

**Module Description, available in: EN**

## ***Biology, physiology and anatomy for engineers***

**General Information**

Number of ECTS Credits

3

Module code

FTP\_BioEng

Valid for academic year

2026-27

Last modification

2025-10-08

Coordinator of the module

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**Explanations regarding the language definitions for each location:**

- Instruction is given in the language specified for each location and module execution.
- Documentation is available in the language(s) listed for each location and module execution. If the documentation is in multiple languages, the percentage distributed is indicated (100% = all documentation provided).
- The examination, including both questions and answers, is provided entirely (100%) in the language(s) specified for each location and module execution. The exams are on-site.

	Lausanne			Lugano	Zurich		
Instruction				X E 100%			
Documentation				X E 100%			
Examination				X E 100%			

**Module Category**

FTP Fundamental theoretical principles

**Lessons**

2 lecture periods and 1 tutorial period per week

**Entry level competences**

Prerequisites, previous knowledge

No previous knowledge is required

**Brief course description of module objectives and content**

Medical engineering is the intersection of many different disciplines. From engineering in its most varied forms, mechanics, electronics, computer science, management, to disciplines related to medicine: biology, anatomy, and physiology. In order to understand and put into practice the notions that the student will learn in this fascinating path, the same can not ignore the acquisition of basic knowledge about the human body. Thanks to this module the student will learn the basics of life as we know it, as well as the structure and functioning of the major systems present in the human body.

## Aims, content, methods

### Learning objectives and competencies to be acquired

The student is faced with the most important aspect of human biology, anatomy, and physiology. She/he learns the basics of:

- prokaryotic and eukaryotic cell structure and function
- the most important physiological systems
- the anatomy systems
- human pathology

### Module content with weighting of different components

Basics of prokaryotic and eukaryotic cell biology including eukaryotic stem cell biology and cell cultivation techniques.

Basics of anatomy; skeleton, locomotory system, cardio-vascular system, respiratory system, nervous system (CNS & PNS) and the sensory system (eye, ear, olfactory system, vestibular system, proprioception, and touch)

Basics of physiology: introduction of the physiology of the nervous system (CNS and PNS), the cardio-vascular system, the locomotory apparatus as well as the hormone system

Basics of human pathology

### Teaching and learning methods

Lectures, hands on exercise

### Literature

Slides, course material and books chapters

## Assessment

### Additional performance assessment during the semester

The module does not contain an additional performance assessment during the semester

### Basic principle for exams

**As a rule, all standard final exams are conducted in written form. For resit exams, lecturers will communicate the exam format (written/oral) together with the exam schedule.**

### Standard final exam for a module and written resit exam

Kind of exam

Written exam

Duration of exam

120 minutes

Permissible aids

No aids permitted

**Exception: In case of an electronic Moodle exam, adjustments to the permissible aids may occur. Lecturers will announce the final permissible aids prior to the exam session.**

### Special case: Resit exam as oral exam

Kind of exam

Oral exam

Duration of exam

30 minutes

Permissible aids

No aids permitted