



## DISCIPLINE GRID

### 1. Programme:

1.1.	CAROL DAVILA UNIVERSITY OF MEDICINE AND PHARMACY
1.2.	GENERAL MEDICINE FACULTY / 2 <sup>nd</sup> PRECLINICAL DPT - MORPHOLOGICAL SCIENCES
1.3.	DIVISION OF Cellular and Molecular Biology and Histology
1.4.	TEACHING LINE: Histology
1.5.	STUDY LEVEL: Licence
1.6.	PROGRAMME: Day School

### 2. Teaching line

2.1.	Teaching Line: Histology						
2.2.	Lecture holders:						
2.3.	Practical activity holder: 1.						
2.4. Study year	II	2.5. Semester	III and IV	2.6. Evaluation	Practical Examination - oral; Final Examination - written and oral	2.7. Type of discipline	Fundamental (FD)

### 3. Estimated total time (hours/semester)

No. hours/week	5	out of which : Lecture	2	Laboratory Session	3
Total hours out of learning schedule	140	out of which : Lectures	56	Laboratory Sessions	84
Time distribution	28 weeks				
Textbook study, lecture support, bibliography and notes					
Supplementary documentation activity in the library, on online platforms					
Practical activity support material, homework, portfolio and essays					
Tutorial activity					
Examinations					
Other activities					
Total hours of individual study					
Total hours per semester					
Credits					
				1 <sup>nd</sup> semester: 6; 2 <sup>nd</sup> semester: 6	12

### 4. Preconditions

4.1. curriculum	Not required
4.2. proficiencies	Not required

## 5. Conditions

<b>5.1. for lecture activity</b>	Not required
<b>5.2. for tutorial activity</b>	Not required

## 6. Accumulated skills

<b>6.1. Proficiencies (knowledge and abilities)</b>	<ul style="list-style-type: none"><li>• selection, combination and appropriate use of knowledge, skills and other acquisitions (values and attitudes).</li></ul>
<b>6.2. Transversal skills (role, professional, personal development)</b>	<ul style="list-style-type: none"><li>• identification of objectives, available resources, acquiring conditions, work flow, working steps and deadlines</li><li>• identification of roles and responsibilities in a multidisciplinary, effective team</li><li>• effective use of information sources, communication resources and assisted training (internet portals, specialized software, databases, online tutorials etc.)</li><li>• autonomy and responsibility</li><li>• social interaction</li><li>• personal and professional development</li></ul>

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

<b>7.1. General Objective</b>	<ul style="list-style-type: none"><li>• Acquiring the principles of structural organization and activity of cells, tissues, organs, organ systems and the human organism as a polisystem;</li><li>• Creating concepts about cellular interaction;</li><li>• Review of classical histology in the context of recent years progress in the field of fundamental research, acquiring practical skills in microscopic examination for medical practice;</li><li>• Diagnosis of cells, tissues and organs under the optical microscope;</li><li>• Recognition, analysis and correlation of electron microscopy images with light microscopy;</li><li>• Developing critical thinking in addressing fundamental morphology.</li></ul>
<b>7.2. Specific Objective</b>	Integration of morphological sciences in clinical field

## 8. Content

8.1. Lectures	Teaching method	Observations
<p><b>Lectures 3<sup>rd</sup> semester</b></p> <ol style="list-style-type: none"> <li>1. The epithelial tissue (1);</li> <li>2. The epithelial tissue (2);</li> <li>3. The epithelial tissue (3);</li> <li>4. Connective tissue (1): extracellular matrix;</li> <li>5. Connective tissue (2): cell and fibers;</li> <li>6. Connective tissue (3): varieties;</li> <li>7. Cartilage &amp; Bone;</li> <li>8. Peripheral blood (1): Erythrocytes and platelets;</li> <li>9. Peripheral blood (2): Leukocytes;</li> <li>10. Hematopoiesis;</li> <li>11. Muscle tissue (1): skeletal muscle tissue;</li> <li>12. Muscle tissue (2): Smooth and cardiac muscle tissue;</li> <li>13. Nerve tissue;</li> <li>14. Nervous system.</li> </ol> <p><b>Lectures 4<sup>rd</sup> semester</b></p> <ol style="list-style-type: none"> <li>15. Circulatory system;</li> <li>16. Endocrine glands (1);</li> <li>17. Endocrine glands (2);</li> <li>18. Lymph organs and the immune system;</li> <li>19. Digestive tract (1);</li> <li>20. Digestive tract (2);</li> <li>21. Liver, pancreas and salivary glands;</li> <li>22. Respiratory system;</li> <li>23. Urinary system;</li> <li>24. Male genital apparatus;</li> <li>25. Female genital apparatus (1);</li> <li>26. Female genital apparatus (2);</li> <li>27. Skin;</li> <li>28. Sense organs.</li> </ol>	<p>Lecture</p>	<p>Presentation in the Lecture Hall</p>
<p><b>8.2 Laboratory sessions</b></p> <p><b>3<sup>rd</sup> semester</b></p> <ol style="list-style-type: none"> <li>1. Introduction to histology;</li> <li>2. Covering epithelial tissue;</li> <li>3. Glandular epithelial tissue;</li> <li>4. Connective tissue cells, fibers &amp; matrix;</li> <li>5. Connective tissue varieties;</li> <li>6. Ultrastructure of epithelial and connective tissue;</li> <li>7. Cartilage &amp; Bone;</li> <li>8. Mid-term evaluation. Blood cells;</li> <li>9. Blood smear investigation;</li> <li>10. Hematopoiesis;</li> <li>11. Muscle tissue;</li> <li>12. Nerve tissue;</li> <li>13. Nervous system;</li> <li>14. Preparing for the Practical Exam; Review Session.</li> </ol> <p><b>4<sup>rd</sup> semester</b></p> <ol style="list-style-type: none"> <li>15. Circulatory system;</li> </ol>	<p>The basic information is presented at the beginning of each class. Then, each Teaching Assistant will work with the assigned group presenting and explaining individually the corresponding histological slides. Subsequently, histological preparations are examined by the students, under the supervision of the teaching staff, by light microscopy. In order 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.</p>	<p>Laboratories equipped with light microscopes</p>

16. Endocrine glands;		
17. Lymph organs and the immune system;		
18. Digestive tract (1);		
19. Digestive tract (2);		
20. Mid-term evaluation;		
21. Liver, pancreas and salivary glands;		
22. Respiratory system;		
23. Urinary system;		
24. Male genital apparatus;		
25. Female genital apparatus;		
26. Female genital apparatus;		
27. Sense organs;		
28. Preparing for the Practical Exam; Review Session.		

**Bibliography:**

- Mescher A. Junqueira's Basic Histology: Text and Atlas, 14<sup>th</sup> edition McGraw-Hill Medical, 2016
- Pawlina W. Histology A Text and Atlas with Correlated Cell and Molecular Biology, 7<sup>th</sup> edition, 2016
- Kierszenbaum AL, Tres LL. Histology and Cell Biology: An Introduction to Pathology. Elsevier, 4<sup>th</sup> edition, 2015
- Gartner LP, Hiatt JL. Color Atlas of Histology 6th Edition, Wolters Kluwer, 2013
- Stevens A, Lowe J. Human Histology, with student consult online access, 4<sup>th</sup> edition, Elsevier, 2015
- Alberts B and al. *Molecular Biology of the cell*, 2008

**9. Correlation between department activity and the expectations of epistemic community members, professional associations and employers in representative fields**

For the professional training of the second year students in the Department of Histology, we try to establish effective communication, preparing them to acquire appropriate professional communication skills. The course encourages the dialogue, imagination and constructive thinking, preparing them for the next stages of medical training.

**10. Evaluation**

Activity type	Evaluation Criteria	Methods of evaluation	% out of final grade
<b>Lecture</b>	<p><b>A. Knowledge for mark 5:</b> 1. To prove knowledge of the general structure of tissues and organs.</p> <p><b>B. Additional knowledge for mark 10</b> 1. To prove the proper usage of specific terms, 2. To know of specific details on tissue/organ microscopic organization and histophysiology</p>	Written and oral examination	<b>70%</b>
<b>Laboratory Sessions</b>	<p><b>A. Knowledge for mark 5:</b> 1. To identify all tissues/ organs indicated by the examiner.</p> <p><b>B. Additional knowledge for mark 10</b> 1. To present all arguments sustaining his/hers histological diagnosis.</p>	Mid-term evaluation Practical exam with oral examination on slides of normal tissues or organs	<b>5% - midterm</b> <b>25% -practical exam</b>

**Minimum performance standards**

The passing grade is 5. Practical exam is eliminatory. At the end of the course, students must acquire the ability to correctly diagnose tissue and organs by light microscopy, analyse and interpret the light and electron microscopy images, easily manipulate the light microscope, with the aim of acquiring the basic training for the study of Pathology.

**Date 24.09.2018****Signature Lecturer****Signature Teaching Assistants****Date of the approval in  
Department Board:**

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**Signature of the department director**