Biomedical Sciences (BIOMED)

BIOMED 1010: Biomedical Career Explorations
An introduction to the variety of career possibilities within the growing field of biomedical sciences. Graded on S/U basis only.

Credit Hour: 1

BIOMED 2001: Topics in Veterinary Biomedical Science
May be repeated 2 times for credit. Graded on A-F basis only. Prerequisites: instructor's consent

Credit Hour: 1-99

BIOMED 2085: Problems in Biomedical Research
Assignment of special Topics for Research training in biomedical research.

Credit Hour: 1-99

BIOMED 2110: Biomedical Terminology
Life science etymology (Greek for "true meaning", means the study of word dervation) taught by classroom presentation and discussion. The course organization is based primarily on common themes of Greek and Latin terms along with historical reasons for current usage. The application of these terms is for all biomedical sciences and life sciences. Graded on A-F basis only.

Credit Hours: 3

BIOMED 2111: Veterinary Medical Terminology
Veterinary Medical Terminology is an extension of Biomedical Sciences 2110, Biomedical Terminology. The course organization is lecture, based primarily on domestic species and common themes of Greek and Latin terms. In addition, major veterinary medical eponyms, acronyms, and medical and surgical instruments are included. Graded on A-F basis only.

Credit Hour: 1

Prerequisites: BIOMED 2110 or instructor's consent

BIOMED 2120: Essentials of Animal Handling and Physical Restraint
Fundamentals of handling and physical restraint of domestic large and small animals, laboratory animals, and common non-domestic pets. Graded on A-F basis only.

Credit Hours: 2

BIOMED 2140: Companion Animals
(same as AN_SCI 2140). Companion animals form an important part of our society. They serve us, provide companionship and many become members of our families. This class focuses primarily on dogs, cats, and horses. Topics covered include: the pet industry, breeds, wellness, management, care, training, zoonotic diseases, evolution and domestication, toxicology, nutrition, reproduction, genetics, human animal interactions, companion animal enterprise, and biomedical research. Students may enroll in one of two sections: service learning section or traditional course section.

Credit Hours: 3

Recommended: sophomore standing

BIOMED 2210: Microbiology for the Health Sciences
Introductory course for students in the applied health curricula. Presents biomolecules of life, enzyme interaction, physiology and structure of representative organisms. Emphasizes bacteria, viruses, fungi and protozoa of health significance. Graded on A-F basis only.

Credit Hours: 5

Prerequisites: CHEM 1100 or equivalent and instructor's consent

BIOMED 2230: Animal Sanitation and Disease Prevention
Preventative measures for diseases and parasites of farm animals.

Credit Hours: 3

BIOMED 2235: Domestic Animal Behavior
An examination of the effects of domestication on the behavior of companion and food animal species. Comparisons to similar animals in feral or wild conditions will be made. The causes, development and potential treatments of abnormal behavior will also be examined. Graded on A-F basis only.

Credit Hours: 3

BIOMED 2420: Biology of Healthy Living
(same as PH_THR 2420 and NEP 2420). Biology of inactivity as a casual factor in chronic disease.

Credit Hours: 2

BIOMED 2940: Internship in Biomedical Sciences
Supervised work experience to develop technical skills and enhance student knowledge in an area of biomedical science. Not intended for more than 50% independent research. Graded on S/U basis only.

Credit Hour: 1-6

Prerequisites: sophomore standing and instructor's consent

BIOMED 3000: Specialty Careers for Veterinary Technicians
Specialty careers for veterinary technicians are jobs which required knowledge and skills beyond those needed in primary care clinical veterinary practice. This course will explore veterinary technician specialties, the education required, and the advantages of advanced academic training. Course graded on A-F basis only.

Credit Hour: 1

Prerequisites: AAS degree in veterinary technology or instructors consent required

BIOMED 3001: Topics in Biomedical Sciences
Topics in Biomedical Sciences.

Credit Hour: 1-99

BIOMED 3085: Problems in Biomedical Science
Assignment of special topics for research training in biomedical research.

Credit Hour: 1-99

Prerequisites: DVM degree and instructor's consent
BIOMED 3100: Biomedical Pathophysiology  
Pathophysiology is the study of changes in the body resulting from disease. This course requires knowledge of normal anatomy and physiology. A comparative approach is used involving both domestic animal and human examples. Course graded on A-F basis only.  
Credit Hours: 3  
Prerequisites: AN_SCI 4977 or equivalent or instructor's consent

BIOMED 3200: Comparative Hematology  
Hematology is the study of blood cells in health and disease. Emphasis in this course is placed on the changes associated with disease. Transfusion medicine and coagulation disorders will also be included. Course graded on A-F basis only.  
Credit Hours: 3  
Prerequisites: AN_SCI 3254 or BIO_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent

BIOMED 3219: Elements of Comparative Anatomy  
This course is designed to give students an introduction to and appreciation for comparative anatomy of various species encountered in animal science, veterinary technology and veterinary medicine. Detailed and labeled photos of dissected specimens are used to aid instruction. Graded on A-F basis only.  
Credit Hours: 3  
Prerequisites: five hours of biological science or zoology or equivalent or instructor's consent or an AAS degree in veterinary technology

BIOMED 3250: Parasitology  
(same as BIO_SC 3250) Parasitism is considered as a fundamental type of interspecies interaction. Identifying characteristics, life cycle, and resulting disease caused by the common parasites of domestic animals, common laboratory animals, selected wildlife, and humans are described. Special emphasis is given to parasites that can be transmitted from animals to man.  
Credit Hours: 3  
Prerequisites: 8 hours of biology or instructor's consent

BIOMED 3300: Animal Welfare and Ethics  
An introductory examination of ethical issues related to animal welfare, including animal use for food, research, and companionship, plus contemporary issues affecting companion animals, farm animals, and horses. Topics related to animal pain and legal status will also be discussed. Graded on A-F basis only.  
Credit Hours: 3  
Recommended: junior standing

BIOMED 3310: Equine Health Topics  
An in-depth examination of equine disease and health topics that are pertinent to today's horse owner and veterinarian. The course will integrate horse management practices with disease recognition, control and prevention. Students will learn how to recognize problems and when to call a veterinarian. Emerging disease problems such as West Nile Virus will be examined as well as topics of continuing concern. Graded on A-F basis only.  
Credit Hours: 3  
Recommended: BIOMED 2110 and BIOMED 3200 or instructor's consent

BIOMED 3320: Comparative Microscopic Anatomy  
The course will provide students with a background in the structure of body organs at the microscopic level. The material will emphasize structure-function relationship of cells and organs using material from diverse animal species, including human, that exemplify unique adaptations to environmental or physiological requirements.  
Credit Hours: 3  
Prerequisites: BIO_SC 1500 or equivalent

BIOMED 3326: Comparative Pharmacology  
An introduction to terminology used in pharmacology. Mechanisms of drug administration, absorption, distribution, metabolism, and excretion are described. Treatment modalities in animals and humans are compared. Basics of drug actions and the medicolegal aspects of pharmacology are discussed.  
Credit Hours: 3  
Prerequisites: an AAS degree in veterinary technology or AN_SCI 3254 or BIO_SC 3700, or equivalent, or instructor's consent

BIOMED 3330: Animal Welfare and Ethics  
An introductory examination of ethical issues related to animal welfare, including animal use for food, research, and companionship, plus contemporary issues affecting companion animals, farm animals, and horses. Topics related to animal pain and legal status will also be discussed. Graded on A-F basis only.  
Credit Hours: 3  
Recommended: junior standing

BIOMED 3340: Veterinary Cytology  
A review of basic cytology as it is commonly used in the life sciences area in academia and drug/chemical industry. Graded on A-F basis only.  
Credit Hours: 3  
Prerequisites: Biology or Cell Biology; junior standing required

BIOMED 4100: Veterinary Clinical Chemistry  
This course is designed to hone the skills of the practicing veterinary technician, veterinarian student, or veterinarian and assumes some basic knowledge of normal serum chemistry and urinalysis results. The review of normal will be minimal and emphasis will be placed on clinical serum chemistry and urinalysis findings associated with diseases. The graduate level course will include discussion of ancillary tests and more extensive case interpretations.  
Credit Hours: 3  
Prerequisites: An AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited programs; Undergraduate physiology on mammals (AN_SCI 3254, BIO_SC 3700, or equivalent  
Recommended: BIOMED 2110 and BIOMED 3200 or instructor's consent

BIOMED 4110: Veterinary Cytology  
(cross-leveled with V_PBIO 7110). This course of Veterinary Cytology is designed to hone the skills of the practicing Veterinary Technician, Veterinary Student, or Veterinarian and assumes some basic knowledge of microscope usage and normal hematology. The review of normal
cells will be minimal and emphasis will be placed on findings associated with inflammatory and neoplastic diseases. The graduate level course will include discussion of ancillary tests, special stains and treatment alternatives. The focus will be on canine and feline diseases but some common equine and bovine disease. Prerequisites: An AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited program, or instructor's consent

**Credit Hours:** 2
**Recommended:** BIOMED 3200 and BIOMED 2110

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**BIOMED 4200: Veterinary Public Health and Community Practice**
Veterinary Public Health is the field of veterinary medicine that deals with food production and safety, zoonosis (animal to human) disease control, prevent and control of environmental contamination, and the role of animals in society. Graded on A-F basis only.

**Credit Hours:** 3
**Prerequisites:** AN_SCI 3254 or BIO_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructors consent

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**BIOMED 4210: Animal Issues in Disasters**
(cross-leveled with V_PBIO 7210). This course describes the various aspects of responding to disasters that involve animals. Government involvement, legal requirements, effects on the human-animal bond, preparation for disasters of different kinds, and impacts on animal-related businesses will be discussed.

**Credit Hour:** 1
**Prerequisites:** an AAS in veterinary technology from an American Veterinary Medical Association accredited program, or equivalent training, or instructor's consent

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**BIOMED 4300: Clinical Veterinary Neurology**
Clinical veterinary neurology will review the neurologic examination, common neurologic diseases and techniques to properly care for the neurologic patient. The course organization is based primarily on neuroanatomic localization of disease. Graded on A-F basis only.

**Credit Hours:** 3
**Prerequisites:** AAS in Veterinary Technology or BIOMED 3219 and 3100 or instructor's consent; junior or senior standing

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**BIOMED 4320: Fundamentals of Small Animal Emergency and Critical Care**
(cross-leveled with V_BSCI 7320). This course will provide students with the knowledge and skills to assist in small animal medical emergency and critical care facilities.

**Credit Hours:** 3

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**BIOMED 4333: Veterinary Cell Biology**
(same as V_BSCI 5506). Course material stresses cell biology as related to animal health and medical issues. A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease.

**Credit Hours:** 4
**Prerequisites:** BIO_SC 1500, or equivalent, 1 course in biochemistry or 4 credit hours in chemistry; or instructor's consent

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**BIOMED 4400: Veterinary Surgical Nursing**
Veterinary Surgical Nursing will enable the student to properly identify, care for, and maintain surgical equipment. The course will also prepare the student to learn surgical anatomy as well as the potential complications of common clinical setting surgeries. Graded on A-F basis only.

**Credit Hours:** 3
**Prerequisites:** BIOMED 2111, BIOMED 3219, and BIOMED 3100, or instructor's consent

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**BIOMED 4410: Small Animal Physical Rehabilitation**
This course will review the science of veterinary rehabilitation, assessment of rehabilitation patients, and the techniques used to treat these patients. Graded on A-F basis only.

**Credit Hours:** 3
**Prerequisites:** AAS degree in veterinary technology or BIOMED 2110 or HTH_PR 2190 or equivalent, plus BIOMED 3219 or PTH_AS 2201 or equivalent, or instructor's permission

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**BIOMED 4500: Equine Critical Care and Nursing**
This course provides advanced information for veterinary technicians, veterinary assistants, and pre-veterinary students wishing to enhance their understanding of equine critical care and nursing concepts. Course graded on A-F basis only.

**Credit Hours:** 3
**Prerequisites:** AN_SCI 2095 and AN_SCI 3254 or BIO_SC 3700 or equivalents, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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**BIOMED 4510: Equine Clinical Anatomy: Forelimbs**
(cross-leveled with V_BSCI 7510). Basic foundation in selected aspects of equine clinical anatomy from veterinary technicians, pre-veterinary students, and other students wishing to enhance their understanding of anatomical structures of the horse's forelimbs.

**Credit Hour:** 1
**Prerequisites:** five hours of biologic science or zoology, or equivalent, or instructor's consent, or an AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited program
BIOMED 4520: Equine Clinical Practice
This course is an introduction to a common medical conditions of the horse. Emphasis will be placed on the presenting complaint and the veterinarians approach to diagnosis, treatment, and prognosis.

Credit Hour: 1
Prerequisites: BIOMED 2110, BIOMED 2111 and AN_SCI 4977 or their equivalents, or an associate's degree in veterinary technology, or instructor's consent

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BIOMED 4993: Internship in Veterinary Medical Technical Specialties
Supervised work experience in the MU Veterinary Medical Teaching Hospital of affiliated veterinary medical specialty practices or in MU laboratory animal facilities to develop technical skills and knowledge relevant to becoming a specialist in veterinary medical technology. A written report and oral presentation are required. Graded on S/U basis only.

Credit Hour: 1-6
Prerequisites: junior standing, an AAS degree from an AVMA accredited veterinary technical program or its equivalent, and instructor's consent

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BIOMED 7010: Life Sciences Research: Models and Methods
(same as V_BSCI 7010; cross-leveled with BIOMED 4010). A review of basic laboratory animal and non-animal research models and procedures commonly used in the life sciences area in academia and drug/chemical industry. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Biology or Cell Biology

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BIOMED 9090: Research - Biomedical Sciences
Research hours for BMS doctoral students continuous enrollment. Graded on S/U basis only.

Credit Hour: 1-99
Prerequisites: instructor's consent

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BIOMED 9434: Gonadal Function
(same as AN_SCI 9434). Survey of current and in-depth mechanisms involved in ovarian, testicular, and epididymal function. Emphasis will be given to comparative differences in gonadal functions among domestic animals.

Credit Hours: 3
Prerequisites: AN_SCI 4314 or equivalent, a course in endocrinology, and biochemistry or cell biology