

Course Syllabus

I. General Information

Course name	Basics of animal cytophysiology and ontogenesis
Programme	Biotechnology
Level of studies (BA, BSc, MA, MSc, long-cycle MA)	BSc
Form of studies (full-time, part-time)	part-time
Discipline	Biological sciences
Language of instruction	English

Course coordinator/person responsible	Dr hab. Anna Sierońska, prof. KUL
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Type of class (<i>use only the types mentioned below</i>)	Number of teaching hours	Semester	ECTS Points
lecture	30	I	9
tutorial			
classes	60	I	
laboratory classes			
workshops			
seminar			
introductory seminar			
foreign language classes			
practical placement			
field work			
diploma laboratory			
translation classes			
study visit			

Course pre-requisites	Knowledge in the field of biology, chemistry and physics at least at the secondary school level
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II. Course Objectives

Gaining knowledge about the structure of animal cells, functions of particular organelles and life processes occurring in them
Gaining knowledge about the structure and functions of animal tissues
Gaining knowledge about gametogenesis in animals
To familiarize students with basic apparatus and research techniques used in cytology and cytophysiology

III. Course learning outcomes with reference to programme learning outcomes

Symbol	Description of course learning outcome	Reference to programme learning outcome
KNOWLEDGE		
W_01	presents terminology used in biotechnology, defines phenomena and biophysical, physiological and biochemical processes occurring in living organisms	K_W01
W_02	describes issues in the field of physics, mathematics and chemistry required to understand and interpret basic natural phenomena and processes	K_W03
SKILLS		
U_01	applies techniques and research tools in the field of biotechnology	K_U01
U_02	carries out observations and performs biological measurements	K_U02
U_03	is able to use light microscope, independently prepares microscopic preparations; is able to carry out and document microscopic observations	K_U03
U_04	prepares an oral presentation in the language in which the classes are conducted using specialized terminology	K_U12
U_05	prepares a written study on issues related to cytophysiology issues using the scientific language	K_U13
U_06	learns independently in a targeted manner in the field of issues connected with cytophysiology	K_U17
SOCIAL COMPETENCIES		
K_01	possesses appropriate habits required to the work in scientific laboratories especially in aseptic conditions, proceeds according to work safety regulations, knows how to react in states of danger	K_K04

IV. Course Content**Lecture:**

Historical overview. Modern microscopy techniques. Cell anatomy and physiology: cell membranes, their structure, transport across membranes; exo- and endocytosis; cytosol; intracellular compartments: intracellular mesh; Golgi apparatus, lysosomes; cytoskeleton; intercellular signaling. Apoptosis and necrosis. Stem cells.

Classes:

Introduction into the principles of work and equipment in a modern laboratory. Basics and principles of microscopic techniques. The specificity of the structure and physiology of cells that build animal tissues - blood and connective tissue, supporting tissues (cartilage and bone), epithelial tissue, muscular and nervous tissue. Oogenesis and spermatogenesis.

V. Didactic methods used and forms of assessment of learning outcomes

Symbol	Didactic methods (choose from the list)	Forms of assessment (choose from the list)	Documentation type (choose from the list)
KNOWLEDGE			
W_01	conventional lecture, work with the text, laboratory analysis, discussion, guided practise	report, written test, written exam,	Report file, evaluated written test, evaluated written exam, examination card, grade card
W_02	laboratory analysis, guided practise	report	Report file
SKILLS			
U_01	laboratory classes, practical classes	report	Report file, grade card
U_02	laboratory classes, practical classes	report	Report file, grade card
U_03	laboratory classes, practical classes	report	Report file, grade card
U_04	discussion, socratic method, laboratory classes, practical classes,	report	Report file, grade card
U_05	discussion socratic method, laboratory classes, practical classes, group work	report, written test, written exam,	Report file, evaluated written test, evaluated written exam, examination card, grade card
U_06	discussion, socratic method, laboratory classes, practical classes, group work	report, written test, written exam,	Report file, evaluated written test, evaluated written exam, examination card, grade card
SOCIAL COMPETENCIES			
K_01	laboratory classes	report	Report file

VI. Grading criteria, weighting factors.....

The marks of the written exam, colloquium and reports are taken into account. The indicated level of knowledge applies to each assessed element.

Mark	Evaluation criteria	
very good (5)	the student realizes the assumed learning outcomes at a very good level	the student demonstrates knowledge of the education content at the level of 91-100%
over good (4.5)	the student accomplishes the assumed learning outcomes an over good level	the student demonstrates knowledge of the education content at the level of 86-90 %
good (4)	the student accomplishes the assumed learning outcomes at a good level	the student demonstrates knowledge of the education content at the level of 71-85%

quite good (3.5)	the student accomplishes the assumed learning outcomes at a quite good level	the student demonstrates knowledge of the education content at the level of 66-70%
sufficient (3)	the student accomplishes the assumed learning outcomes at a sufficient level	the student demonstrates knowledge of the education content at the level of 51-65%
insufficient (2)	the student accomplishes the assumed learning outcomes at an insufficient level	the student demonstrates knowledge of the education content below the level of 51%

VII. Student workload

Form of activity	Number of hours
Number of contact hours (with the teacher)	90
Number of hours of individual student work	135

VIII. Literature

Basic literature
Alberts B., Bray D. et al. 2010. Essential cell biology. Garland Science Taylor & Francis Group, NY USA Welsch U., 2002. Atlas histologii. Sobotta, Wyd. Medyczne Urban & Partner
Additional literature
Alberts B., Johnson A. et al. 2007. Molecular biology of the cell. Garland Science Taylor & Francis Group, NY USA