

General course outline
Molecules, Cells, and Organisms
Fall 2001

Weeks 8/31 - 9/24

Lab Activities: Chemotaxis of *Caenorhabditis elegans* and related projects

Related topics:

- introduction to the molecules and cells of life
- factors determining an organisms phenotype
- *C. elegans* as a model organism
- signal transduction/ how organisms sense and respond to changes in their environment
- introduction to cell structure
- membrane structure
- membrane potential

Weeks 10/01 - 10/15

Lab Activities: Photosynthesis, respiration and related project

Related topics:

- energy transformations and redox reactions
- glycolysis
- TCA cycle
- electron transport systems
- light and dark reactions of photosynthesis

Weeks 10/29 and 11/05

Lab Activities: Genetic transformation, the *lac* operon and related project

Related topics:

- introduction to the central dogma for the transmission and expression of genetic material
- replication
- transcription and transcriptional regulation

Weeks 11/12 - 12/10

Lab Activities: cloning, mutagenesis and related project

Related topics:

- molecular cloning and analysis techniques
- mutagenesis
- protein trafficking