VMSC - VETERINARY MEDICAL SCIENCES

VMSC436 Animal Health Policy and Communication (3 Credits)
Intended for upper level students in Veterinary Medicine or Animal Science as well as other students who are interested in understanding how science and politics interact and influence animal health policy and how veterinarians and animal scientists can effectively communicate science to non-scientists such as legislators and policymakers.
Recommended: Completion of ANSC225 and ANSC340 recommend.
Restriction: Must be in a major within the AGNR-Animal & Avian Sciences department; or permission of AGNR-VA-MD Regional COL Veterinary Med.
Cross-listed with: ANSC436.
Credit Only Granted for: ANSC489A, ANSC436, or VMSC436.
Formerly: ANSC489A.

VMSC600 Infectious Disease Diagnosis and Interpretation (1 Credit)
A broad exposure to many different diagnostic techniques, the appropriate use of the tests, how they are to be interpreted and the possible consequences of the diagnosis.

VMSC610 Recombinant Viral Vectors (3 Credits)
A comprehensive presentation of information on the molecular biology of the most relevent viral vectors developed to date and give insight on vector contruction, purification and utilization. Also intended for students in virology and related fields as well as to those interested in the application of viral vectors to basic research.

VMSC660 Emerging and Re-emerging Infectious Diseases (2 Credits)
The global burden of emerging and re-emerging infectious diseases is growing and prompts the need for effective control of these pathogens. The objective of this course is to provide graduate students with knowledge of pathogenesis and transmission of globally evolving pathogens. Registered students for this course are expected to know fundamentals of infectious diseases. References from the peer reviewed journals will be provided to facilitate understanding of the selected topics. Opening of this course is necessary to help graduate students to stay up-to-date with currently emerging pathogens and their evolution with changes in environment. This course is complementary to other existing microbiology courses (i.e., Viral Pathogenesis) on campus. Lectures focus on an in-depth analysis of a variety of topics in current infectious diseases. The course highlights recently published literatures to evaluate evolving trends in infectious diseases. The covered topics include subjects related with various pathogens and their adaptation strategy to enhance pathogenicity and transmissibility. The lectures will also cover the control and prevention measures of these pathogens.

VMSC670 Molecular Epidemiology of Infectious Diseases (2 Credits)
Molecular epidemiology is a discipline that uses molecular microbiology tools to study the distribution and determinants of diseases in human and animal populations. This course will provide a comprehensive overview and detailed discussion of the core molecular approaches and recent technological advances that are and can be used to investigate the etiology, transmission, and control of infectious diseases in veterinary medicine and public health. Theoretical and practical aspects of various molecular biology methods will be discussed in the context of epidemiological studies of infectious diseases including both bacterial and viral infections of veterinary and zoonotic significance. Lecture topics will cover the principles and application of various molecular techniques to problems of infectious diseases; population and evolutionary genetics of pathogenic microorganisms; data analysis and interpretation. Lecture materials will also be supported with practical data analysis, literature review discussions, which will be student-driven that will critique relevant manuscripts via group discussions in the classroom.
Prerequisite: Students planning to take this course are expected to have had some backgrounds in infectious diseases and molecular biology.
Cross-listed with: EPIB670.

VMSC688 Special Topics in Veterinary Medical Sciences (1-4 Credits)
Lectures and discussions on current topics in veterinary medicine s as animal disease surveillance, risk analysis, molecular epidemiolo or fish pathology. Targeted at veterinary medicine (DVM) students a other graduate students with a background in veterinary medical sciences.
Prerequisite: Permission of AGNR-Veterinary Medicine Program department.
Repeatable to: 8 credits.

VMSC689 Use of Genomics and Proteomics in Infectious Disease (3 Credits)
Focus is placed on current biotechnological development and recent research breakthroughs in the field of genomics and proteomics as it relates to infectious disease and drug/vaccine development.
Recommended: BCHM463; and (BSCI330 or BSCI230); or by permission.
Repeatable to: 6 credits if content differs.

VMSC698 One Health Seminar (1-3 Credits)
"One Health" is an approach that recognizes that health of people is closely connected to health of animals and our shared environment. Outstanding leaders in the field will present ideas for analysis and discussion among class members. Topics will include presentation and discussion of scientific publications, current topics, and new methodologies.
Prerequisite: Permission of AGNR-Veterinary Medicine Program department.
Repeatable to: 6 credits.

VMSC699 Special Problems in Veterinary Medical Sciences (1-4 Credits)
Independent study of a specific problem related to veterinary medicine such as a disease outbreak, application of a new diagnostic test or a risk analysis related to animal health. Targeted at veterinary medicine (DVM) students and other graduate students with a background in veterinary medicine.
Prerequisite: Permission of faculty mentor.
Repeatable to: 8 credits.

VMSC700 Animal Health Policy and Communication (3 Credits)
An introduction to animal health policy with emphasis on understanding how science and politics interact and influence animal health policy and how veterinarians and animal scientists can effectively communicate science to non-scientists such as legislators and policymakers.
Recommended: ANSC225 and ANSC340.
Restriction: Must be in a major in AGNR-VA-MD Regional Col Veterinary Med; or must be in a major within the AGNR-Animal & Avian Sciences department; or must be in a major in PUAF-School of Public Policy; or permission of AGNR-VA-MD Regional Col Veterinary Med.

VMSC705 Genetics of Animal Viruses (2 Credits)
An advanced course that covers the structure and complexity of viral genomes, genome replication and expression, virus-host interactions, virus evolution, genetic principles and methodology applicable to animal viruses.

VMSC720 Viral Pathogenesis (2 Credits)
This course will teach graduate students about mechanisms of infections by animal and human viral pathogens, including virus-cell interactions, host responses, and consequences of virus infection. Particular attention will be focused on the molecular mechanisms of the interactions between virus and host.

VMSC758 Journal Club in Comparative Biomedical Sciences (1 Credit)
The Journal Club in Comparative Biomedical Sciences is a graduate-level student-driven course. Each student will pick a peer-reviewed journal article for individual presentation and group discussion. The articles will cover a wide variety of biomedical science topics based on student and group interests.
Repeatable to: 6 credits if content differs.

VMSC760 Immunology of Infectious Diseases (3 Credits)
An advanced graduate level course that focuses on the cutting-edge knowledge of immunity and recent research breakthroughs in the interactions between host immune system and infectious pathogen, and vaccine development

VMSC770 Advanced Topics in Immunology (2 Credits)
The objective of the course is to provide students with the advanced and cutting-edge knowledge and techniques of immunology as well as research advancement in important immunologic topics. A selection of immunology area will be specifically selected with emphasis on recent research breakthroughs in the field. Therefore, the topics will be different each academic year.
Prerequisite: VMSC760; or permission of instructor.

VMSC780 Parasites of Medical and Veterinary Importance (2 Credits)
Provides students with the basic knowledge of parasites as well as research advancement in important parasites of humans and animals. Particular attention will be given to parasite biology, pathogenesis, and host responses to parasitic infection. A selection of parasites of medical and veterinary importance will be specifically covered with emphasis on recent research breakthroughs in the field.
Restriction: Permission of instructor.

VMSC799 Thesis Research (1-6 Credits)
Repeatable to: 99 credits if content differs.

VMSC898 Pre-Candidacy Research (1-8 Credits)

VMSC899 Dissertation Research (1-8 Credits)
Repeatable to: 99 credits if content differs.