

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 15 - Orientation (all students), Barnum 114

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

Lectures: 1/22, 1/29, 2/5, 2/12

- 1/26, 1/28 Introduction to Lab Techniques; Construction of Recombinant Plasmids
Radiation Safety Lecture
- 2/2, 2/4 Transformation of *E. coli* with Recombinant Plasmids
- 2/9, 2/11 Isolation of Plasmid DNA from Transformants
- 2/19*, 2/18 Restriction Enzyme Analysis of Plasmid DNA (**NOTE: Thursday 2/19=Mon**)

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

Lectures: online lecture, 2/26

- 2/23, 2/25 Nucleic Acid Sequencing
- 3/2, 3/4 Sequence analysis with GCG program (Mark computer lab, Tisch library)

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

Lectures: 3/5, 3/12, 3/26

- 3/9, 3/11 IPTG induction of β -galactosidase
- 3/23, 3/25 Gel electrophoresis and Western blotting to detect expressed products; protein
quantitation
- 3/30, 4/1 Western blotting, continued

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

Lectures: 4/2, 4/9, 4/16 & 4/23 (optional)

- 4/6, 4/8 β -galactosidase: Chromatography and enzyme assay
- 4/13, 4/15 β -galactosidase: Gel electrophoresis and total protein assay