

OHIO STATE BIOCHEMISTRY program

## **WINTER** QUARTER APPROVED ELECTIVE COURSES

### **BIOCHEMISTRY DEPARTMENT**

#### **710 Molecular Biology Laboratory U G 5**

Isolation of recombinant phage and phage DNA, subcloning of DNA fragments, restriction enzyme analysis, nucleic acid hybridization, RNA metabolism.

Wi Qtr. 2 4-hr labs. Prereq: 521 and 511 or 702; or equivs; or permission of instructor.

#### **736 Plant Biochemistry II U G 3**

The biochemistry of plants with emphasis on the synthesis and structure of cell walls, lipids, secondary compounds, phytohormones, and nitrogen fixation.

Wi Qtr. 3 cl. Prereq: 735. Not open to students with credit for PCMB 735. Cross-listed in PCMB.

### **Biomedical informatics**

no courses in winter

### **CHEMISTRY DEPARTMENT**

#### **733 Chemistry of Bio-Organic Catalysts and Enzymes U G 3**

Mechanisms of organic catalysts and enzymes; for students majoring in organic chemistry and biochemistry.

Wi Qtr. 3 cl. Prereq: 253 or equiv; also desirable to have undergraduate level physical chemistry and biochemistry.

#### **825 Mass Spectrometry: Principles and Applications G 3**

Introduction to the theory and principles of ionization, fragmentation, and mass analysis.

Wi Qtr. 3 cl, 5 lab hrs arr. Prereq: Physics 132 or equiv, and permission of instructor

#### **832 Advanced Organic Chemistry II G 3**

An advanced course in the fundamental principles of chemistry covering alicyclic, hydroaromatic, and aromatic compounds.

Wi Qtr. 3 cl. Prereq: 731.

### 990 Seminar on Topics in Biochemistry G 3

Advanced topics in the biological aspects of chemistry.

Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

## FOOD SCIENCE AND TECHNOLOGY

### 761 Carbohydrate and Lipid Metabolism U G 5

In-depth treatment of digestion, absorption, transport, and utilization of dietary carbohydrates and fat for energy production and fat deposition in humans and other higher animals.

Wi Qtr. 3 1.5-hr cl. Prereq: Biochem 511 or equiv and Humn Ntr 310 or Anim Sci 330 or permission of instructor. Not open to students with credit for Anim Sci 761 or Humn Ntr 761. Cross-listed in Animal Sciences and Human Nutrition.

### 821<sup>^\*</sup> Food Lipids G 3

Chemical, physical, and biological properties of food lipids.

Wi Qtr. 3 cl.

### 830 Advanced Studies in Nutrition

Advanced concepts in nutrition.

Au, Wi, Sp Qtrs. 3 or 5 cl. Prereq: 761, 762; Anim Sci 530 or Humn Ntr 610; 10 grad cr hrs in physiology. Not open to students with credit for Anim Sci 830 or Humn Ntr 830. Cross-listed in Animal Sciences, and Human Nutrition.

### 830.02<sup>^\*</sup> Vitamins/Minerals G 5

Wi Qtr. 5 cl. Prereq: Humn Ntr 763.

## MICROBIOLOGY

### 723.01 Lecture U G 3

Wi Qtr. 3 cl. Prereq: 522 or equiv with written permission of instructor.

### 723.02<sup>^</sup> Laboratory U G 3

Wi Qtr. 2 4-hr labs. Prereq or concur: 723.01.

### **736 Advanced Food Microbiology G 3**

Microbiological aspects of food preservation, detection of microbiological contaminants, hazards, and microorganisms of public health significance.

Wi Qtr. 3 cl. Prereq: 636 or Fd Sc&Te 636 and Chem 123. Not open to students with credit for Fd Sc&Te 736. Cross-listed in Food Science and Technology.

### **781 Animal Models of Human Disease U G P 1**

Transgenic and knockout mouse technology and examples of models for genetic diseases with each pattern of inheritance.

Wi Qtr. 1 cl. Prereq: Mol Gen 701 or IBGP 701. Cross-listed in Integrated Biomedical Science.

### **823 \* Control of Cell Growth and Proliferation G 3**

Role of cell surface receptors, cytoplasmic signaling molecules, transcription factors and chromatin remodeling complexes in the regulation of cell growth and in mechanisms causing cancer.

Wi Qtr. 2 1.5-hr cl. Prereq: 1 yr of grad biochem or permission of instructor.

### **828 \* Signaling Pathways and Human Disease G 3**

Current concepts of biological signaling pathways and the biochemical defects in these pathways that lead to cardiovascular disease, cancer, diabetes and neurodegenerative diseases in humans.

Wi Qtr. 2 1.5-hr cl. Prereq: 1 yr of grad biochemistry or permission of instructor. Course is offered every other year.

### **831 Eukaryotic Genome: Structure and Expression G 3**

Current research on the structure and expression of genes in higher eukaryotes.

Wi Qtr. 3 cl. Prereq: Biochem 702 or equiv. Not open to students with credit for Biochem 781. Repeatable to a maximum of 6 cr hrs. Cross-listed in Biochemistry and Molecular Genetics.

## MOLECULAR GENETICS

### 705 Advances in Cell Biology U G 3

An advanced study of selected key areas of research in eukaryotic cell biology.

Wi Qtr. 3 1-hr cl. Prereq: 607 and 701 or equiv.

### 804<sup>^\*</sup> Instrumentation and Techniques in Molecular Virology, Immunology, and cancer genetics. G 5

Theory and application of techniques used to purify and characterize nucleic acids, lipids, and proteins; theory and operation of equipment and instruments used.

Wi Qtr. 2 2-hr cl, 12 lab hrs. Prereq: 625, 626 or Med Micr 625, 626; and MBiochem 611, 612, or equiv; and written permission of instructor. Not open to students with Med Micr 804.

### 831 Eukaryotic Genome: Structure and Expression G 3

Current research on the structure and expression of genes in higher eukaryotes.

Wi Qtr. Prereq: Biochem 702 or equiv. Not open to students with credit for Biochem 781, or Biochem 831, Mol Gen 831 or MBiochem 831 or MolBioch 831. Cross-listed in Molecular and Cellular Biochemistry and Molecular Genetics.

### 833 \* Current Immunological Techniques G 4

Current techniques in cellular and humoral immunology as applicable in research conducted by students.

Wi Qtr. 2 4-hr labs. Prereq: 701 or Med Micr 701 or equiv course in basic immunology. Not open to students with credit for Med Micr 833 or Micrbiol 833. Cross-listed in Microbiology.

### 847 \* Cellular Mechanisms and Pathogenesis of Inflammation G 3

Inflammatory processes in the human host due to interaction with viruses, bacteria, parasites, foreign antigens, or physical trauma and new immunological therapeutic strategies being developed.

Wi Qtr. Prereq: 701 or Med Micr 701 or Micrbiol 701. Not open to students with credit for Med Micr 847.

## NEUROSCIENCE

No Neuroscience courses in Winter

## PCMB – PLANT CELLULAR AND MOLECULAR BIOLOGY

### 736 Plant Biochemistry II U G 3

The biochemistry of plants with emphasis on the synthesis and structure of cell walls, lipids, secondary compounds, phytohormones and nitrogen fixation.

Wi Qtr. 3 cl. Prereq: 735 or Biochem 735. Not open to students with credit for 631 prior to Wi Qtr 1988, or to students with credit for 635 prior to Wi Qtr 1995, or to students with credit for Biochem 736. Cross-listed in Biochemistry

### 741 \* Reproductive Biology of Flowering Plants U G 3

An advanced course on reproductive processes in flowering plants with emphasis on recent biochemical, molecular, and genetic approaches.

Wi Qtr. 3 cl. Prereq: 101 or 300 or H&CS 300 or Biology 114; and 15 additional cr hrs in biological sciences; or permission of instructor. Not open to students with credit for 641.

## PHARMACY

### 711 Pharmaceutical Biotechnology II P 3

Products of biotechnology used as drugs, with an emphasis on antibiotics, anticancer agents and other important natural products employed in disease therapy.

Wi Qtr. 3 cl. Prereq: Second-year standing in Pharm D program.

### 721 Drug Information and Drug Literature Review P 3

Introduction to the broad range of medical and pharmaceutical literature; approaches to understanding and evaluating medical and pharmaceutical literature; demonstrates link between pharmaceutical care and drug information.

Wi Qtr. Repeatable to a maximum of 3 cr hrs. Distance education (internet based).

### 881 Advanced Topics in Pharmacology G 3

A study of current advanced theories of pharmacodynamics.

Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 871 and permission of instructor. Repeatable to a maximum of 9 cr hrs.