VETERINARY MEDICINE BIOMEDICAL (VMB)

VMB 110. PREVETERINARY MEDICINE. (1 Credit)
Introduction to the profession's role in society. Graded P/N.

VMB 328. WILDLIFE CAPTURE AND IMMOBILIZATION. (2 Credits)
Manual and chemical restraint methods are covered with an emphasis on darting equipment, animal and human safety, drug pharmacology and species specific recommendations. CROSSLISTED as FW 328. Lec/lab.
Equivalent to: FW 328
This course is repeatable for 4 credits.

VMB 415. ONE HEALTH IN PRACTICE. (3 Credits)
One health is the concept that human, animal and environmental health are all intertwined. The course will utilize current one health issues such as disease outbreaks and antimicrobial resistance to encourage students from diverse fields to develop interdisciplinary collaboration and communication skills. CROSSLISTED as BHS 415.
Equivalent to: BHS 415

VMB 499. SPECIAL TOPICS. (1-16 Credits)
Special studies course to allow different instructors the ability to teach a new class or one time class. Graded P/N.
This course is repeatable for 16 credits.

VMB 501. RESEARCH. (1-16 Credits)
Graded P/N.
This course is repeatable for 16 credits.

VMB 503. THESIS. (1-12 Credits)
This course is repeatable for 999 credits.

VMB 505. READING AND CONFERENCE. (1-16 Credits)
Graded P/N.
This course is repeatable for 16 credits.

VMB 507. SEMINAR. (1-16 Credits)
Graded P/N.
This course is repeatable for 16 credits.

VMB 511. VETERINARY GROSS ANATOMY. (4 Credits)
Systematic and topographic study and dissection of the dog, cat, horse, ruminant, pig, and chicken.

VMB 512. VETERINARY GROSS ANATOMY. (4 Credits)
Systematic and topographic study and dissection of the dog, cat, horse, ruminant, pig, and chicken.

VMB 513. VETERINARY GROSS ANATOMY. (4 Credits)
Systematic and topographic study and dissection of the dog, cat, horse, ruminant, pig, and chicken.

VMB 514. VETERINARY MICROSCOPIC ANATOMY. (4 Credits)
Structure and development of cells, tissues, organs, and organ systems of animals.

VMB 515. VETERINARY MICROSCOPIC ANATOMY. (3 Credits)
Structure and development of cells, tissues, organs, and organ systems of animals.

VMB 520. VETERINARY IMMUNOLOGY. (5 Credits)
Clinical and diagnostic aspects of immunological mechanisms, serological reactions; hypersensitivity, allergy, and disorders of the immune system.

VMB 521. GENERAL PATHOLOGY. (4 Credits)
General principles of pathology, cell injury and death, inflammation and tissue repair, abnormalities of cell growth, and structures and mechanisms of disease.

VMB 522. PATHOLOGY LABORATORY. (1 Credit)
Laboratory instruction to complement VMB 621.
Prerequisites: VMB 611 (may be taken concurrently) with C or better

VMB 527. ORNAMENTAL FISH MEDICINE. (2 Credits)
An introduction to the basic principles of ornamental fish medicine including basic husbandry, handling and clinical procedures. This is a 1-week intensive course held at the Hatfield Marine Science Center in Newport, Oregon. Graded P/N.

VMB 611. VETERINARY GROSS ANATOMY. (4 Credits)
Systematic and topographic study and dissection of the dog, cat, horse, ruminant, pig, and chicken.

VMB 612. VETERINARY GROSS ANATOMY. (4 Credits)
Systematic and topographic study and dissection of the dog, cat, horse, ruminant, pig, and chicken.

VMB 613. VETERINARY GROSS ANATOMY. (4 Credits)
Systematic and topographic study and dissection of the dog, cat, horse, ruminant, pig, and chicken.

VMB 614. VETERINARY MICROSCOPIC ANATOMY. (4 Credits)
Structure and development of cells, tissues, organs, and organ systems of animals.

VMB 615. VETERINARY MICROSCOPIC ANATOMY. (3 Credits)
Structure and development of cells, tissues, organs, and organ systems of animals.

VMB 620. VETERINARY IMMUNOLOGY. (5 Credits)
Clinical and diagnostic aspects of immunological mechanisms, serological reactions; hypersensitivity, allergy, and disorders of the immune system.

VMB 621. GENERAL PATHOLOGY. (4 Credits)
General principles of pathology, cell injury and death, inflammation and tissue repair, abnormalities of cell growth, and structures and mechanisms of disease.

VMB 622. PATHOLOGY LABORATORY. (1 Credit)
Laboratory instruction to complement VMB 621.
Prerequisites: VMB 611 (may be taken concurrently) with C or better

VMB 627. ORNAMENTAL FISH MEDICINE. (2 Credits)
An introduction to the basic principles of ornamental fish medicine including basic husbandry, handling and clinical procedures. This is a 1-week intensive course held at the Hatfield Marine Science Center in Newport, Oregon. Graded P/N.

VMB 630. MECHANISMS OF DISEASE. (3 Credits)
Cellular and molecular events that contribute to the pathogenesis of disease in animals, including humans. Host interactions with infectious agents and the environment.

VMB 631. MATHEMATICAL MODELING OF BIOLOGICAL SYSTEMS. (3 Credits)
The use of mathematical modeling in biological sciences is studied. A variety of modeling techniques are covered including implementing the methods computationally.

VMB 640. SEMINARS IN LABORATORY ANIMAL MEDICINE. (2 Credits)
Prepares students for careers in laboratory animal medicine. Provides a review of medical conditions, diagnosis and treatment of research animals.
VMB 641. SEMINARS IN LABORATORY ANIMAL MEDICINE. (2 Credits)
Prepares students for careers in laboratory animal medicine. Provides a review of medical conditions, diagnosis and treatment for research animals.

VMB 642. SEMINARS IN LABORATORY ANIMAL MEDICINE. (2 Credits)
Prepares students for careers in laboratory animal medicine. Provides a review of medical conditions, diagnosis and treatment for research animals.

VMB 651. SELECTED TOPICS IN VETERINARY MEDICINE. (3 Credits)
Topics vary; check Schedule of Classes for particular topics.

VMB 653. VETERINARY VIROLOGY. (4 Credits)
Virology for the professional and graduate student.

VMB 659. VETERINARY BACTERIOLOGY AND MYCOLOGY. (5 Credits)
Veterinary bacteriology and mycology for the veterinary graduate student.

VMB 660. VETERINARY PARASITOLOGY. (5 Credits)
A study of the parasitic diseases of domestic animals with an emphasis on diagnosis and treatment. Fundamentals in host-parasite interactions, taxonomy and life cycle strategies are covered.

VMB 663. VETERINARY DIAGNOSTIC PATHOLOGY. (6 Credits)
Practical hands-on course training students in the diagnostic pathology utilizing case material received at the OSU Veterinary Diagnostic Lab. Graded P/N.

This course is repeatable for 4 credits.

VMB 664. COMPARATIVE MICROSCOPIC PATHOLOGY. (1 Credit)
Case-based discussion course to train participants in the recognition, description, and pathogenesis of a wide variety of disease processes with an emphasis on microscopic features. Graded P/N.

This course is repeatable for 6 credits.

VMB 665. READINGS IN VETERINARY PATHOLOGY. (1 Credit)
Group discussions of assigned readings central to understanding of veterinary pathology, including recent advances. Graded P/N.

This course is repeatable for 4 credits.

VMB 666. VETERINARY MEDICINE AND PUBLIC HEALTH. (3 Credits)
Covers aspects of veterinary medicine that affect human health. An understanding of the contribution of the veterinary profession to human (public) health will enable students to play an effective role in this area, regardless of career direction.

VMB 667. VETERINARY EPIDEMIOLOGY. (3 Credits)
A course for veterinary students describing the factors determining the frequency and distribution of diseases, in a defined population of animals for the purpose of establishing programs to prevent and control their development and spread in this population.

VMB 669. INTRODUCTION TO GRANT PROPOSAL WRITING. (2 Credits)
To introduce students to the fundamentals of writing grant proposals to the National Institute of Health (NIH), different funding mechanisms, as well as the grant reviewing process. CROSSLISTED as PHAR 669.

Equivalent to: PHAR 669
This course is repeatable for 20 credits.

VMB 670. INTRODUCTION TO SYSTEMS BIOLOGY. (2 Credits)
Students will gain a high-level overview of systems biology and bioinformatics, with an emphasis on biomedical applications, integration of *omics* approaches, and biological networks.

VMB 671. MOLECULAR TOOLS. (3 Credits)
Intended for personnel with some scientific background who are seeking basic- and advanced-level molecular biology knowledge and who wish to become involved with molecular biology-related and biotechnological research. CROSSLISTED as MCB 671.

Equivalent to: MCB 671

VMB 672. MOLECULAR APPROACH TO CANCER. (1 Credit)
Overview of cancer pathogenesis and current molecular techniques to diagnose and treat various neoplasms is provided. Content will include both veterinary and human data and concepts. Discussion/Lab. Graded P/N.

VMB 673. COMPARATIVE IMMUNOLOGY. (3 Credits)
Examines immune system function in animals other than mice and men with a focus on adapting cutting-edge technologies.

VMB 674. VACCINES AND NEW THERAPIES. (3 Credits)
Provides students with a cohesive understanding of the basic research behind the discovery of new therapeutic targets and scientific advancements used in development of vaccines and new therapies.

VMB 699. SPECIAL TOPICS. (1-16 Credits)
This course is repeatable for 99 credits.

VMB 701. RESEARCH. (1-16 Credits)
This course is repeatable for 16 credits.

VMB 705. READING AND CONFERENCE. (1-16 Credits)
This course is repeatable for 16 credits.

VMB 706. PROJECTS. (1-16 Credits)
This course is repeatable for 16 credits.

VMB 709. VETERINARY MEDICINE ORIENTATION. (1 Credit)
An overview of veterinary medicine with emphasis on historical development, current veterinary medical issues, employment opportunities, and professionalism. Graded P/N.

VMB 711. VETERINARY GROSS ANATOMY. (4 Credits)
Systematic and topographic study and dissection of the dog, cat, horse, ruminant, pig, and chicken.

VMB 712. VETERINARY GROSS ANATOMY. (4 Credits)
Systematic and topographic study and dissection of the dog, cat, horse, ruminant, pig, and chicken.

VMB 713. VETERINARY GROSS ANATOMY. (4 Credits)
Systematic and topographic study and dissection of the dog, cat, horse, ruminant, pig, and chicken. Lec/lab.

VMB 714. VETERINARY MICROSCOPIC ANATOMY. (4 Credits)
Structure and development of cells, tissues, organs, and organ systems of animals.

VMB 715. VETERINARY MICROSCOPIC ANATOMY. (3 Credits)
Structure and development of cells, tissues, organs, and organ systems of animals.

VMB 716. VETERINARY NEUROSCiences. (4 Credits)
Structural and functional relationships of the nervous system and organs of special sense with emphasis on general clinical application.

VMB 717. VETERINARY PHYSIOLOGY. (5 Credits)
Physiology of body fluids, excretion, respiration, acid-base balance, blood, muscle, bone, cardiovascular system, digestion, metabolism, endocrine system, reproduction, and lactation.

VMB 718. VETERINARY PHYSIOLOGY. (5 Credits)
Physiology of body fluids, excretion, respiration, acid-base balance, blood, muscle, bone, cardiovascular system, digestion, metabolism, endocrine system, reproduction, and lactation.

VMB 719. VETERINARY PHYSIOLOGY. (4 Credits)
Physiology of body fluids, excretion, respiration, acid-base balance, blood, muscle, bone, cardiovascular system, digestion, metabolism, endocrine system, reproduction, and lactation. Lec/lab.
VMB 720. VETERINARY IMMUNOLOGY. (5 Credits)
Clinical and diagnostic aspects of immunological mechanisms, serological reactions, hypersensitivity, allergy, and disorders of the immune system. Lec/lab.

VMB 721. VETERINARY PATHOLOGY. (5 Credits)
Basic mechanisms and concepts relating to reaction of cells and tissues to disease, with emphasis on cellular and tissue degeneration, inflammatory reaction, circulatory disturbance and neoplasia. Lec/lab.

VMB 722. RESEARCH READING SKILLS FOR VETERINARY STUDENTS. (1 Credit)
Training in critical evaluation of biomedical and clinical research studies, and understanding of laboratory diagnostic methods.

VMB 723. VETERINARY LEADERSHIP: INCLUSION, REFLECTION, DEVELOPMENT. (1 Credit)
Focusing on diversity and inclusion, self-compassion, and effective interpersonal communication in relationship to fostering leadership in veterinary medicine. Graded P/N. This course is repeatable for 10 credits.

VMB 726. PET BIRD AND SMALL MAMMAL MEDICINE AND SURGERY. (2 Credits)
Medicine and surgery of pet birds and small animals. Graded P/N.

VMB 727. ORNAMENTAL FISH MEDICINE. (2 Credits)
An introduction to the basic principles of ornamental fish medicine including basic husbandry, handling and clinical procedures. Graded P/N.

VMB 728. SPECIAL ANIMAL MEDICINE. (4 Credits)
Diagnosis, treatment, and management of special animals, including the common laboratory animals. This course is repeatable for 8 credits.

VMB 729. LAB ANIMAL/PRIMATE MEDICINE AND SURGERY. (3-12 Credits)
Designed to provide hands-on experience with a variety of laboratory animal species including primates, rodents, ungulates, fish, and reptiles. May be repeated up to 4 times for 3, 6, 9 or 12 credits per term. 12 credits maximum apply toward graduation. Graded P/N. This course is repeatable for 12 credits.

VMB 736. DIAGNOSTIC CLINICAL PATHOLOGY. (2 Credits)
One week clinical experience in clinical pathology, cytology, urinalysis, clinical chemistry interpretation and hematology. Lec/lab.

VMB 740. VETERINARY INTEGRATED PROBLEM SOLVING. (1 Credit)
The first of three 1-credit courses in problem solving and integration of clinical cases and basic sciences in the veterinary curriculum.

VMB 741. VETERINARY INTEGRATED PROBLEM SOLVING. (1 Credit)
The second of three 1-credit courses in problem solving and integration of clinical cases and basic sciences in the veterinary curriculum.

VMB 742. VETERINARY INTEGRATED PROBLEM SOLVING. (1 Credit)
The third of three 1-credit courses in problem solving and integration of clinical cases and basic sciences in the veterinary curriculum. Graded P/N.

VMB 743. VETERINARY INTEGRATED PROBLEM SOLVING. (1 Credit)
A course in problem solving and integration of clinical cases and basic sciences in the veterinary curriculum. Students learn through interaction with their peers and with independent study outside of class. Graded P/N. This course is repeatable for 4 credits.

VMB 744. VETERINARY INTEGRATED PROBLEM SOLVING. (1 Credit)
A course in problem solving and integration of clinical cases and basic sciences in the veterinary curriculum. Students learn through interaction with their peers and with independent study outside of class. Graded P/N.

VMB 745. COMMUNICATIONS FOR VETERINARIANS. (1 Credit)
Communications and problem solving for the third-year veterinary student. Graded P/N.

VMB 749. WILDLIFE SAFARI. (2 Credits)
Clinical training in the care of exotic and zoo animal species. Graded P/N.

VMB 750. SYSTEMIC PATHOLOGY I. (4 Credits)
Examines the principles of system and organ responses to injury and the consequent effects of these changes on the host.

VMB 751. SYSTEMIC PATHOLOGY II. (5 Credits)
Examines the principles of system and organ responses to injury and the consequent effects of these changes on the host.

VMB 753. VETERINARY VIROLOGY. (4 Credits)
Virology for the professional DVM student.

VMB 756. ADVANCED CLINICAL PATHOLOGY. (1 Credit)
One-week rotation in advanced clinical pathology: cytology, hematology and clinical chemistry interpretation. Graded P/N. Prerequisites: VMB 736 with C or better

VMB 759. VETERINARY BACTERIOLOGY AND MYCOLOGY. (5 Credits)
Bacteriology and mycology for the professional DVM student.

VMB 760. VETERINARY PARASITOLOGY. (5 Credits)
A study of the parasitic diseases of domestic animals with an emphasis on diagnosis and treatment. Fundamentals in host-parasite interactions, taxonomy and life cycle strategies are covered.

VMB 761. VETERINARY PHARMACOLOGY. (2 Credits)
Fundamentals of pharmacology as related to veterinary medicine presented in a systems-oriented approach with drug therapy in domestic animals.

VMB 762. VETERINARY PHARMACOLOGY II. (4 Credits)
Fundamentals of pharmacology as related to veterinary medicine presented in a systems-oriented approach with drug therapy in domestic animals.

VMB 763. VETERINARY CLINICAL PATHOLOGY. (4 Credits)
Clinical pathology for the professional DVM student.

VMB 765. VETERINARY TOXICOLOGY. (4 Credits)
A study of toxic agents, mechanisms of action, toxicosis and treatments, especially as related to domestic and wild animals, with principles of toxicity testing, clinical diagnosis, and identification of poisonous plants. Lec/lab.

VMB 766. EPIDEMIOLOGY AND PUBLIC HEALTH. (3 Credits)
Examination of the application of epidemiology to the field of veterinary medicine and the study of important veterinary public health issues.

VMB 767. VETERINARY EPIDEMIOLOGY. (3 Credits)
Examines factors determining the frequency and distribution of diseases in a defined population of animals for the purpose of establishing programs to prevent and control their development and spread in this population.

VMB 768. BASIC HISTOPATHOLOGY. (1 Credit)
A rotation in histopathology at the Veterinary Diagnostic Laboratory. Emphasis is placed on case evaluation, diagnosis and report writing of biopsies of all species. Graded P/N. Prerequisites: VMB 751 with C or better

VMB 769. ANIMAL GENOMICS. (1 Credit)
Discussion about the dog and cow genomes, susceptibility to diseases, and the possibilities and techniques for treatment of medical conditions by gene transfer and modification.
VMB 772. INTERNATIONAL VETERINARY MEDICINE. (2 Credits)
Veterinary students work with veterinarians and domestic animals in international settings. Graded P/N.
This course is repeatable for 4 credits.

VMB 774. LABORATORY ANIMAL MEDICINE. (6 Credits)
Clinical experience related to diagnosis, treatment, and management of laboratory animals. Graded P/N.

VMB 786. ADVANCED HISTOPATHOLOGY. (2 Credits)
A rotation in histopathology at the Veterinary Diagnostic Laboratory. Emphasis is placed on case evaluation, diagnosis and report writing of biopsies of all species.

VMB 795. DIAGNOSTIC SERVICES. (2 Credits)
Students will perform service duty in the necropsy area of the Veterinary Diagnostic Laboratory and will perform necropsies on delivered specimens. Other activities.