Linnæus University

Dnr: 2016/3545-3.1.2.2

Course syllabus

Faculty of Health and Life Sciences

Department of Chemistry and Biomedical Sciences

1BK010 Cellen I - Introduktionskurs för farmaceuter, 7,5 högskolepoäng

1BK010 The Cell I - Introductory Course for Pharmacists, 7.5 credits

Main field of study
Biology, Biomedical Science

Subject Group
Medicine

Level of classification
First Level

Progression
G1N

Date of Ratification
Approved 2009-12-09
Revised 2016-06-14 by Faculty of Health and Life Sciences.
The course syllabus is valid from autumn semester 2016

Prerequisites
General entry requirements and Biology 2, Chemistry 2, Mathematics 3b / 3c or Biology B, Chemistry B, Mathematics C (Field-specific entry requirements 12/A12).

Objectives

Module 1. Introduction to pharmacy, 1.5 credits
After completing the module, the student should be able to:

- explain the role of pharmacy in society, primarily within healthcare
- describe the basic requirements that the pharmacy sector/pharmacy customers have of a professional dispensing pharmacist
- explain key concepts in communication studies.

Module 2. Cell biology, 6 credits
After completing the module, the student should be able to:

- provide an overview of how proteins are synthesised, how they function, and how they are controlled in a cell

- provide an overview of how drugs can act at the cellular level
- describe the evolution of prokaryotic and eukaryotic cells and the concept of endosymbiosis
- describe the structure and function of various eukaryotic cells and their organelles
- describe the molecular composition of cellular membranes
- describe and exemplify cell communication and interaction with their environment
- describe principles for transport and communication within and between cells
- describe how cells are organised in tissues
- describe different types of microscopes' construction and areas of application
- master the use of light microscopes for studying the structures of eukaryotic cells
- demonstrate basic skills in information searching
- provide a written account of a laboratory procedure
- present an assignment on a theoretical topic in cell biology in speech and writing.

Content

Module 1. Introduction to pharmacy, 1.5 credits
This module includes the following components:

- pharmacy – yesterday, today, and tomorrow
- drugs and their role, use, and scope
- the pharmacist as a knowledgeable advisor for customers, patients, and healthcare professionals, who has a profession that offers more opportunities
- the organisation of the pharmacy sector in Sweden and other countries
- basic communication studies
- a three-day placement (Swedish VFU) at a pharmacy.

Module 2. Cell biology, 6 credits
This module includes the following components:

- how drugs act at the cellular level
- protein synthesis (the central dogma), mechanisms of protein action, and different ways to regulate protein activity
- development and occurrence of eukaryotic and prokaryotic cells and the structure, function, and morphology of eukaryotic cells
- structure, molecular composition, and function of the eukaryotic cell's membranes, cytosol (including macromolecular complexes), cytoskeleton, and organelles
- principles and molecular processes behind the cell's communication with the surrounding environment and other cells, as well as intracellular communication
- transport of substances into, within, and out of a cell
- molecular interactions between cells in tissues, including the structure and function of the extracellular matrix
- construction and function of various microscopes
- information searching in databases
- a project in cell biology
- written compilation of a scientific report
- laboratory work with microscope studies of eukaryotic cell morphology and intracellular structures, and studies of transport processes into a cell.

Type of Instruction

Instruction is delivered in the form of lectures, laboratory work, group exercises, supervision, seminars, and a placement (Swedish VFU) at a pharmacy. Participation in laboratory sessions, seminars, and the placement is mandatory.

Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

The theoretical parts of the course are examined through a written examination at the end of the course. A first resit examination is offered within six academic weeks. The number of times that the student can conduct their placement is limited to two. Laboratory work is examined through written lab reports.

For Module 1, one of the grades Fail and Pass is used. For Module 2, one of the grades Fail, Pass, and Pass with Distinction are used. The grading criteria for a passing grade are based on the course objectives (see above).

Course Evaluation

During or shortly after the course, a written course evaluation should be conducted. The result and analysis of the course evaluation should be promptly communicated to the students who have taken the course. Students who are taking the course when it is offered the next time should be informed of the result at the course introduction. The course evaluation is anonymous.

Required Reading and Additional Study Material

Alberts et al. *Essential Cell Biology*. Garland Science, the latest edition.

Research articles