

Cell Biology and General Histology (G000713)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size	<i>(nominal values; actual values may depend on programme)</i>		
Credits 7.0	Study time 210 h	Contact hrs	70.0 h

Course offerings and teaching methods in academic year 2021-2022

A (semester 1)	Dutch	Gent	lecture	45.0 h
			practicum	25.0 h
B (semester 2)				

Lecturers in academic year 2021-2022

Van Den Broeck, Wim	DI11	lecturer-in-charge
De Spiegelaere, Ward	DI11	co-lecturer
Swannet, Werner	DI58	co-lecturer

Offered in the following programmes in 2021-2022

Bachelor of Science in Veterinary Medicine	crdts	offering
	7	B

Teaching languages

Dutch

Keywords

architecture of cells and tissues, structure-function relationship, microscopy

Position of the course

Understanding the structural organization of a cell (cytology); understanding the structural organization of the four basic tissues: 1) epithelial tissue, 2) connective tissue, 3) muscle tissue, 4) nervous tissue; insight in the structure - function relationship.

Contents

In a first part, different microscopic techniques (bright field, dark field, phase contrast, fluorescence microscopy, scanning and transmission electron microscopy) and staining methods (classical staining, histochemistry, immunohistochemistry, in situ hybridization, ...) are described. Subsequently, the cellular morphology is explained. The microscopical appearance and the molecular structure of membranes, nucleus, nucleolus, ribosomes, endoplasmic reticulum, Golgi-complex, lysosomes, peroxisomes, mitochondria, cytoskeleton, cell division cycle and cell death are described in extenso.

The second part deals with the microscopic structure of the four basic tissues: epithelial tissue (surface epithelia, glandular epithelia), connective tissue (proper connective tissue, cartilage and bone, adipose tissue, blood cells), muscle tissue (skeletal muscle, cardiac muscle, smooth muscle), nervous tissue.

Initial competences

No particular knowledge is required to start this course.

Final competences

- 1 To know and understand the structure and function of cell organelles.
- 2 To recognize and identify the different cell organelles.
- 3 To know and understand the cell cycle.
- 4 To know and understand cell death (apoptosis).
- 5 To know and understand the organisation of cells in different tissues.
- 6 To know and understand the four basic types of tissue.
- 7 To recognize and identify the four basic types of tissue.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, practicum

Extra information on the teaching methods

Theoretical part: lectures with schematic drawings and demonstrations of the light and electron microscopic structures.

Practical part: microscopic observation of 50 tissue sections showing the four basic tissues.

E-learning: different exercises using the Claroline platform.

Learning materials and price

Syllabus, schematic drawings made during the lectures, and manual for the practical courses.

References

- Becker's World of the Cell (Hardin, Bertoni, Kleinsmith, uitg. Pearson)
- Molecular Biology of the Cell (Alberts, Johnson, Lewis, Raff, Roberts, Walter, uitg. Garland Science)
- Dellmann's Textbook of Veterinary Histology (Eurell, Frappier, uitg. Blackwell)

Course content-related study coaching

Two AAP-members during the practical courses; possibility to discuss some problems with the docent.

Evaluation methods

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Written examination with multiple choice questions

Examination methods in case of periodic evaluation during the second examination period

Written examination with multiple choice questions

Examination methods in case of permanent evaluation

Participation, skills test

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

(A): periodical evaluation. The examination content consists of the study material discussed during the colleges. The examination is a periodical evaluation based on several multiple-choice questions.

(B): permanent evaluation combined with an evaluation at the end of the period. Permanent evaluation of dedication and skills during the teaching period. At the end of the period, the evaluation consists of several multiple-choice questions.

Calculation of the examination mark

The periodical evaluation (for both theoretical and practical courses) consists of 20 multiple-choice questions "Cell Biology" and 40 multiple-choice questions "Histology", using the standard setting for determining the caesura. If the minimum score of 40% for both "cell biology" and "histology" is not achieved, the student will be failed for the whole course. If the minimum score is achieved for both parts, the final evaluation will be calculated using the following ratio: cell biology 1/3 and histology 2/3. This score accounts for 85%, while the permanent evaluation accounts for 15%.

Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.

Facilities for Working Students

To be discussed with the docent.