



**Michigan
Technological
University**

Graduate Degree Programs

College of Forest Resources and Environmental Science

Michigan Technological University

Houghton, MI

Masters of Forestry – MF

Masters of Geographic Information Science – MGIS

MS in Applied Ecology

MS in Forest Ecology and Management

MS in Forest Molecular Genetics and Biotechnology

PhD in Forest Science

PhD in Forest Molecular Genetics and Biotechnology

Introduction

Welcome to the College of Forest Resources and Environmental Science (CFRES)! We are excited to be a part of your career in sustainable natural resources, and are here to help you reach your goals. The goal of this document is to assist graduate students with their adjustment to Graduate School and to outline the requirements and procedures for obtaining an advanced degree in CFRES. The information supplied herein is more specific than that on the Graduate School website, as it applies to our programs only. Students should familiarize themselves with this handbook and the general regulations of the Graduate School as found in the Graduate School's Academics web pages, <http://www.mtu.edu/gradschool/administration/academics/>, which covers policies and procedures, degree requirements, necessary forms, and more. The Graduate School website <http://www.mtu.edu/gradschool/resources-for/students/index.html> also contains a wealth of information for current students.

The information supplied here applies to our research-based degree programs:

- MS in Forest Ecology and Management,
- MS in Applied Ecology,
- MS in Forest Molecular Genetics and Biotechnology,
- PhD in Forest Science,
- PhD in Forest Molecular Genetics and Biotechnology

As well as our professional degree programs (i.e., *coursework-only options*):

- Master of Forestry (MF)
- Master of Geographic Information Science (MGIS).

College of Forest Resources and Environmental Science Personnel

CFRES is a community of scholars and professional staff working together to further the mission and vision of the College and Michigan Tech. Current CFRES leadership is:

Interim Dean: David Flaspohler

Interim Associate Dean and Director of Graduate Studies: Molly Cavaleri

Interim Associate Dean for Research: Andrew Burton

Below is a collated list of the first point of contact for a multitude of topics that graduate students may need help with:

If you need help with...	Contact	Title
<ul style="list-style-type: none"> • Signing and submission of all milestone forms • Graduate courses and milestones • Any issues RE: grad school experience & advisor • Grad school policies and procedures • Academic or research progress 	Molly Cavaleri macavale@mtu.edu	Director of Graduate Studies, Interim Associate Dean
<ul style="list-style-type: none"> • Purchasing • Payroll • Travel • Reimbursements • Tuition 	Marjorie Banovetz marjorie@mtu.edu	Graduate Assistant /Administrative Aide
<ul style="list-style-type: none"> • Registration issues • Booking rooms in CFRES building 	Stacy Cotey srcotey@mtu.edu	Academic Advisor, Undergraduate Students
<ul style="list-style-type: none"> • Scheduling safety training • Lab and field safety • Running samples in LEAF lab shared facility 	Jennifer Eikenberry jreikenb@mtu.edu	Safety coordinator, LEAF Technical Staff
<ul style="list-style-type: none"> • Office assignments • Keys • Greenhouse space 	Chris Miller camiller@mtu.edu	Space Coordinator, Greenhouse Manager
<ul style="list-style-type: none"> • Biotech lab procedures and protocols 	Jennifer Sanders jlsander@mtu.edu	Biotech and Genomics Lab Manager
<ul style="list-style-type: none"> • Housing at Ford Center 	Jim Tolan jetolan@mtu.edu	Operations Manager, Ford Center
<ul style="list-style-type: none"> • Research at Ford Center 	Mark Rudnicki mrudnick@mtu.edu	Director of the Ford Center and Forest
<ul style="list-style-type: none"> • Scheduling meetings with the Dean 	Phyllis Williamson pcwillia@mtu.edu	Director of Administration

Keys and Space Assignment

Each graduate student in residence is provided a desk for personal use in a research lab or graduate student office. The student's Tech Express identification card, which you received at orientation (or from the IT desk in the Library), is used for after-hours access to the CFRES building. Office keys must be approved by the advisor and are ordered by the Space Coordinator. You will receive an email from Public Safety when your key is ready to be picked up from the Public Safety building.

Requests for new keys, replacements for lost keys, or swipe-card access to restricted areas should be made to the Space Coordinator. Keys must not be passed on to anyone else or duplicated under ANY circumstances. Lending or duplication of keys is grounds for dismissal. Lost keys need to be reported to supervisors as soon as they are noticed to be missing. A \$100-\$150 fee is assessed for any key lost/replaced or not returned to Public Safety when no longer needed.

Advisors and Advisory Committees

Advisors

All CFRES graduate students must choose an advisor who is a member of the Michigan Tech graduate faculty and holds a regular or adjunct faculty appointment. Advisors provide guidance to students on course selection and supervise their research. This task must be completed by the end of the second semester in residence by filling out the following form with only the advisors name (the same form will be submitted again, revised with names of committee members by the 3rd or 4th semester):

<https://www.mtu.edu/gradschool/documents/policies-procedures/forms/advisor-committee.pdf>.

Advisory Committee, Qualifying Exam, and Proposal Defense

The primary purpose of the Advisory Committee is to guide and monitor the research work of the student. Every MS, MGIS, or MF student is required to have an Advisory Committee consisting of at least three members, including their advisor or co-advisors. An external faculty member is not required for Masters degree programs. MF and MGIS students can initially have the program coordinator(s) as their primary advisor, but they may select another faculty member as their primary advisor if they choose to, ideally by their second semester.

Every Ph.D. student is required to have an Advisory Committee consisting of at least four members, including their advisor or co-advisors. For Ph.D. students, one of the four members needs to be an external committee member. A committee member is classified as external if one of the following is true:

- They do not have an academic appointment in the student's home department or college,
- Their academic appointment is less than 50% in the student's home department or college, or
- They are affiliated faculty in the student's home department or college, or
- They are adjunct faculty.

Committee members that are outside of MTU may be considered external committee members as long as they do not have an official academic appointment in CFRES, such as Assistant Research Professor or Adjunct Faculty. An advisor or co-advisor may be from outside the student's home department or college, but cannot serve as the sole external member of the committee.

All committee members for every degree program must have full or associate Graduate Faculty Status. To determine whether an individual is a member of the Graduate Faculty, go to <https://www.mtu.edu/gradschool/prospective/locator/>. To request that an individual be considered for Graduate Faculty Status if they do not already have it, you must fill out and submit the following form:

<https://www.mtu.edu/gradschool/policies-procedures/academic/appointment/graduate-faculty-status-appointment.pdf>.

Policy to Change Academic Advisor

Students are encouraged to practice effective communication and openly discuss with their current advisor any significant changes in their research area. If there are compelling reasons for changing an advisor during the graduate study, the student or the advisor can initiate the change process in consultation with the Graduate Program Director and/or the CFRES Dean. If the student or advisor feels that there may be a conflict of interest on the part of the Graduate Program Director or CFRES Dean, an outside representative from the Graduate School may be requested.

Ph.D. students, in consultation with their advisor and with the approval of the graduate studies committee/CFRES Dean, may select new or additional Advisory Committee members and file the form <http://www.mtu.edu/gradschool/policies-procedures/timelines/index.html> with CFRES and the Graduate School. The Advisory Committee for the Qualifying Exam need not be the same as the Advisory Committee for the research proposal defense, and in some cases the proposal defense may occur prior to the qualifying exam. A graduate faculty member external to CFRES is required for the final dissertation defense.

If the student is under research support from the current advisor, that support is not transferred to the new advisor. However, if the student is under teaching assistant support from CFRES, the support will be transferred to the new CFRES advisor dependent on continuing satisfactory progress by the student as required by the College. If the student is receiving external funding support directly through fellowships, such as NSF, specific fellowship guidelines must be followed. If no guidelines are specified, the student will maintain funding independent of the advisor, pending approval of the funding agency.

Timely Written Feedback

All graduate programs at the university provide constructive written feedback to students who are completing a report, thesis, or dissertation, at least annually. This formal process ensures that both students and advisors are aware of the student's academic progress and plans for the future. The form used in CFRES can be found online (<https://www.mtu.edu/forest/graduate/requirements/>) and is typically due at the end of April of each year. The form is completed by both the student and advisor. If deficiencies are identified in a student's performance, written feedback will be provided twice yearly, specifically addressing the area(s) of deficiency, timeline for making up the deficiency, and consequences for continued unsatisfactory performance, and copies will be provided also to the Director of Graduate Studies. These deficiencies are interpreted broadly, but generally include a level of student performance that may put funding and/or successful continuation in the program in jeopardy.

Work Expectations (hours devoted to research vs. TA, etc.)

Students who are enrolled are expected to work on their research or coursework according to the General Requirements of Credit Expectations. In summary, these guidelines state: "One credit should average 3½ hours of a student's time per week for one semester. One hour in class and 2½ hours in individual study is a typical division." The 3.5 hours commitment per credit holds as well for students enrolled in research credits. Thus an *average* graduate student enrolled in 9 credits of research should spend *on average* $9 \times 3.5 = 31.5$ hours per week on their research.

Students who are supported by a GRA, GTA, GTI, GADI, etc. are expected to perform work for the University at the rate of 20 hours per week (for a full appointment). This 20 hours per week is *IN ADDITION* to the amount of time a student spends working on their coursework or research for the credits in which they are enrolled. These graduate appointments are considered to be part-time jobs which provide some financial assistance to students so that they can pursue their degrees on a full-time basis.

The sum of #1 and #2 above is more than 40 hours per week, but less than 60 hours per week. I want to add however that the most successful students are those who focus their attention on achieving the intended outcomes for their courses and research. For students supported on an hourly basis, all hours worked must be reported and paid per labor laws. International students are limited to 20 hours per week while classes are in session during fall and spring semesters.

Leave of Absence

Graduate students may encounter circumstances which make it difficult for them to make progress toward their degree. These circumstances may include, but are not limited to, financial difficulties, personal challenges, bereavement, or medical care for a family member. Although continuous enrollment is expected to make progress toward the degree, in some situations, it will be in a graduate student's best interests to take a leave of absence so they have the necessary time to resolve these circumstances. Graduate students eligible to enroll may apply for a leave of absence from their graduate program for any future semester. A leave of absence may be requested for up to one academic year and may be extended once. While on leave, students will be exempt from continuous enrollment, and the deadline to complete qualifying and research proposal exams will be extended. Please see more information and details about the application process here: <https://www.mtu.edu/gradschool/policies-procedures/academic/leave/>

How to Schedule a Defense

Final oral examinations ("defenses") can be scheduled on MyMichiganTech. This applies to students scheduling a defense of their dissertation, thesis, or report.

Students will log into MyMichiganTech to complete a scheduling request, and their advisor will log into the Workflow system to review that request and decide. A student tutorial: <https://blogs.mtu.edu/gradschool/2020/10/06/scheduling-a-final-oral-examination/> and advisor tutorial with screenshots:

<https://blogs.mtu.edu/gradschool/2020/10/06/reviewing-a-scheduling-request-for-a-final-oral-examination/>

are available on the Graduate School blog, as well as a presentation in the seminar archive: <https://www.mtu.edu/gradschool/resources-for/students/seminar/>

A complete overview of the process to complete a dissertation, thesis, or report is available online.

A few things to note:

- Students who have already completed their defense or have a defense already scheduled with the Graduate School do not need to repeat this process on MyMichiganTech.
- Faculty will need to log into the Workflow system to approve defenses. Please refer to advisor tutorial.
- The Graduate School will continue to accept PDF forms this semester if a student has already started that process with their advisor.
- Please delete any PDF forms that have been saved to use later. Always go to our website for the most current information and forms.
- This process applies to the final oral examination, and not to other examinations such as a qualifying examination or research proposal examination.
- Graduate programs should remove references and links to the “pre-defense form” from their website and handbooks, as this process replaces the form.

Recommended Timeline for Graduate Degree Milestones for MS and PhD

All work must be completed within the specified time frame starting from the first enrollment in the degree program or the earliest course listed on the degree schedule, whichever is sooner.

- Master’s degree must be completed within 5 calendar years.
- Ph.D. must be completed within 8 calendar years.

Below is a general list of time frames for each task that needs to be completed for your degree, in addition to coursework. Personalized upcoming and completed tasks may be viewed in your MyMichigan Tech account on the Current Students page, with more detail linked in Degree Completion Timeline: <https://www.mtu.edu/gradschool/policies-procedures/timelines/>

Task	When	Forms or Links
Choose Major Advisor	1 st semester (MS) 1 st or 2 nd semester (PhD)	<u>Submit form to Director of Graduate Studies:</u> https://www.mtu.edu/gradschool/documents/policies-procedures/forms/advisor-committee.pdf
Complete <i>Basic Responsible Conduct of Research (RCR)</i>	1 st or 2 nd semester	N/A
Select Advisory Committee	2 nd semester (MS) 2 nd or 3 rd semester (PhD)	<u>Submit form to Director of Graduate Studies:</u> https://www.mtu.edu/gradschool/documents/policies-procedures/forms/advisor-committee.pdf

Task	When	Forms or Links
Complete and submit annual progress report form and meet with advisor about form	End of 2 nd semester, and every year thereafter (or more frequently)	<u>Submit form to your advisor for feedback:</u> https://www.mtu.edu/forest/graduate/requirements/
Present Research Proposal to Committee (MS-thesis only)	2 nd semester	<u>Submit form to Director of Graduate Studies:</u> https://www.mtu.edu/forest/graduate/requirements/msthesisproposal.pdf
Complete <i>Advanced RCR</i>	2 nd or 3 rd semester	N/A
Pass Qualifying Exam (PhD only)	3 rd or 4 th semester	<u>Submit form to Director of Graduate Studies:</u> https://www.mtu.edu/forest/graduate/requirements/reportonqualifyingexamination.pdf
Pass Research Proposal Examination (PhD only)	3 rd , 4 th , or 5 th semester	<u>Submit form to Director of Graduate Studies:</u> https://www.mtu.edu/forest/graduate/requirements/phdproposalreport.pdf
Submit Degree Schedule	Semester coursework will be completed	<u>Submit form to Director of Graduate Studies:</u> MS: https://www.mtu.edu/gradschool/documents/policies-procedures/forms/ms-degree-schedule.pdf PhD: https://www.mtu.edu/gradschool/documents/policies-procedures/forms/d5-degree-schedule.pdf
Enter Research-only Mode (i.e., Candidacy)	Petition due one week before semester wishing to enter research mode. <u>See eligibility here:</u> https://www.mtu.edu/gradschool/policies-procedures/academic/candidacy/	<u>Submit form to Director of Graduate Studies:</u> https://docs.google.com/forms/d/e/1FAIpQLScaAghK21-0nev0mtfwp16KDIoDCuhvQsceq3K6nTU8My-_Sg/viewform
Meet with advisor to establish a detailed timeline degree completion Submit Graduate Application form	At start of semester in which defense and graduation is planned	<u>Fill out Graduate Application Google form and submit directly:</u> https://docs.google.com/forms/d/e/1FAIpQLSc3pSnzEm3RE-cSGE-lo7YxYO8RvBM1Vt0vtHT0ZK_J-jRvoQ/viewform
Schedule defense with committee and submit details to Grad School. Find and book a 3 – 3.5 hour block of time that works for all committee members	Schedule at least one month prior to defense date – ideally well before this as it is hard to find a time that works for all.	Once a date is agreed upon by committee, submit Oral Examination scheduling form in your MyMichiganTech portal. <u>Instructions here:</u> https://blogs.mtu.edu/gradschool/2020/10/06/scheduling-a-final-oral-examination/

Task	When	Forms or Links
<p>Book rooms for both public (1 hour) and closed-door (2-2.5 hours) portions of defense -does not have to be the same room.</p> <p>The Graduate School will advertise public defenses in Tech Today. It is also advisable (though not required) for the student's advisor to send an email to CFRES listservs to advertise the defense.</p>	<p>Book room(s) at least one month prior to defense date – ideally well before this because rooms book up!</p>	<p><u>To book classroom for public presentation:</u> https://www.mtu.edu/registrar/students/room-schedule/#:~:text=The%20Registrar's%20Office%20is%20responsible,Friday%20during%20normal%20business%20hours.&text=it%2Dhelp%40mtu.edu%20or%20487%2D1111.</p> <p><u>To book closed-door portion of defense:</u> Stay in room of public defense (if it can be booked for that long) or sign up for CFRES rooms 119 or G004 by writing in one of the calendars just outside the conference room doors.</p>
<p>Submit report, thesis, or dissertation to Graduate School and to your committee</p>	<p>Submit at least 2 weeks before defense date.</p>	<p>Upload document in Pre-defense Dissertation Submission module on the Graduate Candidates course in Canvas. <u>Instructions:</u> https://blogs.mtu.edu/gradschool/2012/02/23/submit-to-canvas/ -and- Email electronic versions and/or submit hard copies to committee members (ask them which they prefer)</p>
<p>Public and closed-door defense of research</p>	<p>Defense date should be at least 1 or 2 weeks prior to the final deadline to submit committee approved post-defense dissertation, thesis, or report so you have time to revise based on Advisory Committee feedback (find relevant deadline in link in box below).</p>	<p>For MS and PhD Thesis defenses, submit form to Director of Graduate Studies following defense: https://www.mtu.edu/gradschool/documents/policies-procedures/forms/report-final-oral-exam.pdf</p> <p>For Coursework-only MS defenses, please fill out and submit the following form to the Director of Graduate Studies:</p>
<p>Submit committee-approved post-defense dissertation, thesis, or report</p>	<p>Specific deadlines here for each semester: https://www.mtu.edu/gradschool/policies-procedures/forms-deadlines/</p>	<p>After all technical and formatting corrections are complete, students will submit their dissertation or thesis to <u>Digital Commons</u> and <u>ProQuest</u></p>
<p>Submit Workspace Cleanout form</p>	<p>Prior to graduation and/or leaving the University premises.</p>	<p>Upload signed document to MyMichiganTech. <u>Instructions and link to form here:</u> https://www.mtu.edu/ehs/forms-procedures/leaving/</p>

Other Resources

There are several offices around campus that are best situated to assist you with many other facets of your graduate education. These include:

- ***Center for Diversity and Inclusion*** (<https://www.mtu.edu/diversity-center/>) Fosters student success through events, resources, counseling, and referral services that enhance retention and graduation outcomes.
- ***Center for Student Mental Health and Well-being*** (<https://www.mtu.edu/well-being/>) Hands-on health & well-being education and support.

- **Writing Center** (<https://www.mtu.edu/humanities/places/writing-center/>) Writing Center coaches an help with: thesis/dissertation proposals and chapters, graduate coursework, CVs, manuscripts, procrastination and writer's block, grant and fellowship proposals, and more.
- **International Programs and Services** (<https://www.mtu.edu/international/>) For international students, the IPS will help you with visa issues, English language requirements, employment (e.g., post-completion optional practical training and curricular practical training), and other needs you may have.
- **Residence Education and Housing Services** (<https://www.mtu.edu/housing/options/graduate/>) Housing Services may also be able to help you find housing off-campus.
- **Graduate Student Government** (<http://gsg.mtu.edu/>): All graduate students at Michigan Tech are represented by the GSG. Each unit (including CFRES) chooses representatives to advocate for their interests (e.g., housing, health insurance, parental leave, etc.) and to bring issues back to the students in the unit. CFRES typically has between 50-100 graduate students enrolled, for which two GSG representatives are required.
- **Student Organizations** (<https://www.mtu.edu/admissions/life/involved/>) Michigan Tech has numerous student clubs and organizations focused on a variety of themes (e.g., intermural sports, professional societies, international affiliation, hobbies), and most are open to graduate students. These organizations are a great way to network with other students on campus and provide work-life balance that is so important to success!

General Credit Requirements for Master's and PhD Students

These are the minimum requirements set by the Graduate School. Each degree may have additional CFRES requirements: <https://www.mtu.edu/gradschool/policies-procedures/requirements/>.

- Full time credit load for graduate students is 9 credits for fall and spring and 1 credit for summer semester. If students are supported with full stipends, they must maintain full time status. If students are fully supported, they should not take more than 9 credits. If they are paid “hourly,” they only need to maintain continuous enrollment of 1 credit per semester.
- 30 credits total (coursework + research) beyond the bachelor's degree are required for a Master's degree.
- 30 credits total (coursework + research) beyond the Master's degree are required for a PhD.
- 60 credits total (coursework + research) are required for a PhD if a student does not already have a Master's degree.
- Maximum of 12 credits may be at the 3000 or 4000 level (with program approval).
- One-third of non-research credits may be transfer credits as long as they were not applied toward another degree.
- Research credits are the only non-graded classes that may be counted toward a degree.
- Coursework must be graded to apply to a graduate degree. Pass/fail, audit, or satisfactory/unsatisfactory grades may not be used on a degree schedule.
- Coursework grades must be a grade of “B” or better. This requirement may be adjusted with permission from the student's advisor and the Graduate Director of CFRES to allow use of “BC/C” grades for up to 6 credits.

Special Conditions

- If you are getting an “MS along the way” to a PhD, credits from your MS can count towards your PhD if they were not used for the MS (i.e., not on your degree schedule or counted towards that credit requirement).
- Students in an Accelerated Master’s program may apply up to 6 of the credits earned while an undergraduate toward both their Bachelor’s and Master’s degrees. This option is currently only available for the MF and MGIS coursework-only programs. Please find more information in the “Accelerated Master’s” webpage: <https://www.mtu.edu/accelerated/masters/>
- While finishing an undergraduate degree at MTU, students are allowed to take courses which could apply to a graduate degree. However, a course cannot be applied to both a graduate and an undergraduate degree. Please find more information in the “Senior Rule” webpage: <https://www.mtu.edu/registrar/students/registration/policies/senior-rule/>

Specific Coursework and Research Credit Requirements for CFRES Degree Programs**Master of Forestry program (MF) – Coursework only**

- Basic Responsible Conduct of Research training (RCR; see details below)
- Advanced RCR - online version acceptable (see details below)
- FW3020 – Forest Ecology (3 credits)
- FW5020 – Woody Plants of North America (2 credits)
- FW5330 – Applied Soil Science (3 credits)
- FW5378 – Field Methods (1 credit)
- FW5550 – Geographic Information Science (4 credits)
- FW3110 – Natural Resource Policy (3 credits)
- FW5079 – Forest Management (2 credits)
- FW5081 – Professionalism in Forestry (1 credit)
- FW5201 – Forest Biometrics and Modeling (2 credits)
- FW5369 – Hydrology & Watershed Management (1 credits)
- FW5700 – Graduate Field Forestry (8 credits – residential fall semester at Ford Center)
- FW5088 – Economic analysis of forestry (2 credits)
- Minimum of 32 coursework credits total; research credits do not count towards coursework degree options.

Master of Geographic Information Science program (MGIS) – Coursework only

- Basic Responsible Conduct of Research training (RCR; see details below)
- Advanced RCR - online version acceptable (see details below)
- FW5540 – Remote Sensing of the Environment (3 credit)
- FW5541 – Remote Sensing of the Environment Lab (1 credit)
- FW5550 – Geographic Information Science (4 credits)
- FW5554 – GPS Field Techniques (2 credits)
- FW5555 – Adv GIS Concepts and Analysis (3 credits)

- FW5556 – GIS Project Management (3 credits)
- FW5557 – Applied Spatial Statistics (3 credits)
- FW5801 – Master’s Seminar in GIS (1 credit) OR FW5800 – Master’s Graduate Seminar (1 credit)
- At least one course from the following list:
 - FW5560 – Digital Image Processing: A Remote Sensing Perspective (3 credits)
 - FW5553 – Python Programming for ArcGIS (3 credits)
 - GE4250 – Fundamentals of Remote Sensing (3 credits)
 - GE5150 – Advanced Natural Hazards (3 credits)
 - SS5050 – Advanced GIS Methods and Projects (3 credits)
 - SU4140 – Photogrammetry & UAV Mapping (4 credits)
- Additional credits of elective coursework selected and approved by the advisor, specified in student’s degree schedule (6-7 credits)
- Minimum of 30 coursework credits total; research credits do not count towards coursework degree options.

MS degree programs – Thesis option (Applied Ecology, Forest Ecology and Management, Forest Molecular Genetics and Biotechnology)

- Basic Responsible Conduct of Research training (RCR; see details below)
- Advanced RCR course (1-3 credits, see details below)
- FW5800 – Master’s Graduate Seminar (1 credit)
- FW5810 – Research Methods in Natural Resources (2 credits)
- An upper division statistics class. You can find a list of options here, under the heading “Upper division statistics class options:” <https://www.mtu.edu/forest/graduate/requirements/masters/>
- FW5999 – Master’s Research Credits (6-10 credits)
- Minimum of 30 credits total; at least 20 of them need to be coursework credits

MS degree programs – Report option (Applied Ecology, Forest Ecology and Management, Forest Molecular Genetics and Biotechnology)

- Basic Responsible Conduct of Research training (RCR; see details below)
- Advanced RCR course (1-3 credits, see details below)
- FW5800 – Master’s Graduate Seminar (1 credit)
- FW5810 – Research Methods in Natural Resources (2 credits)
- An upper division statistics class. You can find a list of options here, under the heading “Upper division statistics class options:” <https://www.mtu.edu/forest/graduate/requirements/masters/>
- FW5999 – Master’s Research Credits (2-6 credits)
- Minimum of 30 credits total; at least 24 of them need to be coursework credits

MS degree programs – Coursework option (Applied Ecology, Forest Ecology and Management, Forest Molecular Genetics and Biotechnology) – *this option is rarely used, and only under special circumstances with permission from advisor and Director of Graduate Studies.*

- Basic Responsible Conduct of Research training (RCR; see details below)

- Advanced RCR - online version acceptable (see details below)
- FW5800 – Master’s Graduate Seminar (1 credit)
- FW5810 – Research Methods in Natural Resources (2 credits)
- An upper division statistics class. You can find a list of options here, under the heading “Upper division statistics class options:” <https://www.mtu.edu/forest/graduate/requirements/masters/>
- Minimum of 30 coursework credits total; research credits do not count towards coursework degree options.

PhD programs – (Forest Science, Forest Molecular Genetics and Biotechnology)

- Basic Responsible Conduct of Research training (RCR; see details below)
- Advanced RCR course (1-3 credits, see details below)
- FW6800 – Doctoral Graduate Seminar (1 credit)
- FW5810 – Research Methods in Natural Resources (2 credits)
- An upper division statistics class. You can find a list of options here, under the heading “Upper division statistics class options:” <https://www.mtu.edu/forest/graduate/requirements/doctoral/>
- Minimum of 30 credits total beyond MS degree; as long as the above courses are completed, there is no additional coursework credit requirement. Additional courses a PhD student takes beyond those required should be discussed with advisor(s) and committee.

Responsible Conduct of Research (RCR) Training

Both Basic RCR and Advanced RCR training are important for being an effective scholar, and are mandated for graduate students in CFRES regardless of degree being pursued. Basic RCR training must be completed within the first two semesters at MTU or a registration hold is placed on the student’s account. General details on completing RCR training can be found here:

<https://www.mtu.edu/gradschool/resources-for/students/academic/rcr/index.html>.

For students pursuing a *research-based degree* option (PhD, MS Thesis or Report option), Advanced RCR training must be completed by the end of the third semester. Students may not graduate or enter research-only mode if both Basic and Advanced RCR training is not complete. To fulfill the Advanced RCR requirement, CFRES students typically take FW5811 (Summer short course) or BL5025 (Spring full semester course). A list of additional courses pre-approved to count for Advanced RCR for research MS and PhD degrees can be found here:

<https://www.mtu.edu/research/integrity/responsible-conduct/training/courses/>

For students pursuing a coursework-only *professional degree* option (MF or MGIS), you will need to complete the online version of Advanced RCR training prior to graduation. The link and registration instructions are found here:

<https://www.mtu.edu/research/integrity/responsible-conduct/training/advanced/>