GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Experimental Structural Biology (C003615)

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

Credits 5.0 **Study time 135 h**

Course offerings and teaching methods in academic year 2025-2026

A (semester 2)	English	Gent	excursion
			lecture
			seminar

Lecturers in academic year 2025-2026

Savvides, Savvas	WE10	lecturer-in-charge
Mehdipour, Ahmadreza	TW17	co-lecturer

Offered in the following programmes in 2025-2026	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

Experimental methods in Structural biology, 3D- Structure determination of biological macromolecules via X-ray crystallography, (cryo)-electron microscopy, electron tomography, Small-angle X-ray scattering, 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)
- Single-particle electron microscopy
- cryo-electron tomorgraphy
- (if time allows, introduction to macromolecular Nuclear Magnetic Resonance)

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

Seminar, Excursion, Lecture

Study material

Type: Slides

Name: Slides'
Indicative price: Free or paid by faculty
Optional: no
Additional information: 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-email):
Appointments with the lecturer(s) --> weekly office-hours

Assessment moments

continuous assessment

Examination methods in case of periodic assessment during the first examination period

Examination methods in case of periodic assessment during the second examination period

Examination methods in case of permanent assessment

Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

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

Evaluation methods: Assignment 100%