

OHIO STATE BIOCHEMISTRY program

## SPRING QUARTER APPROVED ELECTIVE COURSES

### BIOCHEMISTRY DEPARTMENT

#### 708 Protein and Enzyme Laboratory U G 5

Purification, characterization, and study of the physical and catalytic properties of enzymes and proteins.

Sp Qtr. 2 4-hr labs. Prereq: 521 and 761; or equivs; or permission of instructor.

### Biomedical Informatics

No Courses in Biomedical Informatics in Spring

### CHEMISTRY DEPARTMENT

#### 824 Nuclear Magnetic Resonance Spectroscopy G 3

Introduces advanced topics in nuclear magnetic resonance spectroscopy including Bloch equations, relaxation, multidimensional NMR, density operator formalism solid state NMR, and other related concepts.

Sp Qtr. 2 1.5-hr cl, lab hrs arr. Prereq: Grad standing in chem or physics or permission of instructor.

#### 833 Advanced Organic Chemistry III G 3

An advanced course in the fundamental principles of chemistry covering a survey of heterocyclic compounds, carbohydrates, proteins, and enzymes.

Sp Qtr. 3 cl. Prereq: 832.

### FOOD SCIENCE AND TECHNOLOGY

#### 822^\* Food Proteins G 3

Sources of chemical, physical, and biological properties of food proteins; effect of food composition, handling, and processing of protein characteristics and functionalities.

Sp Qtr. 3 cl. Prereq: one course in physical chemistry or permission of instructor.

### 830.01 \* Energy/Lipids G 5

Sp Qtr. 5 cl. Prereq: Fd Sc&Te 761.

### 833 Research Methods in Food Science G 4

Methods of analysis of foods including chromatography, spectroscopy, electrophoresis, thermal and gravimetric techniques, and rheology.

Sp Qtr. 3 cl, 1 3-hr lab. Prereq: Permission of instructor.

### MICROBIOLOGY

### 724 \* Molecular Biology of Bacterial Pathogens U G P 5

In-depth presentation and discussion of the molecular biology and genetics of bacterial pathogens, emphasizing current research in the field.

Sp Qtr. 2 2-hr lec, 1-hr rec. Prereq: Grad standing, advanced undergrads must have permission of instructor.

### 760 \* Advanced Bacterial Physiology U G 3

Specialized metabolic pathways, regulation and control mechanisms, and bacterial biochemistry.

Sp Qtr. 3 cl. Prereq: 661 or permission of instructor.

### 850 The RNA World G 3

Evolution, structure and function of RNA with topics including RNA catalysis, RNA editing and modification, ribosomes, ribozymes, tRNA, telomerase, tmRNA and alternative translation strategies.

Sp Qtr. 3 1-hr cl. Prereq: 12 cr hrs of completed graduate level course work in the sciences.

### MOLECULAR AND CELLULAR BIOCHEMISTRY

### 733 Human Genetics G 3

The principles of human genetics covering mapping of disease genes, defects causing human disease, the cloning of disease genes, gene therapy and transgenes.

Sp Qtr. 3 cl. and cptr time arr. Prereq: Mol Gen 500 or 606 or equiv. Not open to students with credit for Mol Gen 733 or Pathol 733. Cross-listed in Pathology and Mol Gen.

#### 785 DNA Microarray Technology U G P 2

This course will cover all the major areas of microarray technology including theory, target preparation and labeling, manufacturing methods, imaging and data analysis/mining.

Sp Qtr. 1 2-hr cl. Prereq: Biochem 511 or equiv.

#### 824 \* Enzymology G 3

Selected topics in structure/function relationships, mechanisms of catalysis, kinetics, and metabolic interrelations of enzyme systems.

Sp Qtr. 3 cl. Prereq: 1 yr of grad biochem or permission of instructor.

#### 840 Practical Macromolecular Crystallography G 3

Practical aspects of using x-ray crystallography to determine the three dimensional structures of macromolecules.

Sp Qtr. 2 1.5-hr cl. Prereq: One yr of grad biochem or permission of instructor.

### MOLECULAR GENETICS

#### 715 Developmental Genetics U G 3

A study of the regulation of developmentally significant genes and cellular interactions involved in differentiation and pattern formation in *Drosophila* and metazoans.

Sp Qtr. 3 1-hr cl. Prereq: 608, 700, and 701 or equiv.

#### 733 Human Genetics U G 3

The principles of human genetics covering mapping of disease genes, defects causing human disease, the cloning of disease genes, gene therapy and transgenes.

Sp Qtr. 3 cl. Prereq: 500 or 606 or equiv. Not open to students with credit for MolBioch 733 or Pathol 733. Cross-listed in MolBioch and Pathol.

#### 734^\* Cancer Genetics: High Throughput Technologies U G P 4

An introduction to the high throughput technologies and bioinformatics in Cancer Genetics.

Sp Qtr. 2 2-hr cl. Prereq: Biochem 511 or equiv. Not open to students with credit for MVIMG 734. Offered every two years. Next offering Sp 2006. Cross-listed in Molecular Virology, Immunology and Medical Genetics

### 733 Human Genetics U G 3

The principles of human genetics covering mapping of disease genes, defects causing human disease, the cloning of disease genes, gene therapy and transgenes.

Sp Qtr. 3 cl. Prereq: 500 or 606 or equiv. Not open to students with credit for MolBioch 733 or Pathol 733. Cross-listed in MolBioch and Pathol.

### 770^\* Molecular Biology of Animal and Plant Viruses U G 3

An advanced virology course using selected animal and plant.

Sp Qtr. 3 cl. Prereq: Biochem 702 or equiv with permission of instructor.

## NEUROSCIENCE

### 790 \* Developmental Neurobiology G 3

Interdisciplinary approach to the development of neural cells and the formation and maturation of vertebrate and invertebrate nervous systems.

Sp Qtr. 2 1.5-hr cl. Prereq: Neurosci 723, 724 and 725, or permission of instructor. Not open to students with credit for CBN&Anat 790. Cross-listed in Neuroscience.

### 800 \* Molecular Neurobiology G 3

Survey of recent advances in the understanding of the structure and function of molecules known to be of key importance in the nervous system.

Sp Qtr. 3 1-hr cl. Prereq: Permission of instructor. Not open to students with credit for Neurosci 800. Cross-listed in Neuroscience.

## PCMB - PLANT CELLULAR AND MOLECULAR BIOLOGY

### 722 Plant Transgenic Systems G 3

Solutions to applied plant biotechnology problems are developed through the application of plant transgenic systems.

Sp Qtr. Prereq: 622 or 623 or 625 or permission of instructor.

### 833 \* Advanced Plant Physiology: Growth G 3

The physiology of growth; special attention given to the interrelated effects of plant hormones and environmental factors on the growth process in plants.

Sp Qtr. 3 cl. Prereq: Biochem 511, and 10 additional cr hrs in biological sciences; or permission of instructor.

### 836 Mechanisms of Plant Development G 3

Discussion of current research topics on the mechanisms of plant development, including such topics as genetic control and the role of biochemical and environmental signals.

Sp Qtr. 2 1.5-hr cl. Prereq: 436 or 622 or 631 and Mol Gen 500 or 622; or permission of instructor.

## PHARMACY

### 724 Clinical Pharmacogenomics G P 3

Principles and techniques necessary to understand the role of genetic variation in the pharmacokinetics of drugs and therapeutic management of disease.

Sp Qtr. 2 1-hr cl, 1 2-hr workshop. Prereq: Third-year standing in the entry-level Pharm D program.

### 735 Drug Discovery and Drug Design G P 3

A study of the discovery and design of new drugs; topics include natural products isolation, molecular modeling, molecular targets, and biosynthesis and metabolism.

Sp Qtr. 3 cl. Prereq: Permission of instructor.

### 789 Isolation Techniques in Research G P 5

A study and application of selected isolation techniques for the purification of natural products or other organic mixtures.

Sp Qtr. 3 cl, 2 3-hr lab. Prereq: Chem 253 and 244 or 246 or 255, or equiv, or permission of instructor.

