



COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Cell Structure	

Lecturer(s)	Department(s) where the course unit (module) is delivered
Coordinator: dr. Kristina Daniūnaitė	Institute of Biosciences, Life Sciences Center
Other(s):	

Study cycle	Type of the course unit (module)

Mode of delivery	Period when the course unit (module) is delivered	Language(s) of instruction
Face-to-face, interactive environment, self-study; Lectures, seminars, exercises	Autumn and spring semesters	English

Requirements for students	
Prerequisites: Basics of biochemistry, basics of cellular biology and / or genetics	Additional requirements (if any):

Course (module) volume in credits	Total student's workload	Contact hours	Self-study hours
5 ECTS	140 hours	32 hours	108 hours

Purpose of the course unit (module): programme competences to be developed
<ul style="list-style-type: none"> • Knowledge about cell structure and fundamental cellular processes • Competence to discuss and evaluate scientific arguments in the field of structural cell biology

Learning outcomes of the course unit (module)	Teaching and learning methods	Assessment methods
Knowledge of cell's structural elements and understanding of their functions	Lectures (problem-based teaching), group discussions, interactive exercises, self-study assignments	Completion of practical assignments (3 written colloquiums/tests, completion of exercises), performance in group discussions, written examination
Comprehension of the issues assessed in scientific publications and ability to propose solutions to the analyzed problems	Group discussions, self-study assignments, report preparation, interactive exercises	Completion of exercises, performance in group discussions, written short report on a particular topic, written examination

Content: breakdown of the topics	Contact hours	Self-study work: time and assignments
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	Lectures	Tutorials	Seminars	Exercises	Laboratory work	Internship/work placement	Contact hours	Self-study hours	Assignments
History of structural cell biology as a discipline, major breakthroughs							0	6	Self-study of the most recent achievements in the field of cell structure
Structural differences of prokaryotic and eukaryotic cells; variety of cell morphology, types of cells in tissues	1		1				2	6	Self-study of the related topics, analysis of the recent scientific publications, interactive exercises, preparation for seminar topics and test 1
Plasma membrane, its structure, features and functions; principles of membrane transport; cell wall	2		1	1			4	12	Critical review of scientific publications on particular topics (to be discussed during seminar); preparation for test 1
Intracellular compartments and their functions in cells (nucleus, mitochondria, chloroplasts, endoplasmic reticulum, Golgi apparatus, lysosomes, peroxisomes, secretory vesicles, etc.)	4		1	1			6	20	Self-study of the related topics, analysis of the recent scientific publications, interactive exercises, preparation for seminar topics and test 2
Cytoskeleton and its functions; structural elements, cell polarization and migration	2		1	1			4	16	Self-study of the related topics, analysis of the recent scientific publications, self exercises, preparation for seminar topics and test 3
Cell-cell interactions; cell junctions, cell adhesion, the extracellular matrix; comparison of animal and plant cells in the context	2		1	1			4	16	Self-study of the related topics, analysis of the recent scientific publications, self exercises, preparation for seminar topics and test 3
Fundamental cellular processes (cell cycle, cell death, differentiation, tissue renewal, development of multicellular organisms) and related pathologies (cancer, infection, inflammation, metabolic disorders)	3		2	1			6	10	Self-study of the related topics, analysis of the recent scientific publications, self exercises, preparation for seminar topics and test 3
Cell analysis techniques; cellular imaging, functional cell analysis methods	2		1	1			4	22	Written report on particular topics with a focus on experimental and analysis methods
Invited guest lecturer and/ or excursion to Lithuanian			2				2		

science institution									
Total	16		10	6			32	108	

Assessment strategy	Weight, %	Deadline	Assessment criteria
3 written colloquiums / tests (compulsory)	3 x 25%	During the semester	Accumulative score
Completion of exercises (compulsory)	10%	During the semester	Accumulative score
Written short report and oral presentation (compulsory), performance in group discussions during seminars	15%	During the semester (due date)	Accumulative score
Written examination	100%	During the exam session	<p>If the student collects $\geq 50.0\%$ of the accumulative score, passes ≥ 2 tests and completes all other compulsory activities:</p> <ul style="list-style-type: none"> the accumulated score is recalculated proportionally into a 10-point system as a preliminary mark; a student is allowed not to take the exam; in that case, the preliminary mark is considered as the final mark; if the student chooses to take the exam, the latter's evaluation is considered as the final mark. <p>If the student collects $< 50.0\%$ of the accumulative score, misses at least one test without the justifiable reason, and / or fails ≥ 2 tests, but completes all other compulsory activities, he / she must take the exam and the latter's evaluation is considered as the final mark.</p> <p>If the student does not complete at least one of the compulsory activities, he / she does not get the preliminary mark and is not allowed to take the exam.</p>

Author	Year of publication	Title	Issue of a periodical or volume of a publication	Publishing place and house or web link
Compulsory reading				
Alberts B, Johnson A, Lewis J, Raff M, Roberts K, Walter P	2008 (or newer)	Molecular Biology of The Cell (selected chapters)	5 th edition (or newer)	Garland Science
Optional reading				
Lodish H, Berk A, Kaiser CA, Krieger M, Bretscher A, Ploegh H, Amon A, Martin KC	2012 (or newer)	Molecular Cell Biology	7 th edition (or newer)	W. H. Freeman
Pollard TD, Earnshaw WC, Lippincott-Schwartz J, Johnson G	2016	Cell Biology E-Book	3 rd edition	Elsevier