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.  
Prerequisite: Junior classification in a biological science.

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 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/BIOL 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.  
**Cross Listing:** BIOL 487/VTPB 487.

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.