"Resources, Tools and Techniques in Molecular Biology"

a five-week IMSD Module

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First Meeting Wed. Feb. 24, 3:00-5:00 PM, Smith-Buonanno, Rm. G-13
All others Tuesdays 3:00-5:00 PM from March 2 – March 23

This module familiarizes students with some of the most heavily used online resources for literature searches and data mining. It then moves on to introductions to key methods in modern biology, starting with sequencing, including advances in very high throughput sequencing, sequence analysis, and related topics such as PCR and design of targeted sequences such as primers and the templates for RNAi. The last three meetings introduce students to three of Brown’s core facilities: The Proteomics Facility, the Microscopy Facility and the Cell Sorting Facility. At each facility students will learn the basics of how the various apparatus work, how they can be used in various ways, and how the data can be analyzed.

For the first two sessions students are encouraged to bring their data mining or sequence analysis problems or examples from their work. For these first two meetings, students should bring WiFi enabled computers for interactive training.

In later sections students will visit three of Brown’s core facilities, meet and interact with the people who run the facilities. Students may bring their own data or data from their labs for analysis.

Schedule

Feb. 24 Smith-Buonanno Hall, Room G-13 PubMed and all its possibilities, BLAST applications and spin offs (e.g. primers/RNAi design)

March 2 Smith-Buonanno Hall, Room G-13 Sequencing methods & analysis, potentially more BLAST, PCR applications

March 9 Laboratories for Molecular Medicine, 70 Ship Street, Room 319 Introduction to the Proteomics Facility with Jim Clifton. Background on how the various pieces of equipment work, when they are useful, and how the data are analyzed. (http://biomed.brown.edu/epscor_proteomics/)

March 16 Bio Med Center, Room 106 Introduction to the Imaging Facility with Robbert Creton and Geoff Williams. Background on imaging methods and image analysis. Tours and demos of both confocal and scanning electronic microscopes. (http://www.brown.edu/Facilities/Leduc_Bioimaging_Facility/)

March 23 Bio Med Center, Room 602A Introduction to the Flow Cytometry and sorting Facility with Leon Toussaint and Stephanie Terrizzi. Half the class on
interpretation/theory/uses with Leon and half with FACs Aria for demos with Stephanie. (http://biomed.brown.edu/mmi/flow_facility)