Course syllabus for

# Biochemistry, 12 credits

Biokemi, 12 hp
This course syllabus is valid from spring 2021.
Please note that the course syllabus is available in the following versions:
Spring2018 , Spring2019 , Spring2020 , Spring2021 , Spring2022 , Spring2023 , Spring2024

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| Course code | 1BI031 |
| Course name | Biochemistry |
| Credits | 12 credits |
| Form of Education | Higher Education, study regulation 2007 |
| Main field of study | Biomedicine |
| Level | G2 - First cycle 2 |
| Grading scale | Pass with distinction, Pass, Fail |
| Department | Department of Medical Biochemistry and Biophysics |
| Decided by | Programnämnden för biomedicinprogrammen |
| Decision date | 2017-11-02 |
| Revised by | Programme committee for study programmes in biomedicine |
| Last revision | 2020-10-21 |
| Course syllabus valid from | Spring 2021 |

## Specific entry requirements

At least the grade Pass on the course Introduction to Biomedical Science and at least grade Pass on the part 1, Organic-chemical laboratory work, 5 hp, in the course General and Organic Chemistry, 12 credits

## Objectives

Upon completion of the course, the student should be able to:
Regarding knowledge and understanding:

- describe the biochemical functions and regulation of metabolic processes of individual human cells and organs,
- describe connections between changes at the molecular level and changes in metabolism in common diseases.

Regarding competence and skills:

- discuss the effects of pharmaceuticals or genetic variation on metabolic processes,
- search for and select relevant literature for specific topics covered in the course,

- present his/her own results and summaries of literature within the field of biochemistry, both verbally and in writing,
- perform and evaluate experiments,
- perform biochemical laboratory work in a safe manner.

Regarding judgement and approach:

- evaluate relevant methods for biochemical laboratory work.

# Content

The course is divided into the following parts:

### Biochemistry, 5.0 hp

Grading scale: GU

Catabolism and anabolism, and general principles for turnover of intermediates and energy. Particular focus on regulation of enzyme activity, specific signal transduction systems of the cell, digestion and absorption of nutrients, carbohydrate metabolism - including energy conversions in the cell, lipid metabolism, ketone bodies and oxidative stress. The functions of enzymes from an organic chemistry perspective. Amino acid metabolism including urea, one carbon pool and creatine phosphate, nucleotide metabolism and alcohol metabolism.

### Biochemical laboratory methods, 2.0 hp

Grading scale: GU

Studies of cellular metabolism and the application of chromatographic methods in this field.

### Integration of theory and practice, 5.0 hp

Grading scale: VU

Integration of theory and practice in biochemistry and metabolism.

# Teaching methods

The teaching includes lectures, laboratory sessions, group tuition (seminars), and project works.

# Examination

Biochemistry (5 credits). The examination consists of digital tests and oral presentations of project works, graded Fail/Pass.

Biochemical laboratory methods (2 credits). The examination consists of written laboratory reports. Graded Fail/Pass. The performance in the laboratory sessions together with the results of lab reports can generate bonus points to be added to the points obtained in the final written exam (part 3), if the final exam is passed.

Integration of theory and practice (5 credits). The examination consists of a written examination. The written examination is graded Fail/Pass/Pass with distinction. To be eligible to participate in the final written examination, the student must have passed the test in the Biochemistry part of the course.

The course grade is based on the grade of the final written examination in part 3 combined with any bonus points earned from part 2. To pass the whole course, the grade Pass must have been obtained for all parts of the course.

Students that fail to submit compulsory assignments by the deadlines will lose the opportunity to be graded with pass with distinction on the course.

Compulsory participation
Laboratory sessions and project work are compulsory, as well as presentations and lectures linked to these parts. The course director assesses if and, in that case, how absence can be compensated. Before the student has participated in all compulsory parts or compensated absence in accordance with the course director's instructions, the student's results for respective part will not be registered in LADOK. Absence from a compulsory part may lead to that the student can't compensate the absence before the next time the course is given.

Limited number of examinations or practical training sessions
Students who have not passed the regular examination are entitled to participate in five more examinations. If the student has failed six examinations/tests, no additional examination or new admission is provided.
The number of times that the student has participated in one and the same examination is regarded as an examination session. Submission of a blank examination is regarded as an examination. An examination, for which the student registered but not participated in, will not be counted as an examination.

If there are special grounds, or a need for adaptation for a student with a disability, the examiner may decide to deviate from the syllabus's regulations on the examination form, the number of examination opportunities, the possibility of supplementation or exemptions from the compulsory section/s of the course etc. Content and learning outcomes as well as the level of expected skills, knowledge and abilities may not be changed, removed or reduced.

# Transitional provisions

After each course occasion there will be at least six occasions for the examination within a two-year period from the end of the course.

# Other directives

The course language is English.

Oral evaluation in the form of course council meetings will be carried out during the course.

Course evaluation will be carried out in accordance with the guidelines established by the Board of Higher Education.

# Literature and other teaching aids

*Ferrier, Denise R.*

**Lippincott's illustrated reviews. : Biochemistry**

7. ed : Philadelphia : Wolters Kluwer, [2017] - 560 s.
ISBN:9781496344496 LIBRIS-ID:20002081
Library search

**Biochemistry**

*Berg, Jeremy M.; Tymoczko, John L.; Gatto, Gregory J.; Stryer, Lubert*

9. edition : New York : Macmillan International Higher Education, 2019 - 1288 sidor
ISBN:9781319114657 LIBRIS-ID:kvkcghg7hcwfxpfz
Library search