GHENT UNIVERSITY

# Course Specifications

Valid as from the academic year 2020-2021

## Analytical Biochemistry (C004085)

**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 150 h** **Contact hrs** 45.0 h

**Course offerings and teaching methods in academic year 2020-2021**

| | | | | |
|---|---|---|---|---|
| A (semester 1) | English | Gent | practicum | 20.0 h |
| | | | lecture | 22.5 h |
| | | | online seminar: coached exercises | 0.0 h |
| | | | group work | 5.0 h |
| | | | online lecture | 0.0 h |
| B (year) | | | practicum | 20.0 h |
| | | | lecture | 22.5 h |
| | | | online lecture | 0.0 h |
| | | | online seminar: coached exercises | 0.0 h |
| | | | group work | 5.0 h |

**Lecturers in academic year 2020-2021**

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

| **Offered in the following programmes in 2020-2021** | **crdts** | **offering** |
|---|---|---|
| Bachelor of Science in Molecular Biotechnology | 5 | A, B |

**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),
- Peptide synthesis.

**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, lecture, practicum, online lecture, online seminar: coached exercises

**Extra information on the teaching methods**

Practicum is obligatory
Due to COVID19, lectures and coached exercises will be held online (1st semester). practicum will be held in 2nd semester (in Ghent). Alternative didactic formats might be used.

**Learning materials and price**

Course text and/or powerpoint slides are available via Ufora

**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

**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

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

Written examination with open questions

**Examination methods in case of permanent evaluation**

Participation, job performance assessment, report

**Possibilities of retake in case of permanent evaluation**

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)