BICL3215 Protein structure and function

[15h+22.5h exercises]

Teacher(s): Frederik Opperdoes, Mark Rider
Language: French
Level: Third cycle

Aims

This is an advanced optional course on the bioinformatic analysis of proteins and on protein function. The course is given over 2 years and is suited to students wishing to embark on a career in research, for example masters degree students or students undertaking a PhD

Main themes

The following topics will be covered in depth:
Computer analysis on proteins - database searching (SwissProt, GeneBank), multiple sequence alignments, phylogenetic tree constructions, molecular modelling - secondary and tertiary structure prediction.
Properties of amino acids, protein structure, protein purification, protein sequencing, protein structure determination, protein folding.
Protein function, for example oxygen binding to myoglobin and haemoglobin, catalysis by chymotrypsin and lysozyme.
Principles of enzyme kinetics and mechanisms of enzyme reactions

Content and teaching methods

This is an advanced course given over 2 years but is counted as 2 separate courses. The first part deals with bioinformatic tools to study proteins while the second part deals with structure-function relationships in proteins.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Course requirements - good knowledge of chemistry, physics and biochemistry. Competence in the use of computers (e-mail, Internet etc).
Evaluation - based on student seminar presentations and exercises on computer analysis of proteins.
Course language: english
Support - all lectures will be given as PowerPoint presentations which will be made available to the students.

Other credits in programs

STAT3DA/B	diplôme d'études approfondies en statistique (biostatistique et épidémiologie)	(5 credits)