

## 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 tomography
- (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 coursnotes 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%