

# VTPB - VETERINARY PATHOBIOLOGY (VTPB)

## VTPB 212 Genetics in the News

**Credits 3. 3 Lecture Hours.** Use of contemporary news articles from the popular press to delve into the science of genetics and genomics and their methodologies to gain a deeper understanding of how data is analyzed and interpreted leading to news headlines. **Prerequisites:** Sophomore classification or approval of instructor; high school or college course in biology recommended.

## VTPB 221 Great Diseases of the World

**Credits 3. 3 Lecture Hours.** Great infectious and parasitic diseases; introduction to the major diseases affecting humans and other mammals including plague, tuberculosis, AIDS and malaria. **Prerequisite:** Freshman or sophomore classification.

## VTPB 285 Directed Studies

**Credits 0 to 4. 0 to 4 Other Hours.** Directed individual study of selected problems in microbiology, parasitology, immunology, genetics or pathology as approved by instructor. **Prerequisites:** Approval of department head; freshman or sophomore classification.

## VTPB 289 Special Topics in...

**Credits 1 to 4. 1 to 4 Lecture Hours.** Selected topics in an identified area of veterinary pathobiology. May be repeated for credit. **Prerequisite:** Freshman classification.

## VTPB 301/RWFM 309 Wildlife Diseases

**Credits 3. 3 Lecture Hours.** Basic mechanisms of diseases as they occur in wildlife populations; interplay of habitat requirements, individual physiological requirements and disease producing mechanisms of varied wildlife species. **Prerequisite:** Junior classification or approval of department head. **Cross Listing:** RWFM 309/VTPB 301.

## VTPB 303 Medical Communication in the International Community

**Credits 3. 3 Lecture Hours.** To develop an awareness that there is a culture associated with the practice of veterinary and human medicine in other countries. **Prerequisite:** Junior or senior classification.

## VTPB 334 Poultry Diseases

**Credits 4. 3 Lecture Hours. 2 Lab Hours.** Poultry sanitation and diseases. Prevention and control of environmental, nutritional, parasitic and contagious diseases. **Prerequisites:** BIOL 107 or BIOL 111; junior or senior classification.

## VTPB 405 Biomedical Microbiology

**Credits 4. 3 Lecture Hours. 2 Lab Hours.** Fundamentals of bacteriology, mycology, virology, infectious diseases, immunology and identification of pathogenic microorganisms. **Prerequisites:** Grade of C or better in BIOL 112 and CHEM 228; grade of C or better in MATH 142, MATH 147, MATH 151, or MATH 171; grade of C or better in PHYS 202; junior or senior classification.

## VTPB 407 Advanced Veterinary Microbiology Laboratory

**Credits 1 to 3. 1 to 4 Lab Hours.** Modular course (one credit per module) that covers immunological and molecular techniques used with bacteria, parasites and viruses in animals for diagnostic and identification purposes. **Prerequisites:** VTPB 405, VTPB 409 and VTPB 438 or concurrent enrollment; junior or senior classification.

## VTPB 408 Clinical Microbiology

**Credits 3. 3 Lecture Hours.** Conceptual basis for understanding pathogenic microorganisms and the mechanisms by which they cause disease in the human body; operates in an integrated manner with the spectrum of microorganisms including viruses, bacteria, fungi and parasites, describing the factors common to all infectious diseases; molecular biology, pathology and immunology explain the mechanisms for spread, immune response and recovery. **Prerequisites:** VTPB 405 or BIOL 456 and VTPB 409 or BIOL 454.

## VTPB 409 Introduction to Immunology

**Credits 3. 3 Lecture Hours.** Diverse concepts relative to immunologic mechanisms inherent to domestic and laboratory animals. **Prerequisite:** Advanced classification.

## VTPB 410 Cell Mechanisms of Disease

**Credits 3. 3 Lecture Hours.** Mechanisms, morphologic manifestations and clinical signs of disease processes at the cellular level. **Prerequisites:** CHEM 227 and CHEM 228, or equivalent; junior or senior classification; biomedical sciences major, biomedical engineering major or related field.

## VTPB 411 One Health and Tropical Ecology

**Credits 3. 2 Lecture Hours. 2 Lab Hours.** Traditional lectures, guest lectures, field excursions, field laboratories, discussions, readings, student oral presentations and case studies; form and function of healthy ecosystems, various forms of ecosystem perturbation and how perturbations influence ecosystem, animal, and human health.

## VTPB 415 Immunogenetics and Comparative Immunology

**Credits 3. 3 Lecture Hours.** Genetic mechanisms used to diversify immune receptors; immunoglobulins, T cell receptors, major histocompatibility complex, natural killer cell receptors, toll-like receptors and many others; selected comparative and veterinary examples of different immune recognition systems; evolution of the immune system. **Prerequisites:** Junior or senior classification, GENE 320/BIMS 320 and VTPB 409 or approval of instructor.

## VTPB 421 Infectious Diseases of Humans and Animals

**Credits 3. 3 Lecture Hours.** Pathogenesis of selected bacterial pathogens of humans and animals; bacterial virulence factors, host immune responses; current concepts of extracellular, facultative intracellular and obligate intracellular bacterial diseases. **Prerequisites:** Junior or senior classification.

## VTPB 425 Biomedical Microbiology

**Credits 3. 3 Lecture Hours.** Fundamentals of microbiology: bacteriology, mycology, virology, infectious diseases, immunology and identification of pathogenic microorganisms; specific emphasis on infectious diseases of humans and animals. **Prerequisites:** Grade of C or better in BIOL 112, CHEM 258, and PHYS 202; grade of C or better in MATH 142, MATH 147, MATH 151, or MATH 171; junior classification in Biomedical Sciences; may have concurrent enrollment with VTPB 426.

## VTPB 426 Biomedical Microbiology Laboratory

**Credit 1. 2 Lab Hours.** Fundamentals of microbiology: mycology, virology, infectious diseases, immunology and identification of pathogenic microorganisms. Emphasis on infectious diseases of humans and animals. **Prerequisites:** Junior classification in BIMS; may be taken concurrently with VTPB 425.

## VTPB 438 Biomedical Virology

**Credits 3. 3 Lecture Hours.** Fundamental study of nature and characteristics of human and animal viruses; classification, morphology, chemical structure, ability to cause disease and nature of resulting disease. **Prerequisite:** 3 hours of microbiology or approval of instructor.

## VTPB 460 Mammalian Cell Pathobiology

**Credits 3. 3 Lecture Hours.** Cell signaling and organelle perspective of pathogenesis, mechanisms leading to a disease state; fundamental understanding of structural and functional properties of mammalian cells; molecular and cellular mechanisms underlying health-disease transitions. **Prerequisites:** BIOL 111 and BIOL 112, junior or senior classification or approval of instructor.

## VTPB 485 Directed Studies

**Credits 0 to 4. 0 to 4 Other Hours.** Directed individual study of selected problems in microbiology, parasitology, immunology, genetics or pathology as approved by instructor. **Prerequisites:** Approval of department head; junior or senior classification.

## VTPB 487 Biomedical Parasitology

**Credits 4. 3 Lecture Hours. 2 Lab Hours.** Helminth and protozoan parasites of medical and veterinary importance; life cycles, morphology, taxonomic classification, economic and public health aspects and current topics in parasitic diseases. **Prerequisites:** BIOL 107 or BIOL 111; junior classification or approval of instructor.

## VTPB 489 Special Topics in...

**Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours.** Selected topics in an identified area of microbiology, pathology, genetics, immunology, parasitology, or physiological chemistry. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of department head.

## VTPB 491 Research

**Credits 3. 3 Other Hours.** Research conducted under the direction of faculty member in biomedical sciences. **Prerequisites:** Junior or senior classification, or approval of instructor.