VETERINARY AND BIOMEDICAL SCIENCES (VBSC)

VBSC 503: Critical Elements of Genetics and Molecular and Cellular Biology

4 Credits

Foundational topics and critical analysis in evolution, genetics, molecular and cellular biology and cell differentiation. BIOL (BMB/MMB/MBMB/ VB SC) 503 Critical Elements of Genetics and Molecular and Cellular Biology (4) Central elements in genetics, genomics and molecular and cell biology will be covered. The course will focus on foundational principles and concepts that will allow students to understand the behavior of proteins and organelles within cells, and to appreciate how intracellular events influence interactions of cells with one another in multicellular systems and during development. Another major focus will be genome architecture, both in the context of evolution and gene expression. Students will also learn how genetic approaches can be used to understand cell and molecular biology, and will develop critical thinking skills through the analysis of the primary scientific literature. The course will include lecture and discussion sessions.

Cross-listed with: BIOL 503, BMB 503, MCIBS 503

VBSC 511: Molecular Immunology

2 Credits

The study of molecular and biochemical events that influence immune responses and define current questions in immunology. BMB 511 / MCIBS 511 / VBSC 511 Molecular Immunology (2) The goals of the course are to integrate the current questions of immunology with other disciplines, in particular cell biology and biochemistry, and to provide training in critical thinking and evaluation of data and experiments. The course will be approximately 2/3 lecture by the instructor and 1/3 student presentations of papers related to the material. In addition, written critical reviews of recently published papers and a short research proposal will be assigned. By focusing on the mechanisms involved in immunity and disease, this course complements several existing courses on immunology, virology, and biochemistry. The prerequisites of MCRB 410 and BMB 400 assure that the students enrolling in the course have a general understanding of immunology and biochemistry. This course is projected as an elective for the Molecular Medicine and Immunobiology focus areas in the MCIBS graduate program and for the Pathobiology and BMB graduate programs. The course will be offered in the fall semester with an enrollment limit of 20 students

Prerequisite: BMB 410, MCRB 410
Cross-listed with: BMSC 511, MCIBS 511

VBSC 514: Prostaglandins and Leukotrienes

3 Credits

Biochemical, physiological, and nutritional aspects of arachidonic acid and related essential fatty acid metabolism. Structure-activity relationships of prostaglandins, prostacyclins, thromboxanes, and leukotrienes.

Prerequisite: BIOCH 402 or BIOCH 437
who are studying cancer at a molecular, reductive level experience with the clinical aspects of the disease. The course will be held at Mt. Nittany Medical Center once a week for 3 hrs, in both patient-oriented, hands-on and didactic settings to understand how cancer is diagnosed, imaged, and treated, how patient care and side effects of therapy are managed, and the importance of clinical trials in developing new treatments for cancer. For each subject area students will spend 2 hours engaged in a clinical experience related to cancer under the supervision of course directors or additional clinicians at Mt. Nittany, followed by a 1 hour lecture/didactic session on a related topic. In addition to broad learning objectives, this course will make students aware of critical issues in cancer biology and treatment that may serve as a springboard for future research.

**Prerequisite:** MCIBS 503, MCIBS 590, BIOL 416; VBSC 534

VBSC 590: Colloquium

1-3 Credits/Maximum of 3

Continuing seminars which consist of a series of individual lectures by faculty, students, or outside speakers.

VBSC 596: Individual Studies

1-9 Credits/Maximum of 9

Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

VBSC 597: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or semester.

VBSC 597A: **SPECIAL TOPICS**

1-3 Credits

VBSC 597B: **SPECIAL TOPICS**

1-2 Credits

VBSC 597F: **SPECIAL TOPICS**

1 Credits

VBSC 597G: **SPECIAL TOPICS**

1 Credits

VBSC 600: Thesis Research

1-15 Credits/Maximum of 999

No description.

VBSC 601: Ph.D. Dissertation Full-Time

0 Credits/Maximum of 999

No description.

VBSC 602: Supervised Experience in College Teaching

1-3 Credits/Maximum of 6

Experience in preparing and conducting lectures/laboratories and assembling materials for laboratories.