

BIMA42, Biomedicine: Physiology, 15 credits

Biomedicin: Fysiologi, 15 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by The Master's Programmes Board on 2016-06-07 to be valid from 2016-07-01, spring semester 2017.

General Information

The course is a compulsory component of the Bachelor of Medical Science programme in Biomedicine and is included in semester 4. The course can also be taken as a freestanding course.

Language of instruction: Swedish

Some components may be taught in English. The reading list includes titles in 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 the relationship between basic tissues, organs and organ systems, and relate morphology to function
- account for the structural and the molecular basis for muscle contraction and the different properties of the musculature, and explain how they are controlled
- account for the fundamental organisation of the spinal cord, spinal reflexes and motor control
- account for the general organisation and function of the somatic, autonomous and central nervous system, including signal transmission

- account for the morphology and function of the sensory organs, and the role of the system in transmitting external information
- account for the function of the endocrine system in the regulation of the internal environment, growth and development of the body
- account for the structure and function of the reproductive organs, and the general control of reproduction
- explain the structure, function and control of different interacting body functions involved in the maintenance of the internal environment of the body (circulation, respiration, digestion and excretion)

Competence and skills

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

- analyse experimental data from physiological experiments and present results in speech and writing
- orally present and summarise scientific original articles that relate to the different thematic weeks in a way that is clear and concise for fellow students
- provide and receive constructive feedback concerning the contents, structure and performance of the oral presentations
- use basic light microscopy for tissue samples
- identify and state the structures of a standard histological sample and relate the structures to each other
- use relevant terminology at the level of the required reading to explain physiological processes
- summarise their knowledge in a delimited field and formulate their learning needs
- work in groups and contribute to help it achieve results

Judgement and approach

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

- identify their need of further knowledge and take responsibility for their knowledge development
- assess their own role in a group

Course content

The course provides students with an introduction to human physiology focusing on organ systems and their regulation. The course starts with general subjects within physiology such as homeostatic principles, and nervous and endocrine control. Among the other subjects studied are the peripheral nervous system, focusing on the autonomous parts and sensory organs, and, in overview, the central nervous system in connection with the different peripheral components. The course then continues with studies of integrative physiology in the large organ systems. The knowledge of nervous and endocrine control acquired during the course is applied to explain function and regulation. Major emphasis is placed on the understanding of homeostatic regulation. In parallel with the physiology component, students study the morphology and anatomy required to be able to explain the relevant function.

Course design

The course is largely based on problem-based learning (PBL) and consists of thematic weeks. A typical week contains one or more supporting lectures. During the week, the students work in tutor groups (two meetings/week) and individually. Certain thematic weeks include microscopy exercises, laboratory sessions or demonstrations to illustrate, for example, morphology, or increase the understanding of integrative physiological processes. Some components are addressed in seminars or supervised group studies.

Assessment

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

The learning outcomes concerning knowledge and understanding are mainly assessed on the basis of the written exam. The learning outcomes concerning competence and skills and judgement and approach are mainly assessed on the basis of the portfolio. The portfolio is to include active participation in group exercises, laboratory sessions, microscopy exercises, presentations of anatomical models, oral reports and feedback to fellow students. Furthermore, one or more written reports with associated components are included. Students who fail a component are to the greatest extent possible to be offered re-examination opportunities during the course. If this is not possible, students will be referred to the next time the course is offered.

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

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

Grades

Marking scale: Fail, Pass.

Entry requirements

To be admitted to the course, students must have completed three semesters of the Bachelor of Medical Science programme, or passed at least 15 credits of basic cell biology, 30 credits of chemistry, of which at least 15 credits of cell chemistry or biochemistry, and another 30 credits of cell biology, microbiology, genetics or immunology.

Further information

The course corresponds to the previous course BIMA34.

Subcourses in BIMA42, Biomedicine: Physiology

Applies from V17

- 1601 Written Exam, 10,0 hp
Grading scale: Fail, Pass
- 1602 Course Portfolio, 5,0 hp
Grading scale: Fail, Pass