

BIOLOGY (BIOLOGY)

Courses

BIOLOGY 5501 Proposal Writing Credit: 1

This course addresses how to develop a testable hypothesis, and write a NIH-style proposal to convince the reader of the significance of the proposed studies. Students will write a proposal that will form the basis of their oral comprehensive exam in the Cell Biology and Biophysics (CBB) and Molecular Biology and Biochemistry (MBB) disciplines. The is limited to doctoral students with CBB and MBB coordinating disciplines that have a plan of study filed with the School of Graduate Studies.

BIOLOGY 5510 Gross Anatomy for Nurse Anesthetists Credits: 3

This course will present and examine the anatomic concepts and conditions essential for critical thinking and decision making by the nurse anesthetist. Specifically, the course will provide the foundation upon which patient interventions may be based during the perioperative period.

Prerequisites: Graduate status.

Co-requisites: BIOLOGY 5510L.

BIOLOGY 5510L Gross Anatomy for Nurse Anesthetists Credit: 1

This laboratory course will present and examine the anatomic concepts and conditions essential for critical thinking and decision making by the nurse anesthetist. Specifically, the course will provide the foundation upon which patient intervention may be based during the perioperative period.

Prerequisites: Graduate status.

Co-requisites: BIOLOGY 5510.

BIOLOGY 5511 Professional Development Credit: 1

The purpose of this course is to facilitate a competitive application to professional health programs for student seeking the M.A. in Biology. Students will gain an understanding of the application process, including decisions for where to apply, assessing fit, developing a personal statement, strategies for letters of evaluation, and an execution of a successful interview.

Prerequisites: Admission to the M.A. Biology program, or by instructor consent.

BIOLOGY 5512 Graduate Cell Biology Credits: 3

This course will provide graduate-level students a foundation in the basic principles of cellular biology, focusing on the internal organization and regulation of the cell, cell function within tissues and organisms, and basic molecular genetic mechanisms with additional special topics relevant to human health and disease.

Prerequisites: Graduate Biology Program Student.

BIOLOGY 5514 Graduate Biostatistics 1 Credits: 3

A first course in probability, sampling, and experimental design. The course will introduce inferential statistics testing for differences in means and their relevance to the biological sciences.

BIOLOGY 5515 Biochemistry Credits: 4

The chemistry and mechanisms involved in biosynthesis, degradation and utilization of the major constituents of living systems and the biochemistry of specialized tissues, hormones, nutrition and regulation.

Prerequisites: Admission to the UMKC MA Biology program.

BIOLOGY 5516 Global Health: New and Emerging Infections Diseases Credits: 3

This course will discuss infectious diseases that are newly identified, or increasing in prevalence throughout the world. Several aspects of each disease will be discussed, including transmission, symptoms, treatment, prevention, and diagnosis. The course is meant for students interested in a health-related career (medicine, dental, pharmacy, public health), but other students with a basic biology background are welcome.

Prerequisites: BA or BS in Biology or related field

BIOLOGY 5517 From Bench to Bedside: Translational Research Credits: 3

This course explores the pipeline from basic biological research to bedside clinical practice, delving into the topic "what is translational research?" By engaging with people from the community involved at all levels of translational research, students will gain an appreciation for the civic issues behind medical research, the interdisciplinary nature of research, and the part that Kansas City institutions play in regional life and health sciences. As a graduate course, students will be asked to use critical thinking in each step of the drug-development pipeline.

Prerequisites: Must be in a graduate program in Biology or instructor consent.

BIOLOGY 5518 Graduate Histology Credits: 3

Animal tissues and their specialization in the organism, with major emphasis on higher organisms.

Prerequisites: BA or BS in Biology or Chemistry, or permission of the instructor.

BIOLOGY 5519 Principles of Evolution Credits: 3

Synthesis of the modern concepts of evolution. Discussion of the biological processes that produce organic diversity through phyletic change. Discussed are variation, mutation, population genetics, natural selection and adaptation.

Prerequisites: BIOLOGY 206.

BIOLOGY 5525 Bioinformatics and Data Analysis Credits: 3

Methods and procedures for the storage, retrieval and analysis of information in biomolecular and biological databases. Emphasis will be given to the use of database information in biological research and to recent developments in genomics and proteomics.

Prerequisites: BIOLOGY 441, LS-BIOC 360.

BIOLOGY 5528 Human Genomic Epidemiology Credits: 3

This course is designed for biological researchers and clinicians interested in studying common human diseases using state-of-the-art genomics/genetics epidemiological approaches. The course provides a basic yet comprehensive introduction to key topics in human genome epidemiological research, including basic concepts and methodologies of quantitative/statistical genetics, an introduction to emerging technologies and analytical methods for genomic science, basic study for various types of genomic research approaches, utilization of widely-used software packages for analyses of genomic data, and examples of human genome epidemiology information improving health, and ethical, legal and social issues in the design and conduct of human genome epidemiology studies.

BIOLOGY 5534 Cardiovascular Pulmonary Physiology Credits: 3

Function of the cardiovascular and pulmonary systems at the cellular, tissue, and system levels with particular emphasis on regulation, maintenance of homeostasis and integration with other systems.

Prerequisites: BIOLOGY 316.

BIOLOGY 5539 Mammalian Physiology Credits: 4

Study of the physiological functions and controls in human and related mammalian systems, with emphasis on fundamental processes that underlie normal and abnormal clinical conditions.

Prerequisites: BIOLOGY 316.

BIOLOGY 5540 Pathophysiology Credits: 4

Pathophysiology will focus on the physiological basis of cellular and tissue function, and the consequences of dysregulated metabolic/cellular expression on essential homeostatic processes in cells, cytoplasmic compartments and primary organ systems.

Prerequisites: BIOLOGY 5539.

BIOLOGY 5542 Neurobiology Credits: 3

Neurobiology will consist of the presentation of theory and data concerning cellular and molecular fundamentals of the nervous system, synaptic mechanisms, sensor-motor systems, and higher-order functions of the nervous system.

Prerequisites: LS-MBB 5561 or BIOL 5515

BIOLOGY 5591 Directed Individual Studies Credits: 1-6

Intensive readings and/or research in an area selected by the graduate student in consultation with the instructor. Not to be identified with thesis research.

BIOLOGY 5592 Master of Arts Topics in Biology Credits: 1-6

Special problems and topics in biology specifically intended to satisfy the project or report requirement for the master of arts degree in biology.

Prerequisites: Nine hours of graduate work in Biology.

BIOLOGY 5593 Master of Science Topics Credits: 1-4

Investigation of problems and topics to satisfy the M.S. topics requirement for the master of science degree in Cellular and Molecular Biology.

Prerequisites: LS-MBB 5561, LS-MBB 5562.

BIOLOGY 5899 Required Graduate Enrollment Credit: 1