GHENT UNIVERSITY

# Course Specifications

Valid in the academic year 2024-2025

## Analytical Biochemistry (C004085)

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

**Credits 5.0** **Study time 150 h**

**Course offerings and teaching methods in academic year 2024-2025**

| | | | | |
|---|---|---|---|---|
| A (semester 1) | English | Gent | independent work | 0.0h |
| | | | lecture | |
| | | | group work | |
| | | | practical | |

**Lecturers in academic year 2024-2025**

| | | |
|---|---|---|
| Van Damme, Els | LA25 | lecturer-in-charge |
| Devreese, Bart | WE10 | co-lecturer |
| Vanhaeren, Hannes | LA25 | co-lecturer |

| **Offered in the following programmes in 2024-2025** | **crdts** | **offering** |
|---|---|---|
| Bachelor of Science in Molecular Biotechnology | 5 | A |

**Teaching languages**

English

**Keywords**

Analytical methods in biochemistry

**Position of the course**

Theoretical and practical overview of common techniques in the analysis of proteins and other biomolecules.

**Contents**

Methods in Biochemical analysis, i.e.

- Separation methods: extraction, electrophoresis, chromatography, ultracentrifugation,
- Protein Characterization (amino acid analysis, protein sequencing, mass spectrometry), introduction to proteomics,
- Study of post-translational modification and protein interactions (immunoprecipitation, pull down assay, tandem affinity chromatography, microscopical techniques, calorimetry, biosensors),
- Characterization of sugars and lipids,
- Immunological methods (ELISA),

**Initial competences**

A basic knowledge of physics, general chemistry and biochemistry are required.

**Final competences**

1 Have knowledge and understand the possibilities of the methods for biomolecular separations and purification.
2 Having knowledge and understand the techniques for protein characterization with methods such as amino acid analysis, protein sequencing, mass spectrometry.
3 The student receives an overview of common methods for the characterization of proteins, fatty acids and sugars as well as for the study of interactions between biomolecules. Emphasis is on the practical applications of the techniques.

**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**

Group work, Seminar, Lecture, Practical, Independent work

**Extra information on the teaching methods**

Practicum is obligatory

**Study material**

Type: Syllabus

Name: Protein chemistry
Indicative price: € 8
Optional: no
Number of Pages : 150
Oldest Usable Edition : 2024
Available on Ufora : No
Online Available : No
Available in the Library : Yes
Available through Student Association : Yes

Type: Syllabus

Name: Analytical Biochemistry
Indicative price: Free or paid by faculty
Optional: no
Language : English
Number of Pages : 200
Oldest Usable Edition : 2024
Available on Ufora : No
Online Available : No
Available in the Library : No
Available through Student Association : Yes
Additional information: course notes are available as a pdf

**References**

Protein Biochemistry and Proteomics, Rehm, H., 2006, Elsevier Academic Press.
ISBN978-0-12-088545-9

**Course content-related study coaching**

Additional information or explanation can be obtained by personal contact, by email or during exercises

**Assessment moments**

end-of-term and continuous assessment

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

Written assessment with open-ended questions

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

Written assessment with open-ended questions

**Examination methods in case of permanent assessment**

Professional practice, Participation, Assignment

**Possibilities of retake in case of permanent assessment**

examination during the second examination period is possible in modified form

**Extra information on the examination methods**

periodic evaluation during the first examination period Written examination with open questions (after 1st semester)
permanent evaluation: Participation, job performance assessment, report (2nd semester)

**Calculation of the examination mark**

Part Prof. Van Damme: 67% of total
Part Prof. Devreese: 33% of total
Students who echew period aligned and/or non-period aligned evaluation for this

course unit may be failed by the examinator (non-deliberable quotation). Students must pass each part of the course in order to pass the entire course.