Course Specifications
Valid as from the academic year 2020-2021

Experimental Structural Biology (C003615)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size
(nominal values; actual values may depend on programme)

Credits 5.0  Study time 135 h  Contact hrs 50.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 2)  English  Gent  lecture 27.5 h

  seminar 7.5 h
  excursion 15.0 h
  online seminar 0.0 h
  online lecture 0.0 h

Lecturers in academic year 2020-2021

Savvides, Savvas  WE10  lecturer-in-charge
Martins, José  WE07  co-lecturer

Offered in the following programmes in 2020-2021 crdts offering

Master of Science in Teaching in Science and Technology (main subject Biochemistry and Biotechnology)  5  A
Master of Science in Bioinformatics (main subject Systems Biology)  5  A
Master of Science in Biochemistry and Biotechnology  5  A
Exchange programme in Biochemistry and Biotechnology (master's level)  5  A

Teaching languages

English

Keywords

Structural biology, 3D- Structure determination of biological macromolecules via X-ray crystallography, (cryo)-electron microscopy, electron tomography, Small-angle X-ray scattering, NMR, integrative structural biology

Position of the course

The purpose of the course is to expose students to the most important methods in structural biology in the post-genomic era that can lead to information about the three dimensional structure of biomolecules. Special emphasis is placed on the integrative nature of modern structural biology.

This course contributes to the following program competences: Ma.WE.BB.1.1; Ma.WE.BB.1.2; Ma.WE.BB.1.4; Ma.WE.BB.1.5; Ma.WE.BB.2.1; Ma.WE.BB.2.2; Ma.WE.BB.2.6; Ma.WE.BB.3.5; Ma.WE.BB.4.2; Ma.WE.BB.7.RES.1, Ma.WE.BB.7.RES.2

Contents

• X-ray crystallography
• Small-angle X-ray scattering (SAXS)
• High resolution electron microscopy
• cryo-electron tomography
• NMR-spectroscopy
• atomic force microscopy

Initial competences

Protein structure, mathematics and physics

Final competences

1 To obtain insights into the main methods used in determining macromolecular structures.
2 To be able to critically read articles addressing the structural biology of biological macromolecules, in which one or more methods have been used to elucidate macromolecular structures.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods
Excursion, lecture, seminar, online lecture, online seminar

Extra information on the teaching methods

COVID-19
Due to the corona virus crisis changes in the specified teaching modes might apply, e. g. Online lectures, lecture recordings etc.

Learning materials and price

• Slides and coursenotes available electronically via Ufora
• Articles
• Online resources
• recorded lectures

References

Course content-related study coaching
Interactive support via Ufora (forum en e-mail):
Appointments with the lecturer(s) --> weekly office-hours

Evaluation methods
end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period
Written examination with open questions, open book examination

Examination methods in case of periodic evaluation during the second examination period
Written examination with open questions, open book examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation
not applicable

Extra information on the examination methods
The exam may assume a take-home format requiring the students to work independently and to submit the completed exam online against a specified deadline.

Calculation of the examination mark
100% periodic evaluation

(Approved) 2