

Global Change Physiology

SEM 1 – 5 ECTS

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1. Prerequisites

speaking and writing of:

- English

reading and comprehending of:

- English

specific prerequisites for this course:

Bachelor-level Cell Biology, Physiology and Biochemistry is required.

2. Learning outcomes

- Students understand and are able to describe the general effects of changing and extreme climate conditions on organism functioning at the physiological level.
- Students are able to describe in detail, at the molecular, cellular and physiological level, responses and adaptations to particular, specific changing environmental factors. He/she also understands the nature of limitations to adaptation.
- Students are able to understand, in depth, top-ranked scientific literature (e.g. Nature, Science, PNAS).

3. Course contents

This course explores the challenges faced by organisms that result from living in changing and extreme conditions. It provides an overview of physiological and biochemical responses and adaptations, to deal with such circumstances. Physical factors that are considered are changing temperatures, changing O₂ and CO₂ levels, changing pH, and water availability. Responses and adaptations in a broad range of physiological and biochemical processes are discussed. These include, for example,

metabolism and defence systems in animal systems under environmental pressure, and, for plants photosynthesis, primary metabolism, growth and defence responses.

4. International dimension

- This course stimulates international and intercultural competences.
- Students use course materials in a foreign language.
- Students give presentations in a foreign language.
- Students write papers in a foreign language.

5. Teaching method and planned learning activities

5.1 Used teaching methods

Class contact teaching

- Lectures

Personal work

Assignments

- Individually

5.2 Planned learning activities and teaching methods

This course is primarily composed of in-class lectures together with a personal assignment. Details will be communicated through BlackBoard.

5.3 Facilities for working students

Classroom activities

- Lectures: recording available via video link on Blackboard

Others

Old (20-21) recordings are available as back-up. The current course content was reduced a bit, so use current slides to check which parts should be studied. The assignment is individual with individual feedback but requires your presence in the final lecture for presentation/defence.

6. Assessment method and criteria

6.1 Used assessment methods

Examination

- Written examination without oral presentation

Other assessment methods

- Written assignment

6.2 Assessment criteria

The assessment consist of 3 equally weighted parts: the written assignment, the plant based physiological part on the exam and the animal based physiological part on the exam. In order to pass, it is however essential to pass on all 3 sub-sections. The following scores will be given if this is not the case:

When one of the sub-section scores $< 9/20$ your average score will max out at $9/20$

When one of the sub-sections scores equal or $< 7/20$ your average score will max out at $7/20$

7. Study material

7.1 Required reading

Slides available on Blackboard

7.2 Optional reading

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8. Contact information

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