Course: Biology 2 credits: 3

Course code	ELVH17ABIOL2
Name	Biology 2
Study year	2022-2023
ECTS credits	3
Language	English
Coordinator	P.M. Gomes Lourenco
Modes of delivery	Lecture Practical / Training
Assessments	Biology 2 - Written, organised by STAD examinations

Learning outcomes

Describe plant adaptations for acquiring resources from the environment.

Describe the transport mechanisms of water, minerals and organic compounds in vascular plants.

Describe the basic concepts of growth and differentiation in plant physiology.

Explain the basic functions of organisms in a soil ecosystem, as well as the main types of ecological interactions among organisms, and explain how these can affect plant growth and growing condition.

Explain how genetics and heredity explain variation in natural populations, and how mutations in DNA can lead to differences in protein form and function.

Discuss the potential benefits and risks of genetic engineering for agriculture and the environment.

Experimentally determine physical properties of different soil types and discuss the results in relation to plant growth.

Experimentally estimate how different light conditions affect the population growth rate of a model plant and discuss the results in relation to the relevant literature.

Based on a given protocol determine genetic differences between biological samples and relate them to the observed phenotype.

Content

The field of sensor technology is fast developing and has a wide range of applications in fields like agriculture, environmental monitoring and biomedical practice and research. Therefore, future sensor technology engineers will need some basic understanding of biology in order to be able to design and develop sensor systems for those areas. The *Biology 2* course will focus on agriculture and plant growth and development, covering most of the biological and environmental factors that regulate plant growth and productivity, including soil ecology. The course will also introduce students to genetics and genetic engineering.

Included in programme(s)

Electrical Engineering Major Sensor Technology

School(s)

Institute of Engineering

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