

Lab every Monday or Wednesday from 1:30 pm until completed. Barnum 001  
Lecture/Discussion every Thursday 3:00-3:50 pm., Barnum 114. Attendance required.

Thursday, January 19 - Orientation (all students) and Intro to Unit I, Barnum 114

**Unit I. Molecular Biology: Cloning, Transformation, Plasmid Isolation, Restriction Enzyme Analysis** (Dr. Freudenreich)

Lectures: 1/26, 2/2, 2/9

1/23, 1/25 Introduction to Lab Techniques; Construction of Recombinant Plasmids

1/30, 2/1 Transformation of *E. coli* with Recombinant Plasmids

2/6, 2/8 Isolation of Plasmid DNA from Transformants

2/13, 2/15 Restriction Enzyme Analysis of Plasmid DNA

**Unit II. Nucleic Acid Sequencing and Computer Assisted Analysis of Nucleic Acid and Protein Sequences** (Dr. Fuhrman and Dr. Dopman)

Lectures: 2/16, 2/22 (Wed. section), 2/23 (Mon section), 3/1, and online podcast  
(NOTE: Thurs 2/23 is a Tufts Monday!!!)

2/27, 2/29 Nucleic Acid Sequencing

3/5, 3/7 Bioinformatics analysis (**Mark Lab, Tisch Library**, not Barnum 001)

**Unit III. Recombinant Protein Expression and Immunochemical Analyses**  
(Drs. Gaudette and Fuhrman)

Lectures: 3/8, 3/15, 3/29

3/12, 3/14 IPTG induction of  $\beta$ -galactosidase

3/26, 3/28 Gel electrophoresis and Western blotting to detect expressed products; protein quantitation

4/2, 4/4 Western blotting, continued

**Unit IV. Protein Biochemistry: Principles of Enzyme Purification and Analysis** (Dr. Gaudette)

Lectures: 4/5, 4/12, 4/19 & 4/26

4/9, 4/11  $\beta$ -galactosidase: Chromatography and enzyme assay

4/23, 4/18  $\beta$ -galactosidase: Gel electrophoresis and total protein assay