

Opasraportti

Open University - studies at the Faculty of Biochemistry and Molecular medicine (2017 - 2018)

Tutkintorakenteisiin kuulumattomat opintokokonaisuudet ja -jaksot

740144P: Biochemical Methodologies I, 8 op

740148P: Biomolecules, 5 op

740149P: Metabolism I, 4 op

Opintojaksojen kuvaukset

Tutkintorakenteisiin kuulumattomien opintokokonaisuuksien ja -jaksojen kuvaukset

740144P: Biochemical Methodologies I, 8 op

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Faculty of Biochemistry and Molecular Medicine

Arvostelu: 1 - 5, pass, fail

Opettajat: Juha Kerätär

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay740153P Basic biochemistry 2: Methods (OPEN UNI) 2.0 op

740151P Biochemical methodologies I 10.0 op

740117P Basic methods in biochemistry 4.0 op

740136P Laboratory course in basic methods of biochemistry 3.0 op

Voidaan suorittaa useasti: Kyllä

ECTS Credits:

8 credits

Language of instruction:

Finnish

Timing:

autumn (lectures), spring (laboratory practicals)

Learning outcomes:

Upon successful completion students are able to:

- use basic methods used in biochemical research laboratory
- Use laboratory equipment and work safely
- Prepare solutions used in the lab
- document experiments in the laboratory

Contents:

This module covers the basic methodologies used in practical biochemistry. The following topics will be addressed: safety in the laboratory, qualitative and quantitative observations, the calculations of concentrations and dilution factors (includes a workshop), pipette cleaning and calibration, identification and quantification of biological molecules, principles and practice of the use of centrifuges, spectrophotometry, SDS-PAGE, agarose gel electrophoresis, thin-layer and paper chromatography, basics of protein purification, extraction of chromosomal DNA from bacteria, mini-prep extraction of plasmid DNA, extraction of RNA from mammalian tissue, extraction of lipids from nutmeg, sterile technique, basic microbial growth, dialysis, filtration and pH measurement.

Mode of delivery:

Face to face teaching

Learning activities and teaching methods:

18 h le, 2h exercises, 120 h lab. Laboratory work is compulsory. It is possible to complete lecture part only (3.5 ECTS).

Target group:

Biology BSC-BS

Prerequisites and co-requisites:

Biomolecules, Biomolecules for Biochemists tai Biomolecules for Bioscientists

Recommended optional programme components:

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Recommended or required reading:

Recommended reading: Reed, Holmes, Weyers & Jones: Practical skills in biomolecular sciences, 4th edition, Pearson, 2013.

You can check the availability of the course books via [this link](#)

Assessment methods and criteria:

Continuous assessment (home works, lab reports), final exam

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5/fail

Person responsible:

Juha Kerätär

Working life cooperation:

No

Other information:

Location of instruction: lectures (in Finnish) at Linnanmaa campus, laboratory practicals at Kontinkangas campus.

In weboodi students register to course 740151 Biochemical methodologies I, 10 credits, only to those parts that do not belong only to biochemists.

740148P: Biomolecules, 5 op

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Faculty of Biochemistry and Molecular Medicine

Arvostelu: 1 - 5, pass, fail

Opettajat: Tuomo Glumoff

Opintokohteen kielet: English

Leikkaavuudet:

ay740157P	Basic biochemistry 1: Biomolecules (OPEN UNI)	4.0 op
ay740152P	Basic biochemistry 1: Biomolecules (OPEN UNI)	5.0 op
740143P	Biomolecules for Biochemists	8.0 op
740147P	Biomolecules for Bioscientists	8.0 op

ECTS Credits:

5 credits

Language of instruction:

English and Finnish

Timing:

autumn-spring

Learning outcomes:

Upon successful completion students are able to:

- tell the composition, structure and function of the major groups of biomolecules in cells; nucleic acids, proteins, carbohydrates and lipids and describe the forces that modulate their function.
- apply information in the right context and evaluate it critically

Contents:

This module provides an overview of biochemistry, outlining the forces involved in biomolecule structure and the chemical structures and properties of polynucleic acids, proteins, carbohydrates and lipids. There will also be an introduction to prebiotic evolution and a student debate on this subject. The module is arranged into lectures and workshops. All of the exercises are in English. Both a final examination and continuous assessment will count towards the final mark and attendance of some parts is compulsory.

Mode of delivery:

Face to face teaching

Learning activities and teaching methods:

30 h lectures, plus exercises

Target group:

Minor subject students, exchange students

Prerequisites and co-requisites:

-

Recommended optional programme components:

-

Recommended or required reading:

Mathews, van Holde & Ahern: Biochemistry, (3rd edition) , published by Addison Wesley Longman, Inc. or equivalent

Assessment methods and criteria:

Continuous assessment, final examination

Read more about [assessment criteria](#) at the University of Oulu webpage.**Grading:**

1-5/fail

Person responsible:

Tuomo Glumoff

Working life cooperation:

No

Other information:

This module is the same as Biomolecules for Biochemists except that it contains no practical component. Location of instruction: Linnanmaa campus

740149P: Metabolism I, 4 op**Opiskelumuoto:** Basic Studies**Laji:** Course**Vastuuyksikkö:** Faculty of Biochemistry and Molecular Medicine**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Tuomo Glumoff**Opintokohteen kielet:** Finnish**Leikkaavuudet:**

ay740158P Basic biochemistry 3: Metabolis (OPEN UNI) 4.0 op

ay740154P Basic biochemistry 3: Metabolis (OPEN UNI) 3.0 op

740146P Metabolism I 6.0 op

ECTS Credits:

4 credits

Language of instruction:

Finnish

Timing:

spring

Learning outcomes:

Students will be able to explain the main principles of how the metabolism is made up, will get a detailed picture of the energy metabolism, and will be able to organize part of the wholeness of metabolism, particularly how energy metabolism is networked to the synthesis and degradation of biomolecules.

Contents:

On this course the central concepts and mechanisms of metabolism, its regulation and the integration of metabolic pathways will be introduced, like anabolism and catabolism, linking of different pathways, and metabolic regulation. Especially the energy metabolism will be studied, concerning carbohydrates, lipids and the respiratory chain. Combined with the course Metabolism II the students will get a good overview on the principles of metabolism, metabolic integration and the methods to study metabolism.

Mode of delivery:

Face to face teaching

Learning activities and teaching methods:

Lectures (28 h), problem-based exercises (workshops) 6 h and final exam.

Target group:

Minor subject students

Prerequisites and co-requisites:

Biomolecules for Biochemists or Biomolecules for Bioscientists or Biomolecules

Recommended optional programme components:

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Recommended or required reading:

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Assessment methods and criteria:

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5/fail. Problem-based exercises and a final exam will count towards the final grade.

Person responsible:

Tuomo Glumoff

Working life cooperation:

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Other information:

This module is the same as Metabolism I (740146P), except that it contains no laboratory component.

Location of instruction: Linnanmaa