Cell and Molecular Biology - CMBL

Courses

**CMBL 4150 HUMAN GENETICS (3)** LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and (CHEM 2080 or CHEM 2087). Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

**CMBL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3)** LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and BIOL 4220 and CHEM 2090. The study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches.

**CMBL 5500 IMMUNOLOGY (3)** LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 3003). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms and medical immunology.

**CMBL 5501 IMMUNOLOGY LAB (2) LAB. 4.** Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions and antibody production.

**CMBL 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3)** LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and BIOL 4220 and CHEM 2090. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches. Credit will not be given for both CMBL 6190 and BIOL 6190.

**CMBL 6220 INTRODUCTION TO MOLECULAR GENETICS (3)** LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and BIOL 4050 and CHEM 2090. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches. Credit will not be given for both CMBL 6220 and BIOL 6230.

**CMBL 6230 VIROLOGY (4)** LEC. 4. Pr. (BIOL 3000 or BIOL 3003) and BIOL 3200 and BIOL 4520. Molecular mechanisms of virus biology including virus-cell replication, assembly and release pathogens. Credit will not be given for both CMBL 6230 and BIOL 6230.

**CMBL 6320 PLANT GENE EXPRESSION (4)** LEC. 4. Pr. BIOL 5320. Departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL and CMBL 6320.

**CMBL 6500 IMMUNOLOGY (3)** LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 30003). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.

**CMBL 6501 TECHNIQUES IN IMMUNOLOGY (2) LAB. 4.** Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions and antibody production.

**CMBL 7070 PLANT BIOTECHNOLOGY (4)** LEC. 2. LAB. 4. Pr. BIOL 3000 or BIOL 3003. Plant biotechnology, including plant tissue culture technologies and genetic transformation and applications to horticultural crop improvement.

**CMBL 7080 MOLECULAR ENDOCRINOLOGY (2)** LEC. 2. Pr. VBMS 7070. Departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems and gene regulation.

**CMBL 7270 ULTRASTRUCTURE OF PLANT CELLS AND MICROBES (5)** LEC. 3. LAB. 4. Departmental approval. Theory and practice of transmission and scanning electron microscopy and their application to the biological sciences. Credit will not be given for both CMBL 7270 and BIOL 7290.

**CMBL 7290 EVOLUTIONARY GENETICS (3)** LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 6170. Departmental approval. Examines two major topics: the role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both CMBL 7290 and BIOL 7290.

**CMBL 7330 MOLECULAR BIOLOGY OF PLANT DEVELOPMENT (2)** LEC. 2. Pr. BIOL 6130 and BIOL 7280. Departmental approval. Physiological, biochemical and molecular aspects of plant growth and development. Credit will not be given for both CMBL 7330 and BIOL 7330.

**CMBL 7400 PLANT VIROLOGY (4)** LEC. 3. LAB. 2. Pr. (PLPA 3000 or PLPA 3003 or PLPA 6000) and CHEM 6180. Departmental approval. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control.
CMBL 7440 ADVANCED CELL BIOLOGY (3) LEC. 3. Pr. BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both CMBL 7440 and BIOL 7440.

CMBL 7460 BACTERIAL PATHOGENESIS (3) LEC. 3. Pr. VBMS 7510 or BIOL 4520. Departmental approval. Molecular and cellular basis of virulence of bacterial pathogens of animals.

CMBL 7480 METHODS IN IMMUNOLOGY (5) LEC. 1. LAB. 8. Departmental approval. Theoretical concept underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences.


CMBL 7510 MOLECULAR GENETICS I (5) LEC. 5. Pr. CHEM 7200. Bacterial, bacteriophage, and eukaryotic genetics, with a focus on gene structure, and molecular mechanisms regulation expression. Critical review of current literature will be emphasized.

CMBL 7520 MOLECULAR GENETICS II (5) LEC. 5. Pr. VBMS 7510. Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.

CMBL 7530 ADVANCED SYSTEMATIC BOTANY (3) LEC. 3. Pr. BIOL 6120. Morphological and molecular approaches to modern systematics of plants.

CMBL 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3) LEC. 3. Pr. VBMS 7510 and VBMS 7520. Viral gene expression and evasion of host defense mechanisms.

CMBL 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003. Departmental approval. Principles and applications of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies. Credit will not be given for both CMBL 7660 and FISH 7660.

CMBL 7960 READINGS IN MOLECULAR BIOLOGY (1) RCT. 1. Pr. P/C BIOL 7220. Oral presentation and discussion of recent scientific publications from a selected area of molecular biology. Credit will not be given for both CMBL 7960 and BIOL 7960. Course may be repeated for a maximum of 4 credit hours.

CMBL 8160 LABORATORY TECHNIQUES IN MOLECULAR VIROLOGY (4) LEC. 1. LAB. 9. Pr. BIOL 4520 and BIOL 4530. Isolation, purification, and identification of viral nucleic acids and proteins. Credit will not be given for both CMBL 8160 and POUL 8160.

CMBL 8880 PHYSIOLOGICAL AND MOLECULAR PLANT PATHOLOGY (3) LEC. 2. LAB. 2. Pr. PLPA 6000 and CHEM 6180 and BIOL 4230. Comprehensive coverage of physiology and molecular biology of plant-pathogen interactions.