



Faculty of Medicine

## **BIMA81, Biomedicine: Molecular Medicine, 15 credits**

*Biomedicin: Molekylär medicin, 15 högskolepoäng*

**First Cycle / Grundnivå**

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### **Details of approval**

The syllabus is an old version, approved by Committee for Biomedical, Medical and Public Health Education on 2016-02-10 and was last revised on 2017-09-13 by The Master's Programmes Board. . The revised syllabus applied from 2017-09-14. , autumn semester 2017.

### **General Information**

As of the autumn semester 2017, this course is a compulsory component of the Bachelor of Medical Science programme in Biomedicine and included in semester 5.

*Language of instruction:* English

*Main field of studies*

Biomedicine

*Depth of study relative to the degree requirements*

G2F, First cycle, has at least 60 credits in first-cycle course/s as entry requirements

### **Learning outcomes**

#### **Knowledge and understanding**

On completion of the course, the students shall be able to

- account for known and hypothetical pathophysiological and molecular mechanisms underlying diseases including examples from infection medicine, internal medicine, oncology and neurology, and how these hypotheses can be used to develop new diagnostic and therapeutic methods
- use knowledge in biochemistry, cell biology and physiology to explain medical problems
- explain the role of peer review in the system of research funding

## Competence and skills

On completion of the course, the students shall be able to

- synthesise information from subject-specific original and survey articles and place it in the relevant medical context
- present and discuss scientific issues and proposed solutions
- formulate and evaluate hypotheses concerning problems and issues of molecular medicine
- design research programmes in accordance with given instructions and deadlines
- provide and use constructive written peer review feedback on the form and content of research programmes, and judge the quality, relevance and feasibility of research programmes

## Judgement and approach

On completion of the course, the students shall be able to

- assess and critically review the contents of original research articles
- adopting a procedure similar to the one used in research funding assessment panels, assess, prioritise and subsequently, in groups, rank research programmes
- reflect on interpretations of biomedical research results published in mass media and assess their social impact
- reflect on the ethical and social impact of the knowledge and applications of molecular medicine

## Course content

The general aim of the course is to enable students to acquire broad knowledge of research in molecular medicine and to develop generic skills such as the ability to communicate, discuss and critically review research publications and research programmes in speech and writing. The course consists of thematic weeks on specific subjects, literature study, group work, oral presentations and written assignments in the form of a course portfolio. The specific subjects are selected to illustrate a broad spectrum of methods of molecular biology, studies in biomedicine and diseases. The course shall provide students with an increased understanding of molecular disease mechanisms, and addresses the development of new diagnostic and therapeutic methods. The ethical and social impact of biomedical research results will also be discussed.

The required reading mainly consists of research articles, enabling the students to acquire practice in assimilating information and critically reviewing published data. The students practise presentation techniques and the ability to summarise and communicate acquired knowledge through oral presentations. The ability to interpret, discuss and evaluate biomedical issues, hypotheses and results is trained through group assignments.

Furthermore, students are to write two research programmes, acquiring basic knowledge about national and international systems for research funding, the ability to follow instructions on the design of research programmes, creative, analytical and communicative skills, and experience of the peer review process.

## Course design

The course includes both independent study and group work. Each thematic week consists of a combination of lectures, seminars, article studies and group assignments. The thematic week concludes with oral presentations in which students present their work and conclusions from the past week. The students are to individually write two research programmes in the course portfolio, provide and receive feedback, and reflect on the components. An oral presentation and discussion of the second research plan is included in the course portfolio.

The learning outcomes associated with assimilating, summarising, evaluating and communicating information from published research will be addressed through literature studies, lectures, group assignments and oral presentations.

The knowledge and skills in designing and writing research programmes will be practised by the students through individually writing two research programmes according to instructions. The students will receive feedback on the first research programme through peer review and comments from the course director. The peer review will provide students with practical experience of the peer review process and practice in providing constructive feedback and critical analysis. The written feedback is assessed by the teachers according to given assessment criteria. Knowledge of the role of peer review in the system for research funding is acquired by assessing and ranking research programmes in groups. The second research programme is to be presented and discussed at a seminar.

Analysis and reflection with regard to the ethical and social impact of biomedical research is a recurring element of the course and practised through group assignments, presentations, and the design and review of a research programme.

Active participation is compulsory in the seminar in which the other research programme is presented, discussed and ranked.

## Assessment

The assessment is based on two examination components: a course portfolio and a written exam.

The course portfolio is to contain two written research programmes designed as applications for research funding in accordance with instructions, a passed peer review, a reflection on how the peer review affected the design of the second research programme, and a reflection on the assessment and ranking of research programmes in groups. For a Pass on the course portfolio, the student must also have completed all compulsory components.

The written exam consists of questions on all subjects of the thematic weeks.

Other forms of examination can be used, if there are special reasons.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

*Subcourses that are part of this course can be found in an appendix at the end of this document.*

## **Grades**

Marking scale: Fail, Pass.

Active participation in PBL tutorials, approved article presentations and a passed written exam are required for fully passing the course.

## **Entry requirements**

To be admitted to the course, students must have completed two years of studies on the Bachelor of Medical Science programme in Biomedicine or 90 higher education credits including 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 largely corresponds to the previous courses BIMA51 and BIMA60. The course is compulsory on the Bachelor of Medical Science programme in Biomedicine as of the autumn semester 2017. Students already admitted to the programme may substitute this course for BIMA51 and BIMA60 in the autumn semester 2016, provided that they take the new degree project course of 30 credits in semester 6.

## Subcourses in BIMA81, Biomedicine: Molecular Medicine

### Applies from H17

- 1701 Written exam, 7,5 hp  
Grading scale: Fail, Pass
- 1702 Course portfolio, 7,5 hp  
Grading scale: Fail, Pass

### Applies from H16

- 1601 Written and oral exams, 12,0 hp  
Grading scale: Fail, Pass
- 1602 Course portfolio, 3,0 hp  
Grading scale: Fail, Pass