Goals of the course

The aim of the course is that students should acquire the following knowledge and skills:

KNOWLEDGE AND UNDERSTANDING
After the course, the students should

- be able to explain the principles of common methods that are used for protein purification and characterization, e.g. chromatography, electrophoresis, analysis of secondary structure, spectroscopy, analysis of protein interactions and MALDI-TOF mass spectrometry
- have acquired an understanding of the basic properties of proteins, including the relationship between structure and function
- have acquired an understanding of sequence databases and central tools within bioinformatics and be able to use these

SKILLS AND ABILITIES
After the course, the students should

- be able to plan and conduct experiments according to a given problem
- be able to adjust the experimental set-up according to the conditions at hand, and document and critically evaluate the results
- be able to plan, conduct and evaluate strategies for protein purification and characterization
- have good skills in presenting and discussing biochemical information, orally and in writing
- have good skills in finding and using biochemical information, including scientific publications

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Biochemistry and Structural Biology
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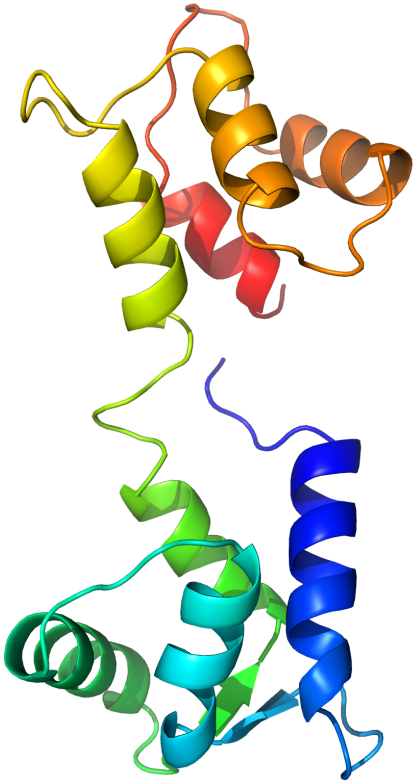
Experimental Protein Chemistry (KEMC03)



Explore the amazing world of proteins

LUND UNIVERSITY
Faculty of Science

Why study proteins?

PROTEINS ARE WORKHORSES OF THE CELL

Proteins have a diverse range of functions in the living cell. Proteins can be enzymes, molecular motors that make things move, messengers that transmit signals, transporters of oxygen, and many other things. In short, proteins enable life.

PROTEINS ARE KEY TO UNDERSTANDING CELLULAR FUNCTIONS

Protein interactions are essential for understanding how cells work, and proteins are dynamically modified during the life and death of a cell. These interactions can only be studied by working with the proteins themselves.

PROTEINS ARE THE TARGETS OF MOST PHARMACEUTICALS

Many pharmaceuticals and drugs exert their function by binding to and interacting with protein targets in the body. Protein chemists work with the protein targets in order to improve the efficiency and reduce the side effects of these pharmaceuticals.

PROTEINS CREATE INNOVATION IN BIOTECHNOLOGY AND SUSTAINABLE CHEMISTRY

In biotechnology, proteins are key factors for improving smart low-energy chamical synthesis and the production of various important and useful molecules from renewable resources.

Previous students say...

"I really enjoyed this course. I felt like I learned a lot from it and feel very comfortable handling proteins in the lab."

"I thought this was a wonderful class. I feel like I learned a lot without being overwhelmed and I enjoyed all of my time in lab and the company of my classmates, lab assistants and professors."

"I liked the fact that we were to plan our own labs and discover problems for ourselves. That is the best way to learn what to do, and why things went wrong, rather than being told what to do and have everything work perfectly."

"I would definitely recommend this course to other students."

Prerequisites

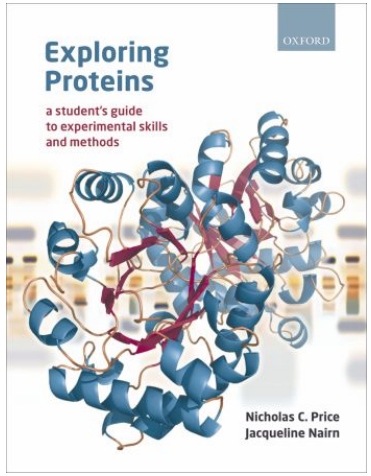
For admission to this course, basic qualifications as well as 60 credits' worth of courses in natural science are required, including the following

- KEMA00: Allmän och analytisk kemi (7.5)
- KEMA01: Organisk kemi – grundkurs (7.5)
- KEMA02: Oorganisk kemi – grundkurs (7.5)
- MOBA02: Cellens kemi (15)

as well as either KEMA03: Biokemi – grundkurs (7.5) or MOBA01: Cellbiologi (15). Corresponding knowledge obtained in other ways will also grant admission to this course.

Course literature

EXPLORING PROTEINS – A STUDENT'S GUIDE TO EXPERIMENTAL SKILLS AND METHODS



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