HBM

Molecular Genetics and Microbiology

HBM 503: Molecular Genetics
Introduces the classical work and current developments in lower and higher genetic systems. Covers gene structure and regulation in prokaryotic and eukaryotic organisms, mutational analysis and mapping, transposable elements, and biological DNA transfer mechanisms. Bacteriophage as well as lower and higher eukaryotic systems are used to illustrate aspects of molecular genetic structure and function. This course is offered as both MCB 503 and HBM 503. Prerequisite: matriculation in graduate program or permission of instructor.
Fall, 3 credits, Letter graded (A, A-, B+, etc.)

HBM 509: Experimental Molecular Genetics and Microbiology
An introduction to modern microbiological research. The selection of laboratories is made in consultation with the student's advisory committee. By taking part in ongoing projects the student will learn experimental procedures and techniques and become acquainted with research opportunities in the department. Prerequisites: Matriculation in a graduate program and permission of the graduate studies director and the lab director.
Fall, 1-8 credits, S/U grading

HBM 510: Experimental Molecular Genetics and Microbiology
An introduction to modern microbiological research. The selection of laboratories is made in consultation with the student's advisory committee. By taking part in ongoing projects the student will learn experimental procedures and techniques and become acquainted with research opportunities in the department. Prerequisites: Matriculation in a graduate program and permission of the graduate studies director and the lab director.
Spring, 1-8 credits, S/U grading

HBM 522: Biology of Cancer
A short course with the emphasis on cancer as a disease of man. Lectures address human cancer as seen by the clinician and as basic research relates to human disease. This course provides students with a link between courses in cell and molecular biology and the application of this basic information to tumor management. Offered as HBM 522 and HPH 659.

HBM 531: Medical Microbiology
Information derived from molecular and experimental cellular biology is presented to provide a foundation for understanding the basic aspects of the growth, regulation, structure, and function of viruses and prokaryotic and eukaryotic cells. The properties of the infectious agents are correlated to human diseases caused by these agents. Laboratory experiments demonstrate basic techniques to identify and quantitate microorganisms. Prerequisite: Permission of instructor; matriculation as a Stony Brook medical or dental student.
Fall, 1-4 credits, Letter graded (A, A-, B+, etc.)

HBM 599: Graduate Research in Molecular Genetics and Microbiology
Original investigations under faculty supervision. Prerequisite: Permission of instructor.
Spring, 1-9 credits, S/U grading

HBM 604: Molecular Mechanisms of Microbial Pathogenesis
This course covers the principles and molecular mechanisms of pathogenesis of a selected group of the best understood viral and bacterial pathogens. A major focus of the course relates to pathogen modification of host extracellular and intracellular signalling events, as well as pathogen-host interactions pertaining to the innate, humoral and cellular responses to infection. The material is presented by invited lecturers who are leaders in their fields. This course is directed to graduate students, post-doctorate and medical fellows, and advanced medical students, who are contemplating careers in infectious disease research. Prerequisite: HBM, BMO 503 and BMO 520
3 credits, Letter graded (A, A-, B+, etc.)

HBM 690: Molecular Genetics and Microbiology Seminar
A weekly meeting devoted to current work in the department. Enrolled students present seminars each week throughout the term. Prerequisite: Permission of instructor.
Spring, 1 credit, S/U grading
May be repeated for credit.

HBM 691: Readings in Molecular Genetics and Microbiology Literature
Readings in microbiology literature covering areas of molecular biology and genetics. Prerequisite: Permission of instructor.
Fall, 1 credit, Letter graded (A, A-, B+, etc.)
May be repeated for credit.

HBM 692: Experimental Methods in Molecular Genetics and Microbiology
The goal of this course is to introduce students to the rationale underlying the wide array of new methods in biology, as well as to promote the critical analysis of scientific literature. Lectures will be given on various scientific methods and approaches, and journal articles relating to the concepts introduced will be assigned. A separate discussion section will be held to review and critique the articles, to be led by the students.
1 credit, Letter graded (A, A-, B+, etc.)

HBM 693: Research Proposal Preparation in Molecular Genetics and Microbiology
A course, based upon the literature in molecular genetics and microbiology, to instruct students in scientific writing and the preparation of research proposals. The course will be organized in three parts. In the first section of the course, students will become familiar with the components of the research proposal and will read and evaluate proposals written by the training faculty. Lectures given by the course co-directors will cover the basics of scientific writing, research proposal preparation and the problems and concerns commonly voiced by reviewers of research proposals. In the second section, students will develop two short proposals in the area of molecular genetics and microbiology that are unrelated to their graduate research. One of these short proposals will be selected for development into a full proposal. In the third section, students will develop and write the full proposal. The students' skills in proposal preparation will be enhanced by critiquing the short and full proposals presented by other students in the second and third sections of the course. Offered
Spring, 1-3 credits, Letter graded (A, A-, B+, etc.)

HBM 695: Advanced Readings in Molecular Genetics and Microbiology
A seminar in changing topics in molecular genetics and microbiology such as virology, bacteriology, cancer biology, vaccines, drug discovery, mycology and parasitology.
1 credit.
May be repeated 1 times FOR credit.

HBM 699: Dissertation Research on Campus

For the student who has been advanced to candidacy. Original research will be under the supervision of the thesis advisor and advisory committee.

**Prerequisite:** Advancement to candidacy (G5); permission of thesis advisor. Major portion of research must take place on SBU campus, at Cold Spring Harbor, or at the Brookhaven National Lab.

*Summer, 1-9 credits, S/U grading*
*May be repeated for credit.*

**HBM 700: Dissertation Research off Campus - Domestic**

Prerequisite: Must be advanced to candidacy (G5). Major portion of research will take place off-campus, but in the United States and/or U.S. provinces. Please note, Brookhaven National Labs and the Cold Spring Harbor Lab are considered on-campus. All international students must enroll in one of the graduate student insurance plans and should be advised by an International Advisor.

*Fall, Spring, 1-9 credits, S/U grading*
*May be repeated for credit.*

**HBM 701: Dissertation Research off Campus - International**

Prerequisite: Must be advanced to candidacy (G5). Major portion of research will take place outside of the United States and/or U.S. provinces. Domestic students have the option of the health plan and may also enroll in MEDEX. International students who are in their home country are not covered by mandatory health plan and must contact the Insurance Office for the insurance charge to be removed. International students who are not in their home country are charged for the mandatory health insurance. If they are to be covered by another insurance plan they must file a waiver by second week of classes. The charge will only be removed if other plan is deemed comparable.

*All international students must received clearance from an International Advisor.*

*Spring, 1-9 credits, S/U grading*
*May be repeated for credit.*

**HBM 800: Full-Time Summer Research**

Full-time laboratory research projects supervised by staff members.

*S/U grading*
*May be repeated for credit.*