LIFE SCIENCES - MOLECULAR BIOLOGY AND BIOCHEMISTRY (LS-MBB)

Courses

LS-MBB 5503 Eukaryotic Molecular Biology Credits: 3
Molecular aspects of gene structure and function in eukaryotic organisms and their viruses. Emphasis on genome structure and organization, gene expression and regulation and the molecular basis of growth and development.
Co-requisites: LS-MBB 5561, LS-MBB 5562.

LS-MBB 5509 Graduate Developmental Biology Credits: 3
Principles of development and differentiation of structure during embryology in animals. Molecular, cellular and organismal level concepts and mechanism will be considered.

LS-MBB 5510 Graduate Biochemistry for Nurse Anesthetists Credit: 1
This course will present the fundamentals of biochemistry necessary for the practice of nurse anesthesia, specifically, the structure and characteristics of biomolecules found in the cell, how molecules are metabolized to generate biochemical energy, and the basic mechanisms to regulate metabolic processes with regard to the nutritional state of the organism. The course is limited to graduate students in the nurse anesthetist program or in other disciplines where a fundamental understanding of biochemistry would be useful.

LS-MBB 5538 Molecular Recognition in Molecular Biology Credits: 2
Graduate Research Seminar. Analysis of the impact of most recent developments in molecular genetics and structural biology as related to fundamental molecular recognition events.
Co-requisites: LS-MBB 5561.

LS-MBB 5561 General Biochemistry I Credits: 4
The first semester of a two-semester sequence in general biochemistry. This course will emphasize the structure of biological molecules, thermodynamics and kinetics of biological reactions, and selected aspects of energy metabolism and metabolic pathways.
Prerequisites: CHEM 322R.

LS-MBB 5562 General Biochemistry II Credits: 3
The second semester of a two-semester sequence in general biochemistry. This course will emphasize selected aspects of the biochemistry of metabolism and macromolecular assemblies. The molecular basis of genetic and metabolic regulation will be discussed.
Prerequisites: LS-MBB 5561.

LS-MBB 5565 Structure And Function Of Proteins Credits: 3
This course will discuss structure-function relationships of proteins. Topics will include: methods of structure-function analysis, catalytic mechanisms, and regulation of enzyme activity.
Co-requisites: LS-MBB 5561, LS-MBB 5562.

LS-MBB 5567 Physical Biochemistry Credits: 3
Application of physical and chemical principles to elucidate structure and function of biochemical systems. The various modes of interactions between biologically important molecules and the specificity of their interaction will be examined through selected literature examples.
Co-requisites: LS-MBB 5561, LS-MBB 5562.

LS-MBB 5569 Current Topics in Molecular Biology and Biochemistry Credits: 1-3
Current topics and recent developments in biochemistry and molecular biology with emphasis on rapidly developing research areas.
Co-requisites: LS-MBB 5561, LS-MBB 5562.

LS-MBB 5591 Directed Individual Studies In Molecular Biology And Biochemistry Credits: 1-6
Intensive readings and/or research in an area selected by the graduate student in consultation with the instructor.
Co-requisites: LS-MBB 5561, LS-MBB 5562.

LS-MBB 5596 Advanced Experimental Molecular Biology I Credits: 2
Structured laboratory work with individual tutorial sessions designed to familiarize first year Interdisciplinary Ph.D. students with concepts and techniques of modern molecular biology research. 1-2 hr/wk tutorial and 15-20 hr/wk of laboratory work.
Co-requisites: LS-MBB 5561.

LS-MBB 5597 Advanced Experimental Molecular Biology II Credits: 2
Continuation of LS-MBB 5596.
Co-requisites: LS-MBB 5561, LS-MBB 5562.

LS-MBB 5599 Thesis Research in Molecular Biology and Biochemistry Credits: 1-12
Research and thesis preparation for M.S. degree candidates.
Co-requisites: LS-MBB 5561, LS-MBB 5562.

LS-MBB 5611 Seminar in Molecular Biology and Biochemistry Credit: 1
Presentation and discussion of selected areas in biochemistry and molecular biology. This course may be repeated by doctoral students for a maximum of 3 credit hours.
Co-requisites: LS-MBB 5561, LS-MBB 5562.

LS-MBB 5690 Analytical Methods in Molecular Biology and Biochemistry Credits: 1-5
A course that emphasizes the development of skills in experimental design, analytical methods and instrumentation as applied to problems of interest to modern molecular biology and biochemistry, and analysis of results. Can be repeated up to a maximum of eight hours total.
Prerequisites: LS-MBB 5561, LS-MBB 5562.

LS-MBB 5696 Dissertation Development Credits: 1-3
This course is individually directed research leading to the fulfillment of the Comprehensive Exam requirements for the Molecular Biology Biochemistry primary discipline. This includes submission of the final, revised version of the NIH-style research proposal to committee members and (ii) successful oral defense of the proposal before the student's research advisory committee.
Prerequisites: BIOLOGY 5501.

LS-MBB 5699 Dissertation Research in Molecular Biology and Biochemistry Credits: 1-12
Research and dissertation preparation for interdisciplinary Ph.D. program students who have Molecular Biology and Biochemistry as a discipline.
Co-requisites: LS-MBB 5561, LS-MBB 5562.