

Protein Chemistry (I002615)

Cursusomvang *(nominale waarden; effectieve waarden kunnen verschillen per opleiding)*

Studiepunten 4.0 **Studietijd 120 u**

Aanbodsessies en werkvormen in academiejaar 2024-2025

A (semester 1)	Engels	Gent	groepswerk	0.0u
			hoorcollege	
			practicum	
			werkcollege	0.0u

Lesgevers in academiejaar 2024-2025

Van Damme, Els	LA25	Verantwoordelijk lesgever
Vanhaeren, Hannes	LA25	Medelesgever

Aangeboden in onderstaande opleidingen in 2024-2025

	stptn	aanbodsessie
Master of Science in Bioinformatics (afstudeerrichting Bioscience Engineering)	4	A
Master of Science in Bioscience Engineering: Cell and Gene Biotechnology	4	A
Uitwisselingsprogramma bio-ingenieurswetenschappen: cel- en genbiotechnologie (niveau master-na-bachelor)	4	A
Uitwisselingsprogramma Bioinformatics (niveau master)	4	A

Onderwijstalen

Engels

Trefwoorden

Proteins, enzymes, structure, protein-protein/ligand interactions, function of proteins, modifications, analysis methods

Situering

- To acquire knowledge related to structure and properties of proteins, and their most important functions
- To understand different analytical techniques used in protein chemistry
- To critically assess scientific literature related to protein research

Inhoud

1. Structure of proteins: amino acids, structural motifs (alpha helix/beta-sheet), protein folding and prediction of protein structure
2. Post-translational modifications of proteins, in vivo (e.g. glycosylation, phosphorylation, ubiquitinylation) and in vitro (chemical modification of proteins eg. radioactive/fluorescent labels) – importance of modification for protein function
3. Structure-function relationships: Structural analysis of proteins - DNA recognition in prokaryotes and eukaryotes, enzymatic activity, membrane proteins, signal transduction, recognition of other proteins
4. Techniques in protein research: sequence analysis of proteins, chromatographic techniques for separation of amino acids, peptides and proteins (gel filtration, ion exchange chromatography, affinity chromatography), electrophoretic techniques, mass spectrometry
5. Study of the interactions between proteins and ligands (calorimetry – biosensors - arrays - Y2H – Tandem affinity chromatography – immunoprecipitation and pull down assays)

Begincompetenties

Basic knowledge of biochemistry and molecular biology.

Eindcompetenties

- 1 Understand the structure, function and importance of proteins.

2 Utilize techniques for analysis of proteins with interpretation of the results.

3 Execute tasks on protein analysis in the frame of a scientific problem

4 Select the best technique for the analysis of a problem

5 Work accurately in a protein laboratory

6 Analyze protein data critically

7 Collaborate in a group for experimental work and reporting

8 Critically assess scientific publications

9 Summarize the most important findings from protein research

Creditcontractvoorwaarde

Toelating tot dit opleidingsonderdeel via creditcontract is mogelijk mits gunstige beoordeling van de competenties

Examencontractvoorwaarde

Dit opleidingsonderdeel kan niet via examencontract gevolgd worden

Didactische werkvormen

Groepswerk, Werkcollege, Hoorcollege, Practicum

Toelichtingen bij de didactische werkvormen

Practicum en oefeningen zijn verplicht

Studiemateriaal

Type: Syllabus

Naam: Eiwitchemie

Richtprijs: € 8

Optioneel: nee

Taal : Engels

Aantal pagina's : 150

Oudst bruikbare editie : 2024

Beschikbaar op Ufora : Nee

Online beschikbaar : Nee

Beschikbaar in de bibliotheek : Ja

Beschikbaar via studentenvereniging : Ja

Referenties

Scientific papers and books dealing with proteins, protein function and protein analysis techniques.

Vakinhoudelijke studiebegeleiding

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

Evaluatiemomenten

periodegebonden en niet-periodegebonden evaluatie

Evaluatievormen bij periodegebonden evaluatie in de eerste examenperiode

Mondelinge evaluatie, Schriftelijke evaluatie met open vragen

Evaluatievormen bij periodegebonden evaluatie in de tweede examenperiode

Mondelinge evaluatie, Schriftelijke evaluatie met open vragen

Evaluatievormen bij niet-periodegebonden evaluatie

Participatie, Peer en/of self assessment

Tweede examenkans in geval van niet-periodegebonden evaluatie

Examen in de tweede examenperiode is niet mogelijk

Toelichtingen bij de evaluatievormen

Written examination followed by oral discussion

Eindscoreberekening

Lectures: 75% Practicals and exercises: 25%

Practicals and exercises are obligatory. Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.

Illegal absence will lead to a score of maximum 9/20, regardless of the score for the theoretical exam. If the student scores less than 10/20 on either the theory or the practicals and exercises, this student cannot pass and will receive the lowest non-pass score.

