MCMD - MOLECULAR CELL MEDICINE

MCMD 625/BICH 625 Nucleic Acid-Protein Interactions

Credit 1. 1 Lecture Hour. Mechanisms of nucleic acid-protein interactions involved in fundamental biochemical processes such as DNA replication and rearrangement, transposition, transcription, RNA splicing and translation; original research articles presented focusing on experimental approaches, interpretation of results and overall significance. **Prerequisite:** Approval of the department head. **Cross Listing:** BICH 625/MCMD 625.

MCMD 671/BICH 671 Macromolecular Folding and Design

Credit 1. 1 Lecture Hour. The Macromolecular Folding and Design Journal Club is to serve as a mechanism for oral dissemination of current knowledge regarding the structure and function of biological macromolecules. **Prerequisite:** Approval of the department head. **Cross Listing:** BICH 671/MCMD 671.

MCMD 672/BICH 672 Biological Membranes

Credit 1. 1 Lecture Hour. Seminar-based course examining recent discoveries in the structure, function and assembly of biological membranes; students give an oral presentation on current literature in molecular biology, biochemistry and/or biophysics. **Prerequisite:** Approval of the department head. **Cross Listing:** BICH 672/MCMD 672.

MCMD 674/BICH 674 Protein Folding and Stability

Credit 1. 1 Lecture Hour. Selected topics from recent literature in the general areas of protein folding, structure and stability. **Prerequisite:** Approval of the department head. **Cross Listing:** BICH 674/MCMD 674.

MCMD 675 Molecular Pathogenesis

Credit 1. 1 Lecture Hour. Oral presentations and discussions from current literature in the general area of the molecular mechanisms involved in disease. May be taken 12 times. **Prerequisite:** Approval of the department head.

MCMD 676 Frontiers in Regenerative Medicine

Credit 1. 1 Lecture Hour. This course will follow a "journal club" format in which a student will serve as the discussion leader for the weekly journal meeting at the Institute for Regenerative Medicine. Papers will be elected from the recent literature in the areas of regenerative medicine/stem cell research. The primary purpose of the course is oral dissemination of recent knowledge of regenerative medicine. Secondarily, it will serve as a training mechanism for students who wish to improve their presentation skills with a wide spectrum of scientists at various levels of expertise. **Prerequisite:** MSCI 601.

MCMD 677/GENE 677 Genes and Diseases

Credits 3. 3 Lecture Hours. Molecular and genetic basis for human disease; structure, function and evolution of chromosomes; epigenetics; gene mapping; complex genetic traits; cancer genetics; neurodegenerative disorders, animal models (yeast, mouse, worms, fruitflies); ethics. **Cross Listing:** GENE 677/MCMD 677.

MCMD 681 Seminar

Credit 1. 1 Lecture Hour. Focus will be on critical scientific thinking. Emphasis placed on oral communications, scientific writing and grant preparation. **Prerequisite:** Graduate student in medical science. Approval of department head.

MCMD 685 Directed Studies

Credits 1 to 6. 1 to 6 Lecture Hours. Limited investigation in fields other than those chosen for thesis or dissertation. **Prerequisite:** Approval of instructor.

MCMD 689 Special Topics

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of biochemistry and genetics. May be repeated for credit when topics vary.

MCMD 914 Medical Biochemistry, Genetics and Nutrition

Credits 10. 10 Lecture Hours. Properties and metabolism of proteins, nutritional biochemistry, nutritional deficiencies, diet and disease. The metabolic basis of inherited disease. Metabolism of lipids, carbohydrates, amino acids, purines and pyrimidines. Properties and metabolism of DNA and RNA. Fundamentals of medical genetics, including diseases resulting from inborn errors of metabolism, chromosomal abnormalities, human gene mapping and applications of recombinant DNA technology to problems of human genetics. **Prerequisite:** Admission to the medical curriculum.