

This Handbook provides a general orientation to the AVS department, the graduate college, and the UVM community. It also covers the basic requirements of the Animal Biosciences graduate programs. This manual is supplemental to the [Graduate College Resources for admitted students](#), the [Graduate College Catalog](#), and the [Graduate College Resources](#). Please review all of these resources.

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I. Introduction (about the program)

The Animal Biosciences Graduate Program is an interdisciplinary program in the University of Vermont Graduate College. Faculty serving as mentors for graduate students are members of the Graduate College faculty with appointments in colleges across the University. Current faculty in the program are from the Department of Animal and Veterinary Sciences (AVS), Nutrition and Food Sciences (NFS) and the Department of Surgery and Pharmacology. The AVS (also known as ASCI) and NFS departments are in the College of Agriculture and Life Sciences (CALS). Surgery and Pharmacology is a department in the Larner College of Medicine. We also host faculty from Miner Institute (Chazy, NY) who are members of the graduate college and adjunct faculty in AVS.

II. Before You Arrive

Contact information and department mailing address

For questions before you arrive, in addition to your advisor, here are some resources:

Contact	Phone (802)	Email	Location/Building
ASCI Administrative Support			
Lee Andors	656-0155	Lee.Andors@uvm.edu	102 Terrill
CALS Financial Services & Human Resources			
Karyn McGovern		Karyn.McGovern@uvm.edu	
Interim Department Chair			
Feng-Qi Zhao	656-0786	fzhao@uvm.edu	211 Terrill
Graduate Program Committee Chair			
John Barlow	656-1395	John.barlow@uvm.edu	202 Terrill
Graduate College	656-3160	gradcoll@uvm.edu	330 Waterman
Office of International Education	656-4296	InternationalStudents@uvm.edu	Living/Learning B-162
Student Financial Services	656-5700	sfs@uvm.edu	223 Waterman

Mail and packages may be sent to the AVS Department Main Office at the following address.

Use this address:

(Your name)

Department of Animal and Veterinary Sciences

102 Terrill Hall

570 Main Street

University of Vermont

Burlington, VT 05405

US Postal Service (USPS) mail is delivered to the Department mail room (106 Terrill building). You will share a mailbox here as a graduate student. [UVM Print and Mail](#) provides outgoing and incoming mailing needs, from postage and shipping (FedEx, UPS, USPS) to interdepartmental mail, bulk mail, and metered mail. USPS mail and packages are delivered on campus via UVM Print and Mail services. Packages from FedEx or UPS are delivered

directly to Terrill building by employees (handlers) of those companies. Generally, these packages are delivered to 106 Terrill; occasionally, the handlers will deliver directly to labs or offices in the buildings. Check with Lee Andors or your advisor for specific shipping questions

Be sure to include a name and room number on your incoming mail and packages so the material can be routed to the correct person or room in Terrill. If you are expecting a perishable item, please be certain to obtain tracking information and plan to retrieve the package from the mailroom yourself or plan with a colleague to avoid damage to sensitive items.

Housing

Almost all students live off-campus in the Burlington area. We encourage you to find housing during the summer months, when there are more vacancies. Classified sections in the following local papers are a good place to start: UVM off-campus housing, Burlington Free Press, Seven Days, apartmentguide.com, craigslist.com and apartmenthomeliving.com have classified ad listings. It is a good idea to contact your fellow graduate students for specific questions when considering renting housing prior to arriving. Your mentor can help you connect to some current graduate students in the program. Current graduate students can provide you with valuable insight about costs and location.

Housing		Estimated Cost
One-bedroom apartment		\$850-1200+
Two-bedroom apartment		\$1200-1800+
Room for rent		\$550-800+
Publication	Description or Where to find	
Craigslist (most listings here)	Community Classifieds Website	
Burlington Free Press	Local Gannet daily newspaper	
Seven Days	Free weekly alternative newspaper, distributed Wednesday. Get at City Market and elsewhere.	
Bulletin Boards	Muddy Waters Coffee Shop on Main St. between Church and Winooski, City Market 82 S. Winooski, UVM Campus Howe Library (near reserve desk), outside Howe and in most buildings.	
UVM Res Life Apartments & Family Housing	Housing options at UVM appropriate for grad students https://www.uvm.edu/reslife/affiliate_housing	
Medical school - Student Affairs Office	A list for Medical students that is often shared with those in need (656-2150 or ask in Given E215B)	
Gradnet	Listserv that tends to list lots of housing opportunities. Instructions for signing up for Gradnet can be found at https://www.uvm.edu/graduate/gradnet .	

A limited number of university-affiliated off-campus housing apartments are available for full-time students. See the [listing maintained by residential life](#). Interested students are encouraged to apply early for these apartments.

III. When You Arrive (and general enrollment information)

Here is a list of some things to help get you get started as a grad student on campus.

Accessing Terrill

Very few spaces require physical keys. In the event you need a key, these are managed by Lee Andors in the main office. The building and most laboratories and shared spaces are accessed using your CATcard. See Lee if you are encountering problems with access. If you are locked out of the building (or your office) accidentally and no one is around, you can call UVM Police Services (656-3473, 6-FIRE) by phone or through a blue light emergency phone. To maintain the security of the building and laboratories, do not prop doors open. Do not provide access to anyone who does not have permission to access a space. Always make sure doors are closed and locked when leaving the building.

Students in other affiliated departments (e.g., Nutrition and Food Sciences) work with their mentor and department chair to access their building and office space.

Student ID/CATcard

You can get your student ID card from the [CATcard Service Center](#) in Billings Library, Room B150 (656-4509). The CATcard office can also “punch” your card and provide you with a lanyard if you wish. Do not attempt to “punch” the card yourself or you will likely destroy its’ functionality. Your first card is free. Replacement of worn cards costs \$10; replacement of lost cards costs \$25. If you have a smart device, you can connect your CATcard to Apple Wallet or Google Pay and use your device rather than your card. Your CATcard is used to borrow books from the library, use the UVM gym, and ride the city buses for free. You can also use your CATcard as a debit card, called CAT\$cratch, to pay for photocopies in the library, campus eateries, and some Burlington businesses. Your CATcard will also permit entry to the labs as well as Terrill Hall after hours. Lee can help set up your building access. For an orientation to what you need to know about the CATcard, visit <https://www.uvm.edu/catcard/new-student-orientation>.

Office space

Most Animal Biosciences graduate students have office space in 203 Terrill, the Graduate Office. Office space arrangements will be made on your behalf by your advisor and Lee Andors.

Students affiliated with other departments (e.g., Nutrition and Food Sciences) work with their mentor, department chair and administrative support staff to access their building and office space.

Email

To activate your UVM email, set up your netid at the following website: <http://www.uvm.edu/account/>. You can check mail via the web (<http://webmail.uvm.edu>), Outlook, or set up the email “client” on your phone or computer. Official UVM communications come through your uvm.edu email. Make sure to check this often or auto-forward to the email provider of your choice. Some UVM professors will not respond to messages sent from personal, not uvm.edu, addresses, so be sure to use your UVM email for University correspondence. You will automatically be added to general department, college, and university listservs. Once you complete laboratory safety training, you will be added to the important listservs for ASCI, CALS, UVM, and laboratory safety (UVMLABSAFE). The Graduate College has a discussion list with useful information for all grad students. The email address is: GRADNET@LIST.UVM.EDU. Contact the Graduate College to be added to the Gradnet distribution list.

Computers – Enterprise Technology Services (ETS) and Software

At UVM the information technology or IT department has been traditionally known as Enterprise Technology Services or ETS. Everything you need to know about campus computing can be found through the links on this page: <http://www.uvm.edu/it/students/> -- not the most user-friendly site on campus. However, the Tech Team is helpful. If you have any questions, give them a call at 656-2604, or email helpline@uvm.edu, or submit a help request at <https://www.uvm.edu/it/kb/submit-a-ticket/>, or visit them in the Computer Clinic in room I-117, Billings/Ira Allen Chapel. The clinic is best accessed from the side of Billings that faces Votey Hall. The Enterprise Technology Services searchable Knowledge Base is also a resource for IT support <https://www.uvm.edu/it/kb/>. UVM students have access to a free license for Microsoft Office 365. The UVM software portal is where to find other programs to that you can download and install for free such as statistical packages and a reference manager. The software portal is available at <https://software.uvm.edu/> and will first require you to install AppsAnywhere on your device. Microsoft Outlook is the Calendar platform used by UVM affiliates, so you might want to use this software to allow for scheduling with others on campus. If you have a UVM property computer (i.e. purchased for a specific research project), or if you purchase a computer from the [UVM Techstore](#) it will be configured for network access. If you bring your own computer, you can find information on minimum specifications and configuring a personal computer for UVM network access (<https://www.uvm.edu/it/students>). For example, you can configure your computer to allow secure storage and backup of your data on the UVM servers. You also have access to the [UVM file transfer service](#) for sending large files. Contact the Tech Team or explore the Knowledge Base for specific questions as Mac and PC are managed differently.

Mail/Photocopiers

The department photocopier in the mail room (106 Terrill) can print black and white or color copies. There is also a department photocopier on the third floor (room 305), and it only prints in black and white. The photocopiers can also scan and send digital documents to email addresses. You need an access code to print to or use the photocopiers. Access numbers are assigned to various departmental budgets (depending on the nature of the information you are copying). If the print job is research related, you would use your advisor's research access number; if it is related to the class where you are a teaching assistant, you would use the teaching access number. Your advisor will tell you what access numbers to use. It is important to keep these numbers confidential, because the copying charges are linked back to budgets. If you need to send a fax, contact Lee Anders in the AVS office and she can help.

Books

Textbooks may be purchased from the UVM Bookstore in the Davis Center. Wait for the first few days of classes to see which books are essential to buy, which can be checked out from the library or found at the library reserve desk, and which can perhaps be borrowed from another student. There may be affordable options for some textbooks (older editions that can be used), so check with the course instructor.

Parking permit

Permits for on-campus parking are restricted to students living more than one-half mile from campus. If you live within the [Campus Proximate Zone](#) you cannot get a campus parking permit. For graduate students living outside this zone, permits are available from [Transportation and Parking Services](#), located in Marsh Hall on the University Heights Campus (656-8686). There are many restrictions on [campus parking for students](#) and some options for graduate students. There are also several [student commuter benefit programs](#). Check

<https://www.uvm.edu/transportation/student-parking> for the current fees. A parking permit is not required on weekends, holidays, and after 3:30 pm daily.

Activating your funding (How to get paid if you are on an assistantship)

If you are on an assistantship, you have received your offer letter and returned the Assistantship Acceptance Page indicating acceptance of the position, salary, and start date (see below for the information on financial assistance). The Acceptance Page is returned to College of Agriculture and Life Sciences Human Resources (CALSHR) via email at CALSExt.HR@uvm.edu. Please also send a copy to the Chair of the Department of Animal & Veterinary Sciences and the Graduate Program Committee Chair. In addition to the acceptance letter, you must fill out and return the Data Form and W-4 form needed to start you on payroll. When you arrive, see **CALSExt HR** <CALSExt.HR@uvm.edu> to fill out your I-9 form. To do this you will need one or more of the following types of identification: passport, driver's license and social security card. See the [lists of acceptable documents](#) at the end of the file linked here. (International students must visit the Office of International Education as soon as possible after arrival to complete some forms).

Salaries are paid twice monthly, and your first check will be sent to the department mail room, 106 Terrill, and subsequently directly deposited into your personal bank account. Direct deposit of your UVM paycheck is mandatory. (You can access your UVM Employee settings by logging into PeopleSoft, <https://www.uvm.edu/~erp/portal/> using your UVM Netid and password (duo multi-factor authentication is required to access the site; <https://www.uvm.edu/it/kb/article/duo-multi-factor-authentication/>). Direct deposit can be set up and managed through PeopleSoft Human Resources > Self-Service > Payroll and Compensation > Direct Deposit link.

Be sure to ask what fees, if any, are covered by your funding, since you will be required to pay any excluded graduate fees and health fees before you are allowed to register for courses or research credits. The University also allows payroll deduction if you cannot afford to pay the fees all at once. This has to be set up at Student Financial Services, 223 Waterman Building, (802) 656-5700.

Orientation

The Graduate College hosts a mandatory orientation for graduate teaching assistants each fall. Howe Library and Division of Computing and Information Technology also host an orientation meeting each fall for new graduate students.

The best suggestion for an international student is not to miss the 5-day orientation offered by the Office of International Education (OIE) at the beginning of the semester. They give a good orientation of Howe Library, the Student Health Center, and Patrick Gymnasium and the facilities available. The tour of the Howe library could be helpful, as the library has many sections providing a variety of services. The OIE provides direction and help in opening a bank account and in getting a social security number. During the orientation, they also introduce the free services provided by Living and Learning (L/L) Center for scholars for whom English is the second (or third) language. An International Student Handbook is available through OIE for more detailed information on housing, immigration and employment, obtaining a social security number, health insurance, legal services, driver's license, student services, language improvement and general academic support <https://www.uvm.edu/oie/contact> or internationalstudents@uvm.edu.

The Center for Health and Wellbeing (aka., student health services)

The [Center for Health and Wellbeing](#) provides core services like office visits at no cost as long as you have paid the UVM Health Fee. The semester fee should be paid at the beginning of each semester (including the summer semester). This fee covers unlimited visits to the Center for the calendar year while you are a UVM student. It

does not include any additional laboratory fees. Any questions regarding the Center or this fee can be answered by calling the Center for Health & Wellbeing at 656-3350 (<https://www.uvm.edu/health>). The Center for Health & Wellbeing, located at 425 Pearl Street, usually has appointments on short notice. Another great benefit is free counseling. Graduate research and education can be demanding and stressful and counseling services can be a valuable resource. For example they can provide resources for practicing coping and stress reduction skills. Call the Counseling and Psychiatry Service (CAPS) at 656-3340 to make an appointment. The Center for Health & Well Being has on-line resources at their web pages (<https://www.uvm.edu/health/SHS>) for topics including allergy clinics, behavioral health, cold and flu, nutrition services, sexual health, transgender health care and travel clinics.

The University has immunization requirements that differ for undergraduate and graduate students. Our department does not have any specific additional immunization requirements beyond what is required by the University. For graduate students the University requirement is evidence of COVID-19 vaccine and booster information, which you document via the [MyWellbeing](#) portal. More information on vaccination requirements can be found at <https://www.uvm.edu/health/information-and-faq-about-immunization-requirements>.

UVM Student Health Insurance Plan (UVM-SHIP)

All full-time UVM students must have an insurance plan to help cover additional healthcare costs. This can be UVM Student Health Insurance Plan (SHIP) or another insurance. Each year students complete the insurance decision/waiver form to declare their enrollment in SHIP or their decision to waive it for an equivalent insurance plan. UVM-SHIP is available to UVM graduate students enrolled for 5 credit hours or more and the insurance decision/waiver is mandatory for graduate students registered for 9 or more credits. The College of Agriculture and Life Sciences (CALS) pays 100% of the cost of single UVM health insurance for all full-time graduate assistants (CALS Health Insurance Scholarship for GTA and GRA appointments), who do not have alternate insurance, with a smaller percentage paid for part-time students. All international students, regardless of other coverage, are required to enroll in health insurance through UVM-SHIP (paid by CALS Health Insurance Scholarship for GTA and GRA appointments). Students who do not receive a CALS Health Insurance Scholarship must purchase UVM-SHIP or provide evidence of other insurance coverage. The cost of student health insurance (health insurance premiums) is additional to the UVM Health Fee and can be found here:

<https://www.uvm.edu/health/insurance>. Further details are available from the Student Health Services (<https://www.uvm.edu/health/SHS>). To participate in this insurance, the student must pay the health fee each semester.

Course Registration and Academic Advising

Registration is done in the “Registrar” tab in your myuvm.uvm.edu webpage.

Academic advising is a crucial element of graduate program planning, and it is important that you consult your faculty advisor, at least annually, to outline your course of study prior to registering for courses. Your degree Studies/Thesis committee may also contribute to your individual curriculum planning. It is a good idea to form your Studies Committee early in your training program so they can provide input on course selection. See section XI on course selection and planning (page 13), and the specific degree requirements for your degree (section XII, beginning on page 14).

Once you have completed your graded course and research credit requirements you will maintain your status as a graduate student by enrolling each semester for Continuous Registration status.

Graduate student fees

Visit the following site for the latest graduate student fees:

https://www.uvm.edu/studentfinancialservices/graduate_tuition_and_fees

Full and part-time enrollment

Full-time graduate students enroll for 9 to 12 credit hours per semester, with normal maximum enrollment being 15 credits per semester and 9 hours summer. Enrollment in exceeding 15 credits requires written approval from the student's advisor and the Dean of the Graduate College.

The time limits for degree completion for the degrees offer by Animal Biosciences are:

Master's degrees: 5 years

Doctoral (PhD): 9 years

The time limits start with the first semester the student enrolled in the graduate college.

See <https://catalogue.uvm.edu/graduate/academicenrollment/timelimits/>

All credit used for the degree, including transfer credit and credit by examination, and irrespective of a Leave of Absence, must be earned within 7 (master's); or 9 (PhD) years of graduation. This means if you have courses on your transcript that you are applying toward your degree, they need to be taken with the past 7 years for a M.S. or 9 years for a Ph.D. (see <https://catalogue.uvm.edu/graduate/academicenrollment/enrollmentpolicies/>).

Part-time graduate students are those who enroll in less than the full-time minimum per semester. Part-time tracks are designed on an individual basis, in consultation with the Animal Biosciences graduate program coordinator, a sponsoring graduate faculty research mentor in the program, and the department chair of the research mentor's department. The time limits for degree completion are the same for part-time students, and start with the first semester the student enrolled in the graduate college.

Continuous registration status and fee

When a graduate student has completed most or all of the credits required in the degree program but has not completed all degree requirements (e.g., thesis defense), the comprehensive fee is no longer required. Instead, you must register for GRAD 901 (less than Half Time - 1-16 hours effort per week), 902 (at least Half Time, but less than Full Time - 20-32 hours effort per week), or 903 (Full Time - at least 36 hours effort per week) and pay a continuous registration fee each semester, including graduate student senate fees. Costs associated with continues registration status depends on the level of work that the student performs during the semester (full-time, half-time, or less-than-half-time enrollment equivalency). Additional fees will be applied each semester if the UVM-SHIP is purchased. See https://www.uvm.edu/studentfinancialservices/graduate_tuition_and_fees

Leave of absence

Students may request a leave of absence from their training program for up to one year. Students request a leave of absence from the Animal Biosciences graduate program coordinator and their department chair prior to the start of classes in the semester during which the leave is being taken. If the program approves the request, the student and chair and program coordinator complete the Leave of Absence form available on the Resources page of the Graduate College website and forward it to the Graduate College for approval. A Leave of Absence does not take effect until after approval has been received from the Animal Biosciences graduate program coordinator, the student's department chair and the Dean of the Graduate College. Any student who does not enroll following termination of a Leave of Absence will be deactivated from the Graduate College. (See <https://catalogue.uvm.edu/graduate/academicenrollment/leaveofabsence/>)

IV. General Campus Resources

UVM Dining

UVM Dining is operated by Sodexo. They have a very informative website at <https://uvmdining.sodexomyway.com/#>. Anyone can get a Retail Points Plan, which makes a lot of sense if you plan to make use of dining venues in the Davis Center and elsewhere that offer a discount to points users. A directory of retail dining venues can be found here: <https://uvmdining.sodexomyway.com/dining-near-me/retail>. Points also can be used at these four all-you-can-eat locations: Central Campus, Harris Millis, Northside, and Redstone.

The bottom line is if you want to grab a bite to eat on campus there are several locations available during times when class is in session. During break, choices are more limited, and you may consider bringing your own food. The Given Bistro serves both breakfast and lunch. The Cyber Cafe, located in Howe Library, is a gourmet coffee house with a complete selection of salads, sandwiches, muffins, and cookies. Waterman Cafe offers express breakfast and lunch options while at Waterman Manor you can enjoy an a la carte menu with waited service. The Davis Center houses places to eat such as The Marketplace, a global bazaar featuring the authentic flavors of India, Japan, and the Mediterranean, as well as classic American favorites with an international flair; Brennan's Pub, a fun laid back gathering place; Green Roof Deli, a great place to get local fare in deli standards; New World Tortilla, a popular eatery featuring burritos, tacos, and specialty wraps; and the UVM Dairy Bar, which serves ice cream and smoothies made with milk from the UVM herd. Although they are not part of Sodexo, you'll also want to check out the vendor trucks along University Place. There is also a cafeteria at the UVM Medical Center <https://www.uvmhealth.org/medcenter/departments-and-programs/dining-services/menus-and-dining-locations>.

UVM Libraries

The physical libraries you will use most are the main library, Howe Library, in the center of campus, and the Dana Medical Library between Given and the hospital. The electronic resources available through the libraries are extensive and requests for interlibrary loan materials are processed quickly. Training is available for conducting references searches and using reference managers. Several resources can be accessed directly via your computer through campus wide research database subscriptions. If a specific article is not available, the library can typically obtain it for you via interlibrary loan. A library tour and a visit with the reference librarian are highly recommended. The UVM Libraries offers a Research Guide for Animal and Veterinary Sciences (<https://researchguides.uvm.edu/animalscienceportal>). Christie Silkotch is the reference librarian for our department; she can be contacted at Christie.Silkotch@uvm.edu. Christie is an excellent resource for improving your knowledge and skills related to using reference manager software, identifying literature databases for literature searches, best practices for conducting literature searches and reviews, and developing customized search strings for the different literature databases. There are several reference manager software options. EndNote is a popular choice and is available for free for UVM affiliates. You can access this software from the UVM Software Portal (see next section).

UVM Supported Software Applications

UVM supports several software applications for your use. You can download these applications from the software portal <https://software.uvm.edu/apps/all>. You will need to install the AppsAnywhere program which can be access at <https://www.uvm.edu/it/kb/article/appsanywhere/>.

UVM Bookstore and Techstore

As you might expect, the UVM Bookstore sells UVM clothing, gear, gifts, and textbooks. The UVM Techstore within the bookstore sells Apple and Dell computer products and accessories. The bookstore is on two levels: retail sales on the third floor and textbooks on the second floor of the Davis Center. Look for the holiday sale at the end of the fall semester each year. The UVM Bookstore is also the place to purchase or rent academic regalia prior to commencement (<https://www.uvm.edu/commencement/caps-and-gowns>).

V. Financial Support and Appointment Expectations

Financial Assistance

Financial support of graduate students usually comes in one of two forms of assistantships:

1. Departmental Assistantships, which include Graduate Teaching Assistantship (GTAs) and Graduate Research Assistantships (GRAs)

GTAs: Currently the student is provided with 23 credit hours of tuition remission per year (up to 9 credits per semester and 5 credits in summer) and a stipend, which is adjusted annually. In addition, if you elect the UVM health insurance, 100% of the individual premium will be covered. In return, the student provides 20 hours of work/week to Department teaching. During the semester the teaching support will be the first priority for allocation of time. Outside of the semesters, research activity, as designated by the principal investigator of the Experiment Station project to which the student is allocated, will be the first priority.

GRAs: The tuition remission, stipend, and other benefits are the same as GTAs, but the students are expected to provide 20 hours of work/week to a research project of the Vermont Agricultural Experimental Station.

2. Grant-funded GRAs

The source of funds for these assistantships is extramural grants or contracts. This funding is obtained by your advisor from sources outside the University General Fund or Agricultural Experiment Station. Tuition remission may or may not be provided. GRAs are expected to commit their 20-hour time primarily to the principal investigator of the grant. Principal investigators receive funding from federal and state agencies and industry partners, and these grants come with obligations for productivity and performance. Graduate students with salary and tuition funded on these projects share this responsibility.

Teaching Allocation and minimum teaching expectations of GTAs

The allocation of GTAs to course instruction is at the discretion of the Chair of the Department of Animal and Veterinary Sciences. The Chair will normally consult the faculty over this allocation.

The expectation is that a GTA will assist with the laboratory section of a course each semester. Course instructors will determine if GTAs will be required to attend or prepare for lectures. A more detailed list of graduate teaching responsibilities is included under Section VIII below.

The course instructor will provide graduate students with a written outline of the requirements and the instructor's expectations.

GTA Teaching Performance Evaluation

It is the expectation of the Chair that an evaluation is done of all courses every semester they are taught. This should include an opportunity to evaluate the GTA's contribution. Students are provided the opportunity to complete an evaluation of instructors, including TAs for lab sections using the Blue by Explorance course evaluation software (<https://www.uvm.edu/it/kb/article/blue-results-reports-fac-chairs/>). In addition, a written evaluation of the graduate student is provided by the instructor or laboratory coordinator at the end of each semester. This evaluation may include constructive suggestions for further training or program development. Please work with your advisor to determine strengths and areas for improvement that can be gleaned from the evaluations. The Department Graduate Committee evaluates the GTA performance annually and provides recommendations to the chair of the department for continuation and allocations of the GTAs.

Minimum research expectations of GTAs and GRAs

Students on GTA assistantships are typically conducting research associated with their mentor's HATCH Agricultural Experiment Station project, and a portion of their stipend comes from this funding source. USDA HATCH funds are distributed to State Land Grant Institutions and Experiment Stations to conduct agricultural research programs (<https://www.nifa.usda.gov/grants/programs/capacity-grants/hatch-act-1887-multistate-research-fund>). As a GTA you can expect to dedicate some of your efforts compensated by your stipend to research during the fall and spring semesters, and most of your effort toward research during the summer. If you are funded as a GRA, 100% of your stipend compensated effort will be toward research.

Graduate Training Program Expectations

Students enrolled as full-time graduate students should expect to approach their training program as a professional employment experience. Undertaking graduate training requires dedication and focus. You receive a stipend for 20 hours of work per week related to teaching and/or research activities. You also receive a scholarship for tuition costs for 9 credits per semester for spring and fall semesters, plus 5 credits for the summer. These degree credits are typically a mix of course credits and research credits. For each credit you should expect to dedicate a minimum of 2 to 4 hours per week outside of class time. Thus, in the spring and fall semesters you should expect your work week to be at least 48 hours of effort. Conducting excellent teaching and research takes time. Learning how to conduct excellent teaching and research takes even more time. Your advisor and your studies committee are excellent resources for valuable insight and regular meetings are vital to ensure your professional development.

Appointment Periods and Pay Schedule

Most students start their enrollment in the Fall semester, although students can start their program any semester. Students who begin in the fall semester will be asked to start in late August, at least one week before classes begin. During their first week, students will complete orientation and training.

Pay periods are twice monthly on approximately the 15th and the 30th of each month. During the first year of your appointment your first paycheck will be distributed on September 15, covering the period from 9/1 to 9/15. You can expect to work at UVM for at least one week prior to the start of classes in August (orientation week and the first days of classes start before 9/1). This unpaid time prior to the first pay period is compensated at the end of the academic year. You continue to receive pay through the last pay period (May 30), generally two weeks after final exams and your teaching responsibilities end mid-May. The policy of the Graduate College is *"Academic year stipends will be paid semi-monthly between September 1 – May 31; your first paycheck will be September 15. Your program may require attendance at orientation and training events related to your assistantship the week prior to the beginning of classes. When that is true, the last week in May will be devoid of required effort."*

Other Sources of Funding

1. Fellowship Grants: Students are encouraged to compete for national graduate fellowships, such as those made available by the USDA, National Science Foundation, and the Smithsonian Institution. Information on these fellowships is available from the office of the Graduate College and the Office of Sponsored Programs. Obtaining a research fellowship is challenging, but making application, even if unsuccessful, is an important part of your graduate training.
2. Mini Travel Grants: The Graduate Student Senate has a Mini Travel Grant support program that encourages and supports travel for graduate students to present their research at professional meetings. Guidelines and application forms are available through the Graduate Student Senate. Graduate Students must present at the University of Vermont Student Research Conference in the spring to be eligible for a Mini Travel Grant. This makes first year graduate students likely not qualified for funding.

Sponsored Project Administration (SPA) in 217 Waterman Building is an important and helpful resource for finding additional sources of funding. The staff publishes lists of grants available to students and will do computer searches of special funding sources for you. Graduate students are urged to apply for grant funds such as Graduate College Mini-Grants, USDA Pre-doctoral fellowships, NSF Doctoral Dissertation grants, Sigma XI research awards, in addition to other special funds that are announced throughout the year.

VI. Vacation Policy

Graduate students in the Department of Animal and Veterinary Sciences ordinarily have a 12-month appointment. They are entitled to the stated University of Vermont Administrative holidays plus 10 days of vacation per year. Additional time may be approved by the mentor and/or the student's thesis/dissertation committee. Unused vacation days may not be carried over into subsequent years, nor do graduate students accrue compensatory time off. Students are expected to discuss their vacation plans with their mentor in advance.

VII. Grievance Procedures

If a graduate student in the Department of Animal and Veterinary Sciences has a grievance, he/she should first meet with his/her mentor to discuss the issue(s). If the student has not yet chosen a mentor, he/she should meet with the Chair of the Graduate committee. If the student has formed their studies committee or their thesis committee, the chair of their studies/thesis committee can help resolve any grievance or issues. If the issue is not resolved after these meetings, the student may meet with the Animal and Veterinary Sciences Department Chairperson, if this person has not been previously involved. If the student is not satisfied with the resolution of the issue(s), he/she may contact the Dean of the Graduate College, whose decision shall be final. The University Graduate Student Ombudsperson is available to provide independent, confidential (with some limits), informal and impartial assistance to graduate students on matters affecting their graduate education (<https://www.uvm.edu/graduate/graduate-student-ombudsperson>).

VIII. Teaching and Research Assistant Responsibilities

Teaching assistants: Although there are variations in responsibilities depending on the course, the basic TA expectations could include the following:

- Grading exams, projects and homework assignments (may require coordinating with Student Accessibility Services (SAS) for students who require accommodations)
- Scheduling and administering make-up quizzes
- Photocopying class materials
- Preparing, setting-up, and teaching labs; preparing lab quizzes
- Scheduling appointments with students seeking academic support
- Leading study group/review sessions
- Giving a lecture during the semester
- Organizing course evaluations at the end of the semester
- Some courses may also require organizing, attending, and possibly driving a vehicle on class trips. (Go to <https://www.uvm.edu/riskmanagement/driver-training-and-certification> for details about driving certification.)

Research assistants: Specific responsibilities will depend on the scope of the research, source(s) of funding, and will be determined by consulting with the research mentor. Examples of expectations include:

- Completing all necessary animal use, human subjects, and laboratory safety training
- Contributing to general laboratory housekeeping and safety assurance
- Maintaining laboratory notebooks and records
- Proper handling and storage of research materials, samples, and consumables
- Meet regularly with PI/Mentor and at least annually with Studies/Dissertation Committee
- Training and mentoring of other students in the laboratory setting as needed
- Contributing to a productive and congenial lab environment and culture
- Participating in laboratory group meetings, including presenting data and discussing research
- Attending scientific conferences to present research findings
- Establish and Re-examine Personal Professional Development Goals

IX. Performance Evaluation and Annual Review

The Animal Biosciences program requires all active full- and part-time graduate students to complete an annual review of their progress. The program provides a form for the graduate student to complete, typically near the end of the spring semester (i.e., by May 1).

The form asks the student and their mentor to document:

1. Courses taken in the past year,
2. Courses planned to the coming year,
3. Progress toward degree requirements,
4. Source of funding for the past year and anticipated source of funding for the coming year,
5. A short narrative describing the status of your thesis research with a focus on progress made and goals achieved in the past calendar year,
6. A summary (list) of academic or scholarly accomplishments from the past 12 months
7. A list of any professional development activities from the past 12 months,
8. A summary of teaching and mentoring activity, including a summary of teaching evaluations received from the course instructor or lab coordinator and students, and a list of training or mentoring activities,
9. A narrative self-evaluation of academic performance and professional development

10. The student's objectives to be pursued in next 12 months, and
11. The Major professor's (research mentor) assessment of progress.

The form is intended to be completed by the student and shared with their faculty mentor as the basis for an annual discussion of the student's progress.

The completed form is submitted to the graduate program coordinator and reviewed by the graduate program committee. The committee provides feedback to the student by June 1 of the current year.

X. Professional Development and Planning (the Individual Development Plan)

The Animal Biosciences program encourages all graduate students and postdoctoral scientists to create and use an Individual Development Plan for their career planning. As described on the Science Careers web pages, "the Individual Development Plan (IDP) concept is commonly used in industry to help employees define and pursue their career goals." This concept has been refined and adopted by a number of stakeholder organizations (including universities) to serve graduate students and postdoctoral scientists. UVM supports and encourages career mentoring best practices, which includes having a trainee construct an Individual Development Plan. While the University of Vermont Graduate College has not adopted this concept as a policy document which can be found at the Graduate College Resource page <https://www.uvm.edu/graduate/resources>. There are a few graduate training programs at UVM that provide these tools, including The Rubenstein School of Environment and Natural Resources https://www.uvm.edu/rsenr/graduate_student_resources, and the UVM Postdoctoral Association <https://www.uvm.edu/postdocs/postdoc-resources/resources>. All of these groups utilize the tools and resources available at Science Careers, <https://myidp.sciencecareers.org/>. Our program recommends you explore these resources and consider developing your Individual Development Plan.

XI. Course Selection and Planning

The Animal Biosciences program has a small number of required courses that all students in the program take (see degree requirements section XII below). This means that students select the graded course that interest them and advance their knowledge within a discipline or field of study. In other words, there is flexibility in the courses that students take to meet their degree requirements for graded courses. Students consult with their advisor and studies committee to select courses that are relevant to their discipline or the focus of their research.

Students should look for courses that complement or synergize with their research studies. For example, many graduate courses at UVM include opportunities to complete a project as a part of the course requirement, and students have the ability to use their own data for those class projects. This may be especially true of some graduate level statistics, data management, or bioinformatics courses. Students can request a copy of a syllabus for each course so that they can understand how the material and assignments contribute to their knowledge and skill development.

The courses a student elects to take during their graduate training will depend on their field of study. For example, physiologists (including nutritionists) are expected to have foundational knowledge in biochemistry and cellular and molecular biology. If a student's focus is animal nutrition, obviously they will take graduate level courses in nutrition. If their research focus is in genetics, then they will need advance study in genetics, and likely also courses in quantitative methods and bioinformatics/data management. If they are a food science student, then might take courses in biochemistry, food safety, microbiology or specific courses related to food production and processing. Students engaged in animal health research may take graduate courses in

microbiology and immunology, or in epidemiology and biostatistics. One common area of study across disciplines or fields of research under the animal biosciences umbrella is statistics. All students in the program should advance their knowledge of statistics beyond the foundation courses they may have taken as an undergraduate student. STAT 200 Medical Biostatistics & Epidemiology, STAT 201 Statistical Computing & Data Analysis, STAT 211 Statistical Methods I and STAT 221 Statistical Methods II are examples of foundational courses approved for graduate credit that other students have found beneficial. BIOL 381 Computational Biology taught by Nicholas Gotelli is course on using modern (and classic) computational tools, computer programming in R, and experimental design for biologists. In addition to consulting with their advisor and studies committee, students are advised to talk with other graduate students about course options at UVM.

Students should plan to attend scientific conferences, conventions, and meetings in their field of study. National and international conferences and meetings often include pre- or post-conference short courses or workshops. These intense focused workshops may range in length from a half-day to a week or more. Students should seek out and enroll in these learning opportunities to supplement their course-work at UVM.

Students might also consider completing internships as a part of their training. In our program it is possible to incorporate an industry or agency internship experience. Students that have completed degree requirements and are on track for a timely thesis defense might complete a summer or semester internship with a private company, government agency or non-profit organization. The student's mentor may already have a research collaboration with another organization that offers internship experiences for graduate students, and it may be possible for the student to advance their training and research through an internship. Students are encouraged to seek these opportunities.

XII. Degree Requirements

The official requirements for your degree are from the published Graduate College Catalog for the year of your matriculation (<https://catalogue.uvm.edu/graduate/degree requirements/>),

The Department of Animal and Veterinary Sciences offers programs leading to the degrees of Doctor of Philosophy and Master of Science. Students who enroll in the graduate programs initially work closely with their mentor, and later with their studies committee, to determine the course work required to meet the Graduate College requirements and to support their research program. Within one semester (MS students) or one year (PhD students) of matriculation, students are expected to identify a minimum of three (for MS programs) or four faculty (for PhD program) to serve on their Studies Committee (SC) and Dissertation Defense Examination Committee (DDEC). The members of your SC are typically the same as the members of your DDEC, but this is not a requirement. Committee members can change during your studies. You should plan to meet with your SC/DDEC at least annually. Completion of requirements must be approval by your studies committee.

All Students – Common requirements for MS and PhD students

Minimum Expectations of All Graduate Students as Outlined by the Department Graduate Committee

All graduate students must read and follow the policies and procedures presented in the Graduate Catalogue. The department expects full time graduate students with an assistantship to complete master's degree programs within two years. The department expects full time graduate students with an assistantship to complete doctoral degree programs within three years after the master's degree or within five years if no master's degree is conferred. Students may stay on assistantship longer, at the discretion of the Graduate Committee and Department Chair.

Teaching requirement

Graduate students are expected to acquire teaching experience by serving as a teaching assistant (TA) for undergraduate ASCI courses or by mentoring “junior” undergraduate or graduate students in their laboratory. For each course a graduate student functions as a teaching assistant, the teaching faculty and students provide evaluation of the graduate student’s performance at the end of course. Graduate students document their teaching and mentoring activities in annual report for evaluation by their mentor(s) and graduate committee.

Required Courses

Because of the diversity of faculty and student research interests, we have a policy of minimizing required courses. However, all graduate students are required to complete two semesters of Graduate Research Seminar and two semesters of Journal Club. While graduate students only need to enroll in Graduate Research Seminar twice, they are expected to attend all department seminars and present a seminar once a year (an oral presentation at a national or international conference can be used to meet this expectation, however all graduate students are encouraged to take advantage of the opportunity to give oral presentations to the department at least yearly, which is a low stakes environment for oral presentation practice and experimentation).

Comprehensive examinations

Both Ph.D. and M.S. students must take a comprehensive examination. The comprehensive examination is not the same as the oral thesis or dissertation defense examination, which comes following the student’s public thesis presentation at the end of their program. Success in the comprehensive examination is prerequisite to standing for the Dissertation Defense Examination.

Comprehensive exams are designed to test if the student has a satisfactorily breadth of knowledge in their area of interest, animal science, or almost anything the studies committee deems important for completion of your degree. The student’s studies committee administers the comprehensive exam. Students are encouraged to schedule meetings with the members of their studies committee for further information.

For the A.M.P. and M.S., the student’s studies committee decides the format of this exam (i.e., oral, written, combination of both, time or page limits, open or closed book, etc.). The comprehensive exam process is completed at least 2 months prior to the thesis defense, and preferably, prior to the start of the semester they intend to defend their thesis.

Doctoral students are required to complete a written and oral comprehensive examination. The specific format of the written and oral exams will be determined in consultation with the candidate’s Graduate Studies Committee. Common formats of the written exam are a pre-doctoral proposal describing a novel research study or a comprehensive literature review. Both the written and oral exams are typically passed by the end of the third year of candidacy, but no later than 6 months before the dissertation is submitted.

Work with the Department Administrative Staff to reserve a room for your oral comprehensive exam, well in advance of the date, at a time and place that is agreed by all studies committee members. Your committee members should receive a copy of your written exam response at least two weeks prior to the scheduled oral examination date. Your committee members will indicate their individual preference for the format of your written exam, either electronic or printed.

For all students, should the candidate fail the examination, one re-examination is permitted. All examinations are taken on the University of Vermont campus as per graduate college guidelines.

Comprehensive Literature Review

Now is the time to start reading manuscripts and preparing to write a literature review; do you have an outline for the scope and content of your literature review? Have you identified key (seminal) references that inform this manuscript and the overall hypothesis of your thesis work? How does relevant prior work motivate and inform your proposed thesis and your expected project outcomes?

Your early work on a literature review for your research topic will be the foundation for the first chapter of your thesis/dissertation. It is not too early to start this work, and often, this will be one of the first activities you undertake in your graduate career.

The literature review (chapter 1) in your thesis/dissertation should be of a quality, thoroughness, and depth consistent with a publishable review article. The review is approximately 7,000 to 10,000 words (25 to 35 double spaced pages) in length, excluding a comprehensive bibliography. It is an absolute requirement that it be a critical review not a historical account. The review shall compare and contrast published work, identify areas of disagreement in the literature and objectively discuss these disagreements. From reading the review, it should be clear that the student has developed a comprehensive and profound understanding of the subject area. As chapter one of your thesis/dissertation, the introduction (literature review) should provide a rationale and justification for why you are undertaking your research and what novel data or knowledge you will bring to your field of study.

Thesis Committee and Defense

In our program, for a Ph.D. dissertation or a thesis-based M.S., graduate students generate one or more hypotheses and include original research in their work. This requires an in-depth review of existing research on a topic (i.e., a comprehensive literature review). Students should begin this process (literature review and formulating hypotheses) at the start of their program. Writing a thesis or a dissertation is a considerable undertaking. The process requires a substantial amount of planning and work. It is important for students to understand their supervisor's expectations and the department guidelines. Students should start having those conversations with their research supervisor and studies committee now!

A M.S. thesis or Ph.D. dissertation may be formatted in the Standard Thesis style or Journal Article Thesis style with a comprehensive literature review (see the [Graduate College Electronic Thesis and Dissertation Guidelines](https://www.uvm.edu/sites/default/files/Electronic_Thesis_and_Dissertation_Guidelines.pdf) for details). The choice of thesis/dissertation style is determined by the student and their studies committee. The Style Manual for Biological Journals, third edition (1972), published by the Conference of Biological Editors of the American Institute of Biological Sciences, may be a helpful resource. The Graduate Faculty has rules specifying the format of a thesis document. These rules, "Guidelines for Thesis Writing," are available in the Graduate Dean's Office in Waterman (See, <https://www.uvm.edu/graduate/resources>). In addition, there are older copies of graduate theses in the Department library (room 317) that may help in choosing the appropriate style.

You should become familiar with the format requirements and deadlines for your defense. See https://www.uvm.edu/sites/default/files/Electronic_Thesis_and_Dissertation_Guidelines.pdf, for a complete list of the steps, but briefly these include:

- Submitting a Defense Committee Membership Form
- Completing Comprehensive Exam Requirements
- Submitting an intent to Graduate Form prior to the deadline for your intended graduation date

- Selecting a date, time and room for your defense presentation and examination
- Submitting a Electronic copy of your Defense Notice to the Graduate College at least 3 weeks prior to the date
- Schedule a Thesis Format/Record Check with the Graduate College before the deadline for your expected defense
- Submit an electronic copy (or printed if requested by a committee member) of your thesis/dissertation to all members of your defense committee for review at least 2 weeks prior to your defense date.

At least two weeks in advance, an announcement of the defense, which includes an abstract, should be sent to all Department faculty and to other faculty who are appropriate. The Department Office will prepare and distribute the announcement from materials provided by the student. Work with the Department Administrative Staff to reserve a room for your defense, well in advance of the date.

The oral defense of the thesis should be passed at least three weeks before Commencement for conferral of the degree in May. The Graduate College posts deadline dates every year.

Within 3 days of your successful thesis/dissertation defense, the Chairperson of your committee submits a hardcopy of the Defense Examination Record. Committee chairs may work with the student to complete this submission step.

After a successful thesis/dissertation defense, candidates must electronically upload the corrected dissertation to <http://www.etdadmin.com/uvm> for approval by the Graduate College within the time period specified by the dissertation defense examination committee, and/or the Graduate College. Students should see <http://catalogue.uvm.edu/graduate/degree/requirements/requirementsforthedoctorofphilosophydegree/> for the most current guidelines.

Specific Requirements for Different Degrees (Copied from the Graduate College Catalog
<https://catalogue.uvm.edu/graduate/degree/requirements/>

Master of Science – Accelerated Master’s Program for UVM undergraduate students

Accelerated Master’s degree (AMP) programs are designed to allow current UVM undergraduate students to earn both bachelor’s and master’s degrees within a total of five years. Students are expected to be full-time until completion of the Master’s degree.

AMP students may use up to nine (9) credits of graduate-level courses taken at UVM toward both the Bachelor’s and Master’s degrees. These credits are typically taken during their senior undergraduate year after they are enrolled in the combined degree program and have developed a research focus with a research mentor.

Graduate-level courses taken for the AMP prior to earning the Bachelor's must be graded and cannot be independent study or research; thesis research credits; internships; or practicums.

Under no circumstance will more than nine (9) credits of graduate-level coursework taken prior to earning the Bachelor's be applied towards the graduate degree.

Students must apply for and be accepted to the AMP through the standard Graduate College application process. Normally, the application and admission process must be finalized prior to the beginning of the senior year. In all cases, students must be admitted by the Graduate College before taking any courses that will apply

to the Master's degree, i.e., all courses used for the Master's degree must be taken after formal admission to the AMP.

For admission to the AMP program in Animal Biosciences, the student must have an acceptable undergraduate major in animal science, chemistry, biology, or a related field.

We offer two options for completing the AMP in Animal Biosciences: There is a thesis-based option (option A) where a student completes original research (e.g., they complete studies in the laboratory or field to generate novel data or collect observations) and then summarize their methods and results and formulate a conclusion. Generally, under option A, a student is conducting a hypothesis driven study, where they formulate an argument (a thesis) and use the existing research plus data they generate to support or refute their assertion. There is a non-thesis-based option (option B) where a student completes a comprehensive literature review. The literature review is an in-depth review of existing research on a topic. The scope of the literature review is to summarize existing research on a topic and present a concluding theory or model describing a biological system.

Option A (Thesis)

- Thirty (30) credits of study with a minimum of fifteen (15) credits in courses in animal science or related fields and a minimum of nine (9) credits of thesis research. Students are required to attend and participate in ASCI 301 and ASCI 302 twice during their program. Students must also prepare a research proposal.
- Students are expected to meet with their graduate studies committee during their second and third semester, and during the final semester when they defend their thesis. Students are also expected to have one publication ready to submit or already submitted to an appropriate journal at the time of their defense. Students are also required to participate in at least one semester of teaching.
- Students write a thesis following graduate student guidelines and defend their thesis in an oral defense.

Option B (Non-thesis)

- Thirty (30) credits of study with twenty-four (24) credits in courses in animal science or related fields, and a minimum of six (6) credits of literature research. Students are required to attend and participate in ASCI 301 and ASCI 302 twice during their program.
- Students prepare a literature review under the guidance of a mentor and studies committee. The format of the literature review is determined by the studies committee, which is composed of their research mentor and at least 2 members of UVM graduate faculty as described in the graduate college catalog requirements for the Master's Degree. A thesis and an oral thesis defense are not required. An oral public presentation to the academic community (department, etc.) is recommended (see non-thesis option B for MS degree below). The student completes their written literature review and oral presentation at the end of their degree (i.e., in the last semester of their studies). When the student has completed their written literature review, they submit the manuscript to their studies committee for evaluation. Revision of the literature review may be required, and students may be asked to meet with their studies committee to discuss revisions.

Master of Science

We offer two options for completing the M. S. in Animal Biosciences: There is a thesis-based option (option A) where a student completes original research (e.g., they complete studies in the laboratory or field to generate novel data or collect observations) and then summarize their methods and results and formulate a conclusion.

Generally, under option A, a student is conducting a hypothesis driven study, where they formulate an argument (a thesis) and use the existing research plus data they generate to support or refute their assertion. There is a non-thesis-based option (option B) where a student completes a comprehensive literature review. The literature review is an in-depth review of existing research on a topic. The scope of the literature review is to summarize existing research on a topic and present a concluding theory or model describing a biological system.

Minimum Requirements

Option A – Thesis M.S. degree

- Students must complete a total of thirty (30) credits (21 credits must be taken at UVM after the student has been admitted to the Graduate College). A minimum of fifteen (15) graded credits must come from course-related work as determined by the student's studies committee, and between nine (9; minimum) and fifteen (15; maximum) credits must come from thesis research. Typically, students will take 15-21 credits of course-related work and 9-15 credits of thesis research.
- For M.S. students, the studies committee is nominated by the advisor in consultation with the student and consists of at least three (3) members (total, including their thesis advisor, one of whom comes from outside the advisor's department). The member who is not from the Department of Animal & Veterinary Sciences serves as the chair of the committee.
- Students must complete a written and/or oral comprehensive examination administered by their studies committee to be accepted for M.S. candidacy. Completion of the comprehensive examinations must take place at least two months prior to the thesis defense.
- Completion of an M.S. degree requires successful completion of a thesis, registration in Grad 397 during their final semester, a public seminar, and a private defense examination with their studies/defense committee.

The Department Graduate Committee and student's study committee reviews the progress of the graduate student on an annual basis, to determine whether adequate advancement is being made. All full-time students in the program are required to show satisfactory progress, which is defined as:

- Finishing the minimal course work in two years;
- Completion of the comprehensive exam within the prescribed time limits;
- Participation in ASCI 301, Journal Club, and ASCI 302, Graduate Seminar, twice during their program; and
- Attaining at least a 3.0 GPA each semester as well as maintaining at least a 3.0 or greater cumulative GPA.

Option B – Non-Thesis M.S. Degree

A Non-Thesis MS degree requires 30 credit hours of study with 24 credit hours in courses in animal science or related fields and 6 credit hours of literature research. Students are required to attend and participate in ASCI 301 and ASCI 302 twice during their program.

Requirements of Literature Research Project for Non-Thesis M.S.

Students undertaking a non-thesis MS, with the help of their advisor, develop a proposal for the literature review they plan to undertake and submit this to the Department Graduate Committee for approval during their first year of study. The Committee will approve, approve with modification, or deny the proposal. Once approved, the students can enroll for 6 credits of literature research (ASCI 394 or 494: Independent Graduate Research) and commence the project.

The format, style and conventions for the literature review are those currently defined by the Journal of Dairy Science Graduate Student Literature Reviews (JDS, <https://www.journalofdairyscience.org/content/inst-auth>) or an equivalent alternative approved by the student's studies committee. The literature review should be of a quality, thoroughness, and depth consistent with a publishable review article. For example, if the student is writing a literature review following JDS Style and Form for Graduate Student Literature Reviews, the manuscript will contain no more than 30 double-spaced pages and 75 references. The literature review should synthesis information and provide a critical review noting strengths and limitations of past research. A historical account (i.e., a descriptive chronology) of past research is not sufficient. The review shall compare and contrast published work, identify areas of disagreement in the literature and objectively discuss these disagreements. From reading the review, it should be clear that the student has developed a comprehensive and profound understanding of the subject area. The completed literature review, after approval by the advisor, will be supplied to members of the graduate committee and will be the basis for an oral presentation to the Department, comparable with a thesis defense. Following the presentation, the students will be interviewed by the graduate committee, who will make constructive suggestions and corrections. They will then determine whether the student has gained a satisfactory grade (S) or unsatisfactory grade (U) for the literature review course credits. Where possible the student should be encouraged to submit the review for publication in a professional journal. The student must follow the general rules for format check and defense of a thesis (in this case literature review).

It is the joint responsibility of the student and the advisor to see that all requirements are completed fully and on time so that no oversight delays a student's graduation. However, final responsibility falls on the student to see that all requirements are met.

[Doctor of Philosophy](#)

Minimum Requirements

- Students must complete a total of seventy-five (75) credits (51 credits must be completed in residence at UVM, and a minimum of fifteen (15) credits must not count towards a master's degree). A minimum of thirty (30) credits must come from graded course-related work (a minimum 15 credits must be taken at UVM). The courses taken are determined by the student's studies committee in consultation with the student. A minimum of twenty (20) credits must come from dissertation research.
- For Ph.D. students, the Studies Committee usually consists of the five (5) members (minimum of four (4) including the student's advisor). The students and their advisor recommend at least one (1) faculty member from outside the department who is the chair, and at least two (2) members from within the advisor's department, and forwards it to the Dean of the Graduate College.
- Students must complete a written and oral comprehensive examination administered by their studies committee to be accepted for Ph.D. candidacy. Completion of the comprehensive examinations must take place at least six months prior to the scheduled thesis defense.
- Completion of a Ph.D. degree requires successful completion of a dissertation, registration in Grad 497 during their final semester, a public seminar, and a private defense with their dissertation defense examination committee (DDEC), which may or may not be the same as their studies committee. The date, time, and place for the thesis defense must be submitted to the Dean of the Graduate College at least three (3) weeks in advance of defense.
- The faculty advisor reviews the progress of the graduate student on an annual basis, to determine whether adequate advancement is being made. All students in the program are required to show satisfactory progress, which is defined as:
 - Finishing the minimum course work in three years;

- Completion of the comprehensive exam within the prescribed time limits;
- Participation in ASCI 301, Journal Club, and ASCI 302, Graduate Seminar, at least twice for each course; students are also strongly encouraged to enroll in ASCI 302, Graduate Seminar, each semester it is offered; and,
- Attaining at least a 3.0 GPA each semester as well as maintaining at least a 3.0 or greater cumulative GPA.

XIII. Responsible Conduct of Research

Research Oversight and Ethical Conduct

Those engaged in research involving human subjects or vertebrate animals need to complete specific training offered through the Research Protections Office. The UVM Research Protections Office partners with the Collaborative Institutional Training Initiative (CITI) Program to provide training to the UVM community. Every three years, all personnel still listed on an active protocol are required to retake the training. There may be additional more frequent training requirements. <https://www.uvm.edu/rpo>

Environmental Health and Safety

All laboratories have a laboratory safety plan. Each laboratory also has a laboratory safety officer. Graduate students may be asked to serve as a laboratory safety officer for their research lab.

Becoming part of the safety culture of your laboratory and the university is required of graduate students. UVM Risk Management and Safety has extensive training and resources available to support safe laboratory operations. As of January 1, 2020, all new laboratory employees are required to complete the [Orientation/Training Checklist for New Laboratory Employees](#).

In addition, your laboratory orientation will include applicable trainings in the following:

- Fire Safety (online information plus online course required; optional hands on fire extinguisher training) <https://www.uvm.edu/riskmanagement/fire-and-life-safety>
- Evacuation Procedures (online information and online course) <https://www.uvm.edu/riskmanagement/evacuation-procedures>
- Keeping Your Lab Safe (classroom within 3 months of starting work and annual refresher online training)
- Emergency Response for Laboratory Workers (classroom within 3 months of starting work)
- Laboratory Safety Roles and Responsibilities (online before working in lab)
- Chemical Safety in the Laboratory (online before working in lab)
- Laboratory Chemical Waste Disposal (online before working in lab)
- Laboratory Ventilation and Chemical Fume Hoods (online before working in lab)
- Biosafety and Bloodborne Pathogen Training (online through CITI, as relevant to the labs where the student works) <https://www.uvm.edu/riskmanagement/citi-online-training>
- Other training necessary for using shared equipment or specific hazards in your laboratory or shared spaces, which may include use of the autoclaves, use of liquid nitrogen, use of radioactive materials, and respiratory protection.

More information about and how to access these trainings can be found here:

<https://www.uvm.edu/riskmanagement/train-and-inform-lab-personnel>

If required, the process for driver certification (US citizens only) begins here:

<https://www.uvm.edu/riskmanagement/driver-training-and-certification>

Other forms, policies and procedures related to risk management and safety can be found here:

<https://www.uvm.edu/riskmanagement/forms-policies-and-procedures>

Terrill Building Safety and department specific training

Department of Animal & Veterinary Sciences has a Laboratory Health, Safety & Concern for the Environment Induction Document that new graduate students review and complete with their research mentor PI or the lab safety officer.

Research records and data management

Principal Investigators (PI) are responsible for data collection, maintenance, and retention of university-owned Research Data in accordance with the sponsor's award agreement when applicable. Sponsored research is any research conducted under an award from a sponsoring agency, organization, or company. They are made to the University for use by the PI and their lab group. All records of research activities are property of the University and must be always kept in the PI's lab. This includes research laboratory notebooks maintained by undergraduate and graduate students, laboratory technicians, postdoctoral scientists, and the PI. The Records Retention Schedule identifies minimum retention periods for sponsored research data.

https://www.uvm.edu/compliance/compliance/record_retention_schedule

PIs may have their own policies regarding removal of lab notebooks from the laboratory, but you may expect, most labs will require lab notebooks to be kept in the lab at all times (only copies may be removed for personal use).

Laboratories collect multiple types of data. Data will be collected, processed, organized, stored, and retained based on applicable standards and community guidelines. PIs will have data management plans in their sponsored projects funding proposals and in the award agreements. For research efforts involving human subjects, data is handled as approved by the Institutional Review Board, and generally, all participant data is de-identified. Some data, such as genomic or metagenomic data acquired during research, should be handled according to the FAIR principles, that the data should be findable, accessible, interoperable, and reusable.

Individual labs may vary in how and where they store data so that appropriate lab members have access during data management and analysis. Common UVM supported data storage sites include the UVM Zoo Unix environment for individual Network folders, SharePoint Online for collaboration, and OneDrive cloud storage. PIs may also have network storage provisions for research data. Explore the research computing knowledge base to understand some options for storing research data <https://www.uvm.edu/it/kb/article-categories/research-computing/>. Students are often experienced with using cloud-based multi-user collaboration and storage spaces such as Google Drive. These personal sites may not be appropriate for some types of research data; check with your PI and consider UVM supported alternatives. Sharepoint 2016 is a UVM supported online collaboration and document management tool. You can use it as a secure place to store, organize, share, and access information from a variety of devices. Sharepoint 2016 allows in-browser, simultaneous multi-user editing of Word, Excel, PowerPoint, and One Note documents.