sciences in the clinical field
7.2. Specific objective	<ul style="list-style-type: none"> • Mastering the principles of structural organization and activity of cells, tissues, organs, organ systems and the human body as a polystem; • Understanding the concept of cellular interaction; • Reconsidering classical histology in the context of recent advances in fundamental research, mastering a microscopic technology used in medical practice; • Diagnosis of cells, tissues and organs under an light microscope; • Recognition, analysis, and correlation of electron microscopy images with light microscopy; • Development of critical thinking in the approach to fundamental morphology.

8. Contents

8.1. Lectures	Teaching methods	Observations
Lectures 3rd semester		2h
Lecture 1. The epithelial tissue (1);	Lecture – interactive PowerPoint presentation	Lectures take place in the Lecture Hall.
Lecture 2. The epithelial tissue (2);		
Lecture 3. The epithelial tissue (3);		
Lecture 4. Connective tissue (1): extracellular matrix;		
Lecture 5. Connective tissue (2): cell and fibers;		
Lecture 6. Connective tissue (3): varieties;		
Lecture 7. Cartilage & Bone;		
Lecture 8. Peripheral blood (1): Erythrocytes and platelets;		
Lecture 9. Peripheral blood (2): Leukocytes;		
Lecture 10. Hematopoiesis;		
Lecture 11. Muscle tissue (1): skeletal muscle tissue;		
Lecture 12. Muscle tissue (2): Smooth and cardiac muscle tissue;		
Lecture 13. Nerve tissue;		
Lecture 14. Nervous system.		
Lectures 4rd semester		
Lecture 15. Circulatory system;		
Lecture 16. Lymphatic system;		
Lecture 17. Digestive tract (1);		
Lecture 18. Digestive tract (2);		
Lecture 19. Liver, pancreas and salivary glands;		
Lecture 20. Urinary system;		
Lecture 21. Respiratory system;		
Lecture 22. Male genital apparatus;		
Lecture 23. Female genital apparatus (1);		
Lecture 24. Female genital apparatus (2);		
Lecture 25. Endocrine glands (1);		
Lecture 26. Endocrine glands (2);		
Lecture 27. Integument;		
Lecture 28. Sense organs.		
Recent Bibliography		
<ul style="list-style-type: none"> • Pawlina W. Histology A Text and Atlas with Correlated Cell and Molecular Biology, 7th edition, 2016 • Lecture notes 		
8.2. Laboratory/ practical lesson	Teaching methods	Observations
		2h
3rd semester	The basic information is delivered through a PowerPoint presentation at the beginning of each class. Then, each Teaching Assistant will work with the assigned group, presenting and explaining the corresponding	Laboratories equipped with light microscopes. <u>Minimum requirements for laboratory materials and consumables:</u> Glass slides and blades, pipettes, thinners, and
Tutorial 1. Introduction to histology;		
Tutorial 2. Covering epithelial tissue;		
Tutorial 3. Glandular epithelial tissue;		
Tutorial 4. Connective tissue cells, fibers & matrix;		
Tutorial 5. Connective tissue varieties;		

Tutorial 6. Ultrastructure of epithelial and connective tissue;	histological slides. Subsequently, histological preparations are examined by the students, under the supervision of the teaching staff, by light microscopy. To understand and interpret the histological diagnosis, students perform schematics according to the microscopic image and compare what they examine with images from the atlases in their endowment.	histological staining solutions The practical sessions can be taught online, under special conditions.		
Tutorial 7. Cartilage and Bone;				
Tutorial 8. Mid-term evaluation. Blood cells;				
Tutorial 9. Blood smear investigation;				
Tutorial 10. Hematopoiesis;				
Tutorial 11. Muscle tissue;				
Tutorial 12. Nerve tissue;				
Tutorial 13. Nervous system;				
Tutorial 14. Practical Evaluation				
4rd semester				
Tutorial 15. Circulatory system;				
Tutorial 16. Endocrine glands;				
Tutorial 17. Lymph organs and the immune system;				
Tutorial 18. Digestive tract (1);				
Tutorial 19. Digestive tract (2);				
Tutorial 20. Mid-term evaluation;				
Tutorial 21. Liver, pancreas and salivary glands;				
Tutorial 22. Respiratory system;				
Tutorial 23. Urinary system;				
Tutorial 24. Male genital apparatus;				
Tutorial 25. Female genital apparatus;				
Tutorial 26. Female genital apparatus;				
Tutorial 27. Sense organs;				
Tutorial 28. Practical Evaluation				
Recent bibliography				
<ul style="list-style-type: none"> • Pawlina W. Histology A Text and Atlas with Correlated Cell and Molecular Biology, 7th edition, 2016 • Tutorials 				

9. Evaluation

Activity type	9.1. Evaluation criteria	9.2. Evaluation methods	9.3. Percentage in the final grade
9.4. Lecture	A. Knowledge for mark 5: 1. To prove knowledge of the general structure of tissues and organs. B. Additional knowledge for mark 10 1. To prove the proper usage of specific terms 2. To know specific details on tissue/organ microscopic organization and histophysiology	Either Oral Exam (2 or 3 questions) or written test (60 single/multiple choice questions)	70%
9.5. Seminary/ practical activity	A. Knowledge for mark 5: 1. To identify all tissues/ organs indicated by the examiner. 2. To efficiently handle the light microscope	For both semesters, identification of tissues and organs on light microscopy images and	15% - practical evaluation

	B. Additional knowledge for mark 10	presentation of histological diagnostic elements	
9	1. To present all arguments sustaining his/her histological diagnosis. 2. To be able to perform differential diagnosis among similar tissues/organs	Evaluation of the activity during laboratory sessions	15%

9.6. Minimum performance standard

The marks of the students' answers are made with grades from 4 to 10, whole numbers, the minimum passing grade being 5, both for the practical exam and for the grid test. The practical exam is the eliminatory test and is passed if the student presents the knowledge mentioned for grade 5. The final exam is considered passed if the student has answered correctly at least half of the questions in each subject of the oral exam or, in the case of the written exam, 27 questions out of 60. The final grade, after passing each exam, is calculated according to the formula: $0.7 \times \text{grade for the grid test} + 0.15 \times \text{grade for the practical exam} + 0.15 \times \text{grade for the lab session activity}$.

During the module, students must acquire the ability to make a correct diagnosis of tissues and organs under a light microscope, to analyze and interpret the light and electron microscopy images related to the studied chapters correctly, and to use the light microscope properly. These objectives aim to offer basic training for the study of Pathology.

Date of completion :

Signature of the course holder

Signature of the laboratory holder

Date of approval by the Department Council:

Signature of the Department Director