

Specific Guidelines for MASTER DEGREES

Degrees Awarded:

Master of Science (M.S.) in Forestry

Master of Science (M.S.) in Forest Ecology and Management

Master of Science (M.S.) in Applied Ecology

Master of Science (M.S.) in Forest Molecular Genetics and Biotechnology

Master of Forestry (M.F.)(Professional degree)

All work required for the *Master of Science* degrees or the professional *Master of Forestry* degree must be completed within **five** years after **first** registering for classes. **Completion of Graduate School forms by required dates is the responsibility of the graduate student.** Always keep a copy for your files before sending the signed forms down to graduate school.

There are three options offered for all *Masters of Science* Degrees in the School of Forest Resources and Environmental Science (MF degree will be described later):

Plan A: Development of a thesis with a scientifically sound development of a research problem;

Plan B: Development of a report with a complete description of the project; and

Plan C: Course work only, concentrating on a general area of expertise

There are differences in the amount of course work needed for each of these three plans. More details on the course work requirements for the individual plans are given in the **Section III** below or by contacting your faculty advisor. Here is some general information that is common to all MS programs at SFRES.

I. ADVISORY COMMITTEE

Your Graduate Advisory Committee should be appointed latest by your **second semester of residence**. The Advisory Committee consists of at least **three** members of the graduate faculty, including one member designated as a 'Chair'. The Chair is always your Advisor. The Chair must be a member of the School of Forest Resources and Environmental Science and the MTU Graduate School faculty. Please visit <http://www.gradschool.mtu.edu/research/gradfaculty.html> to see if your advisor and other committee members are designated as graduate faculty by the graduate school. A minimum of **two** other members of your advisory committee, consisting of at least one '**outside**' member, are selected by you and your Advisor. The 'outside' member must be from **another department** within Michigan Technological University. Other committee members can be selected from outside of the MTU community; however, these members cannot serve as the 'outside' member of Michigan Tech. If so desired, your Advisor must write a memo to the Graduate School and the School's Graduate Program Director, asking permission to place someone from outside the University community on your Advisory Committee. The memo must also include a justification for having this person (or persons) on your Advisory Committee.

Plan A and Plan B Masters

It shall be the function of the Advisory Committee to approve the design of your research thesis (Plan A) or of your report (Plan B), and the necessary course work that needs to be successfully completed for your project. It is the responsibility of the student's Advisor to ensure the research topic/thesis or report is within the capability of the student and can be completed within a reasonable period of time.

The Advisory Committee may offer suggestions to strengthen the research, but changes cannot be required by any member of the committee that will change either the objectives or scope of the study without approval of the student's Advisor. If a student and his/her Advisor do not accept the suggested changes and the other committee member does not agree, the Advisor may select a replacement for the dissenting committee member.

If any member of the Advisory Committee disagrees with a certain part of the study design and does not indicate that at the time it is presented to the Committee, then the committee member cannot refuse to grant approval of the thesis/report at the time of the defense. The committee member can, however, refuse approval if the design is changed without prior consent, or if he or she feels it is poorly written or otherwise does not meet the criteria for a thesis or report.

Meetings with the Advisory Committee should be held at least semiannually to review the student's progress. It is emphasized that such meetings are to be tutorial and informative in nature. The student will be expected to give a short presentation of results at these meetings, followed by a discussion. An important goal of these meetings is to help the student develop a high degree of professional competence and confidence.

Plan C Masters

It shall be the function of a Plan C Master's Advisory Committee to: (1) help a student choose course work; (2) keep track of the student's progress in his or her course work; and (3) to test the student's knowledge on his or her course work at the student's oral defense. The student should also meet with Advisory Committee semiannually to discuss coursework schedule and progress.

II. GENERAL SCHEDULE FOR THE MASTER DEGREE PROGRAM

A plan of work showing the courses to be taken, the topic of the thesis/report research (Plans A and B), and the thesis/report format (Plans A and B) is first prepared by the student and his/her Advisor. The student's Advisory Committee will review the course work (Plans A, B, and C) and design of study (Plans A and B) by **the end of the second semester in residence**.

For a Plan A and B Masters, you need to prepare a study plan for your thesis/report, acceptable to your Advisor and Advisory Committee. This research study plan should be presented to the student's Advisory Committee no later than the end of the **second semester in residence** (except for Peace Corps Masters International students who may develop their study plan while in residence in their country). ***A printed copy of the approved study plan will be given to all committee members and graduate program Director and should be placed in your academic file, once approved by the Advisory Committee.***

All graduate students are required to be enrolled each academic term following entry into the Masters program until completion of all degree requirements. A full-time student on an assistantship must enroll for a minimum of nine credit hours per semester but not more than 12 credit hours each semester (**The school pays only for 9 credits when such assistantship is offered**). During the summer, a full-time student on an assistantship must enroll for one (1) credit hour. Exemptions from this requirement for finite time periods, such as during a co-op employment program, may be obtained, in writing, from the Dean of the Graduate School.

A grade of "A", "AB", or "B" should be obtained in ALL courses listed on your degree schedule; however, up to six credits of "C" may be applied toward your degree if 1) those courses are not Forest Resources and Environmental Science (FW) courses, 2) are not **required courses for the degree**, and 3) ***approved by the SFRES Graduate Program Director and the student's Advisor***. No grade below a "B" is acceptable for required courses and courses within the School that are applied towards your degree.

III. GENERAL COURSE WORK REQUIREMENTS

A minimum of 30 semester credits is required for graduation (Table 1) for all three plans (A, B and C). Please note the minimum requirements for 5000-6000 level courses and the maximum allowance of 12 credits for 3000-4000 level classes (Table 1). The student's Advisory Committee should help the student choose their courses. Please note: Certain courses are required by the School to complete your degree. And different courses are required for the directed programs for our Peace Corps Masters International programs and Master of Forestry (MF). Please contact Dr. Blair Orr (bdorr@mtu.edu) for the requirements for Peace Corps and Dr. Jim Pickens (jpickens@mtu.edu) for MF programs.

TABLE I. Semester Credits by Course Level for Plan A, B, and C Masters Students

Plan A: Thesis Option

-Course Work 20-24 Credits
-12 Credits (Maximum): 3000-4000 Levels
-12 Credits (Minimum): 5000-6000 Levels
-Thesis Research: 6-10 Credits
-Total (Minimum): 30 Credits

Required Courses:

-FW5800 Master's Graduate Seminar 1 credit
-FW5810 Research Methods in Natural Resources 2 credits
(Except Peace Corps and Masters of Forestry)
-One Upper Division Statistics class from the list of suggested courses**
(except for Peace Corps and Masters of Forestry students who must have taken a similar class before joining our graduate programs)

Plan B: Report Option

-Course Work 24-28 Credits
12 Credits (Maximum): 3000-4000 Levels
12 Credits (Minimum): 5000-6000 Levels
-Thesis Research: 2-6 Credits
-Total (Minimum): 30 Credits

Required Courses:

-FW5800 Master's Graduate Seminar 1 credit
-FW5810 Research Methods in Natural Resources 2 credits
(Except Peace Corps and Masters of Forestry)
-One Upper Division Statistics class from the list of suggested courses**
(except for Peace Corps and Masters of Forestry students who must have taken a similar class before joining our graduate programs)

Plan C: Course Work Option

-Course Work 30 Credits
12 Credits (Maximum): 3000-4000 Levels
18 Credits (Minimum): 5000-6000 Levels
Thesis Research: None
Total (Minimum): 30 Credits

Required Courses:

-FW5800 Master's Graduate Seminar 1 credit
-FW5810 Research Methods in Natural Resources 2 credits
(Except Peace Corps and Masters of Forestry)
-One Upper Division Statistics class from the list of suggested courses**
(except for Peace Corps and Masters of Forestry students who must have taken a similar class before

joining our graduate programs)

** List of suggested statistics classes

MA 4710 - Regression Analysis
MA 4720 - Design and Analysis of Experiments
MA 4730 - Nonparametric Statistics
MA 4740 - Sampling Methods
MA 4750 - Applied Multivariate Statistics
MA 4760 - Mathematical Statistics I
MA 4770 - Mathematical Statistics II
BL 4470 - Analysis of Biological Data
MA 5701 - Statistical Methods
MA 5711 - Mathematical Statistics I
MA 5712 - Mathematical Statistics II
MA 5731 - Linear Models
MA 5740 - Advanced Sampling Methods
MA 5750 - Statistical Genetics
MA 5761 - Computational Statistics
MA 5791 - Categorical Data Analysis
BE 5550 - Biostatistics for Health Science Research
FW 5411 - Applied Regression Analysis
FW 5410 - Analysis of Natural Resource Data

Approval of equivalent courses can be given by the School of Forest Resources and Environmental Science Graduate Program Director in consultation with the student's Advisory Committee. The Advisory Committee may specify certain courses in which a student must achieve a grade better than a 'B'. The student must submit to the Graduate School an approved Graduate School M4 Form "Degree Schedule" **at least 12 weeks prior to the oral defense**. Copies should be given to the student's Advisory Committee and to the Graduate Program Director of the School to be placed in the student's file.

IV. ORAL DEFENSE

All Masters students must go through an oral defense. The oral defense for **Plan A and B** Masters students focuses around the student's thesis or report and their course work. **Plan A and B** students must give a scheduled oral presentation before their defense. The oral defense for Plan C students focuses around their course work. The student must contact their Advisory Committee members to schedule an appropriate time for the oral defense at least ***a month*** before the exam. The student must submit **Graduate School Form M5, "Schedule of Oral Examination"**, at least **two weeks prior to the defense/examination**. The **Graduate School Form M6, "Report on Oral Examination"**, is due in the **Graduate School immediately following the defense**. Please see the Graduate School's "Keeping on Track" Manual for other instructions regarding thesis or report format.

Plan A and B Masters

Early in the student's last semester, a draft of the thesis/report should be submitted to the student's Advisor. Following review and revisions by the Advisor, the thesis/report should be submitted to the student's Advisory Committee and the graduate school **at least two weeks** before the scheduled oral examination.

V. CHANGE OF STATUS

Students can change their status from M.S. to Ph.D. at no charge by submitting a new application and the Graduate School **Form D1, "Acceptance into the Doctoral Program"**, to the Graduate School at any time before or after their MS degree is received.

The following are the special instructions for MF program. Please contact Dr. Jim Pickens (jpickens@mtu.edu) if you have any questions.

Suggested Course Work for Master of Forestry (MF) degree

Master of Forestry (Plan B and Plan C)

The Master of Forestry (M.F.) degree program is Plans B and C only, and is intended for students who want a course work-only professional degree or who may be interested in working on a small project with a report. This program is for students who lack a forestry background at the bachelors level, and wish to change their career to forestry. The structure of this program is significantly different from our other Master of Science Degree programs. In addition to a Bachelors degree, students applying for this program are expected to have had 1 semester of Chemistry, and 1 semester of Elementary Statistics. The curriculum for the M.F. is listed below. Students completing plan B may choose to take 2-6 research credits in addition to the required course work listed below, upon consultation with their advisor. Curriculum: 34 credits, depends on previous course work (at a minimum 30 credits)

Fall Semester (11 credits)

FW3020 Forest and Landscape Ecology (3 cr)

FW3330 Soil Science (4 cr)

FW5020 Identification and Biology of Forest Vegetation (2cr)

FW5030 Forest Measurement and Assessment (2 cr)

Spring Semester (13 credits)

FW3110 Natural Resource Policy (3 cr)

FW3540 Remote Sensing/GIS (4 cr)

FW4130 Biometrics (2 cr)

FW5080 Advanced Forest Economics and Finance (3 cr)

FW5800 Master's Graduate Seminar (1 cr)

Fall Semester (10 credits)

FW5700 Graduate Field Forestry (8 cr)

FW5760 Graduate Tropical Forestry (2 cr)

Advisory Committee

The student's Graduate Advisory Committee should be appointed by the second semester of residence. The Advisory Committee will consist of at least four members, including one member designated as Chair. The chair is the student's graduate advisor. The Chair must be a member of the School of Forest Resources and Environmental Science and the MTU Graduate School faculty. At least one member of the Advisory Committee must be from outside the School. The Advisory Committee must approve the report (Plan B), and the necessary course work to successfully complete the project. The student's Advisor is responsible for ensuring the report (Plan B) is within the capability of the student and can be completed within a reasonable period of time. The Advisor and the Advisory Committee are responsible for ensuring the report (Plan B) and course work (Plans B and C) fall within the Masters program selected by the student and the student's Advisor. The role of the Advisory Committee for Plan C students is to help the student choose course work, keep track of the student's progress in his/her course work, and to test the student's knowledge on his/her course work at the student's oral defense.

General Procedures

A plan of work showing the courses to be taken, the topic of the report (Plan B), and the report format (Plan B) will be prepared by the student with his/her Advisor. The student's Advisory Committee will review the course work (Plans B and C) and design of study (Plan B) by the end of the second or third semester in residence. For a plan B Masters, the study plan must be presented to the student's Advisory Committee no later than the end of the second semester in residence. A copy of the approved study plan will be given to all committee members once approved by the Advisory Committee. All graduate students are required to be enrolled each academic term following entry into the Masters program until completion of all degree requirements. A full-time student on an assistantship must enroll in a minimum of 9 credit hours per semester and not more than 12 credit hours each semester. During the summer, a full-time student on an assistantship must enroll for one credit hour. All Masters students will go through an oral defense. The oral defense for Plan B Masters students will focus around the student's report and their course work. Early in the student's last semester, a draft of the report should be submitted to the student's Advisor. Following review and revisions by the Advisor, the report should be submitted to the student's Advisory Committee at least

two weeks before the scheduled oral examination. Plan B students must give a scheduled oral presentation before their defense. The oral defense for Plan C students will focus on their course work. All work required for the M.F. degree must be completed within five years after first registering for classes.

Grades

All grades must be B (3.0 on a 4.0 scale) or better in the major subject area. The Graduate Program Coordinator of the School of Forest Resources and Environmental Science and your advisor can jointly approve no more than six credits of C (2.0) in a cognate department. The student must maintain a cumulative grade point average of 3.0 or better.

The master’s degree demonstrates advanced ability. The master’s student must complete the following:

- choose an advisor and file a Recommended Advisor form (M2-GSO)
- Prepare a Preliminary Course Plan (M3) (student worksheet only)
- file a Degree Schedule form (M4)
- complete the coursework requirements
- Successfully complete an oral examination
- fulfill the campus residency requirement
- finish the degree within the prescribed time limit
- submit an approved document in plans A & B
- Forms are available on-line at <http://www.admin.mtu.edu/rgs/graduate/trackingforms.html>

Advisor

Initially the advisor may be the department’s graduate coordinator or Dr. Jim Pickens, but as soon as possible, and no later than the end of the second term in residence, a permanent advisor should be chosen. This MTU graduate faculty member advises the student on course selection. The advisor is an important factor in the graduate student’s timely and successful completion of the program of study.

Degree Schedule

The Degree Schedule form (M4) is used to list all the courses that are to be applied to the degree requirements, including those yet to be taken. The completed M4 should be submitted in the term prior to the defense term. It must be approved before the defense is scheduled.

The courses listed on the M4 must meet certain requirements, described in each option below, and they must be approved by the advisor and the department chair. Courses taken while an undergraduate at MTU may be used for graduate degree credits if the Senior Rule form (available from the department secretary) has been appropriately filed. Courses taken while a post-grad may be used on the Degree Schedule with departmental approval.

Plan B: Report Option—This plan requires a report describing the results of an independent study project. Of the minimum total of 30 credits, at least 24 must be earned in course work other than the project.

Course work	24 credits
Report	2–6 credits
Total (minimum)	30 credits
Distribution of course work credit	
5000–6000 series (minimum)	12 credits
3000–4000 level (maximum)	12 credits

Plan C: Course Work Option—This plan requires the minimum 30 credits be earned through course work.

Distribution of course work credit	
5000–6000 series (minimum)	18 credits
3000–4000 level (maximum)	12 credits

Oral Examination

Examination by and approval of a faculty committee is required for awarding a master’s degree. This committee will examine the general professional knowledge, course work, and (in Plan B) the written documents of each master’s candidate. The defense is scheduled and the committee nominated via the Scheduling of Final Oral Examination form (M5), which must be in the Graduate School office two weeks prior to the defense date.

Examination Committee— Must be nominated by the chair of the major department, usually in consultation with the advisor, and approved by the dean of the Graduate School. At least three of the four examiners must be members of the graduate faculty and one of the graduate faculty must be from outside the major department.

Thesis or Report

Distribute copies to the Examining Committee at least two weeks prior to the examination date.

Defense—Must be scheduled and the committee nominated via the Scheduling of Final Oral Examination form (M5). The committee’s written evaluation must be filed on the Report on Oral Examination form (M6). The student must be enrolled to defend.

The following are the special instructions for “The Loret Miller Ruppe Peace Corps Master’s International Program in Forestry” graduate course work. Please contact Dr. Blair Orr (bdorr@mtu.edu) if you have any questions.

The Master’s International Forestry Curriculum is a blend of traditional forestry courses, several ecology courses, and several courses and seminars specifically created for this program. All are applicable to your work as a Peace Corps Volunteer.

The sequence of courses is also designed to leave the student the option of developing a Master’s Degree program as a thesis degree, a project degree, or a course-work only degree.

Graduate committees routinely substitute other appropriate courses for students who have completed any of the required courses during their undergraduate program.

Courses for Students Entering after Fall 2005.

Fall Semester

- FW5700 Graduate Field Forestry - 8 cr. Two options are available for this course. Option A (Forestry Emphasis) covers Silviculture, Insects and Diseases of Forest Ecosystems, Multi-Resource Assessment, Global Positioning Systems, Timber Harvesting, and Wildlife Habitat. Option B (Ecology Emphasis) covers Insects and Diseases of Forest Ecosystems, Multi-Resource Assessment, Global Positioning Systems, Insect Ecology, Wildlife Habitat, Vegetation and Geomorphology, and a survey of Silviculture.
- FW5760 Graduate Tropical Forestry - 2 cr.
- FW5740 Overseas Research - 1 cr.

Spring Semester

- FW5710 Trees in Agricultural Systems - 2 cr.
- FW5770 Rural Community Development Planning and Analysis - 2 cr.
- FW3540 Remote Sensing and Geographic Information Systems in Natural Resource Management - 4 cr. (Students are not required to take FW3540 during this semester but must take either FW3540 or FW 5550 - Geographic Information Systems for Resource Management when they return from Peace Corps service.)
- CE5993 Civil & Environmental Engineering in the Developing World - 2 cr.
- MA2720 or equivalent. Principles of Statistics 4 cr. Required of students who do not have an undergraduate statistics course.
- 3 credits of electives.

Peace Corps Service

- FW5730 International Forestry Practicum 1 cr. per academic semester including the summer. (Tuition paid by Michigan Tech.)

Upon Return from Peace Corps Service

- FW5999 Graduate Research in Forestry. variable credits.
- FW5720 Seminar in International Forestry 1 cr.
- FW5800 Graduate Seminar in Forestry 1 cr.

30 credits required to graduate. No more than 12 credits in 3000 and 4000 level courses.

This set of courses was designed cooperatively with the US Peace Corps. It will provide a set of skills for both forestry and environmental education placement in Peace Corps and work in forestry and environmental sciences in the United States.

The School of Forest Resources and Environmental Science at Michigan Tech is one of 48 accredited forestry programs in the United States.

Time Line to Degree

IMPORTANT: When you consult your advisor for your degree schedule, take this time line to the meeting so you and your advisor are in agreement on your plans.

Date: _____

_____ Enrolling for the first time.

- Get into **course work** under the direction of your faculty advisor. Complete **M2-GSO** form during first term (GSO = Graduate School Office)
- Make sure the GSO has **official final transcripts** showing proof of your previous degrees (if they are not from MTU).
- Fill out “**Patent, Research and Proprietary Rights**” form in your department office.
- Get a **social security number** if you will be getting a GRA or GTA, or otherwise working.
- Start looking for a **faculty advisor** for research projects if not done so already; she or he should be chosen latest **by the end of the second semester** in residence.
- Inform the Office of Student Records and Registration of any changes in your status, address, student identification number, expected graduate date, etc.

_____ During the course of your studies, fill out **M3 Preliminary Course Plan (Student Worksheet)**. This is just for your information only and there is **no need** to submit this form to GSO. It is advisable to do this during first-second term.

_____ At least 14 weeks (a term) prior to defense, complete the **M4, Degree Schedule¹** in consultation with your advisor. If there are problems, you have a term in which to correct them. Because it is approved by your advisor and your department Graduate Program Director, any **changes** must also have their approval. If credit transfers are necessary, use the Transfer Credits form found in this booklet.

_____ At least two weeks prior to defense, **M5, Schedule of Oral Examination**, completed in consultation with your whole committee. This names your four-member examining committee and schedules your oral examination. (Check departmental policy on choosing your committee)

_____ At least two weeks prior to defense, distribute readable copies of the thesis/report to the examining committee and to graduate school.

_____ **Oral Examination.** Faculty and students will be invited to hear at least your defense presentation. It is wise to attend a few of these early in your tenure at Michigan Tech. The examination for the course work option varies with the programs allowing this option. Take your **M6, Report on Oral Examination**, to the exam for signatures. (Your advisor/department might retain your M6 until the corrected, signed document is submitted; research grades are not changed until M6 is in the GSO.) Make corrections as indicated by your committee. Get the new original signed.

Plan B Report: One copy to the GSO, bound in a sturdy ACCO or Smead binder or the hot-glued plastic binder available in the Campus Store or library. (Your advisor/department may want more copies.)

Plan A Thesis: The Graduate School requires two copies in the library; one with original signatures. Your department/advisor may want more. Instructions for payment and library submissions are on the invoice you will receive when you defend. Take unbound

copies and proof(s) of payment to the library, Binding and Preservation Office, and get a thesis receipt for the Graduate School. (The extra copies will be sent to your department when they return from the bindery; be sure your department knows what to do with them.)

_____ **The Goal: Graduation.** No more than five calendar years after you started Graduate School. When you have completed your degree requirements, take your thesis receipt/stamped invoice from the library to the GSO; you can usually receive a certification letter immediately. Your *transcript* will indicate degree granted by the fourth week of the next semester/semester. Your *diploma* will be mailed to you about 90 days after the terms ends. Leave a valid address. Be sure the GSO and your advisor are aware of your commencement plans at the *beginning* of the commencement semester/semester.

All forms can be sent by you or your advisor/department to the Graduate School Office via campus mail. Copies of signed forms will be returned to you and the department.

Forms for the Master's Degree

The following forms must be downloaded from the MTU Graduate School website located

at: <http://www.gradschool.mtu.edu/forms/tracking.html>

Note: Our school does not offer a Plan D MS degree.

*** To obtain Graduate Program Director's signature on all these M forms, please keep the completed form in the mailbox of Dr. C. P. Joshi and he will sign and return it to your mailbox for mailing to the Graduate school. Please make a Xerox copy for your records and send the original to **Nancy Byers Sprague, Graduate School** via interdepartmental mail.

Tracking Forms—Master of Forestry, Master of Science

- [M2-GSO—Recommended Advisor / Advisory Committee](#)
- [M3—Preliminary Course Plan \(Student Worksheet only\)](#)
- [M4—Degree Schedule—Master of Science](#)
- [M5—Scheduling of Final Oral Examination](#)
- [M6—Report on Oral Examination](#)
- [M7—Electronic Thesis and Dissertation Approval Form](#) (Only if you wish your thesis/dissertation to be available via MTU library website)