VMFB15 Molecular Medicine 2 (short)

15 credits First cycle G1

General information

Main field
Biomedicine

Type of course and its location in the education system
The course is taught in parallel with the second half of the course Molecular Medicine (27 credits) and also comprises the course Professional Development 6 (1.5 credits) in the Bachelor’s programme in Biomedicine. Students can also choose to incorporate Professional Development 7 (1.5 credits) in this course, in which case PD7 replaces the work placement at a research laboratory. The course is intended as a freestanding course for international exchange students and for students on the BSc in Biomedicine who were unable to attend the first half of the course Molecular Medicine.

Language of instruction
English

Learning outcomes

Knowledge and learning
On completion of the course, students shall be able to
- explain known and hypothetical molecular pathophysiological mechanisms underlying common diseases, including examples from infectious disease medicine, internal medicine, oncology and psychiatry, at a level of detail corresponding to a wide-ranging review article in a journal
- explain how basic scientific knowledge can be used to understand medical problems and develop new diagnostic and therapeutic methods, at a level of detail corresponding to a wide-ranging review article in a journal.

Competence and skills
On completion of the course, students shall be able to
– read and evaluate original research articles and orally present and explain their contents to peers
– draw up research projects in a clear, easy-to-follow fashion at a level of detail equivalent to an authentic application
– demonstrate familiarity with the environment and work methods of a molecular medicine research laboratory, and be able to carry out examinations using a few selected methods
– apply critical thinking, analysis, hypothesis formulation and logical analysis in the assessment and evaluation of molecular medicine problems and issues.

**Judgement and approach**
On completion of the course, students shall be able to
– critically assess biomedical results published in the general media
– reflect on the ethical and social consequences of biomedical research and knowledge, and discuss this with their peers.

**Course content**
The course provides an introduction to how basic molecular knowledge and techniques are applied to a number of medical problems. It presents research strategies for the achievement of greater understanding of disease mechanisms, and the development of new diagnostic and therapeutic methods. Ethical and social consequences of biomedical findings are discussed. In its design, the course attempts to place students near the front line of research and give them a feel for the intensity of the research process and stimulate the students’ enthusiasm and creativity.

**Subjects examined**
Portfolio 7 credits
Oral and written exam 8 credits

**Course design**
The course consists of 4–6 one-week stages, each of them on a medical theme. Molecular research strategies are discussed within each stage. Each weekly theme consists of an introductory and a concluding lecture. Between these, work takes place in groups of students who study and analyse issues close to the front line of research for the week’s medical theme, concluding with an oral presentation to the whole group. The course also includes three written assignments, one of which is to be a short paper on an ethical or philosophical issue in biomedical research and the other two project descriptions. The second project description is part of the written examination. In order to receive practical experience of the subject, students will spend 2–4 weeks in a research laboratory, participating in the day-to-day work and in seminars, journal clubs, etc. Students will also have the opportunity to specialise in a key technique of the research team. One week of the laboratory placement can be replaced by the course Professional Development 7 – From Hypothesis to Publication.

**Assessment**
For a pass on the portfolio, students must have participated in all group exercises and oral presentations, passed the written exercises and activities in the research laboratory. If the student chooses to incorporate the course Professional Development 7 – From Hypothesis to Publication, this course must have been passed.
The oral and written examination is in three parts and assessed in the last two weeks of the course.

**Written questions:** Questions with short answers concerning the content of the various weekly components, and including issues regarding the interpretation of results published in the general media, and discussion of ethical issues. This tests the learning outcome of achieving a broad knowledge base and awareness.

**Project description:** Each student picks a theme on which to write a project description. This tests the ability to formulate a research project with a hypothesis, analysis and critical evaluation. It also tests the ability to express scientific knowledge clearly in writing.

**Oral report:** The student discusses his or her project description, ‘short answers’ examination and other parts of the course with an examiner. This is a further test of the project description, analytical ability and critical thinking.

Two occasions for examination are planned. Re-examination will be planned by individual agreement.

**Grades**
1. The grades awarded are in accordance with the grading scale A–E and Fail.
2. The grades awarded for the portfolio are Pass or Fail.
3. The grade awarded for the oral and written examination is a grade based on the grades on the three components included and in accordance with the grading scale A–E and Fail.
4. The grade awarded for the course as a whole is the same as the composite grade for the oral and written examination, provided that a pass has been awarded for the portfolio.

Grading criteria for the oral and written examination are provided in the study guide.

**Admission requirements**
To be admitted to the course students must have completed two years of the Bachelor’s programme in Biomedicine or passed 90 credits including at least 30 credits in Chemistry (of which at least 15 credits in Biochemistry), 30 credits in Cell Biology, 15 credits in Physiology and 15 credits in Pathobiology/Pharmacology.

**Further information**
The course runs for 10 weeks (15 credits) and consists of the second half of course BIMA51 (27 credits) and BIMA60 (1.5 credits) as well as an option to incorporate BIMA61 (1.5 credits). It is specially designed for international exchange students and students on the BSc in Biomedicine who were studying abroad in semester 5 and unable to attend the first half of course BIMA51.