PROTEOMICS IN PRACTICE

Instructor
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Teaching Assistant
NONE
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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:
2. D. Hochstrasser, Concepts in Proteomics