Course syllabus for

General and Organic Chemistry, 12 credits

Allmän och organisk kemi, 12 hp
This course syllabus is valid from autumn 2018.
Please note that the course syllabus is available in the following versions:
Autumn2017 , Autumn2018 , Autumn2019

Course code	1BI036
Course name	General and Organic Chemistry
Credits	12 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Biomedicine
Level	G2 - First cycle 2
Grading scale	Fail (U), pass (G) or pass with distinction (VG)
Department	Department of Medical Biochemistry and Biophysics
Decided by	Programnämnden för biomedicinprogrammen
Decision date	2017-04-19
Revised by	Programme committee for study programmes in biomedicine
Last revision	2018-02-21
Course syllabus valid from	Autumn 2018

Specific entry requirements

General requirements (with exemption from Swedish proficiency) + Biology 2, Chemistry 2, Mathematics 4 (field specific entry requirements A13 with exemption). Or: Biology B, Chemistry B, Mathematics D (field specific entry requirements 13 with exemption). And proficiency in English equivalent to English 6/English B.

Objectives

Upon completion of the course, the student should be able to:

Regarding knowledge and understanding:

- describe, classify and systematically name (organic) molecules based on chemical and physical characteristics,
- explain and predict mechanisms of basic organic-chemical reactions,
- describe and classify chemicals according to their risks in the laboratory and for the environment,

Regarding competence and skills:

- perform basic organic-chemical laboratory work independently and safely,
- describe the risks associated with the procedures and chemicals used in organic-chemical laboratory work,
- describe and analyse their own organic-chemical laboratory work by, for example, writing a well-structured, understandable and complete report,
- interpret simple chromatograms and analysis spectra,

Regarding judgement and approach:

- follow scientific ethical guidelines for publishing results when documenting data and results,
- choose appropriate separation and analytical methods for basic chemical laboratory work.

Content

The course content is oriented towards substances, reactions and methods of special biomedical interest in the area of general and organic chemistry and provides a basis for later courses in the programme.

The course is divided into the following 2 parts:

Organic-chemical laboratory work, 5.0 hp

Grading scale: VU

Laboratory techniques, skills and safety. Common methods in organic-chemical and bioorganic synthesis work. Writing lab reports.

Integration of theory and practice, 7.0 hp

Grading scale: VU

Teaching methods

The teaching includes lectures, laboratory sessions, and group tuition (seminars).An emphasis is placed on problem-solving.

Examination

A voluntary written half-time test. A passed half-time test can generate bonus points to be added to the points obtained in the final written exam (part 2), if the final exam is passed.

Part 1. Organic-chemical laboratory work (5 credits). The examination consists of a written test in laboratory safety and techniques, as well as observation and testing of the student's laboratory skills, and lab reports. At the beginning of each laboratory session, an oral examination is performed that must be approved before the student starts the practical laboratory work. Graded Fail/Pass. The performance in the laboratory session together with the results of lab reports can generate bonus points to be added to the points obtained in the final written exam (part 2), if the final exam is passed.

Part 2. Integration of theory and practice (7 credits). The examination consists of a written exam covering the entire contents of the course. Graded Fail/Pass/Pass with distinction.

To pass the whole course the grade of at least pass must have been obtained for all parts of the course. The final grade for the whole course is based on the result of the exam in part 2 combined with any bonus points earned from the voluntary half-time test and from part 1.

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 are compulsory, as well as other teaching occasions linked to these parts. Part of the course is an examination in laboratory safety and techniques that must be passed before starting the subsequent laboratory sessions. 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.

Limitation of 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.

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.

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

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

Literature and other teaching aids

Mandatory literature

McMurry, John

Organic chemistry : with biological applications

Third edition, hybrid edition. : Stamford, Conn. : Cengage Learning, 2015. - 876 p.

ISBN:978-1-285-86784-7 LIBRIS-ID:22444982

This book covers the majority of the course and may be useful at later courses, such as Medical Biochemistry and Chemical Biology. A shorter book may, however, be sufficient. This is a paperback/hybrid version of the course literature. It contains some online material as well as an ebook (for 2 years).

Library search

Laboratory Manual and Safety Guidelines for Laboratory Practicals in Organic Chemistry

Byström, Styrbjörn; Lohkamp, Bernhard; Cronholm, Tomas; Dobritzsch, Doreen; Rothstein, Susanne

Institutionen för medicinsk biokemi och biofysik, KI, 2017

The compendium will be distributed and available online.

Recommended literature

McMurry, John.

Organic chemistry with biological applications

3rd edition. : Stamford, CT : Gengage Learning, [2015] - Ca 1200 pages (various pagings)

ISBN:9781285842912 LIBRIS-ID:17042080

This book covers the majority of the course and may be useful at later courses, such as Medical Biochemistry and Chemical Biology. A shorter book may, however, be sufficient. This is the hardcover version of the above hybrid/paperback version but without the online material.

Library search

McMurry, John

Fundamentals of organic chemistry

7. ed. : Belmont , Calif. : Brooks/Cole, cop. 2011 - xiv, 598, 47, 12 s.

ISBN:1439049718 LIBRIS-ID:11882927

This shorter version of the recommended book covers most topics of the course in enough depth, however some detail may be missing.

Library search

Bruice, Paula Yurkanis

Essential organic chemistry

Third edition, Global edition. : Harlow : Pearson Education, [2016] - 672, [29] pages

ISBN:9781292089034 LIBRIS-ID:19152134

Another alternative for a shorter book which covers most topics of the course in enough depth, however some detail may be missing.

Library search