



LUNDS UNIVERSITET
Medicinska fakulteten

COURSE SYLLABUS

Ref
M 2008/532

1(3)

Approved by the NBMFU on 17 April 2008
Valid from autumn term 2008

**Biomedical, medical and public health training
board (NBMFU)**

BIMA51 Molecular Medicine

27 higher education credits First cycle

General Information

Main field

Biomedicine

Subject

Molecular medicine

Type of course and its location in the education system

The course is mandatory in the Bachelor of Medical Science programme in Biomedicine and is taught in terms 5–6.

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 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
- demonstrate acquaintance 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.

Judgment and approach

On completion of the course, students shall be able to

- 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 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. Stimulation of students' enthusiasm and creativity are important, if not examinable, goals.

Subjects examined

A pass on the course is worth 15 credits, and requires participation in all group work and oral presentations, passes in written assignments and active time in the research laboratory. The remaining 12 credits are awarded for a pass in the final examination. All three parts must be passed (see below). Students can fail one stage, in which case they will be allowed to re-sit an examination for this part alone in order to pass the course, provided they have passed all the other parts.

Instruction and Examination

Most of the course consists of week-long 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 for the whole course. Students also spend at least 10 weeks in a research laboratory and take part in the activities of the host laboratory. The course includes written exercises in the shape of a method description and/or report from a research laboratory. A practice research programme (project description) is written as part of the parallel course Professional Development 6.

The examination is in three parts over the course of 1–3 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: Each student picks a theme on which to write a project description.

(This is similar to that practised during the parallel course Professional Development 6, but with a different theme). 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.

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

Grades

The grades awarded are Pass or Fail.

Admission Requirements

To be eligible for the course students must have passed BIMA34 and BIMA35 or the equivalent.

Literature

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

Further Information

The course is the same as the earlier BIM052. The course syllabus has been modified from the former BIMA50 (taught in autumn term 2007) in that the course is now worth 27 credits instead of 30. Part of the course – the ethics essay – is now part of the previous course Professional Development 5, and the ‘written research programme’ section is now part of Professional Development 6 (1.5 credits) which runs parallel with this course. The course is expected to be taught from period 2 autumn term to period 3 spring term, starting in autumn term 2008. There is no limitation on the period of validity as a course in the Bachelor of Science programme in Biomedicine or the previous Master’s programme in Biomedicine.