

VETERINARY PARASITOLOGY (MPS)

Graduate School

Program Website (<https://www.vet.cornell.edu/education/master-professional-studies-veterinary-parasitology/>)

CIP: 26.0505 | HEGIS: 0499.00 | NYSED: 38326

Graduate Field

Comparative Biomedical Sciences (<https://catalog.cornell.edu/graduate-school/comparative-biomedical-sciences/>)

Program Description

The Veterinary Parasitology (MPS) is a one-of-a-kind program. It combines comprehensive coursework in specialty parasitologic topics, clinically oriented hands-on labs, and a capstone research project in the student's area of interest. This program is designed for pre-vets and professionals who seek to advance their veterinary careers with rigorous practical training in parasitology. Working professionals are encouraged to take advantage of the flexible nature of the program, which can be completed in one year or over a longer period of time. Graduates of the MPS program will be leaders in the field and will be highly competitive for positions in industry, federal and state government, and academia.

Program Information

- Instruction Mode: In Person
- Location: Ithaca, NY
- Minimum Credits for Degree: 36

Program Requirements

- Minimum Semesters for Degree: 4

Field Specific Milestones

- Field progress review after the first year
- Two capstones and a final presentation required

Course Requirements

Year 1 (Fall)

- VETMI 7416
- VETMI 7418 Parasite Diagnostic Methods
- VETMI 7431 Antiparasitic Vaccines
- VETMI 7435 The U.S. Government and Animal Health
- VETMI 7440 Parasites of Domestic Animals
- VETMI 7449 Scholarly Writing and Critical Review of Scientific Literature

Year 1 (Spring)

- VETMI 7417
- VETMI 7428
- VETMI 7429

- VETMI 7433 Statistics for Surveillance, Diagnostic Test Development and Efficacy Studies
- VETMI 7434 Product Development, Regulations and Approval Process

Penultimate Semester

- VETMI 7436 Capstone Project I: Exploring the Literature

Final Semester

- VETMI 7446 Capstone Project II: Systematic Literature Review

Veterinary Parasitology (MPS) Program Requirements

To complete the program in 1 calendar year, students must earn a minimum of 12 credit hours each semester (fall, spring, and summer) for a total of 36 credits. This includes core course work, in-person laboratories in the spring, and elective courses. Eighteen (18) credit hours of core courses, four (4) credit hours of laboratory work and fourteen (14) elective credit hours are required. Students may also choose to pursue their studies at a more moderate pace to accommodate other professional and personal commitments. For additional details, read our program handbook (<https://cornell.box.com/s/q0vj2b2k904rqp85g7ax3g7mryvpw7s/>).

In the final semester, students will be required to complete a literature review-based capstone project with guidance from program faculty.

Core Courses

Code	Title	Hours
VETMI 7416		
VETMI 7418	Parasite Diagnostic Methods	2
VETMI 7435	The U.S. Government and Animal Health	1
VETMI 7440	Parasites of Domestic Animals	4
VETMI 7449	Scholarly Writing and Critical Review of Scientific Literature	2
VETMI 7420	Parasite Identification Methods ¹	1.5
VETMI 7421	Applied Parasite Identification and Diagnosis ¹	1.5
VETMI XXXX	(Parasitology Identification and Diagnostics: Skills Assessment, 1 credit)	
VETMI 7454	Parasitology Seminar	1
VETMI 7436	Capstone Project I: Exploring the Literature ²	2
VETMI 7446	Capstone Project II: Systematic Literature Review ³	4

¹ On campus lab

² Students take VETMI 7436 in their penultimate (second-to-last) semester; the course is offered all semesters.

³ Students take VETMI 7446 in their final semester; the course is offered all semesters.

Elective Courses

Code	Title	Hours
<i>14 credits required</i>		
VETMI 7457	Veterinary Ectoparasites and Vectors	3
VETMI 7407		
VETMI 7409		
VETMI 7441	Parasitism in Wildlife and Zoo Animals	2
VETMI 7428		

VETMI 7433	Statistics for Surveillance, Diagnostic Test Development and Efficacy Studies	2
VETMI 7434	Product Development, Regulations and Approval Process	2
VETMI 7423	Clinical Parasitology Cases: Production Animals	1
VETMI 7424	Clinical Parasitology Cases: Companion and Laboratory Animals	1
VETMI 7432	Anthelmintic Resistance and Integrated Parasite Control	2
VETMI XXXX	(Parasites without Boundaries, 2 credits)	
VETMI 7448	Histopathologic Interpretation of Parasites in Host Tissues ¹	1

¹ Online synchronous

Veterinary Medical Sciences (MPS) Program Requirements

Note: This program is no longer accepting applicants.

To complete the program in 1 calendar year, students must earn a minimum of 12 credit hours each semester (fall, spring, and summer) for a total of 36 credits. This includes core course work, 1 required on-site laboratory per semester, and elective courses. Sixteen (16) credit hours of core courses, five (5) credit hours of laboratories, and fifteen (15) elective credit hours are required. Students may also choose to pursue their studies at a more moderate pace to accommodate other professional and personal commitments.

In the final semester, students will be required to complete a literature review-based capstone project with guidance from program faculty.

Core Courses

Code	Title	Hours
VETMI 7416	¹	
VETMI 7417		
VETMI 7418	Parasite Diagnostic Methods	2
VETMI 7428		
VETMI 7429		
VETMI 7431	Antiparasitic Vaccines	1
VETMI 7433	Statistics for Surveillance, Diagnostic Test Development and Efficacy Studies	2
VETMI 7434	Product Development, Regulations and Approval Process	2
VETMI 7435	The U.S. Government and Animal Health	1
VETMI 7436	Capstone Project I: Exploring the Literature	2
VETMI 7440	Parasites of Domestic Animals ¹	4
VETMI 7446	Capstone Project II: Systematic Literature Review	4
VETMI 7449	Scholarly Writing and Critical Review of Scientific Literature	2

¹ If students already possess the DVM degree (or equivalent), the requirement for taking VETMI 7416 and VETMI 7440 is waived.

Elective Courses

Code	Title	Hours
VETMI 7401		
VETMI 7402		
VETMI 7403		
VETMI 7404		
VETMI 7405		
VETMI 7406		
VETMI 7407		
VETMI 7408		
VETMI 7409		
VETMI 7410		
VETMI 7412	Internal Parasites of Pigs	1
VETMI 7439		
VETMI 7425		
VETMI 7430		
VETMI 7432	Anthelmintic Resistance and Integrated Parasite Control	2
VETMI 7441	Parasitism in Wildlife and Zoo Animals	2
VETMI 7442		

Laboratory Instruction

Students must take 5 credits of laboratory instruction (with 5-6 full days of instruction in the laboratory being equivalent to 1 credit). We recommend students take a minimum of 1 laboratory credit each semester on the Cornell University campus.

Code	Title	Hours
VETMI 7420	Parasite Identification Methods	1.5
VETMI 7422		
VETMI 7423	Clinical Parasitology Cases: Production Animals	1
VETMI 7424	Clinical Parasitology Cases: Companion and Laboratory Animals	1
VETMI 7421	Applied Parasite Identification and Diagnosis	1.5
VETMI 7443		
VETMI 7448	Histopathologic Interpretation of Parasites in Host Tissues ¹	1

¹ Online Synchronous Lab

University Graduation Requirements Requirements for All Students

In order to receive a Cornell degree, a student must satisfy academic and non-academic requirements.

Academic Requirements

A student's college determines degree requirements such as residency, number of credits, distribution of credits, and grade averages. It is the student's responsibility to be aware of the specific major, degree, distribution, college, and graduation requirements for completing their chosen program of study. See the individual requirements listed by each college or school or contact the college registrar's office (<https://registrar.cornell.edu/service-resources/college-registrar-directory/>) for more information.

Non-academic Requirements

Conduct Matters. Students must satisfy any outstanding sanctions, penalties or remedies imposed or agreed to under the Student Code of Conduct (Code) or Policy 6.4. Where a formal complaint under the Code or Policy 6.4 is pending, the University will withhold awarding a degree otherwise earned until the adjudication process set forth in those procedures is complete, including the satisfaction of any sanctions, penalties or remedies imposed.

Financial Obligations. Outstanding financial obligations will not impact the awarding of a degree otherwise earned or a student's ability to access their official transcript. However, the University may withhold issuing a diploma until any outstanding financial obligations owing to the University are satisfied.

Learning Outcomes

Students in this program will gain a broad understanding of parasitology, including basic knowledge of the biology and taxonomy of parasites, as well as clinical aspects of infections such as disease processes in the animal, diagnostics and treatment methods. In addition, important component of the program is developing the student's understanding of the role of government agencies in animal health and the interactions required with such agencies with respect to parasite prevention, treatment, and control. With this base of knowledge it is expected that upon completion of the program, students will be able to:

- Demonstrate an understanding of scientific principles related to parasitic organisms and diseases of animals.
- Utilize acquired proficiencies for the investigation of familiar and unfamiliar parasitic infections in differing animal husbandry conditions.
- Apply scientific knowledge in acquiring new abilities and in making decisions about changes in clinical protocols and procedures, product development and testing, and appropriate product use.
- Describe the differences between clinical trials and observational studies including advantages and disadvantages of each.
- Assess the value of several secondary measures which can be used to monitor progression of parasite-induced disease (e.g. radiographs for heartworm induced disease, anemia for haemonchosis, or plasma pepsinogen levels for ostertagiasis).
- Perform and interpret results of diagnostic procedures.
- Interpret test results in a way that shows understanding of prior probabilities, test accuracy and predictive values.
- Read scientific publications related to parasitic infections and evaluate validity of conclusions.
- Plan and communicate preventive medicine programs (e.g. vaccination) addressing host immunity, and environmental or management risk factors.
- Select appropriate diagnostic tests to monitor product efficacy.
- Evaluate management factors for controlling the presence, maintenance and distribution of ectoparasites and nuisance arthropods in live stock.
- Understand principles of infectious disease transmission including routes of transmission, herd immunity, and pathogen characteristics that influence propagation and survival.
- Describe the requirements for product development and government approval, and explain the role of government agencies in the approval process.

- Describe the requirements for adequate data collection and recording under quality assurance standards necessary for report submission to government agencies.
- Formulate project reports that are in compliance with quality assurance standards.
- Devise and generate protocols to present for new product development or approval.
- Develop a thorough understanding of pharmacological concepts, research, trials, and production as well as anthelmintic development, mode of action, approval, treatment, and resistance
- Appreciate the diversity of parasite life cycles and across taxa and their role as targets for control and treatment
- Work collaboratively in groups on projects and papers.
- Become adept at discussing, writing about, and synthesizing a range of veterinary topics.
- Prepare and execute high quality oral presentations with visual aids, including the improvement of the student's ability to effectively and tactfully respond to audience questions.
- Effectively conduct a search of the primary literature.
- Prepare an annotated bibliography and write abstracts for research papers.
- Write an in-depth review paper.
- Interact collaboratively with experts in veterinary sciences.
- Develop professionalism skills and qualities.