Faculty of Medicine

BIMB40, Biomedicine: Organ Systems and Homeostasis of the Human Body, 15 credits

Biomedicin: Organsystem och homeostas hos människan, 15 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by The Master's Programmes Board on 2021-10-12 to be valid from 2021-10-19, spring semester 2022.

General Information

The course is compulsory in the Biomedicine Programme and is included in its semester 4.

Language of instruction: English

Main field of studies	*Depth of study relative to the degree requirements*
Biomedicine	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 a student should be able to:

- explain physiological processes using appropriate terminology
- give an account of the relation between tissues, organs and organ systems, and relate morphology to function
- give an account of the structural and molecular basis for muscle contraction, the different properties of the musculature and explain how these are controlled
- give an account of the general organisation and function of the autonomic nervous system and the endocrine system
- account for the structure and function of the reproductive organs, and the general control of reproduction

- give an account of the different components of the blood, their functions, production and renewal, and how hematopoiesis is regulated hormonally
- explain the structure, function and control of different interacting body functions involved in the maintenance of the homeostasis of the body (circulation, respiration, digestion, metabolism and excretion).

Competence and skills

On completion of the course a student should be able to:

- use basic light microscopy for tissue sections
- identify and state the structures of a standard histological section and relate the structures to each other
- summarise their knowledge in a delimited field and identify and formulate their knowledge need
- behave with a professional approach, respect others' contribution to discussions on human physiology and meet given deadlines
- present and summarise research articles that are linked to the different weekly themes in a way that is clear and concise for fellow students
- give and receive constructive feedback concerning the content, structure and style of texts and presentations
- collect, interpret, present and discuss experimental data from physiological experiments.

Judgement and approach

On completion of the course a student should be able to:

- discuss scientific methods and ethical considerations, results and conclusions in relation to issues in research articles.
- identify the need for additional knowledge and take responsibility for their knowledge development.

Course content

The course focuses on integrative human physiology, which means how the internal organ systems interact to maintain homeostasis. This includes the structure of the organ systems (anatomy, histology) and their function and regulation (physiology). The course includes the following organs and organ systems: the heart, the circulatory system and the blood, the kidneys and the urinary tract, the respiratory system, the digestive tract and accessory organs, endocrine organs and the reproductive organs. The structure, function and regulation of the musculature is also studied. Integrated knowledge of the autonomic nervous system and energy metabolism are also included. The organ systems in question are studied from the cellular to systemic level. Major emphasis is placed on the understanding of homeostatic regulation. The course concerns how homeostasis is maintained at rest and under different conditions such as physical activity and potentially homeostasis imbalance changes in the surroundings. In order to explain physiological functions, the required anatomy and histology is studied in parallel with physiology.

The students develop their expertise from previous courses with respect to scientific approach. Furthermore, the students are introduced to physiological phenomena through basic physiological examination methods.

Course design

The course is organised around a number of themes. Each theme focuses on one or more organ systems. Different forms of active learning are applied in the course and the students are required to prepare before the teaching components so that the group's work will be constructive. To support the student's learning, the key knowledge content of the theme is illuminated with lectures and specialised assignments. Certain themes contain microscopy exercises, laboratory sessions or model exercises to illustrate e.g. morphology or increase the understanding of integrative physiological processes. During the course, the students will also carry out a literature project that aims to deepen understanding of physiological processes and to develop expertise from previous courses with respect to reading, understanding, summarising, presenting and discussing research articles and issues.

Assessment

The learning outcomes are assessed through:
1. Course portfolio 7.5 credits (Fail/Pass)
2. Written tests 7.5 credits (Fail/Pass)

The learning outcomes regarding knowledge and understanding, and certain learning outcomes regarding competence and abilities, are in part assessed continuously through multiple-choice questions and in part through a final written examination. Other learning outcomes regarding competence and abilities and judgement and approach are mainly assessed through the course portfolio. The portfolio includes active participation in laboratory sessions, microscopy exercises, review of anatomical models, literature project, oral presentations and feedback to fellow students.

If there are special reasons, other forms of assessment may apply.

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.
To achieve the grade of Pass as a final grade, the grade of Pass is required on all components.

Entry requirements

Passed examinations and course components in semesters 1-3 of the programme amounting to at least 60 credits.

Subcourses in BIMB40, Biomedicine: Organ Systems and Homeostasis of the Human Body

Applies from V22

2201 Course portfolio, 7,5 hp
Grading scale: Fail, Pass
2202 Written tests, 7,5 hp
Grading scale: Fail, Pass