



LUNDS UNIVERSITET

Medicinska fakulteten

Biomedical, medical and public health training
board (NBMFU)

COURSE SYLLABUS Ref
M 2011/959

Adopted by the NBMFU on September 26 2011
Valid from autumn term 2011

VMFB14 Molecular medicine (short)

15 higher education credits **First cycle**

General Information

Main field

Biomedicine

Subject

Molecular medicine

Type of course

Freestanding course for foreign exchange students. It may be taken both by first cycle and second cycle students. The course is taught in parallel with the 30 credits Molecular Medicine course during terms 5 or 6 of the Bachelor's Programme in Biomedicine.

Language of instruction

English

Learning Outcomes

Knowledge and understanding

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/or psychiatry, at a level of detail corresponding to a wide-ranging review article in the journals Nature, Medicine or Science
- explain and assess 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 Nature or Science

Skills and abilities

On completion of the course, students shall be able to

- read and evaluate original scientific papers and orally present and explain their contents to peers
- write research projects and results in a clear, easy-to-follow fashion at a level of detail equivalent to an authentic application
- apply critical thinking, analysis, hypothesis formulation and logical analysis in the assessment and evaluation of molecular medicine problems and issues.

Judgment and approach

On completion of the course, students shall be able to

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- apply critical thinking and logical analysis to the assessment of biomedical results published in the general media, and be able to evaluate the social consequences of these
- reflect on the ethical and social consequences of biomedical research and knowledge, and discuss this with their peers

Course Contents

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 feeling for the intensity of the research process. Stimulation of students' enthusiasm and creativity are important, if not examinable, goals.

Subjects examined

Examination 15 credits

Instruction and Examination

Most of the course consists of weeklong 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 analyze issues close to the front line of research for the week's medical theme, concluding with an oral presentation for the whole course. The course includes two written assignments in the shape of research proposals (project descriptions) on topics chosen by the student, one as an exercise and one as part of the exam (see below).

The examination is in three parts over the course of 1–2 weeks.

Written questions: Questions with short answers concerning the content of the various weekly sections, 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.

Research programme: This is similar to that practised during the course (see above). This tests the ability to formulate a research programme 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 research programme, analytical ability and critical thinking.

Grades

Grades are awarded according to a six-graded scale: A – E and Fail, taking into consideration all three parts of the examination described above. Criteria for the grades are given in a study guide.

Admission Requirements

To be eligible for the course students must have passed courses in chemistry/biochemistry, cell biology, microbiology/immunology, and physiology corresponding to courses of the Biomedicine program at Lund University (KEMA01, BIMA12, BIMA37, BIMA30, BIMA34, and BIMA35).

Literature

Compendia and scientific papers (about 50), which will be distributed during the course.

Further Information

The course gives 15 credits (10 weeks) and is an adapted form of half of the course package BIMA51 and BIMA60 (in total 28,5 credits, 19 weeks), and designed for exchange students who cannot take the whole course. The course is expected to be taught twice yearly, simultaneously with either the first or the second half of the full course (BIMA51 + BIMA 60), that is either period 2 of autumn term or period 3 in spring term.