

## **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 valid from 2016-07-01, autumn semester 2016.

### **General Information**

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

*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, students shall be able to:

- describe the fundamental mechanisms that control embryonic development,
- explain some of the key embryonic development processes,
- describe the most important mechanisms of cell–cell communication and signal transduction pathways involved in early development,
- compare advantages/disadvantages and uses/limitations of the most important model systems used in developmental biology.

#### **Competence and skills**

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

- search for and present relevant information from scientific publications dealing with developmental biology issues, put it into its biological context, and evaluate

- its relevance,
- apply critical thinking in evaluating and explaining developmental biology issues.

### **Judgement and approach**

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

- reflect on social consequences of developmental biology research and knowledge, and discuss these with their peers.

### **Course content**

Basic principles of developmental biology are presented, with special emphasis on model systems such as *Drosophila* and mice. The course deals with the key processes of early embryonic development, such as gametogenesis, oogenesis and fertilisation, early cell division with cleavage patterns and asymmetry, axis formation, gastrulation, neurulation, development of extremities and organs, and stem cells. The course also provides insight into how knowledge of developmental biology is applied, when establishing animal models for the study of the effects of diseases and drugs.

### **Course design**

The whole course is based on problem-based learning (PBL) and consists of week-long themes. A typical week begins with two supporting lectures and ends with summarising comments. In between, students work in tutorial groups (two meetings a week) and individually. The topic is also illustrated using methodology introductions and demonstrations, or short laboratory sessions including discussions, carried out in a developmental biology research laboratory. Seminars help students to practise reading scientific articles in the field, extracting relevant information, and orally presenting the data. During each seminar, two students will present articles. During the seminar, there will be time for questions and discussions in which everyone is expected to take part. The week is finished with comments to the problems dealt with by the tutor groups.

### **Assessment**

Learning outcomes specified under “knowledge and understanding” will be examined through written exam.

Learning outcomes specified under “skills and abilities” and “judgment and approach” will be examined during the article seminars.

*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 eligible for the course, students must have completed two years of study on the Bachelor of Medical Science programme in Biomedicine. Alternatively, students must have passed 90 credits including at least 30 credits chemistry (which must include at least 15 credits biochemistry), 30 credits cell biology, and 15 credits physiology.

## **Further information**

The course largely corresponds to the earlier BIM044.

## Subcourses in BIMA81, Biomedicine: Molecular Medicine

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