



BC207 Jan 2:0

PROTEOMICS IN PRACTICE

Instructor

UTPAL TATU

Email: tatu@iisc.ac.in

Teaching Assistant

NONE

Email: NONE

Department: BIOCHEMISTRY

Course Time: Tue, Thurs, 10-11AM

Lecture venue: Biochemistry lecture hall

Detailed Course Page: <http://biochem.iisc.ernet.in/courses.php>

Announcements

PROTEOMICS IN PRACTICE: Classes for the above course will begin on 2nd January, 2018.

Classes will be held on Tuesdays and Thursdays from 10 to 11 a.m in BC Lecture Hall (Department of Biochemistry), First floor, New Biological Sciences. PROF. UTPAL TATU

Brief description of the course

The course is designed to familiarize students with concepts and applications of proteomics. The course comprises of lectures, assignments and hands on workshops to learn basic proteomic techniques such as 2D gel electrophoresis and protein identification by mass spectrometry.

Prerequisites

Knowledge of basic biology, preferably Bachelors in any discipline of life sciences.

Syllabus

Introduction to proteomics and metabolomics, methodologies in proteomic research such as 2-Dimensional gel electrophoresis, mass spectrometry principles and applications in proteomics and metabolomics. Study of post translational modifications, Databases (NCBI, Swiss-prot) and their uses, proteomic analysis software (protein pilot, Mascot). Introduction to quantitative proteomics and techniques (i-TRAQ and SILAC).

Course outcomes

Students develop both theoretical and experimental knowledge about large scale protein analysis which is a part of big data science. Each student is given hands-on training for 2D gel electrophoresis, sample preparation and mass spectrometry-derived proteomic data analysis. They also learn data analysis using databases and search engines such as Mascot and Protein Pilot through e-workshops as a part of this course.

Grading policy

50% mid term examination and 50% final examination.

Assignments

Assignments are given roughly every week to enhance critical thinking and problem solving abilities of students.

Resources

Principal course material includes lecture notes, handouts and related research articles and reviews.

Primary reference books:

1. Reiner Westermeier, Tom Naven, Proteomics in Practice, Wiley-VCH, May 2002.
2. D. Hochstrasser, Concepts in Proteomics