

SYLLABUS

Histopathology and cellular pathology

University year: 2026-2027

1. Information regarding the programme

1.1. Higher education institution	Babeş-Bolyai University
1.2. Faculty	Biology and Geology
1.3. Department	Molecular Biology and Biotechnology
1.4. Field of study	Biology
1.5. Study cycle	Master, 2 years (4 semesters)
1.6. Study programme/Qualification	Medical Biology
1.7. Form of education	Full-time education

2. Information regarding the discipline

2.1. Name of the discipline	Histopathology and cellular pathology			Discipline code	BME4301		
2.2. Course coordinator	Alexandra Ciorîță						
2.3. Seminar coordinator	Alexandra Ciorîță						
2.4. Year of study	2	2.5. Semester	3	2.6. Type of evaluation	E	2.7. Discipline regime	DS

3. Total estimated time (hours/semester of didactic activities)

3.1. Hours per week	4	of which: 3.2 course	2	3.3 seminar/laboratory	2
3.4. Total hours in the curriculum	56	of which: 3.5 course	28	3.6 seminar/laborator	28
Time allotment for individual study (ID) and self-study activities (SA)					hours
3.5.1. Learning using manual, course support, bibliography, course notes (SA)					40
3.5.2. Additional documentation (in libraries, on electronic platforms, field documentation)					10
3.5.3. Preparation for seminars/labs, homework, papers, portfolios and essays					12
3.5.4. Tutorship					4
3.5.5. Evaluations					4
3.5.6. Other activities: Thematics					
3.7. Total individual study hours					70
3.8. Total hours per semester					126
3.9. Number of ECTS credits					5

4. Prerequisites (if necessary)

4.1. curriculum	General cytology, General Histology, Biochemistry, General chemistry, Cellular and Molecular Biology
4.2. competencies	<ul style="list-style-type: none"> • Light microscopy • Concentrations • Scientific papers • Electronic platforms (Socrative, Mentimeter etc.) • Lab equipment

5. Conditions (if necessary)

5.1. for the course	Logistic video support Electronic support BBU libraries
5.2. for the seminar /lab activities	Minimum 80% attending at the practical courses will ensure the participation to the exam

6. Specific competences acquired

6.1. Competencies resulting from the completion of the degree programme (as referred to in the curriculum)

Professional competencies	
Competency code	Competency
CP3	Ability to critically analyze scientific data, evaluate modern methods and technologies;
CP4	Accurate interpretation of laboratory results and correlation with potential clinical conditions, within the limits of professional competence;
CP6	Data management and reporting of results ensuring accuracy, confidentiality, and traceability.
Transversal competencies	
Competency code	Competency
CT1	Ability to collaborate within a multidisciplinary team to improve workflow and service quality;
CT3	Ability to communicate effectively about results, procedures, and technical issues.

6.2. Learning outcomes relevant to the degree programme (as referred to in the curriculum)

Learning outcomes targeted by the subject		
Codul competenței	Knowledge and comprehension	Specific academic skills
CP7	1. The student demonstrates knowledge and understanding of the fundamental principles of cellular pathology and histopathology, as well as of the molecular and tissue mechanisms underlying pathological processes.	1. The student is able to examine histological and histopathological specimens, accurately identify cellular and tissue lesions, and interpret experimental and clinical data.

7. Subject-specific learning outcomes

Knowledge and comprehension
<ol style="list-style-type: none"> 1. Knowledge of the general principles of cell pathology and histopathology 2. Explain the cellular and molecular mechanisms of pathology 3. Correct identification of pathological modifications in tissues 4. Acquiring the necessary/complementary information to assimilate the content of the subjects of general cytology, histology, biochemistry, animal physiology
Specific academic skills
<ol style="list-style-type: none"> 1. Analyse and interpret tissue samples 2. Presentation of concepts and technologies for obtaining histopathological samples at different levels 3. Introduction to the techniques of obtaining and interpreting histological samples 4. Development of the capacity for analysis and synthesis, the capacity to design and carry out experiments

8. Content

8.1 Course	Teaching methods	Remarks
1. Introduction to cytology and animal histology	Frontal lectures, team discussions, debates, didactic games, case studies, viewing educational videos	
2. Introduction to cellular pathology and histopathology		
3. Circulatory disorders: edema, hyperemia and congestion, hemorrhage, hemostasis, thromboembolism, infarction, shock notions		
4. Inflammation: generalities, acute inflammation, chronic inflammation. Healing processes		
5. Adaptive metabolic disorders: atrophy, hypertrophy, hyperplasia, metaplasia		
6. Reversible and irreversible cell affections: necrosis and apoptosis		

7. Implementation of acquired notions in the biomedical environment		
8. Neoplasms: generalities and carcinogenesis		
9. Classification of tumors. Tumor grading criteria		
10. Tumor serology - tumor markers		
11. Macroscopy and microscopy of tumors. Metastasis process		
12. Biomedicine – the utility of acquired knowledge for medical applications		
13. Nanomaterials science – biocompatibility and biofunctionalization		
14. Applicability of the discipline to the labor market		
<p>Bibliography</p> <ol style="list-style-type: none"> 1. Mills S. Histology for Pathologists, Lippincott and Williams, 3rd Ed., 2007 2. ***Tehnici de lucru pentru prelucrare și colorare a preparatelor de histopatologie – Suport de curs 3. Kumar V, Abbas A., Aster J. Pathologic basis of disease, Elsevier Saunders, 2014 4. Suport de curs Histopatologie <p>Optional references</p> <ol style="list-style-type: none"> 1. Mescher A, Junqueira's Basic Histology Text and Atlas, 14th Ed. McGraw Hall India, 2016. 2. Ross MH, Pawlina W. Histology A Text and Atlas With Correlated Cell and Molecular Biology, 7th ed. Wolters Kluwer. 2015 3. Alberts B, Johnson A, Lewis J, Raff M, Roberts K, Walter P. Molecular Biology of the Cell, 6th Ed. Garland Publishing, New York, 2014. 4. Alberts B, Johnson A, Lewis J, Raff M, Roberts K, Walter P, Molecular Biology of the Cell, 5th Ed. Garland Publishing, New York, 2008. 5. Alberts B, Johnson A, Lewis J, Raff M, Roberts K, Walter P. Molecular Biology of the Cell, 4th ed., Garland Publishing, New York, 2002. http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Books 6. Brady ST, Siegel GJ, Albers RW, Price DL. Principles of Molecular, Cellular, and Medical Neurobiology, 8th Edition, Academic Press, 2011. 7. Dashek WV, Harrison M. Plant Cell Biology, 1st Edition, CRC Press. 2010. 8. Hunt T, Wilson J, The Problems Book: for Molecular Biology of the Cell, 6th Edition, Garland Science, 2015. 9. Kuehnel W, Color Atlas of Cytology, Histology, and Microscopic Anatomy, 4th Edition, 2003. 10. Lodish H, Berk A, Kaiser CA, Krieger M., Scott MP, Bretscher A, Ploegh H, Matsudaira P, Molecular Cell Biology, 6th Edition, 2007. 11. Lodish H, Berk A, Kaiser CA, Krieger M, Bretscher A, Ploegh H, Amon A, Martin KC, Molecular Cell Biology, 8th Edition, 2014 		
8.2 Seminar / laboratory	Teaching methods	Remarks
1. Presentation of the way of carrying out the works; establishing work pairs and establishing the order of rotation; laboratory protection norms and PSI norms.	Frontal lecture	
2. Recognition of the main organs and tissues on histological criteria	Practical activity, subgroups of 2-3 students	
3. Edema, hyperemia and congestion		
4. Myocardial infarction - stages, healing, consequences		
5. Acute and chronic inflammation. Tuberculosis. Meningitis. Pneumonia		
6. Cerebral necrosis		
7. Cerebral atrophy. Hypertrophy of the muscle layer at the level of the digestive tube. Metaplasia of the pulmonary bronchial epithelium		
8. Basal cell carcinoma. Squamous cell carcinoma		
9. pTNM staging exemplified by colon adenocarcinoma		
10. Carrying out an individual study. Analysis, synthesis and integration activities of a scientific text of your choice		Individual practical activity, confrontation of ideas, debate, argumentation - group activity
11. Carrying out an individual study. Analysis, synthesis and integration activities of a scientific text of your choice		

12. Carrying out an individual study. Analysis, synthesis and integration activities of a scientific text of your choice		
13. Carrying out an individual study. Analysis, synthesis and integration activities of a scientific text of your choice.		
14. Evaluation (examination) of laboratory work		Practical examination
Bibliography Collection of reports for each laboratory work available at the department's library and online on the specialization's working group		

9. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	Assimilation of informational content	Written exam	70%
	Enabling the use of concepts/notions		
10.5 Seminar/laboratory	Skills to work in the laboratory and to apply an experimental protocol	Practical evaluation at the end of the semester	30%
	Skills of analysis, synthesis and integration of a scientific text		
10.6 Minimum standard of performance			
<ul style="list-style-type: none"> Knowing at least 70% of the information contained in the course Knowledge of at least 30% of the laboratory information 			

10. SDG Labels (Sustainable Development Goals)

 Sustainable Development Generic Label								
1 FĂRĂ SĂRĂCIE	2 FOAMETE "ZERO"	3 SĂNĂTATE ȘI BUNĂSTĂRE	4 EDUCATIE DE CALITATE	5 EGALITATE DE GEN	6 APĂ CURATĂ ȘI SĂNĂTATE	7 ENERGIE CURATĂ ȘI LA PREȚURI ACCESIBILE	8 MUNCĂ DECENTĂ ȘI CREȘTERE ECONOMICĂ	9 INDUSTRIE, INOVAȚIE ȘI INFRASTRUCTURĂ
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10 INEGALITĂȚI REDUSE	11 ORĂȘE ȘI COMUNITĂȚI DURABILE	12 CONSUM ȘI PRODUCȚIE RESPONSABILE	13 ACȚIUNE CLIMATICĂ	14 VIAȚĂ ACVATICĂ	15 VIAȚĂ TERESTRĂ	16 PACE, JUSTIȚIE ȘI INSTITUȚII EFICIENTE	17 PARTENERIATE PENTRU REALIZAREA OBIECTIVELOR	Nu se aplică nici o etichetă
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Date:
09.04.2026

Signature of course coordinator

Ciorîță Alexandra

Signature of seminar coordinator

Ciorîță Alexandra

Date of approval:
09.04.2026

Signature of the head of department

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