MOLECULAR BIOSCIENCES (VMB)

School of Veterinary Medicine

VMB 092 — Internship (1-12 units)

Course Description: Work experience off and on campus in all subject areas offered in the Department of Molecular Biosciences. Internships supervised by a member of the faculty.
Prerequisite(s): Consent of instructor; lower division standing.
Learning Activities: Internship 3-36 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Pass/No Pass only.

VMB 101V — Principles of Pharmacology & Toxicology (3 units)

Course Description: Online course provides training in core concepts of pharmacological and toxicological sciences and prepares to develop higher-order problem solving and critical thinking skills. Designed for advanced undergraduate students with interests in pursuing graduate degrees in pharmacology, toxicology, physiological sciences, and for students with an interest in pursuing D.V.M., M.D., Pharmacy, Dentistry and Nursing professional degrees. Students who pursue careers in environmental sciences, public health management, and epidemiology may also benefit from the subject matter presented in this course.
Prerequisite(s): Consent of instructor; upper division standing in a science major; chemistry through organic chemistry, general biology, or consent of instructor; good standing with the university; computing capability (use MS Word®, Excel®, PowerPoint®, menu driven software programs, Course LMS); own a computer or have ready access to a computer with broadband Internet access; NPB 101 and BIS 104 recommended.
Learning Activities: Web Virtual Lecture 0.25 hour(s), Web Electronic Discussion 1.50 hour(s), Project 1.50 hour(s), Auto Tutorial 2 hour(s).
Grade Mode: Letter.
General Education: Science & Engineering (SE); Oral Skills (OL); Scientific Literacy (SL).

VMB 101Y — Principles of Pharmacology & Toxicology (3 units)

Course Description: Hybrid course provides training in core concepts of pharmacological and toxicological sciences. Develop higher-order problem solving and critical thinking skills.
Prerequisite(s): Upper division standing in a science major; chemistry through organic chemistry and general biology, or consent from instructor; good standing with university; computing capability using MS Word®, Excel®, PowerPoint®, menu driven software programs, SmartSite; computer, or ready access to a computer, with broadband Internet access.
Learning Activities: Discussion/Laboratory 1.50 hour(s), Web Virtual Lecture 1 hour(s), Web Electronic Discussion 0.50 hour(s), Auto Tutorial 5 hour(s).
Enrollment Restriction(s): Restricted to upper division undergraduate students in good standing with school and fulfill course prerequisites.
Grade Mode: Letter.
General Education: Science & Engineering (SE); Oral Skills (OL); Scientific Literacy (SL).

VMB 192 — Internship (1-12 units)

Course Description: Work experience off and on campus in all subject areas offered by the Department of Molecular Biosciences. Internships supervised by a member of the faculty.
Prerequisite(s): Consent of instructor; completion of 84 units.
Learning Activities: Internship 3-36 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Pass/No Pass only.

VMB 198 — Directed Group Study (1-5 units)

Course Description: Directed group study.
Learning Activities: Variable 1-5 hour(s).
Repeat Credit: May be repeated.
Grade Mode: P/NP only.

VMB 199 — Special Study for Advanced Undergraduates (1-5 units)

Course Description: Special study for advanced undergraduates.
Learning Activities: Variable.
Grade Mode: Pass/No Pass only.

VMB 220 — Oxidative Stress & Free Radical Signaling (2 units)

Course Description: Nature of nitrogen and oxygen radicals, their role in health, disease, medicine, toxicology, pharmacology, and related disciplines. Free radicals, antioxidants, and biological pathways. Clinical cases of increased oxidative stress.
Prerequisite(s): Advanced undergraduates, graduates, and professional students with a solid background in biochemistry and physiology.
Learning Activities: Lecture 1 hour(s), Discussion 1 hour(s).
Grade Mode: Letter.

VMB 234 — Current Topics in Neurotoxicology (3 units)

Course Description: General principles of neurotoxicology, the cell and molecular mechanisms and health impacts of specific neurotoxicants and the contribution of neurotoxic compounds to complex neurodevelopmental disorders and neurodegenerative diseases.
Prerequisite(s): Core courses in one of the following graduate programs: Pharmacology Toxicology (PTX), Agricultural Environmental Chemistry (AGC), Biochemistry Molecular Biology (BMB), Cell Developmental Biology (CDB), Immunology (IMM), Molecular Cellular Integrative Physiology (MCP) or Neuroscience (NSC).
Learning Activities: Lecture 3 hour(s).
Enrollment Restriction(s): Restricted to upper level undergraduate students must obtain permission from the course coordinator.
Cross Listing: ETX 234, MCP 234.
Grade Mode: Letter.

VMB 253 — Metabolism of Toxicants & Drugs (2 units)

Course Description: Significance/chemical pathways of toxicants and drug metabolism, enzymology and molecular aspects of P450 and flavin monooxygenases, hydrolases and phase 2 transferases and experimental approaches for metabolism studies.
Prerequisite(s): PTX 201; PTX 202; PTX 203; general biochemistry or consent of instructor.
Learning Activities: Lecture 2 hour(s).
Grade Mode: Letter.

VMB 254 — Toxicology of the Respiratory System (3 units)

Course Description: Survey of structure and function of the respiratory system, the pathophysiology of major lung diseases, the interactions of toxicants with the lung and response of this organ to injury.
Prerequisite(s): PTX 201; PTX 202; PTX 203; or consent of instructor.
Learning Activities: Lecture 3 hour(s), Discussion.
Grade Mode: Letter.

VMB 255 — Pharmacokinetics & Biopharmaceuticals (2 units)

Course Description: In-depth study of pharmacokinetics, including the fundamentals of pharmacokinetics, how to design a pharmacokinetic study and how to use both compartmental and non-compartmental analysis to interpret the data.
Learning Activities: Lecture 16 hour(s), Discussion 4 hour(s).
Grade Mode: Letter.

VMB 290 — Seminar (1 unit)

Course Description: Topics in nutrition, pharmacology/toxicology, and biochemistry.
Prerequisite(s): Consent of instructor; graduate standing.
Learning Activities: Seminar 1 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Satisfactory/Unsatisfactory only.

VMB 297T — Tutoring in Graduate Molecular Biosciences (1-5 units)

Course Description: Assist in preparation and teaching of courses in Nutrition, Pharmacology and Toxicology, or other courses offered by the department under direct supervision of the instructor. Designed for graduate or professional students who desire teaching experience in graduate courses.
Prerequisite(s): Consent of instructor; graduate or professional student standing.
Learning Activities: Practice 1-5 hour(s).
Repeat Credit: May be repeated 5 unit(s).
Grade Mode: Satisfactory/Unsatisfactory only.

VMB 298 — Group Study (1-5 units)

Course Description: Description:
Learning Activities: Variable 3-15 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Satisfactory/Unsatisfactory only.

VMB 299 — Research (1-12 units)

Course Description: Research.
Learning Activities: Variable.
Grade Mode: Satisfactory/Unsatisfactory only.