MOLECULAR BIOLOGY AND BIOCHEMISTRY
MBB 442-3
Proteomics
Spring 2014

Instructor: Dr. F. Pio, Office: SSB 6112

Description/topics:

Course Description:
With the completion of the genomes of human and other organisms, the next step is to understand the function of the genes constituting them. Proteomics integrates several approaches with the aim of analyzing the complete complement of proteins expressed by an organism. This course will provide a general understanding of the proteome, describe many aspects of proteomic analysis that are currently being developed and consider future directions in the field. Finally we will discuss the integration of bioinformatics, genomics and proteomics disciplines to understand the structure and function of more complex biological systems.
3 lectures hours/week, 1 lab tutorial hour/week

Lecture Topics:

- Highthroughput Techniques
- Posttranslational modification
- Epigenetics
- Interactions
- Protein expression and stochasticity
- Protein regulation
- Protein design
- Structural proteomics
- Synthetic proteomics
- Chemical proteomics
- System Biology - Data integration - Visualization
- Proteomics and bioinformatics

Grading: Two midterm exams (50%) one presentation (15%).
I-clicker assignments, participation (10%), personal project (25%)

Required textbook: Malcolm Campbell and Laurie J. Heyer (2007). Discovering Genomics, Proteomics and Bioinformatics (2nd Edition). Benjamin Cummings.
ISBN-13: 978-0805382198
Also required: IClicker

Prerequisite/corequisite: Prerequisites: MBB 321 and MBB 322; one introductory computer course (CMPT 101,102,104,110, or120)

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