LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Biokemi
Biochemistry

EXTG55, 15 credits, G2 (First Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED B/K
Date of Decision: 2023-04-18

General Information

Elective for: BME4, N4-nbm
Language of instruction: The course will be given in Swedish

Aim

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- have a fundamental understanding of how protein structure is determined, and how the structure in turn determines the function of a protein.
- have a fundamental understanding of how enzymes catalyze reactions essential for life.
- have a fundamental understanding of how these reactions are regulated.
- have a fundamental understanding of common catalytical mechanisms.
- have a fundamental understanding of enzyme kinetics, and how these are used to study enzymes.
- have a fundamental understanding of the metabolism of the cell, including glyconeogenesis, glycogen metabolism, fatty-acid metabolism, and the metabolism of proteins and amino acids.
- have a fundamental understanding of the drug development process.
- have a fundamental understanding of the theory behind protein purification and investigation methods, such as electrophoresis, chromatography, centrifuging, spectroscopy, and X-ray crystallography.
- have a fundamental understanding of bioinformatics and its applications.

Competences and skills

For a passing grade the student must

- have achieved skills in practical biochemistry, including protein purification, affinity chromatography, gel electrophoresis, and activity measurements with fluorimetry.
- have achieved skills in experiment planning.
- have achieved skills in analyzing biochemical data and performing enzyme kinetic calculations.
- have achieved skills in searching protein databases and literature databases for bioinformatic information, and in analyzing this information with PDB viewer.
- have achieved skills in conducting a biochemical discussion at a high intellectual level.

Contents

The structure of the cell; structure and function of nucleic acids, proteins and membranes; enzyme catalysis; electron transport and oxidative phosphorylation; photosynthesis; cellular metabolism and its regulation; cell biological methods.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: Written and oral examination.

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.

Parts
Code: 0123. **Name:** Biochemistry.
Credits: 7,5. **Grading scale:** TH. **Assessment:** Written exam.
Code: 0223. **Name:** Biochemistry, Laboratory Work.
Credits: 7,5. **Grading scale:** UG. **Assessment:** For passing grade, every task is performed and presented according to the instructions, which may mean either as a written report or orally, in Swedish or English.

Admission

Admission requirements:

- EXTA70 Biology of the Cell or TEK295 Biology of the Cell
- EXTG50 Human Physiology or TEK015 Human Physiology

The number of participants is limited to: 20
Selection: Completed university credits within the programme. Priority is given to students enrolled on programmes that include the course in their curriculum.
The course overlaps following course/s: TEK287, MOB102

Reading list

- Berg, Tymoczko and Stryer: Biochemistry. WH Freeman and Company, 2011, ISBN: 9781429276351.
- Precise reading instructions will be available when the course begins.

Contact and other information

Course coordinator: Herik Stålbrand, henrik.stalbrand@biochemistry.lu.se

Course coordinator: Herwig Schüler, herwig.schuler@biochemistry.lu.se
Course homepage: http://
https://www.kemi.lu.se/utbildning/kurser/grundkurser/moba02/
Further information: The course is given by the Faculty of Science and does not follow the study period structure. The teaching consists of lectures, group exercises and assignments. The course is given in English during the autumn semester and in Swedish during the spring semester.