**Graduate Student Guide**

**Quantitative Ecology and**

**Resource Management**

# Interdisciplinary Graduate Program

*College of the Environment*

*University of Washington*

*(Last Updated: Autumn 2019)*

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## 1.0 HOW THE QERM GRADUATE PROGRAM FUNCTIONS

The Quantitative Ecology and Resource Management (QERM) is a unique interdisciplinary graduate program at the University of Washington designed for mathematically trained students interested in working on ecological or resource management problems from a quantitative perspective. Students receive intensive training in the application of statistical, mathematical, and decision sciences to terrestrial, and aquatic ecology, natural resource management, biometrics and mathematical biology. The program offers M.S. and Ph.D. degrees.

The QERM program is located within the College of the Environment. The director of the program also serves as the Graduate Program Coordinator (GPC – faculty adviser). Faculty committees have responsibility for many of the program’s administrative procedures:

* Recruitment, admissions, and scholarship committees
* Curriculum committee
* Applied methods examination committee

Graduate students elect one or two representatives to attend all QERM faculty meetings and Graduate and Professional Student Senate (GPSS) meetings. The representative(s) meet with the QERM program director as necessary to discuss program policies and curriculum.

### 1.1 DEGREE PROGRAMS

The QERM program offers two graduate degrees: the M.S. and Ph.D., each require the preparation of a thesis or dissertation, respectively.

Student’s planning to pursue a Ph.D. must pass a qualifying examination administered by the program. This exam is typically taken at the end of the first year of study, but students may petition to take the exam at the end of the second year of study.

The completion of a M.S. degree with thesis is normally required before application can be made to enter the QERM Ph.D. program. Students admitted at the pre-master’s level may apply to proceed directly after completing requirements for the Master’s By-Pass.

### 1.2 GRADUATE PROGRAM COORDINATOR

The QERM Graduate Program Coordinator (GPC) maintains a familiarity with policies and procedures in the Graduate School and is responsible to the Graduate School for matters of scholarship and for ensuring that a student's program of study is effectively supervised and assessed (see Graduate School Memo

http://www.grad.washington.edu/policies/memoranda/memo04.shtml

While the chairperson of the student’s supervisory committee generally provides academic advising, the Graduate Program Coordinator is available for consultation on all matters that concern the program.

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### 1.3 GRADUATE PROGRAM ADVISER

The QERM Graduate Program Adviser (GPA – staff adviser) is responsible for many of the administrative functions of the program and is usually the first point of contact for many inquiries. The GPA maintains student records, assists with registration problems, provides all the necessary forms leading to the completion of the degree, schedules examinations, and provides advising on all matters related to the degree programs. The GPA’s office is located in Ocean Teaching Building, Box 357941.

### 1.4 INITIAL FACULTY ADVISER

An initial faculty adviser is assigned to each entering QERM student. The adviser assists in answering general questions about the program and may assist the student in gaining an understanding of current research projects on-campus. The initial adviser may become the chairperson of the student's supervisory committee or may assist in finding another faculty member who can supervise the student's research. While the initial adviser provides general advice related to coursework and research projects, the GPC and GPA also continue to provide advice on all related matters.

### 1.5 QERM FACULTY

The QERM faculty are designated as either “core” or “affiliated” faculty (**Appendix A**). Core faculty are those involved in one or more of the following activities: administrative oversight of the program, establishing program policy, admission decisions, working with at least one QERM graduate student within the past three years (supervisory committee chair or member), or serving in additional capacities (i.e., teaching and curriculum development, serving as first year student adviser, supervisory committee membership, research funding).

Affiliated faculty are defined as those previously endorsed by a vote of the QERM core faculty to serve on the QERM faculty but who are not currently active in the program as defined above.

Faculty status (core or affiliated) will be designated preceding fall quarter of each academic year, depending on the level of program involvement over the past three academic years. Faculty members move from core to affiliated status as a result of a decline in their level of involvement. Affiliated faculty status changes back to core status as soon as the level of involvement again exceeds the threshold defined for core faculty designation.

Voting on program affairs (program policy, admission decisions, new QERM faculty, etc.) is restricted to core faculty.

### 1.6 QERM ANNUAL PROGRESS REPORT -- ANNUAL MEETING WITH GPC

QERM students submit an Annual Progress Report (**Appendix B**), generally due in early January. After reviewing the progress report, the GPC or alternate, meets with each student annually. The purpose of this meeting is to review the major milestones of the degree program. The GPC, or

alternate, will document the meeting discussion. A copy will be forwarded to the student's adviser and permanent academic file. Students who are not making satisfactory progress will be invited to discuss their work with the GPC and the student’s supervisory committee chair.

**1.7 DEGREE MILESTONES AND RECOMMENDED TIMELINE:**



## 2.0 THE GRADUATE SCHOOL: POLICIES AND PROCEDURES 2.1 GRADUATE SCHOOL MEMORANDA

The following list of memoranda includes graduate program policies maintained by the Graduate School. Content is reviewed and modified as needed. Final decisions regarding implementation or continuation of policies receive the advice of the Graduate School Council. *(Note: Missing numbers are for memoranda that are obsolete and have been discontinued).*

Memo 3: Graduate Admissions

Memo 4: The Graduate Program Coordinator

Memo 5: Interdisciplinary Committees and Degree-Offering Groups

Memo 6: Authorization of New Graduate Degree Programs

Memo 7: Periodic Review of Existing Degree Programs

Memo 8: Graduate School English Language Proficiency Requirements

Memo 9: On-Leave Status to Maintain Graduate Status

Memo 10: Graduate Student Classifications

Memo 12: Membership in the Graduate Faculty

Memo 13: Supervisory Committees for Graduate Students

Memo 14: Departmental Responsibilities Regarding Instruction by TAs

Memo 15: Conditions of Appointment for TAs who are not Native Speakers of English

Memo 16: Unsatisfactory Performance and Progress

Memo 19: Grading System for Graduate Students

Memo 26: The Candidate's Certificate

Memo 28: Master's Degree Programs: Thesis/Non-Thesis Options

Memo 33: Academic Grievance Procedure

Memo 35: Concurrent Degree Programs

Memo 36: Graduate Courses

Memo 37: Enrollment of Graduate Nonmatriculated Students in Graduate Courses

Memo 38: Graduate Level Extension Courses

Memo 39: Guidelines for Part-Time and/or Self-Sustaining Graduate Programs

Memo 41: Graduate Courses in Non-Degree-Offering Units

Memo 42: Combined Undergraduate/Graduate (CUG) Degree Programs

Memo 43: Graduate Certificates

Memo 45: Practice Doctorates

Memo 50: Graduate Degree Requirements

Additional information regarding the Graduate School Memoranda can be found at: http://www.grad.washington.edu/policies/memoranda/index.shtml

### 2.2 SCHOLARSHIP

A cumulative GPA of 3.00 or above is required to receive a degree from the Graduate School. A graduate student's GPA is calculated entirely on the basis of numeric grades in 400- and 500-level courses. The grades of S, NS, CR, NC, and N are excluded, as are all grades in courses numbered 600, 601, 700, 750, and 800, and in courses at the 100, 200, and 300 levels.

Failure to maintain a 3.00 GPA, either cumulative or for a given quarter, constitutes low scholarship and may lead to a change-in-status action by the Graduate School. Failure to maintain satisfactory performance and progress toward a degree may also result in a change-in-status action by the Graduate School.

See Graduate School Memorandum 16 for additional information:

http://www.grad.washington.edu/policies/memoranda/memo16.shtml

### 2.3 UNSATISFACTORY PERFORMANCE AND PROGRESS: CONTINUATION OR TERMINATION OF STUDENTS IN THE GRADUATE SCHOOL

Review Process:

Review of students who maintain a 3.0 grade point average (GPA) is at the discretion of the graduate program but is undertaken at least annually. Students whose cumulative or quarterly GPA falls below a 3.0 must be reviewed quarterly and be provided with a written explanation of performance expectations and a timetable for correction of deficiencies. Doctoral program students are to be reviewed by their doctoral Supervisory Committee, or by a committee of graduate faculty in the unit appointed or elected for this purpose in consultation with the student's Supervisory Committee. Pre-doctoral or master's students are to be reviewed by supervisory committees, if such committees have been appointed, or by the graduate faculty members who have been designated to oversee such students' programs. See Graduate School Memorandum No. 13, Supervisory

Committees for Graduate Students, for an explanation of the role and responsibilities of supervisory committees.

In evaluating the student's performance and progress, all of the following is reviewed:

* Performance in the fulfillment of degree program requirements.
* Maintenance of a minimum GPA of 3.0 cumulatively and for every quarter of coursework. Cumulative and quarterly GPA's are computed on courses taken while the student is enrolled in the UW Graduate School. Computation is based only on courses numbered 400-599; courses graded I, S/NS, and CR/NC are excluded, as are the 600-800 series.
* Performance during informal coursework and seminars.
* Research capability, progress, and performance.

A determination of satisfactory performance and progress may be made upon review of the factors indicated above and consideration of the student's progress relative to other students (part-time/full-time) in the program or to an individually negotiated schedule. Full or partial withdrawal

from a quarter may be considered as failure to maintain satisfactory progress and a student may be dropped as a result if he or she was on final probation for the previous quarter.

When review of a student's performance and progress result in a determination that it has been unsatisfactory, the name of the student and recommendation for action--i.e., probation, final probation, or drop--must be transmitted by the Graduate Program Coordinator or the head of the graduate program to the Dean of the Graduate School by the appropriate deadline dates. A well-documented statement of the circumstances involved must accompany all recommendations of unsatisfactory performance and progress and the majority of the graduate faculty, delegated representatives, or supervisory committee involved supports evidence that the action requested. Students must receive written notification of this action, which includes information regarding the necessary steps the student must take to maintain good standing in their graduate student status. Deadlines:

Drop recommendations must be sent to the Graduate School by the fifth day of class; probation and final probation recommendations must be sent to the Graduate School by the tenth day of class. Students who are on official leave or are not registered cannot be recommended for probation, final probation, or drop.

Recommended Guidelines:

Below are guidelines to determine recommended action for unsatisfactory performance and progress. The Dean of the Graduate School will review recommendations for probation, final probation, and drop. Probation and final probation recommendations are noted on a student's unofficial transcript. In addition to notification from their graduate program, students will receive final probation and drop status letters from the Dean of the Graduate School.

Recommendations do not persist and must be reported to the Graduate School every quarter. No action will appear on the transcript for any subsequent quarter unless a new recommendation is made to the Dean of the Graduate School.

**No Action:** Recommended for those students whose cumulative GPA is above 3.0 but whose most recent quarter's work is below 3.0, if the review has determined that this condition is not cause for immediate concern.

**Warn:** This status is initiated and documented by the graduate program, but is not reported to the Graduate School and does not appear on the student's transcript. The graduate program is expected to notify each student in writing and place any documentation in the student's file. 1.) Recommended for students whose cumulative GPA has dropped slightly below 3.0--i.e. 2.992.95. 2.) Recommended for students who have failed to meet expectations for performance and progress as determined by the graduate program.

**Probation:** A graduate program may recommend numerous quarters of probation for a student, but the Graduate School recommends no more than three consecutive quarters (each quarter must be recommended separately). All students must be informed of the graduate program's policy regarding the length of probationary periods. Recommended for students who have not corrected the deficiency which caused the warn action within the time limit specified by the graduate program. Recommended for students who depart suddenly and substantially from scholarly achievement as defined by the graduate program. (A previous warn recommendation is not necessary.)

**Final Probation:** After at least one quarter of probation, a graduate program may recommend final probation. Final probation may only be recommended for one quarter, though the Graduate School will consider one additional quarter in extenuating circumstances. A graduate program must recommend one quarter of final probation before recommending a student be dropped from the program. The Graduate School will consider exceptions to this policy in extenuating circumstances. Recommended for students who have not corrected the condition(s) that caused the probation recommendation within the time limit specified by the graduate program. Recommended for students who may have corrected previous probation conditions but failed additional performance requirements and did not progress toward completion of the graduate program.

**Drop:** A graduate program may recommend a student be dropped from their program after one quarter of final probation. The Graduate School will consider exceptions to this policy only in extenuating circumstances. If the Graduate School accepts a drop recommendation, the Graduate School notifies the Registrar and the student is immediately removed from the graduate program. This is the final action to be recommended for students who have not corrected the condition(s) that caused the final probation recommendation within the time limit specified by the graduate program.

**Appeals:** Students may appeal these recommendations directly to the Chair or Director of the graduate program. Appeals beyond this point must follow the process outlined in Graduate School Memorandum No. 33, Academic Grievance Procedure.

http://www.grad.washington.edu/policies/memoranda/memo33.shtml

### 2.4 Grading System for Graduate Students

In reporting grades for graduate students, graduate degree-offering units shall use the system described herein. Grades shall be entered as numbers, the possible values being 4.0, 3.9,. . . and decreasing by one-tenth until 1.7 is reached. The Registrar will record grades below 1.7 as 0.0 and no credit is earned. A minimum of 2.7 is required in each course that is counted toward a graduate degree. A minimum cumulative grade-point average of 3.0 is required for graduation.

**I Incomplete**. An Incomplete may be given only when the student has been in attendance and has done satisfactory work to within two weeks of the end of the quarter and has furnished proof satisfactory to the instructor that the work cannot be completed because of illness or other circumstances beyond the student's control. To obtain credit for the course, a student must successfully complete the work and the instructor must submit a grade. In no case may an Incomplete be converted into a passing grade after a lapse of two years or more. An incomplete received by the graduate student does not automatically convert to a grade of 0.0 but the "I" will remain as a permanent part of the student's record.

**N No grade.** Used only for hyphenated courses and courses numbered 600 (Independent

Study and Research), 601 (Internship), 700 (Thesis), 750 (Internship), and 800 (Dissertation). An N grade indicates that satisfactory progress is being made, but evaluation depends on completion of the research, thesis, internship, or dissertation, at which time the instructor or Supervisory Committee Chairperson should change the N grade(s) to one reflecting the final evaluation.

**S/NS Satisfactory/Not-Satisfactory**. A graduate student, with the approval of the Graduate

Program Coordinator or Supervisory Committee Chairperson, may elect to be graded S/NS in any numerically graded course for which he or she is eligible. If a student does not so elect, then he/she will be graded on a numerical basis. If approval is granted the student must elect the S/NS option either when registering or no later than the end of the seventh week of the quarter. The instructor shall submit a numeric grade to the Registrar, who shall convert grades of 2.7 and above to S and grades lower than 2.7 to NS.

**CR/NC Credit/No Credit.** With the approval of the faculty in the academic unit, any course may be designated for grading on the CR/NC basis by notice in the appropriate Time Schedule. For such courses, the instructor will submit a grade of CR or NC to be recorded by the

Registrar's Office for each student in the course at the end of the quarter. All courses numbered 600, 601, 700, 750 and 800 may be graded with a decimal grade, a CR/NC or N at the instructors' option.

**W Withdrawal.** Refer to the University of Washington time schedule or homepage at http://www.washington.edu/students/reg/wdoffleave.html.

**HW Hardship Withdrawal.** Grade assigned when a graduate student is allowed a hardship withdrawal from a course after the seventh week of the quarter. Unofficial withdrawal from a course shall result in a grade of 0.0

The grade W and HW count neither as completed credits nor in computation of grade-point average.

Graduate students who withdraw from the University (dropping all courses for the quarter) during the first week of two consecutive quarters (Summer Quarter excepted) will not be eligible to register as a continuing graduate student for the third quarter. Such graduate students must reapply as former graduate students returning to the University. For example, if a graduate student withdraws during the first week of Spring Quarter and Autumn Quarter, he or she must reapply as a returning former graduate student for Winter Quarter.

Of the minimum credits required for a graduate degree, a graduate student must show numerical grades in at least 18 quarter credits of course work taken at the University of Washington. These numerical grades may be earned in approved 400-level courses and 500-level courses.

A graduate student's grade-point average will be calculated entirely on the basis of number grades in 400- and 500-level courses. The grades of S, NS, CR, NC, and N will be excluded, as will all grades in courses numbered 600, 601, 700, 750, and 800, and in 100- and 200- level courses.

The graduate student may petition the Dean of the Graduate School to modify the procedures described above. The petition should be accompanied by comments and recommendations from the Graduate Program Coordinator or Supervisory Committee Chairperson.

Graduate Courses:

Graduate courses are intended for, and ordinarily restricted to, either students enrolled in the

Graduate School or graduate non-matriculated students, and are given numbers from 500 through 800. Some courses at the 300 and 400 levels are open both to graduates and to upper-division undergraduates. Such courses, when acceptable to the supervisory committee and the Graduate School, may be part of the graduate program. The Graduate School accepts credit in approved 300level courses for the minor or supporting fields only. Courses at the 300 level are not included in the calculation of grade-point average (GPA) and will not apply toward the minimum Graduate School requirement of 18 graded credits for the master's or doctoral degree. Approved 400-level courses are accepted as part of the major as well as minor or supporting fields. Undergraduate research (499) is not accepted as part of the graduate program. Graduate School Memorandum No. 36 offers additional information on graduate courses. http://www.grad.washington.edu/policies/memoranda/memo36.shtml

With the exception of summer, students are limited to a maximum of 10 credits per quarter of any combination of courses numbered 600, 700, or 800.

Repeating Courses:

Graduate students may repeat any course. Both the first and second grades will be included in the cumulative GPA. Subsequent grades will not be included, but will appear on the permanent record. The number of credits earned in the course will apply toward degree requirements only once.

### 2.5 TRANSFER CREDIT

A student working toward the master's degree may petition the Dean of the Graduate School for permission to transfer to the University of Washington the equivalent of a maximum of 6 quarter credits of graduate level course work taken at another recognized academic institution. These credits may not have been used to satisfy requirements for another degree. The petition must include a recommendation from the graduate program coordinator and an official transcript indicating completion of the course work. Transfer credits are not entered on the UW transcript.

Approved transfer credits are applied toward total credit count only for the master's degree. (Transfer credits are not applicable toward a doctoral degree.) The 18-quarter credits of numerically graded course work, and 18-quarter credits of 500-level-and-above course work may not be reduced by transfer credit.

Credit taken as an undergraduate non-matriculated student or post-baccalaureate student at the University of Washington may not be transferred into a graduate program. Credit by either independent study through correspondence or advanced credit examinations is not transferable

### 2.6 Enrollment Requirement

The enrollment requirement for the master's degree is 36 credits, 30 of which must be taken at the University of Washington.

For the doctoral degree, the enrollment requirement is 90 credits, 60 of which must be taken at the University of Washington. With the approval of the degree-granting unit, an appropriate master's degree from a regionally accredited institution may substitute for (30 credits) of enrollment. Doctoral study requires an immersion in an academic field and its intellectual community. Degree-granting units may require a period of full-time and/or on-site study.

Only courses numbered 400, 500, 600, 700, and 800 can be applied to enrollment or course credit in the major field for advanced degrees (please see the Graduate Courses policy regarding courses numbered 499). Courses numbered 300 are not applicable to enrollment or course credit toward advanced degrees except when applied by permission of the graduate program coordinator or supervisory committee toward the graduate minor or supporting courses. Courses numbered below 300 are not applicable to enrollment or course credit for advanced degrees.

Full-Time Enrollment:

Full-time quarterly enrollment for graduate students is 10 credits during the academic year (autumn, winter and spring quarters).

Final Quarter Registration:

A student must maintain registration as a full- or part-time graduate student at the University for the quarter the master's degree, the candidate certificate, or doctoral degree is conferred. A student who does not complete all degree requirements by the last day of the quarter must be registered for the following quarter.

Continuous Enrollment:

During the academic year (autumn, winter, and spring quarters), students must maintain continuous enrollment by being registered full or part-time, registered in absentia, or have petitioned for on-leave status. Students are not required to go on leave or register during summer quarter. Failure to maintain continuous enrollment will result in being dropped from the University and reapplication will be required to resume studies. Students holding a teaching or research assistantship must be registered for the minimum credits required during their appointment period (a minimum of 10 credits during autumn, winter, and spring quarters, and 2 credits during summer quarter). For this purpose, courses being audited do not count toward the minimum enrollment requirement.

### 2.7 Graduate On-Leave Status

Graduate students are required to maintain graduate status during their program of study. Failure to maintain this status requires readmission to the University of Washington. Students who need to take a quarter or quarters off without going through the readmission process must apply for onleave status. For complete details regarding on-leave status policy, refer to Graduate School Memorandum 9: Petition for On Leave Status. http://www.grad.washington.edu/policies/memoranda/memo09.shtml On-Leave Eligibility:

* Must be a graduate student in good standing.
* Must be currently registered or on-leave.
* Must satisfy any graduate program policies pertaining to going/remaining on-leave.
* US citizen and permanent residents must have registered for at least one quarter of graduate study at UW and have approval from their graduate program.
* International students must have registered full time (10 or more credits) for three consecutive quarters and have approval from both their graduate program and the International Student Services office.
* Pre-registered students must officially withdraw via MyUW or the Registration office prior to the first day of the quarter (registered students are not eligible for on-leave status).

Students on leave are entitled to:

* Return as a graduate student to the graduate program
* Use University libraries
* Maintain access to the UW email account
* Use Hall Health Primary Care Center on a pay-for-service basis
* Use the IMA with additional fee Students on-leave are not entitled to:
* Faculty and staff counsel/resources (very limited counsel/resources are permitted)
* Examinations of any type (except for language competency)
* Thesis/dissertation filing
* University housing
* Student insurance
* Financial assistance

Procedure for Requesting Leave:

Students requesting on-leave status must submit an online Request for On-Leave Status via MyGrad Program. For a given quarter, students can submit the request as early as two weeks prior to the first day of instruction and must submit payment of the nonrefundable fee no later than 11:59:59 p.m. PST on the last day of instruction. Leave is granted on a quarterly basis, though the following students may request up to four consecutive quarters of leave at one time: PCMI students, military personnel with deployment orders, these students will be required to pay the fee for each quarter of leave requested).

Domestic Students:

* Complete and submit the online Request for On-Leave Status via MyGrad Program. Student will receive a confirmation email that the request has been submitted
* Request will be reviewed and approved by the departmental Graduate Program Coordinator (faculty adviser). Upon approval, students will receive a confirmation email that the department has approved the request.
* Return to MyGrad Program to pay the non-refundable On-Leave fee via MasterCard or Visa credit card. Students will receive a confirmation email that their quarterly leave has been processed and their registration status for that quarter is “On-Leave.”
* Print confirmation of on-leave verification to be presented for access to the UW libraries and IMA.

International Students:

* Contact the International Student Services (ISS) office to obtain pre-approval to request onleave status.
* Complete and submit the online Request for On-Leave Status via MyGrad Program.
* Request will be reviewed and approved by the departmental Graduate Program Coordinator (faculty advisor). Upon approval, students will receive a confirmation email that the department has approved the request.
* Request will then be reviewed and approved by the ISS office. Upon approval, students will receive a confirmation email that the ISS office has approved the request.
* Return to MyGrad Program to pay the non-refundable On-Leave fee via MasterCard or Visa credit card. Students will receive a confirmation email that their quarterly leave has been processed and their registration status for that quarter is “On-Leave.”
* Print confirmation of on-leave verification to be presented for access to the UW libraries and IMA.

Reinstatement to the Graduate School:

Students previously registered in the Graduate School who have failed to maintain graduate student status (on-leave status was not secured and registration was not maintained) but wish to resume studies within the same degree program must file a request for reinstatement to the Graduate School. Requests will first be reviewed and approved by the department. Once the department has approved the request and the Graduate School has confirmed students’ eligibility for reinstatement, students will be notified to pay a non-refundable reinstatement fee before registering for the requested quarter of reinstatement.

For questions regarding on-leave status, please contact the QERM Graduate Program Adviser or Graduate Enrollment Management Services at uwgrad@u.washington.edu or 206-685-2630.

### 2.8 WITHDRAWAL

Refer to the University of Washington Time Schedule for procedures and dates at: www.washington.edu/students/reg/wdoffleave.html

### 2.9 INTERNATIONAL STUDENT SERVICES OFFICE

The International Student Services (ISS) office provides assistance to international students in meeting U.S. Immigration and Naturalization Service regulations dealing with such matters as maintaining lawful status, extensions of stay, transfers of schools or programs, and working authorizations. The ISO also provides a formal orientation to the campus and community for new students, and provides advice and counseling for educational, financial, and personal problems. For additional information refer to The International Student Services site at : https://iss.washington.edu

### 2.10 ENGLISH AS A SECOND LANGUAGE PROGRAM

The University of Washington features one of the largest, most established international and English language programs in the United States. We offer a wide variety of programs for both undergraduate and graduate students to help you improve your English language skills, prepare for further study in the United States and learn about American culture, business and other subjects. www.ielp.edu.edu

### 2.11 STUDENT FINANCIAL SUPPORT

Graduate Student Scholarships:

The QERM program has a limited number of graduate student appointments and fellowships available for entering students. All students who apply to the program are automatically considered for entering appointments. Scholarships and graduate student appointments for continuing students are competitive and are advertised by various graduate units in spring quarter to be awarded for the following academic year. These awards are comprised of assistantships, research fellowships, and grants.

Grants & Funding Information Service:

The Graduate Funding Information Service (GFIS) works with current and admitted UW graduate students. GFIS helps students identify and use different resources to locate funding opportunities for graduate school-related expenses including tuition, research, and conference and research travel. In conjunction with the University of Washington's Graduate School, GFIS hosts a series of workshops throughout the year. Students can also seek answers to their questions during drop-in advising hours, can schedule individual appointments, or can request information by email. In addition, GFIS maintains a subject guide that lists different funding resources by category and a blog that informs students about fellowships, grants employment opportunities, and upcoming GFIS events. As time allows, GFIS also works with individual departments to design discipline-specific workshops and resources for their graduate students. http://commons.lib.washington.edu/services/gfis

Graduate Student Appointments:

All graduate student appointments are governed by policy as determined by the Graduate School.

This policy (Executive Order 28) in its entirety may be viewed online: http://www.grad.washington.edu/fellow/execor28.htm

Vacancies for graduate student appointments (teaching and research assistantships) that occur during the academic year are advertised within each academic unit. Details about each appointment are obtained from the faculty member involved.

All graduate student appointments are based on continued graduate standing, satisfactory progress towards a degree, and satisfactory service in carrying out the duties of the appointment.

Research Assistantships (RA’s):

Research Assistantships (RA’s) are typically half-time appointments (20 hours a week) for the nine-month academic year (16 September to 15 June). RA’s can be extended to include summer quarter, and in special circumstances, full-time support (40 hours a week) may be granted. Any graduate student appointment in excess of 20 hours a week requires the approval of the student's major professor and the QERM GPC.

Teaching Assistantships (TA’s):

Teaching assistantships (TA’s) are available as half-time appointments (20 hours a week) during the nine-month academic year and in limited numbers during summer quarter. A member of the faculty responsible for their training and welfare supervises the TA.

Additional information regarding departmental responsibilities regarding instruction by TA’s (Graduate School Memorandum No. 14) can be found at:

http://www.grad.washington.edu/Acad/gsmemos/gsmemo14.htm Academic Student Employees – UW/UAW Contract:

Students serving as research and teaching assistants (also known as Academic Student Employees) are covered by the UW/UAW contract. It is the purpose of this contract to provide for the wages, hours and terms and conditions of employment of the employees covered by the agreement, to recognize the continuing joint responsibility of the parties to provide efficient and uninterrupted services and satisfactory employee conduct to the public, and to provide an orderly, prompt, peaceful and equitable procedure for the resolution of differences between employees and the employer. The contract can be viewed: http://www.washington.edu/admin/hr/laborrel/contracts/uaw/contract/a02.html

Language Proficiency Requirements for Teaching Assistantship Appointments:

Teaching assistantships (TA’s) may be awarded to international and immigrant status students whose native language is other than English if certain criteria are met. Among these criteria are English proficiency test requirements, which stipulate that international graduate students must achieve a minimum score of 580 on the Test of English as a Foreign Language (TOEFL) and a minimum of 230 on the Test of Spoken English (TSE) or SPEAK test, or they must successfully complete

English 102B (an ESL course for International Teaching Assistants offered by ESL programs) before they can be assigned teaching responsibilities. Additional information can be found at: http://grad.washington.edu/policies/memoranda/memo15.shtml Non-Resident Tuition Waivers:

The UW charges graduate tuition at two rates, one for Washington State residents and a higher one for non-residents. These two rates are set by the Washington State Legislature, which also allots to the University a restricted number of out-of-state Graduate/Professional tuition waivers. These waivers allow out-of-state students to be charged in-state tuition. Although the students receive instate tuition, they are not considered residents of Washington State. Students who are approved for the waiver are not eligible for state-funded aid (scholarships, grants, etc.).

**VERY IMPORTANT:** Please note that these tuition waivers are primarily attached to a fellowship, research assistantship or teaching assistantship award, which also requires full-time registration (10 or more credits). If you plan to reduce the number of credits you will **NOT BE ELIGIBLE FOR THE TUITION WAIVER** and will pay tuition at the non-resident rate.

http://www.washington.edu/students/reg/residency/graduateProfessional.html

## 3.0 QERM PROGRAM REQUIREMENTS AND POLICIES

**3.1 QERM CORE COURSEWORK FOR M.S. AND PH.D.**

Coursework is divided into required and elective courses. Electives are selected with the guidance of the faculty adviser and master’s supervisory committee. The following courses are required for all (M.S. and Ph.D.) students and are described in detail in **Appendix C**:

Autumn Quarter:

* STAT 516 – Stochastic Modeling of Scientific Data (3 credits)
* QERM 597 – Fall Seminar (2 credits)
* MATH 514 – Networks and Combinatorial Optimization (3 credits)

Winter Quarter:

* STAT 517 – Stochastic Modeling of Scientific Data (3 credits)
* BIO/CFR/FISH 567 – Topics in Advanced Ecology (3 credits, max 6)
* QERM 597 – Winter Seminar (2 credits)

Spring Quarter:

* QERM 514 – Analysis of Ecological and Environmental Data (4 credits)
* SEFS 540 – Optimization Techniques for Natural Resources (5 credits)
* \*AMATH 523 – Mathematical Analysis in Biology and Medicine (5)

-or-

\*AMATH 535 – Mathematical Ecology (5) (odd numbered years, next offered 2015)

Other:

* 1 Ecology Elective (recommended fall quarter but can be taken other quarter. See **Appendix D** for approved courses)

\* First year students take AMATH 535 when offered in odd numbered years instead of AMATH 523. Students taking AMTH 523 in first year may also take AMATH 535 in second year.

\*\*QSCI 486 – Experimental Design (Not required but recommended during years when the course is offered.)

A student’s supervisory committee may also recommend a course in scientific writing (TC 509 – Writing the Scientific Article, FISH 521 – Grant Proposal Writing for Graduate Students).

A complete listing of suggested statistics, ecology, modeling and optimization electives can be found in **Appendix D**. The student’s supervisory committee may also recommend additional coursework noted included on the list of electives.

### 3.2 FIRST-YEAR QUALIFYING EXAMINATION

All students planning to pursue a doctoral degree are required to take the QERM qualifying examination after the first year of study (mid-June, first week after spring quarter finals). Students may petition to delay the examination until the end of the second year.

QERM students must pass the qualifying exam before proceeding with their doctoral studies. Students have two attempts to pass the examination. If a pass is not achieved after the second attempt, the student may not proceed into the doctoral program.

### 3.3 MASTER’S DEGREE BY-PASS

Students with a Previous Master’s Degree:

After successfully passing the first-year qualifying examination, students admitted to the program with a relevant master’s degree (with thesis) may proceed directly to forming their doctoral supervisory committee. Students who have a master’s degree with thesis in an unrelated area may complete either a master’s degree with thesis or the master’s by-pass option.

The QERM admissions committee and GPC will determine at the time of admission if the student’s previous master’s degree (with thesis) is relevant to the QERM program. A relevant master’s degree includes those in a quantitative area (e.g., math, applied math, statistics, etc.) or resource management area (e.g. forestry, fisheries, etc.).

Students Admitted at the Pre-Master’s Level:

Students admitted at the pre-master’s level may apply to proceed directly after successfully passing the qualifying examination and completing all master’s by-pass requirements.

Students pursuing the master’s by-pass option should be aware that the by-pass requirements are very similar to those of the master’s degree with thesis. Pursuing the master’s by-pass option does not necessarily speed up the time-to-degree and may be appropriate only under exceptional circumstances. Students must carefully weigh the benefits and risks of pursing the master’s by-pass option.

### 3.4 MASTER’S BY-PASS PROCEDURE

Students pursuing a master’s by-pass must:

* Submit to the QERM Graduate Program Coordinator (GPC) a letter of intent to pursue the master’s by-pass option as soon as possible after successfully passing the first-year qualifying examination. This notification will provide the GPC with an opportunity to counsel the student on the appropriateness of pursuing a master’s by-pass option.
* Establish a master’s by-pass committee consisting of faculty who will also serve on the doctoral supervisory committee.
* Provide evidence that they have reached a master’s level of competence in written completion of research. This will take the form of a paper submitted for publication in a peer-reviewed journal. The master’s by-pass committee will provide guidance in completing this research paper and will make the final approval to submit the publication. If there are co-authors on the paper there must be evidence showing that the student is responsible for the vast majority of the effort on the paper and that the student completed all quantitative effort
* Present their research at an advertised public presentation.
* Provide the master’s by-pass committee with a preliminary doctoral dissertation proposal.
* Provide evidence that all coursework for the QERM master’s degree has been successfully completed.

The master’s by-pass committee will:

* Provide the QERM GPC with a letter approving the student’s request to by-pass the master’s degree and agreement to serve on the student’s doctoral supervisory committee.
* Concur that the student has reached a master’s level of competence in written completion of research. This will take the form of a paper submitted for publication in a peer-reviewed journal. If there are co-authors on the paper there must be evidence showing that the student is responsible for the vast majority of the effort on the paper and that the student completed all quantitative effort.

The Graduate Program Coordinator will:

* Verify with the student the final composition of his/her doctoral supervisory committee and submit this information to The Graduate School.
* Document in the student’s file that the by-pass has been successfully completed.

## 4.0 QERM MASTER’S DEGREE REQUIREMENT

### 4.1 M.S. DEGREE COURSE AND CREDIT REQUIREMENTS

Degree requirements are set in part by the Graduate School and in part by the QERM program. The Graduate School sets University-wide requirements for minimum scholarship (a grade point average of 3.0 or higher), residence at the University of Washington, certain numbers of required credits outlined below, and continuous enrollment. The QERM program requires a thesis and an integrated program of coursework and research during which the student learns the fundamentals of statistical inference, ecological modeling and resource management.

The schedule of M.S. degree timeline and procedures **(Appendix E)** provides guidance on the expected rate of progress.

Master’s Degree Requirements Established by the Graduate School:

A student must satisfy the requirements for the degree that are in force at the time the degree is to be awarded

1. Total credits required for the degree program must be completed
   1. All courses numbered 400-799 that are numerically graded 2.7 and above, or have a grade of Satisfactory or Credit ('S' or 'CR') count towards the total credits. 499 courses are not counted in the total credits.
   2. Courses graded less than 2.7 do not count towards the total credits.
   3. At least 18 credits must be in courses numbered 500 and above.
   4. 18 credits must be numerically graded in department approved 400-level courses accepted as part of the major and in 500-level courses. This excludes 499 and transfer credits.
   5. No more than 6 graduate level quarter credits can be transferred from other academic institutions to count towards the total credits.
   6. No more than 12 UW Graduate Non-matriculated credits can be applied to the total credits.
   7. No more than 12 credits derived from any combination of UW Graduate Non-matriculated credits and transfer credits can be applied to the total credits.
   8. If a student repeats a non-repeatable class, only one set of credits counts towards the total credits.
2. A minimum cumulative GPA (grade point average) of 3.00 is required for a graduate degree at the University
3. The Master's Degree Request must be filed according to posted quarterly dates and deadlines.
4. Must complete all degree requirements within six years
   1. The timeframe/clock begins on the first day of the quarter that the Graduate student uses a course to satisfy degree requirements when he/she is coded as either a Graduate Nonmatriculated student (department code with class 6) or as a Graduate student (department code with class 8) in the department to which he/she is admitted.
   2. UW Graduate Non-matriculated credits used towards the total credits are counted in the six years.
   3. Quarters spent On-Leave and out of status are counted in the six years.
5. Must maintain registration through the end of the quarter in which the degree is conferred or, if eligible, pay the Graduate Registration Waiver Fee within 14 days following the last day of the quarter in which all degree requirements were met.
6. Thesis track students are required to take a minimum of 9 thesis credits in their total credits.
7. Thesis track students are required to submit their thesis to the Graduate School. See Final Submission of Your Electronic Thesis or Dissertation (ETD).

QERM Program Requirements:

The Graduate School supports all department requirements and will not authorize graduation unless the department has indicated that the student has satisfied the requirements.

All requirements (including but not limited to oral and written examinations) imposed by the QERM program or by the student's supervisory committee must be satisfied. A complete listing of QERM core course requirements can be found in **Appendix C.**

### 4.2 ESTABLISHING A MASTER’S SUPERVISORY COMMITTEE

As a general principle, a faculty supervisory committee guides each student working toward a graduate degree at the University of Washington. This committee serves an important evaluative and mentoring function for the student throughout his or her graduate career.

Research Adviser /Supervisory Committee Chair:

The student should decide upon a research adviser by the end of the third quarter of study. It is the research adviser’s responsibility to act as chair of the master’s supervisory committee and assist the student in selecting classes, designing a research program, and making contacts with professionals within and outside the University of Washington.

Formation of the Master’s Supervisory Committee:

As soon as appropriate (typically after a research topic has been established) the student, in consultation with the Supervisory Committee Chair, establishes a supervisory committee consisting of two to four members. The Chair and at least one-half of the total membership must be members of the Graduate Faculty. *A minimum of two committee members must also be QERM faculty* **(Appendix A).** The supervisory committee will provide expertise and depth in areas related to the student’s research. The student should rely primarily on the Supervisory Committee Chair and secondarily on the other committee members for professional guidance. (Refer to Graduate School Memorandum No. 13 for more information: http://grad.washington.edu/policies/memoranda/memo13.shtml

An additional resource for identifying potential committee members can be found on the University of Washington Graduate Faculty Locator site. This site allows you to search by faculty name, appointing department and research interests: http://grad.washington.edu/gradfac/ Approval of Master’s Supervisory Committee:

A Request to Establish M.S. Supervisory Committee form **(Appendix F)** must be submitted to the GPC prior to the first committee meeting. This request should include a brief synopsis of the intended thesis topic and names of proposed committee members. This information is reviewed by the GPC for suitability of faculty balance in relation to the selected topic. After receiving approval from the GPC the student may proceed with scheduling the first committee meeting.

First Master’s Supervisory Committee Meeting:

After approval by the GPC, the committee should meet with the student within two weeks to decide on the student's program of study. The first meeting will deal primarily with a definition of course requirements.

The student is responsible for arranging all necessary meetings and furnishing required forms:

**Plan of Study Form:** The Plan of Study toward the M.S. Degree form **(Appendix G)** is an agreement between the student and the Supervisory Committee about what coursework will be required of the student in order to graduate. In includes the core required courses as well as any other courses the committee feels are necessary to give the student the required background in his/her area of interests. It is also where:

* any recommended optional courses are listed;
* the projected timeframe for the Thesis Proposal is indicated;
* and core requirement waivers are suggested. (Please contact the QERM GPA for any requests to waive QERM or UW Graduate School requirements; a petitioning process is usually required.)

The form should be completed by the student and Supervisory Committee Chair and approved by all committee members at the time of the first meeting.

While the form is being completed, care should be taken to write courses that are recommended but not required in the “Recommended” section. The QERM Graduate Program Adviser will compare the approved Plan of Study form against the student’s transcript(s) before approving the Final Examination Request to ensure that all “Required Core” and “Additional Required” courses were completed before the students are allowed to defend and graduate.

**Human and Animal Advisory Certification Form:** Graduate students and chairs of all newly formed committees (M.S. and Ph.D.) are also required to sign a Human and Animal Advisory Certification form **(Appendix H)** documenting that the student has been advised of human and animal subjects guidelines.

**Supervisory Committee Meeting Documentation Form:** The Supervisory Committee Chair records the results of all meetings, documenting the date, committee members present, decisions and accomplishments. It is the responsibility of the student to provide the appropriate form **(Appendix I)** at each committee meeting.

All completed forms should be forwarded to the QERM GPA, reviewed by the GPC, and placed in the student’s permanent file.

Subsequent Committee Meetings:

The committee should meet regularly to review the student's progress and thesis proposal. The student can request additional committee meetings whenever he or she feels the need for such consultation. A Supervisory Committee Meeting Documentation form **(Appendix I)** should be completed after each committee meeting and forwarded to the QERM GPA.

### 4.3 MASTER’S THESIS PROPOSAL

The student must select a thesis research topic and develop it in consultation with his or her research adviser. The research project should be designed for completion, together with other program requirements, within a two- to three-year period. The master's thesis should provide evidence of the student's ability to carry out independent investigation and to present the results in a clear and systematic form.

Submission of Thesis Proposal:

A student is expected to submit a thesis proposal to their supervisory committee by the 5th quarter of study and before beginning substantive thesis research. The proposal provides evidence to the committee of the student’s readiness to carry out the research, and also clarifies the expectations of both the student and committee as to the final content of the thesis.

The objective of a thesis proposal is to ensure a definite plan for the work to be done. Once approved by the supervisory committee it becomes an informal contract between the student and the committee. In addition, a proposal serves as:

* A basis for discussions between student and committee regarding experimental design, data analysis, and focus of the coursework; and
* A clear statement of the amount of effort anticipated to produce an acceptable thesis.

While the thesis proposal serves as an agreement between student and committee, both parties also must recognize that flexibility is needed to include later changes as experiments may fail and new opportunities may arise.

Thesis Proposal Format:

The thesis research proposal should follow the general features of a research proposal. A typical format is as follows:

* **Introduction:** General background, importance of the subject area; literature review.
* **Objective(s):** A concise statement of the purpose or objective of the project; this should flow logically from the introduction and be short and specific.
* **Methods:** General plans, specific methods, sampling or experimental design, duration, and projected procedure for data analysis; these methods should be appropriate for directly addressing the purpose or objective.
* **Results:** Results of theoretical investigations, experiments, field sampling, computer simulations, data analyses, etc., should be clearly stated.
* **Interpretation:** How will the results be interpreted? There should be explicitly stated inferences that would be drawn from all outcomes; outcomes that cannot be interpreted imply imprecise objectives or inappropriate methods.
* **Significance:** Why is this investigation justified? What is the scientific or practical contribution? For a dissertation proposal especially, the case eventually must be made that the results will be a significant contribution to knowledge, regardless of the experimental or observational outcomes.
* **Timeline/Workplan:** The timeline helps to assess whether the proposed research is feasible as planned and establishes milestones. Periods when there are activities which could slow progress (e.g., taking written and oral examinations for Ph.D. students) should be highlighted when accounted for when selecting milestones. The timeline should also indicate when likely outputs (e.g., scientific paper and reports) will be produced.

The length of the written proposal should be the minimum needed to do the job. For a master’s thesis proposal, 8-10 pages including references would be appropriate. The intent is to write the proposal early in the degree program. If written too late, it will begin to resemble the thesis in size and scope, and its primary purpose will be lost.

Writing and Preparation of Thesis:

Writing a thesis or dissertation can be challenging, and working with your advisor and committee to select a good and workable topic, planning and conducting your research, and doing the writing will be your top priorities. However, paying attention to some additional and probably unfamiliar topics now or in the early stages of your planning is also important.

For example, your electronic thesis/dissertation (ETD) will be published by ProQuest/UMI and by the UW Libraries, and as a student, researcher and future author you should develop an understanding of copyright, publishing and open access. When you submit your ETD for review and publication, you will be required to read and accept two separate publishing agreements and then be prompted to decide whether to publish your work right away or to delay its release. Basic information and links to additional resources on these topics are available at:

* Policy for Deposit and Dissemination of Master's Theses and Doctoral Dissertations
* Access Options for Electronic Theses and Dissertations
* Electronic Theses and Dissertations – Copyright, Open Access and Publishing FAQ
* ProQuest/UMI Agreement - Traditional Publishing Agreement
* University Agreement - UW Libraries Thesis and Dissertation Submission Agreement

Detailed instructions on preparation and submission of your electronic thesis can be found at:

http://grad.washington.edu/students/etd/ and http://www.grad.washington.edu/students/etd/info.shtml

Approval of Thesis Proposal by Supervisory Committee:

**Master’s Thesis Proposal Form:** The supervisory committee certifies that they have reviewed and approved the student’s thesis proposal by signing the Master’s Thesis Proposal form **(Appendix J).** A copy of the form and thesis proposal should be forwarded to the QERM GPA.

### 4.4 MASTER’S FINAL EXAMINATION & THESIS SUBMISSION

Request for M.S. Final Examination:

The student must submit a complete, near-to-final draft of the thesis, which has been reviewed and approved by the committee chair, to all members of his or her committee at least four weeks prior to the Final Examination. After reading the draft, the supervisory committee signs off on the Request for Final Examination form (**Appendix K**). Completion of this form verifies that your committee has *read an entire near-to-final draft of your thesis and concurs that you are ready to sit for your final examination.* The final draft of the thesis takes place after the final examination, incorporating changes suggested by the committee.

Online Master's Degree Request:

In addition to the Request for Final Examination form completed by the supervisory committee, the student must submit the online Graduate School Master’s Degree Request found on the student view of MyGrad Program (http://www.grad.washington.edu/mygrad/student.htm) within the first nine weeks of the quarter in which he or she expects to complete the degree requirements. This should be done only **after** your committee has signed the QERM M.S. Final Examination form.

The filing of the online application is the responsibility of the student. After submitting the request the Graduate School and QERM program will review the student’s record to verify that all requirements have been met. Completion of the master’s degree includes presentation at a public seminar on the subject of the research and the completion and submission of the thesis to the Graduate School.

Students must be registered as a graduate student and complete a minimum of two credits during the quarter in which degree requirements are met and the degree is conferred.

If requirements for the master's degree are not completed during the quarter of the initial application, the online Master’s Degree Request will become void and the student must complete a new request during the first nine weeks of the quarter in which the degree program is to be completed.

Final Examination:

The student, in consultation with the chair of the student's supervisory committee, arranges the time and place of the Final Examination. The student is responsible for ensuring that the complete, near-to-final draft of the thesis is available to **all** committee members with adequate time for review before the examination takes place (at least four weeks).

After finalizing the final exam date and time, the student notifies the QERM GPA for assistance with reserving a conference room and publicizing the public seminar. It is recommended that students schedule their final exam at least 4 weeks in advance of the date, but no less than two and a half weeks before the end of the quarter.

The student reports on his or her research at the public seminar that is followed by a private oral examination by the supervisory committee (final exam). The seminar and oral examination are generally scheduled consecutively on the same day.

A minimum of two committee members must be present for the Final Examination to take place, although all members of the supervisory committee must certify the results. If the examination is not satisfactory, the committee may recommend to the Dean of the Graduate School that the student be allowed to take another examination after an interval of study.

At the conclusion of the Final Examination the committee certifies the exam results by signing the Request for Master's Degree form. This form is also known as the “warrant” and will be supplied by the QERM GPA just prior to the Final Exam. The signed “warrant” is returned to the QERM GPA no later than the last day of the quarter (defined as the last day of exams) in which the student expects to receive the degree.

Any corrections of the thesis are completed after the Final Examination and must be submitted by the last day of the quarter. For additional information on submitting the thesis refer to: http://www.grad.washington.edu/students/etd/info.shtml

If the final version of the thesis is submitted after the end of the quarter, then the degree will be conferred the following quarter and the student must register for a minimum of two credits for that quarter.

### 4.5 GRADUATE REGISTRATION WAIVER FEE

The $250 Graduate Registration Waiver Fee is an optional fee paid in lieu of registration. It is available to qualifying students for a **2-week period directly following the quarter** in which all Graduate School and graduate program degree requirements are met. Qualifying students who pay this fee will graduate in the quarter following the fee payment period. Note: This option may have an effect on the grace period for student loans becoming due; students should check with their lenders for registration requirements before utilizing this option in lieu of registration.

Eligibility:

* Master's students who did not submit a Master's degree request prior to the request deadline for the quarter in which all degree requirements were completed
* Students who completed all degree requirements but needed additional time to format the thesis (project papers are not included).

NOTE: International students must consult with an adviser in the Office of International Students and Scholars to determine their eligibility for this option.

Requirements:

* Students must have been registered for the previous quarter
* Students must have completed all Graduate School and graduate program degree requirements (except for thesis submission)
* The fee must be paid no later than 14 calendar days following the last day of the quarter in which all degree requirements were met
* Master's students must submit a new master's degree request within the first 5 days of instruction for the quarter in which they will graduate

(http://www.grad.washington.edu/mygrad/student.htm)

* Theses/Dissertations must be complete and accepted by the Graduate School within the 2 week fee period

NOTE: The degree will not be conferred until the end of the quarter in which the degree is **submitted**.

For more information regarding the Graduate Registration Waiver Fee: http://www.grad.washington.edu/policies/general/regwaiver.shtml

**4.6 SECOND MASTER'S DEGREE:**

A second master's degree may be earned at the University of Washington by completing an additional set of requirements. Please refer to Concurrent Degree Programs and to Graduate School Memorandum 35 for more information.

### 4.7 TRANSFER CREDIT

A student working toward the master's degree may petition the Dean of the Graduate School for permission to transfer to the University of Washington the equivalent of a maximum of 6 quarter credits of graduate level course work taken at another recognized academic institution. These credits may not have been used to satisfy requirements for another degree. The petition must include a recommendation from the graduate program coordinator and an official transcript indicating completion of the course work. Transfer credits are not entered on the UW transcript.

University of Washington students who are within 6 credits of completing their undergraduate degree and who have met the requirements for admission to the Graduate School may register the quarter immediately preceding admission to Graduate School for up to 6 credits in 500-level courses in addition to the last 6 credits they require of undergraduate work. The graduate program which has admitted the student must approve registration for the courses. The student, after admission to the Graduate School, must file a petition with the Dean of the Graduate School to transfer the 6 credits. The student must also provide a letter or e-mail from the office of Graduations and Academic Records stating that these credits have not been applied toward the undergraduate degree.

Approved transfer credits are applied toward total credit count only for the master's degree. (Transfer credits are not applicable toward a doctoral degree.) The 18 quarter credits of numerically graded course work, and 18 quarter credits of 500-level-and-above course work may not be reduced by transfer credit.

Credit taken as an undergraduate non-matriculated student or post-baccalaureate student at the University of Washington may not be transferred into a graduate program. Credit by either independent study through correspondence or advanced credit examinations is not transferable.

## 5.0 QERM DOCTORAL DEGREE REQUIREMENTS

### 5.1 DOCTORAL DEGREE REQUIREMENTS

The doctoral degree is by nature and tradition the highest certificate of membership in the academic community. As such, it is meant to indicate the presence of superior qualities of mind and intellectual interests and of high attainments in a chosen field. It is not conferred merely as a certificate to a prescribed course of study and research, no matter how long or how faithfully pursued. All requirements and regulations leading to the doctoral degree are devices whereby the student may demonstrate present capacities and future promise for scholarly work.

Degree requirements are set in part by the Graduate School and in part by the QERM program. The

Graduate School sets University-wide requirements for minimum scholarship as outlined below. The QERM program sets the core curriculum and requires successful completion of a qualifying examination at the completion of the first year of study. The program also requires a dissertation and an integrated program of coursework and research during which the student learns the fundamentals of statistical inference, ecological modeling and resource management.

The schedule of doctoral degree timeline and procedures outlined in **Appendix L** provides guidance on the expected rate of progress.

Graduate School Minimum Requirements:

1. Completion of a program of study and research as planned by the graduate program coordinator in the student's major department or college and the Supervisory Committee. At least 18 credits of course work at the 500 level and above must be completed prior to scheduling the General Examination.
2. Presentation of 90 credits, 60 of which must be taken at the University of Washington. With the approval of the degree-granting unit, an appropriate master's degree from an accredited institution may substitute for 30 credits of enrollment.
3. Numerical grades must be received in at least 18 quarter credits of course work taken at the UW prior to scheduling the General Examination. The Graduate School accepts numerical grades in approved 400-level courses accepted as part of the major, and in all 500-level courses. A minimum cumulative GPA of 3.00 is required for a graduate degree at the University.
4. Creditable passage of the General Examination. Registration as a graduate student is required the quarter the exam is taken and candidacy is conferred.
5. Preparation of and acceptance by the Dean of the Graduate School of a dissertation that is a significant contribution to knowledge and clearly indicates training in research. Credit for the dissertation ordinarily should be at least one-third of the total credit. The Candidate must register for a minimum of 27 credits of dissertation over a period of at least three quarters. At least one quarter must come after the student passes the General Examination. With the exception of summer quarter, students are limited to a maximum of 10 credits per quarter of dissertation (800).
6. Creditable passage of a Final Examination, which is usually devoted to the defense of the dissertation and the field with which it is concerned. The General and Final Examinations cannot be scheduled during the same quarter. Registration as a graduate student is required the quarter the exam is taken and the degree is conferred.
7. Completion of all work for the doctoral degree within ten years. This includes quarters spent On-Leave or out of status as well as applicable work from the master's degree from the UW or a master's degree from another institution, if applied toward one year of resident study.
8. Registration maintained as a full- or part-time graduate student at the University for the quarter in which the degree is conferred (see detailed information under Final Quarter Registration).
9. A student must satisfy the requirements that are in force at the time the degree is to be awarded.

### 5.2 THE DOCTORAL SUPERVISORY COMMITTEE

Formation of the Doctoral Supervisory Committee, Including the GSR:

A doctoral supervisory committee should be formed as soon as appropriate, typically after a research topic is established in Year 1 of the PhD program. The committee should be appointed no later than four months prior to a General Examination. Appointment of a supervisory committee indicates that the Graduate Faculty in a student's field finds a student's background and achievement a sufficient basis for admission into a program of doctoral study and research. The QERM Ph.D. qualifying exam must be successfully completed prior to a request for appointment of a supervisory committee. (See Graduate School Memorandum 13, Supervisory Committees for Graduate Students).

Composition of the Doctoral Supervisory Committee:

In order to allow time to identify a suitable Graduate School Representative (GSR), it is suggested that the doctoral supervisory committee be established at least four months prior to the intended date of the General Examination.

The doctoral supervisory committee consists of a minimum of four members, at least three of whom (including the Chair and the GSR) must be members of the Graduate Faculty with an endorsement to chair doctoral committees. **In addition, the chair and one other member must be QERM faculty.** A majority of the members must be members of the Graduate Faculty. The GSR must be a productive scholar in his or her own research area that may differ from that of the student’s dissertation project. The remaining members must be identified by the student's appointing department or program as productive scholars in the student's major field and/or subfields. The Chair(s) of a committee must be able and willing to assume principal responsibility for advising the student. In addition, the Chair(s) should have adequate time available for this work and should expect to be accessible to the student. Emeritus and affiliate faculty may serve as a Chair if the above conditions are met. Co-Chairs may be appointed when both serve with equal importance on a student’s supervisory committee and equally share the responsibility for the student's progress.

Graduate Student Representative (GSR):

The GSR represents the broad concerns of the Graduate School with respect to high standards of scholarly performance, ensuring that the student’s mastery of the subject matter is broad and comprehensive. The GSR is a voting member of the committee and must attest to the validity of examinations, must indicate approval of the process by which examinations are conducted, must ensure that the student is treated in an unbiased manner, and must represent The Graduate School in ensuring university-wide standards of scholarly performance. Thus, the GSR must sign the warrant and submit a standardized report on the examination process to the Dean of the Graduate School. As a full voting member of the dissertation supervisory committee, the GSR provides an important service function to The Graduate School and the University.

As with all doctoral supervisory committee members, the GSR is proposed to the Graduate School by the Graduate Program Coordinator in the student’s degree-offering unit and must be a member of the Graduate Faculty with an endorsement to Chair. Faculty members with primary, joint, or affiliate appointments in the student’s degree-offering unit or the committee chair’s department are not eligible to serve as the GSR. It is vital that a conflict of interest in the selection of the GSR be avoided. Budgetary relationships, personal relationships, or research and/or publication relationships between the GSR and either the student or the committee chair are examples of possible conflicts of interest. The GSR is responsible for ensuring that no such conflicts of interest, or appearance of conflicts of interest, exist, and must attest to this upon request.

Functions of the Doctoral Supervisory Committee:

Doctoral supervisory committee member responsibilities include the approval of a course of study which will fulfill the general course requirements of the student's major and supporting fields, conducting the student's General Examination and, when appropriate, recommending advancement to Candidacy. The doctoral supervisory committee approves the Candidate's dissertation proposal and guides the student in carrying out appropriate research for the dissertation. The Graduate School does not stipulate the content of the dissertation; guidance on the dissertation is the responsibility of the supervisory committee. At least four members of the committee (including the Chair(s), GSR, and one additional Graduate Faculty member) must be present at both the General and Final Examinations.

Procedure for Establishing Doctoral Supervisory Committee:

A Request to Establish Doctoral Supervisory Committee form **(Appendix M)** must be submitted to the QERM GPA prior to the first committee meeting. This request should include a brief synopsis of the intended dissertation topic and names of proposed committee members. This information is reviewed by the GPC for suitability of faculty balance in relation to the selected topic. After approval the QERM GPA enters information in MyGrad Program, formally notifying the Graduate School Dean of the formation of the committee. The student may proceed with scheduling the first committee meeting after review and approval by GPC.

First Supervisory Committee Meeting:

The committee should meet with the student within two weeks after formation to decide on the student's program of study. The student is responsible for arranging all necessary meetings and furnishing required forms.

The first meeting will deal primarily with a definition of course requirements. The following paperwork must be completed at the first meeting:

* **Plan of Study toward the Doctoral Degree form:** This form **(Appendix N)** must be completed by the student and committee chair and approved by all committee members at the time of the first meeting. This is an agreement made between the student and the supervisory committee about what coursework will be required to complete the doctoral degree. It includes the core required courses as well as any other courses the committee feels are necessary to give the student the required background in his/her area of interest. This form is also used to request waivers of core courses.
* Use of Human and Animal Subjects for UW Graduate Student Theses and Dissertations form: This form (Appendix G) must be completed by the student and committee chair at the first committee meeting
* **Doctoral Supervisory Committee Meeting Documentation form:** The chair records the results of all meetings on this form **(Appendix O)**, including date of the meeting, committee members present, decisions and accomplishments. It is the responsibility of the student to provide the appropriate form. This form should also be completed after all subsequent supervisory committee meetings.

All three forms are forwarded to the QERM GPA for review by the Graduate Program Coordinator and kept in the student's permanent file.

Subsequent Supervisory Committee Meetings:

The committee should meet regularly to review the student's progress and dissertation proposal. The student can request additional committee meetings whenever he or she feels the need for such consultation. A Meeting Documentation form **(Appendix O)** should be completed by the chair after each meeting and forwarded to the QERM GPA.

### 5.3 DOCTORAL DISSERTATION

The student must select a dissertation research topic and develop it in consultation with his or her research adviser. The research project should be designed for completion, together with other program requirements, within a three to five-year period. The doctoral dissertation should provide evidence of the student's ability to carry out independent investigations and to present the results in a clear and systematic form.

Submission of Dissertation Proposal:

A student is expected to submit a dissertation proposal to their supervisory committee before the end of the 5th quarter of study in the Ph.D. program (Winter Quarter – Year 2 of Ph.D. program) and before beginning substantive dissertation research. The proposal provides evidence to the committee of the student’s readiness to carry out the research, and also clarifies the expectations of both the student and committee as to the final content of the thesis.

The objective of a dissertation proposal is to ensure a definite plan for the work to be done. Once approved by the supervisory committee it becomes an informal contract between the student and the committee. In addition, a proposal serves as:

* A basis for discussions between student and committee regarding experimental design, data analysis, and focus of the coursework; and
* A clear statement of the amount of effort anticipated to produce an acceptable thesis.

While the thesis proposal serves as an agreement between student and committee, both parties also must recognize that flexibility is needed to include later changes as experiments may fail and new opportunities may arise.

Dissertation Proposal Format:

The thesis research proposal should follow the general features of a research proposal. A typical format is as follows:

* **Introduction:** General background, importance of the subject area; for a dissertation proposal especially, there should be a substantial literature review.
* **Objective(s):** A concise statement of the purpose(s) or objective(s) of the project; this should flow logically from the introduction and be short and specific.
* **Methods:** General plans, specific methods, sampling or experimental design, duration, and projected procedure for data analysis; these methods should be appropriate for directly addressing the purpose(s) or objective(s).
* **Results:** Results of theoretical investigations, experiments, field sampling, computer simulations, data analyses, etc., should be clearly stated.
* **Interpretation:** How will the results be interpreted? There should be explicitly stated inferences that would be drawn from all outcomes; outcomes that cannot be interpreted imply imprecise objectives or inappropriate methods.
* **Significance:** Why is this investigation justified? What is the scientific or practical contribution? For a dissertation proposal especially, the case eventually must be made that the results will be a significant contribution to knowledge, regardless of the experimental or observational outcomes.
* **Timeline/Workplan:** The timeline helps to assess whether the proposed research is feasible as planned and establishes milestones. Periods when there are activities which could slow progress (e.g., taking written and oral examinations for Ph.D. students) should be highlighted when accounted for when selecting milestones. The timeline should also indicate when likely outputs (e.g., scientific paper and reports) will be produced.

The length of the written proposal should be the minimum needed to do the job. For a doctoral dissertation proposal, 10-15 pages are probably realistic. The intent is to write the proposal early in the degree program. If written too late, it will begin to resemble the dissertation in size and scope, and its primary purpose will be lost.

Approval of Dissertation Proposal:

The supervisory committee certifies that they have reviewed and approved the student’s dissertation proposal by signing the Doctoral Dissertation Proposal form **(Appendix P).** A copy of the form and thesis proposal should be forwarded to the QERM GPA.

Writing and Preparation of Dissertation:

The electronic thesis/dissertation (ETD) will be published by ProQuest/UMI and by the UW Libraries, and as a student, researcher and future author you should develop an understanding of copyright, publishing and open access. When you submit your ETD for review and publication, you will be required to read and accept two separate publishing agreements and then be prompted to decide whether to publish your work right away or to delay its release. Basic information and links to additional resources on these topics are available at:

* Policy for Deposit and Dissemination of Master's Theses and Doctoral Dissertations
* Access Options for Electronic Theses and Dissertations
* Electronic Theses and Dissertations – Copyright, Open Access and Publishing FAQ
* ProQuest/UMI Agreement - Traditional Publishing Agreement
* University Agreement - UW Libraries Thesis and Dissertation Submission Agreement

Detailed instructions on preparation and submission of your electronic dissertation can be found at: <http://grad.washington.edu/students/etd/> and at http://www.grad.washington.edu/students/etd/info.shtml

### 5.4 REQUEST FOR GENERAL EXAMINATION – ADMISSION TO CANDIDACY

A General Examination may be scheduled if:

* the student has completed 60 credits (some of these credits may be taken the same quarter of the exam);
* all required program examinations that do not need Graduate School approval have been completed and;
* all members of the supervisory committee agree that the student's background of study and preparation is sufficient and have approved the student to schedule a General Examination.

At least four members of a supervisory committee (including the Chair, Graduate School

Representative, and one additional Graduate Faculty member) must be present at the examination.

If the General Examination is satisfactory, the supervisory committee members who participate at the examination sign the “warrant” (this form will be provided by the QERM GPA prior to the exam) and return it to the QERM GPA by the last day of the quarter (last day of finals week). If an examination is unsatisfactory, a supervisory committee may recommend that the Dean of the Graduate School permit up to a maximum of two additional reexaminations after a period of additional study. Any members of a supervisory committee who do not agree with the majority opinion are encouraged to submit a minority report to the Dean of the Graduate School.

Registration as a graduate student is required the quarter that a General Examination is taken. When the Graduate School approves candidacy, a student is identified and designated as a candidate for the appropriate doctoral degree and is awarded a candidate certificate. After achieving candidate status, a student ordinarily devotes his or her time primarily to the completion of research, writing of the dissertation, and preparation for the Final Examination.

A candidate certificate and the doctoral degree may not be awarded the same quarter.

Procedure for Requesting the General Examination:

The QERM Request for Doctoral General Examination form **(Appendix Q)** must be signed by all members of the Supervisory Committee. However, the exam may take place with the minimum number of members specified in Graduate School Memorandum No. 13 (i.e., at least 4 members including the Chair, GSR, and another Graduate Faculty member). Email approvals or faxed signatures are acceptable if attached to the form. The date, time, and location of the exam must be indicated in all approvals.

In addition, the student **MUST** also schedule the Doctoral General Exam **online** with the Graduate School at http://www.grad.washington.edu/mygrad/student/htm

**5.5 CANDIDATE CERTIFICATE:**

A candidate certificate gives formal recognition to a successful completion of a very significant step towards a doctoral degree. Students who have passed a General Examination and have completed all requirements for a doctoral degree, except a Final Examination and Graduate School acceptance of a dissertation, are awarded a candidate certificate. Candidacy is conferred on the last day of a quarter and certificates are issued by the Graduation and Academic Records office approximately 4 months after this date.

### 5.6 DOCTORAL READING COMMITTEE

Appointment and Responsibilities of a Doctoral Reading Committee:

After the General Examination, the QERM GPA uses MyGrad Program to inform the Dean of The Graduate School of at least three members of the supervisory committee who will serve on the reading committee. At least one of the members of the reading committee must hold an endorsement to chair doctoral committees. The reading committee is appointed to read and approve the dissertation. It is the responsibility of a reading committee to:

* ensure that the dissertation is a significant contribution to knowledge and is an acceptable piece of scholarly writing;
* determine the appropriateness of a candidate's dissertation as a basis for issuing a warrant for a Final Examination and;
* approve a candidate's dissertation.

Procedure for Establishing Doctoral Reading Committee:

When a near-to-final draft of the dissertation has been completed, the student must establish his/her reading committee by completing the QERM Doctoral Reading Committee Request form **(Appendix R).** This form is returned to the QERM GPA who uses MyGrad Program to inform the Dean of The Graduate School.

The Final Examination may not be established until after the reading committee has read an entire draft of the dissertation and the supervisory committee has agreed that the student is prepared and has approved the student to schedule a Final Examination.

### 5.7 FINAL EXAMINATION – DISSERTATION DEFENSE

A Final Examination may be scheduled if:

* a student passed a General Examination in a previous quarter;
* a reading committee is officially established with the Graduate School;
* the reading committee has read an entire draft of the dissertation and;
* the entire supervisory committee has agreed that the student is prepared and has approved the student to schedule a Final Examination.

At least four members of a supervisory committee (including the Chair, Graduate School

Representative, and one additional Graduate Faculty member) must be present at the examination.

If the Final Examination is satisfactory, the supervisory committee members who participate at the examination sign the warrant and return it to the QERM GPC by the last day of the quarter (last day of finals week). Any members of a supervisory committee who participate at an examination but do not agree with the majority opinion are encouraged to submit a minority report to the Dean of the Graduate School. If an examination is unsatisfactory, a supervisory committee may recommend that the Dean of the Graduate School permit a second examination after a period of additional study.

After the Final Examination, the candidate has 60 days in which to submit a dissertation to the Graduate School. Registration as a graduate student is required the quarter that a Final Examination is taken AND the quarter the dissertation is submitted. If the 60-day time period expires, another Final Examination may be required. The degree is conferred the quarter in which the Graduate School accepts the student’s dissertation.

A candidate certificate and the doctoral degree may not be awarded the same quarter.

Procedure for Requesting the Final Examination:

After the Chair approves the student to sit for the Final Examination, the QERM Request for Doctoral Final Examination form **(Appendix S)** must be completed by **ALL** members of the Supervisory Committee. Email approvals or faxed signatures are acceptable if attached to the form. The date, time, and location of the exam must be indicated in all approvals.

The exam may take place with the minimum number of members specified in Graduate School Memorandum No. 13 (i.e., at least 4 members including the Chair, GSR, and another Graduate Faculty member).

In addition, the student **MUST** also schedule the Doctoral Final Examination online with the

Graduate School at http://www.grad.washington.edu/mygrad/student/htm

Prior to the Final Examination the QERM GPA will print out the “Warrant” form provided by the Graduate School. All members of the committee present at the Final Examination must sign this form. The completed form is returned to the QERM GPA who then notifies the Graduate School of the results of the Final Examination.

### 5.8 FINAL SUBMISSION OF DOCTORAL DISSERTATION

Any corrections of the dissertation are completed after the Final Examination and must be submitted by the last day of the quarter. For additional information on submitting the dissertation refer to: http://www.grad.washington.edu/students/etd/info.shtml

The $250 Graduate Registration Waiver Fee is an option if all degree requirements have been met by the final day of the quarter with the exception of the dissertation.

### 5.9 GRADUATE REGISTRATION WAIVER FEE

The $250 Graduate Registration Waiver Fee is an optional fee paid in lieu of registration. It is available to qualifying students for a **2-week period directly following the quarter** in which all Graduate School and graduate program degree requirements are met. Qualifying students who pay this fee will graduate in the quarter following the fee payment period. Note: This option may have an effect on the grace period for student loans becoming due; students should check with their lenders for registration requirements before utilizing this option in lieu of registration.

Eligibility:

* Master's students who did not submit a Master's degree request prior to the request deadline for the quarter in which all degree requirements were completed
* Students who completed all degree requirements but needed additional time to format the thesis (project papers are not included).

NOTE: International students must consult with an adviser in the Office of International Students and Scholars to determine their eligibility for this option.

Requirements:

* Students must have been registered for the previous quarter.
* Students must have completed all Graduate School and graduate program degree requirements (except for dissertation submission).
* The fee must be paid no later than 14 calendar days following the last day of the quarter in which all degree requirements were met.
* Dissertations must be complete and accepted by the Graduate School within the 2 week fee period.

NOTE: The degree will not be conferred until the end of the quarter in which the degree is **submitted**.

For more information regarding the Graduate Registration Waiver Fee: http://www.grad.washington.edu/policies/general/regwaiver.shtml

***Appendix A***

***QERM Faculty***

|  |  |
| --- | --- |
| **QERM CORE FACULTY** |  |
| Ernesto Alvarado, Research Associate Professor | School of Environmental and Forest Sciences |
| Chris Anderson, Associate Professor | School of Aquatic and Fishery Sciences |
| James Anderson, Research Professor | School of Aquatic and Fishery Sciences |
| Trevor Branch, Assistant Professor | School of Aquatic and Fishery Sciences |
| Lauren Buckley, Associate Professor | Department of Biology |
| David Butman, Assistant Professor | School of Environmental and Forest Sciences; Civil & Environmental Engineering |
| Sarah J. Converse, Associate Professor | School of Environmental and Forest Sciences; School of Aquatic and Fishery Sciences |
| Timothy Essington, Professor | School of Aquatic and Fishery Sciences |
| Vincent Gallucci, Professor | School of Aquatic and Fishery Sciences |
| Beth Gardner, Assistant Professor | School of Environmental and Forest Sciences |
| Daniel Grunbaum, Associate Professor | School of Oceanography |
| Ray Hilborn, Professor | School of Aquatic and Fishery Sciences |
| John Horne, Professor | School of Aquatic and Fishery Sciences |
| Mark Kot, Associate Professor | Department of Applied Mathematics |
| Joshua Lawler, Associate Professor | School of Environmental and Forest Sciences |
| Julian D. Olden, Associate Professor | School of Aquatic and Fishery Sciences |
| Andre Punt, Professor | School of Aquatic and Fishery Sciences |
| Sergey Rabotyagov, Assistant Professor | School of Environmental and Forest Sciences |
| Jennifer Ruesink, Professor | Department of Biology |
| Daniel Schindler, Professor | School of Aquatic and Fishery Sciences |
| John Skalski, Professor, | School of Aquatic and Fishery Sciences |
| E. Ashley Steel, Affil. Assist. Professor | School of Aquatic and Fishery Sciences |
| Sandor Toth, Associate Professor | School of Environmental and Forest Sciences |
| Aaron J. Wirsing, Associate Professor | School of Environmental and Forest Sciences |
| **AFFILIATED QERM FACULTY** |  |
| Susan Bolton, Professor | School of Environmental and Forest Sciences |
| Alison C. Cullen, Professor | Daniel Evans School of Public Affairs |
| Thomas Daniel, Professor | Department of Biology |
| Joseph Felsenstein, Professor | Genome Sciences |
| Steven Goodreau, Assistant Professor | Department of Anthropology |
| Francis Greulich, Professor | School of Environmental and Forest Sciences |
| Tom Leschine, Professor, | School of Marine Affairs |
| Donald Percival, Professor | Department of Statistics |
| Paul Sampson, Research Professor | Department of Statistics |
| Eric Turnblom, Associate Professor | School of Environmental and Forest Sciences |
| **EMERITUS QERM FACULTY** |  |
| James Agee, Professor Emeritus | School of Environmental and Forest Sciences |
| B. Bruce Bare, Professor Emeritus | School of Environmental and Forest Sciences |
| Gardner Brown, Professor Emeritus | Department of Economics |
| Loveday L. Conquest, Professor Emeritus | School of Aquatic and Fishery Sciences |
| E. David Ford, Professor Emeritus | School of Environmental and Forest Sciences |
| Bob Francis, Professor Emeritus | School of Aquatic and Fishery Sciences |
| Peter Guttorp, Professor Emeritus | School of Aquatic and Fishery Sciences |
| Jay Johnson, Professor Emeritus | School of Environmental and Forest Sciences |
| Gerard Schreuder, Professor Emeritus | School of Environmental and Forest Sciences |
| Judy Zeh, Professor Emeritus | Department of Statistics |

***Appendix B***

***QERM Annual Progress Report***

Please use this format for the Annual Progress Report. First-year students are required to fill out part C only, unless A or B is relevant. The weight given to the activities later in the list increases as a student progresses. A copy of this report will be distributed to the Graduate Program Coordinator and the student’s advisor and/or Supervisory Committee chair.

|  |
| --- |
| Name of Adviser or Supervisory Committee Chair: |
| Date Entering QERM Program: |
| Degree Sought: |

1. CUMULATIVE RECORD (use the back of this page if additional space is needed)

|  |
| --- |
| Committee Members: |
| Exams passed and dates: |
| Statistical Theory Exam: |
| QERM Applied Exam: |
| Date of acceptance of thesis or dissertation proposal: |
| Presentations at regional or national meetings: |
| Publications: |
| Awards or grants received: |

1. ACTIVITIES OF THE PAST YEAR:

|  |
| --- |
| Courses taken and grades: |
| Teaching (courses and approximate number of hours per week spent for each) |
| Participation in seminars and group meetings: |
| Independent reading: |
| Committee meetings held (dates), and names of committee members: |
| Research progress (nature of topic, formal plans, data collected): |
| Manuscripts submitted, accepted, or published: |
|  |
| Presentations at meetings: |
| Awards or grants received: |
| Are there any goals that you failed to reach this year, and to what reasons, internal or external, do you attribute to these difficulties? |
| Anything else that you would like to add? |

1. PLANNED ACTIVITIES:

|  |
| --- |
| Courses to be taken, and in which semester? |
| Anticipated teaching: |
| Planned reading: |
| Plans for scheduling and taking exams: |
| Plans for applying for research funding (with deadlines): |
| Research plans with goals for each semester and the summer: |
| Manuscripts to be submitted or revised: |
| Planned presentations at meetings: |
| Target dates for starting or completing writing: |
| Anything else you would like to add? |

Student Name: Date:

***Appendix C***

***QERM Core Coursework for M.S. and Ph.D.***

**AMATH 523 – Mathematical Analysis in Biology and Medicine (5)** This course focuses on developing and analyzing mechanistic, dynamic models of biological systems and processes, to better understand their behavior and function. Applications are drawn from many branches of biology and medicine. Students will gain experience in applying differential equations, difference equations, and dynamical systems theory to biological problems. Prerequisite: Background equivalent to AMATH 351, AMTH 422, or Math 307

**AMATH 535 – Mathematical Ecology (5)** This course considers models, methods, and issues in population ecology. Topics include the effects of density dependence, delays, demographic stochasticity, and age structure on population growth; population interactions (predation, competition, and mutualism); and applications of optimal control theory to the management of renewable resources. (Offered Spring 2011; offered every other year) Prequisite: AMATH 403 or permission of instructor.

**IND E 513 Linear Optimization Models in Engineering (3)** Advanced formulation techniques to expand applications of linear programming to large-scale models. Appreciation of role of optimization models in engineering applications through introduction of techniques such as decomposition. Individual engineering projects. Prerequisite: IND E 410 and MATH 308 or permission of instructor. Offered: Sp.

**STAT 516 Stochastic Modeling of Scientific Data (3)** Markovian and semi-Markovian models, point processes, cluster models, queuing models, likelihood methods, estimating equations. Prerequisite: STAT 511 or STAT 396. Offered: A.

**STAT 517 Stochastic Modeling of Scientific Data (3)** Markovian and semi-Markovian models, point processes, cluster models, queuing models, likelihood methods, estimating equations. Prerequisite: STAT 516. Offered: W.

**BIOL 567/CFR 567/FISH 567 Topics in Advanced Ecology (3, max. 6)** Discuss literature on active research areas or controversies in different branches of ecology. Offered: jointly with CFR 567/FISH 567; W.

**SEFS 540 Optimization Techniques for Natural Resources (5)** Toth Studies optimization techniques

for natural resource managers including spatial optimization; linear, integer, and multi-objective programming; and stochastic and combinatorial optimization. Emphasizes model building rather than on algorithmic concepts. Prerequisite: MATH 308 or permission of instructor. Offered: Sp.

**QERM 514 Analysis of Ecological and Environmental Data I (4)** Overview of generalized linear models (GLMs), their use in forestry, fisheries, wildlife ecology, and environmental monitoring. Analysis of the statistical tests that fall under GLMS: chi-square tests on contingency tables, t-tests, analysis of variances, etc. Statistical software S+/R used throughout. Offered: Sp.

**QERM 597 Seminar in Quantitative Ecology (2)** Current topics in quantitative ecology and resource management. Fisheries, forestry, and marine resources. Offered: A, Wi

**QERM 600 Independent Study or Research (\*)**

**QERM 700 Master's Thesis (\*)**

**QERM 800 Doctoral Dissertation (\*)**

***Appendix D***

***Recommended Electives***

**Autumn Winter Spring**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  | | --- | --- | --- | --- | | **Forestry/Ecology** | **SEFS 501 – Forest EcosystemsCommunity Ecology (5)**    **ESRM 425/SEFS 590 G – Ecosystem Management (5)**    **SEFS 590 F – Intro to Restoration**  **Ecology (3)** | **SEFS 526 – Seminar in Advanced**  **Silviculture (3)**    **SEFS 541 – Advanced Landscape**  **Ecology (5)** |  | | **Biology/Ecology** | **BIO 560 C – Ecoseminar: Classic**  **Readings in Ecology (1-3)**    **BIO 472 – Community Biology (4)**    **FISH 558 – Decision Analysis in**  **Natural Resource Management (4)**    ***BIOL 563 Experimental***  ***Evolutionary Ecology (5) NW*** | **BIO/SEFS/FISH 567 – Topics in**  **Advanced Ecology (3, max. 6)**    **FISH 557 – Estimation of Population**  **Parameters (4)**    **BIO 476 – Conservation Biology (5)** | **FISH 458 – Modeling and**  **Estimation in Conservation and**  ***Resource Management (4)***    **BIO 497 – Special Topics:**  **Ecology of Climate Change (3)**    **BIO 433 – Marine Ecology (5)**    **OCEAN 539 – Seminars in**  **Biological Oceanography:**  **Models (max 24)** | | **Optimization** | **MATH 407 – Linear Optimization (3)**    **MATH 514/AMATH 514 – Networks and Combinatorial Optimization (3)** | **MATH 407 – Linear Optimization (3)**    **Math 408 – Nonlinear Optimization (3)** | **MATH 409 – Discrete**  **Optimization (3)** | | **Modeling** | **INDE 410 – Linear and network**  **Programming (4)**    **INDE 513 – Linear Optimization**  **Models in Engineering (3)**    **INDE 508 – Stochastic Processes in**  **Engineering (3)** | **INDE 411 – Stochastic Models and**  **Decision Analysis (4)** | **INDE 412 – Integer and Dynamic**  **Programming (4)** | | **Statistics** | **STAT 512 Statistical Inference I (4)**    **STAT 570 – Advanced Applied**  **Statistics and Linear Models (3)** | **STAT 513 - Statistical Inference II (4)**    **STAT 571 – Advanced Applied**  **Statistics and Linear Models (3)** |  | |
|  |
|  |

***DESCRIPTION – RECOMMENDED ELECTIVES***

**STATISTICS ELECTIVES:**

**STAT 512 Statistical Inference (4)** Review of random variables; transformations, conditional expectation, moment generating functions, convergence, limit theorems, estimation; Cramer-Rao lower bound, maximum likelihood estimation, sufficiency, ancillarity, completeness. Rao-Blackwell theorem. Hypothesis testing: Neyman-Pearson lemma, monotone likelihood ratio, likelihood-ratio tests, large-sample theory. Contingency tables, confidence intervals, invariance. Introduction to decision theory. Prerequisite:

STAT 395 and STAT 421, STAT 423, STAT 504, or BIOST 512 (concurrent registration permitted for these three). Offered: A.

**STAT 513 Statistical Inference (4)** Review of random variables; transformations, conditional expectation, moment generating functions, convergence, limit theorems, estimation; Cramer-Rao lower bound, maximum likelihood estimation, sufficiency, ancillarity, completeness. Rao-Blackwell theorem. Hypothesis testing: Neyman-Pearson lemma, monotone likelihood ratio, likelihood-ratio tests, large-sample theory. Contingency tables, confidence intervals, invariance. Introduction to decision theory. Prerequisite: STAT 512. Offered: W.

**STAT 570 Advanced Applied Statistics and Linear Models (3**) Generalized linear models, REML in mixed models for randomized blocks, split plots, longitudinal data. Generalized estimating equations, empirical model building, cross validation, recursive partitioning, generalized additive models, projection pursuit. Prerequisite: STAT 513; STAT 533 or STAT 421 and STAT 423, and a course in matrix algebra for STAT 570. Offered: jointly with BIOST 570; A.

**STAT 571 Advanced Applied Statistics and Linear Models (3)** Generalized linear models, REML in mixed models for randomized blocks, split plots, longitudinal data. Generalized estimating equations, empirical model building, cross validation, recursive partitioning, generalized additive models, projection pursuit. Prerequisite: STAT 570. Offered: jointly with BIOST 571;

**BIOLOGY/ECOLOGY ELECTIVES:**

**BIOL 433 Marine Ecology (5) NW** Study of marine ecological processes such as recruitment, disturbance, competition, and predation, and their effects on the structure and diversity of marine communities. Weekend field trips to local intertidal habitats required. Prerequisite: either BIOL 356, BIOL 472, or a minimum grade of 3.4 in BIOL 180. Offered: Sp, odd years.

**BIOL 472 Community Ecology (5) NW** Covers the complexity of biological communities as influenced by biotic and abiotic factors, as well as the impact of human activities (like global warming) on communities. Prerequisite: BIOL 356.

**BIOL 476 Conservation Biology (5) NW** Explores biological, managerial, economic, and ethical concepts affecting survival of species. Applications of ecology, biogeography, population genetics, and social sciences for the preservation of species in the face of widespread global habitat modification, destruction, and other human activities. Prerequisite: BIOL 180.

**BIOL 497 Special Topics in Biology (1-5, max. 10) NW**

**BIOL 560 Seminar in Ecology (1-3, max. 15)** Weekly discussions of past and current scientific literature in ecology, reviews of the state of the field, and presentation of research results. Discussions may cover the full breadth of the discipline or focus on selected topics. Graduate status required, or permission of instructor for undergraduates.

**BIOL 561 Topics in Ecology (1-3, max. 15)** Focused discussion of on-going research in ecology occurring in the instructor's laboratory. Graduate status required, or permission of instructor for undergraduates.

**BIOL 563 Experimental Evolutionary Ecology (5) NW** Explores experimentally approachable questions in ecology and evolution through lectures, lab, and field experiments. Topics may include evolution of bacterial antibiotic resistance, the evolution of virulence, seed predation, plant biodiversity, and others. Offered: A;

**FISH 458 Modeling and Estimation in Conservation and Resource Management (4) NW** Explores the use of models in the evaluation of alternative management policies for natural resources, including modeling approaches, fitting models to data, and evaluating alternative management policies. Emphasizes calculating risk of extinction, and design of biological reserves. Recommended: either Q SCI 454 or FISH 454. Offered: jointly with Q SCI 458; Sp.

**FISH 557 Estimation of Population Parameters (4)** Statistical analysis of population data; design and analysis of mark-recapture experiments on natural populations; laboratory work on computers. Recommended: probability theory and Q SCI 292 and 483.

**FISH 558 Decision Analysis in Natural Resource Management (4)** Focuses on age and size-structured population models; Bayesian methods; Sample Importance Resample algorithm; Markov chain Monte Carlo algorithm; policy evaluation; and risk analysis and uncertainty in fisheries management. Recommended: FISH 557, or permission of instructor.

**OCEAN 539 Seminar in Biological Oceanography (\*, max. 24)** Lectures, discussions, and work on selected problems of current interest. Prerequisite: permission of instructor. Offered: AWSp.

**FORESTRY/ECOLOGY ELECTIVES:**

**SEFS 501 Forest Ecosystems-Community Ecology (5)** Community ecology of forest ecosystems. Quantitative methods of community description. Role of limiting factors, competition and disturbance in determining community composition, structure and stability. Introduction to forest ecosystem productivity. History and application of successional theory. Prerequisite: basic ecology course or permission of instructor. Offered: A.

**ESRM 425 Ecosystem Management (5) NW** Scientific and social basis for ecological forestry. Forest practices to achieve integrated environmental and economic goals based upon material models of disturbance and stand development including alternative harvesting methods; adaptive management and monitoring; certification and global issues. Offered: A.

**SEFS 526 Seminar in Advanced Silviculture (3)** Seminar on current and emerging silvicultural issues and underlying biological principles. Topics include: stand management to enhance wildlife, biodiversity and high productivity in sub-tropical and tropical regions; computer simulation of stand growth; adaptation to changes in management objectives; soil conditions and productivity during stand rotation; and minimizing effects of catastrophic disruption. Prerequisite: ESRM 428. Offered: W.

**SEFS 541 Advanced Landscape Ecology (5)** Investigates the causes and consequences of spatial patterns in ecology. Concentrates on applied questions and approaches, covering topics such as scaling, landscape processes, pattern measurement, biogeography, landscape modeling, and conservation planning. Prerequisite: CFR 501. Offered: W.

**MODELING ELECTIVES:**

**IND E 410 Linear and Network Programming (4)** Modeling and optimization of linear network problems. Topics inclucde: optimization of linear systems, mathematical model design, simplex method, primal-dual algorithms, parametric programming, goal programming, network problems and algoithms, and PERT/CPM. Prerequisite: either MATH 136 or MATH 308; CSE 142. Offered: A.

**IND E 411 Stochastic Models and Decision Analysis (4)** Stochastic systems analysis to industrial engineering problems. Topics include: Markov chains, queueing theory, queueing applications, and decision analysis. Prerequisite: IND E 315; IND E 410. Offered: W.

**IND E 412 Integer and Dynamic Programming (4)** Modeling and optimization of problems and dynamic programming approach to optimization. Topics include: integer programming formulation techniques, linear and Lagrangian relaxation, branch-and-bound and cutting-plane methods, integer programming applications, and dynamic programming. Prerequisite: IND E 411. Offered: Sp.

**IND E 508 Stochastic Processes in Engineering (3**) Non-measure theoretic introduction to stochastic processes. Topics include Poisson processes, renewal processes, Markov and semi-Markov processes, Brownian motion, and martingales, with applications to problems in queuing, supply chain management, signal processing, control, and communications. Prerequisite: E E 505. Offered: jointly with E E 508; AWSp.

**MATH 407 Linear Optimization (3)** NW Maximization and minimization of linear functions subject to constraints consisting of linear equations and inequalities; linear programming and mathematical modeling. Simplex method, elementary games and duality. Prerequisite: either 2.0 in MATH 136, 2.0 in MATH 308, 2.0 in MATH 318, or 2.0 in AMATH 352. Offered: AWS.

**MATH 408 Nonlinear Optimization (3)** NW Maximization and minimization of nonlinear functions, constrained and unconstrained; nonlinear programming problems and methods. Lagrange multipliers; Kuhn-Tucker conditions, convexity. Quadratic programming. Prerequisite: either 2.0 in MATH 308 or 2.0 in MATH 318; either 2.0 in MATH 327 or 2.0 in MATH 334. Offered: W.

**MATH 409 Discrete Optimization (3)** NW Maximization and minimization problems in graphs and networks (shortest paths, minimum spanning trees, maximum flows, minimum cost flows); transportation and trans-shipment problems, NP-completeness. Prerequisite: 2.0 in MATH 407. Offered: Sp.

**MATH 514/AMATH 514 Networks and Combinatorial Optimization (3)**

Networks and directed graphs. Paths and trees. Feasible and optimal flows and potentials. Transportation problems, matching and assignment problems. Algorithms and applications. Prerequisite: MATH 308 or AMATH 352 and MATH 324. Offered: jointly with AMATH 514.

***Appendix E***

***QERM M.S. Degree – Timeline and Procedures***

|  |  |  |
| --- | --- | --- |
| **Milestone/Required Form** | **Recommended**  **Timeline** | **Comments** |
| Initial Faculty Adviser assigned by QERM program | Autumn – Year 1 | GPC assigns |
| Identify Research Adviser & Year 2 funding | Spring – Year 1 | First year students initiate meetings with faculty throughout year, investigating research &  funding opportunities (Refer to **Appendix A** for faculty list) |
| QERM Qualifying Examination | Spring – Year 1  (after final exams) | **Not required for M.S.** but recommended if student plans to pursue QERM Ph.D. May also postpone until end of Year 2. |
| Request to Establish M.S.  Supervisory Committee form **(Appendix F)** Brief narrative of proposed research (no more than 1 page) | Autumn– Year 2  (typically after a research topic has been established) | Complete **Appendix F**. QERM GPC reviews and approves composition of committee. First committee meeting should be held within 2 weeks after formation. |
| Plan of Study Toward M.S. Degree form **(Appendix G)** | Autumn - Year 2 | Complete **Appendix G** at first committee meeting. |
| Use of Human and Animal Subjects for UW Graduate Student Theses and Dissertations form **(Appendix H)** | Autumn - Year 2 | Complete **Appendix H** at first committee meeting. |
| Master’s Supervisory Committee  Meeting Documentation form **(Appendix I)** | Autumn - Year 2 and all subsequent committee meetings | Complete **Appendix I** at first committee meeting and all subsequent committee meetings. |
| Approval of Master’s Thesis  Proposal form **(Appendix J)** Copy of Thesis Proposal | Winter – Year 2 | Complete **Appendix J -** Certifies that the supervisory committee has approved the student’s thesis proposal. |
| Request for M.S. Final Examination  form **(Appendix K)** | Spring – Year 3 (variable) | Complete **Appendix K -** Certifies that the supervisory committee has read an entire nearto-final draft of thesis and concurs that the student is ready to sit for the final exam. |
| Online Graduate School Request for  Final Examination | Spring – Year 3 (variable) | Complete **ONLINE** in MyGrad. Must be completed in addition to the Request for M.S.  Final Examination form. |
| Warrant for Master’s Degree form  (Obtain form from GPA) | Returned to QERM  GPA after Final  Exam | GPA Provides Form - Certifies that the student has been approved for graduation following final examination. Signed form returned to QERM following final exam. |
| Master’s Thesis | Submit by last day  of quarter (finals  week) | PDF sent to QERM program -  Submit by end of the or by the Graduate  Registration Waiver Fee deadline. |

***Appendix F***

#### Request to Establish QERM M.S. Supervisory Committee

Student Name: Date Submitted:

**Guidelines for forming your M.S. supervisory committee:**

* The committee should be formed as soon as appropriate – typically in the beginning of the 2nd year after a research topic has been established.
* Normally consists of between 2 and 4 members.
* The chair and at least one-half of the total membership must be members of the Graduate Faculty.
* The chair and one other faculty member must be QERM Faculty.

You may attach an email from the committee member verifying that they will serve on your committee.

I have spoken with each of the following people and they have agreed to serve on my Master’s Supervisory Committee:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chairperson:** | | Title: |  |  |
| Department: | | UW Box #: |  |  |
| Email: | | Telephone: |  |  |
| Member of Graduate Faculty (circle): Yes No | | Signature: |  |  |
| Member of QERM Faculty(circle): Yes No |  | Date: |  |  |
| Name: |  | Title: |  |  |
| Department: |  | UW Box #: |  |  |
| Email: |  | Telephone: |  |  |
| Member of Graduate Faculty (circle):Yes No |  | Signature: |  |  |
| Memer of QERM Faculty (circle):Yes No      **Optional 3rd Member:** |  | Date: |  |  |
| Name: |  | Title: |  |  |
| Dept or Agency: |  | UW Box #: |  |  |
| Email: |  | Telephone: |  |  |
| Member of Graduate Faculty (circle):Yes No |  | Signature: |  |  |
| Member of QERM Faculty (circle):Yes No    **Optional 4th Member**: |  | Date: |  |  |
| Name: |  | Title: |  |  |
| Dept or Agency: |  | UW Box #: |  |  |
| Email: |  | Telephone: |  |  |
| Member of Graduate Faculty (circle):Yes No |  | Signature: |  |  |
| Member of QERM Faculty (circle):Yes No |  | Date: |  |  |
| Student signature: |  | Date: |  |  |

Please attach a brief narrative of your proposed research (no more than a single page), including objective(s), approach, and significance of your work. Return this form and narrative to the QERM Student Services Office (Ocean Teaching Building, Box 357941).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Office use only:*    *GPC Approval:* |  |  |  |  |  |  | *Date:* |

***Appendix G***

#### QERM Plan of Study toward the M.S. Degree

**Student Name:**

**Faculty Adviser:**

1. **List required QERM coursework completed:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course** | **Title** | **Credit** | **Qtr.**  **&**  **Yr.** | **Grade** |
| STAT 516 | Stochastic Modeling of Scientific Data I | 3 |  |  |
| STAT 517 | Stochastic Modeling of Scientific Data II | 3 |  |  |
| IND E 513  (or IND E 599) | Linear Optimization Models in Engineering | 3 |  |  |
| BIO/SEFS/FISH 567 | Topics in Advanced Ecology | 3 |  |  |
| QERM 514 | Analysis of Ecological and Environmental Data | 4 |  |  |
| SEFS 540 | Optimization Techniques for Natural | 5 |  |  |
| AMATH 523  AMATH 535 | Mathematical Analysis in Biology and Medicine (offered alt. Mathematical Ecology (offered odd years) | 5  5 |  |  |
| QERM 597 | QERM Special Topics – Autumn Quarter for first year students | 2 |  |  |
| QERM 597 | QERM Winter Seminar (Student research presentations – required every Winter Quarter.) | 2 |  |  |
| QSCI 486\* | Experimental Design |  |  |  |
| Ecology Elective | Refer to list of recommended ecology electives | variable |  |  |
| QERM 600 | Independent Study (as needed) | variable |  |  |
| QERM 700 | Master’s Thesis Credits (minimum of 9 required for M.S.  degree) | 9 |  |  |

\* Not required but recommended during years course is offered

1. **Additional required coursework determined in conjunction with Supervisory Committee:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Course** | **Title** | **Credits** | **Qtr & Yr.**  **to be Taken** |
|  |  |  |  |
|  |  |  |  |
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1. **Recommended coursework determined in conjunction with Supervisory Committee. These courses are recommended, but not required to graduate. Include audited courses in this section.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Course** | **Title** | **Credits** | **Check if Audited** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. **Estimated milestone completion dates (for planning purposes only):**

|  |  |  |
| --- | --- | --- |
| **Milestone** | **Regular QERM Timeline for Completion** | **Estimated Completion (Quarter & Year)** |
| Plan of Study Approved by Supervisory Committee | Autumn Qtr of Year 2 |  |
| Thesis Proposal Approved by Committee | Winter Qtr of Year 2 |  |
| Near-to-final-Thesis reviewed by Committee/ Permission given to sit for final exam | Winter Qtr of Year 3 |  |
| Submit Final Electronic Thesis to Graduate School | Spring Qtr of Year 3 |  |

Overall minimum course requirements (each must be satisfied before graduation using all completed coursework):

* + At least 36 credits must be completed
  + All courses numbered 400-799 that are numerically graded 2.7 and above, or have a grade of Satisfactory or Credit ('S' or 'CR') count toward the 36 credit total. 499 courses are not counted in the 36 credit total.
  + Courses graded less than 2.7 do not count towards the 36 credit total.
  + At least 18 credits must be in courses numbered 500 and above.
  + 18 credits must be numerically graded in department approved 400-level courses accepted as part of the major and in 500-level courses. This excludes 499 and transfer credits.
  + No more than 6 graduate level quarter credits can be transferred count toward the 36 credit total.
  + No more than 12 UW Graduate Non-matriculated credits can be applied to the 36 credit total.
  + No more than 12 credits derived from any combination of UW Graduate Non-matriculated credits and transfer credits can be applied to the 36 credit total.
  + If a student repeats a non-repeatable class, only one set of credits counts toward the 36 credit total.
  + A minimum cumulative GPA (grade point average) of 3.00 is required for a graduate degree at the University
  + The online Master's Degree Request must be filed
  + Must complete all degree requirements within six years
  + UW Graduate Non-matriculated credits used towards the 36 course credit total are counted in the six years.
  + Quarters spent On-Leave and out of status are counted in the six years.
  + Must maintain registration through the end of the quarter in which the degree is conferred or, if eligible, pay the Graduate Registration Waiver Fee within 14 days following the last day of the quarter in which all degree requirements were met.
  + Thesis track students are required to take a minimum of 9 thesis credits in their 36 credit total.
  + Thesis Track students are required to submit their electronic thesis by 5 pm on the last day of the quarter.

1. **Thesis Proposal Submission Date (estimate):**

1. **Additions, modifications, or other notes by the Supervisory Committee (list on M.S. Committee Meeting Documentation Form):**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Role | Printed Name | Signature |  |  |  |  | Date |

Chair

Member

Member

Member

Return to QERM Graduate Program Adviser (Ocean Teaching Building, Box 357941)

***Office Use Only:***

***Reviewed and approved by QERM GPC: Date:***

#### Appendix H

#### Use of Human and Animal Subjects



USE OF HUMAN AND ANIMAL SUBJECTS FOR UW

GRADUATE STUDENT THESES AND

DISSERTATIONS

This form is completed when a graduate student’s thesis or dissertation supervisory committee is constituted and must have original signatures of both the faculty committee chair and the graduate student. The original copy is retained in the student’s departmental file and be available upon request. Do not return this form to the Graduate School.

Student name Student number

*The following statement must be signed by the advisor indicating concurrence before the student’s committee is formed:*

“I certify that this student has been advised of the need to be fully in compliance with the University of Washington

Human Subjects Division and Institutional Animal Care and Use Committee’s requirements for University of Washington researchers, and that research being conducted for this student project under my supervision will be in compliance. The rights and welfare of human and/or animal subjects will be safeguarded during the conduct of master’s/doctoral research. The student has further been advised that review by these boards must take place  *prior to any activity that involves*

*human subjects or animals* for the work to be accepted as a valid master’s thesis or doctoral dissertation.”

Name of Committee Chair [printed] Signature Date

*The following statement must be signed by the student before the committee may be formed:*

“I certify that I have been advised of the need to be fully in compliance with the University if Washington Human Subjects Division and/or Institutional Animal Care and Use Committee’s requirements for researchers. I further certify that I will complete (or have completed) required training in the relevant category and that I will submit (or have submitted) my IRB and/or IACUC application for review  *prior to any activity that involves human subjects or animals* so that my work can be submitted as a valid master’s thesis or doctoral dissertation.”

Signature of Student Date For further information, you may go to the following sites:

http://www.washington.edu/research/hsd/ (Human Subjects

Division) http://depts.washington.edu/iacuc/ (Animal Care Committee)

Rev. 10/07

***Appendix I***

***QERM M.S. Supervisory Committee***

***Meeting Documentation Form\****

Student Name:

Supervisory Committee Chair:

Committee Meeting Date:

Committee Members Present:

**SUMMARY OF MEETING DISCUSSION:**

**\* NOTE:** It is the student’s responsibility to provide this form at each supervisory committee meeting. The form is to be completed by the chair and returned to the QERM Graduate Program Adviser, Ocean Teaching Building, Box 357941. A copy will be kept in the student’s permanent file.

***Appendix J***

### *QERM M.S. THESIS PROPOSAL APPROVAL*

The M.S. supervisory committee approves the student’s thesis proposal and guides the student in carrying out appropriate research for the thesis. The Graduate School does not stipulate the content of the thesis; guidance on the thesis is the responsibility of the supervisory committee.

**This it to certify that I have read and approve the Master of Science Thesis Proposal prepared by:**

**TITLE:**

**Approval of Supervisory Committee:**

*(email or fax approval is acceptable if attached to this form)*

**Printed Name: Signature: Date:**

*Please attach this completed form to a copy of the final revised thesis proposal and return to the QERM Student Services Office (*Ocean Teaching Building, Box 357941*)*

|  |  |  |
| --- | --- | --- |
| ***Office use only:***    *Reviewed and approved by QERM Graduate Program Coordinator:* |  | Date: |

***Appendix K***

### *REQUEST FOR QERM M.S. DEGREE FINAL EXAMINATION*

**IMPORTANT:** You must also schedule the Master’s Degree Request online with the Graduate School at http://www.grad.washington.edu/mygrad/student/htm

**Final Examination -- Thesis Defense:** A Final Examination may be scheduled if the entire supervisory committee has reviewed the thesis and has agreed that the student is prepared to schedule a Final Examination.

Student Name:

Thesis Title:

All members of the supervisory committee concur that the student is prepared to sit for the M.S. Final Examination. (Each committee member must sign this form. Email approvals or faxed signatures are acceptable if attached to this form. The date, time, and location of the exam must be indicated in all approvals.)

**Committee Member Name: Signature: Date:**

Chair

**The M.S. Final Exam is scheduled for:**

Date:

Time:

Location:

*Return form to the QERM Student Services Office (Ocean Teaching Building, Box 357941) at last 2 weeks prior to the final exam. Contact Erica Owens at owense@uw.edu for assistance with reserving room.*

***Appendix L***

#### QERM Doctoral Degree – Timeline and Procedures

|  |  |  |
| --- | --- | --- |
| Milestone/Required Forms: | Recommended Timeline | Comments |
| Students with previous M.S. with Thesis | Time of Admission to  QERM program | Students with previous relevant M.S. degree with thesis may proceed directly to Ph.D. program **after** completing core coursework **and** passing Ph.D. qualifying examination. |
| Initial Faculty Adviser assigned | Autumn Quarter – Year 1 | Assigned by GPC |
| Identify Research Adviser & Year 2 funding | Spring Quarter – Year 1 (varies) |  |
| QERM Qualifying Examination | Week following Spring Quarter – Year 1 | Cannot begin Ph.D. studies until successfully passing qualifying exam. |
| Intent to pursue Master’s By-Pass | After successfully passing Ph.D. qualifying exam | Students admitted at pre-master’s level may apply to proceed directly to post-master’s study after passing the qualifying examination. Must discuss with GPC. |
| Request to Establish Ph.D. Supervisory Committee form **(Appendix M)** Brief narrative of proposed research (no more than 1 page) | Autumn or winter quarter after passing qualifying exam but no less than 4 months prior to General Exam (typically after a research topic has been established) | QERM GPC reviews and approves composition of committee. First committee meeting should be held within 2 weeks after approved by QERM GPC. |
| Plan of Study Toward  Ph.D. Degree form **(Appendix N)** | Initial committee meeting | Complete at first committee meeting. First meeting should take place within 2 weeks after committee composition is approved by GPC. |
| Use of Human and  Animal Subjects for UW  Graduate Student Theses  & Dissert. form **(Appendix H)** | Initial committee meeting | Complete at first committee meeting and return to GPA. |
| Ph.D. Supervisory Committee Meeting Documentation form **(Appendix O)** | Initial committee meeting and at every subsequent committee meeting | Forward a copy of the completed form to GPA. |
| Doctoral Dissertation Proposal form **(Appendix P)** Copy of Dissert. Proposal |  |  |
| Request for Ph.D. General Examination form **(Appendix Q)** | After completing 60 credits  (M.S. degree may substitute for 30 of these credits); all required program exams have been completed and; all supervisory committee members approve. | All supervisory committee members must agree that the student's background of study and preparation is sufficient and have approved the student to schedule a General Examination. At least four members of a supervisory committee (including the Chair, Graduate School Representative, and one additional Graduate Faculty member) must be present at exam. |
| Online Graduate School Request for Final Examination form | Submit online after supervisory committee approves student to sit for General Exam. | Student completes online form found at:  http://www.grad.washington.edu/mygrad/student.htm |
| Doctoral Reading Committee Request form **(Appendix R)** | Establish after the General Exam, but prior to completing dissertation or scheduling Final Exam. Consists of at least three members of the supervisory committee; at least one of the members of the reading committee must hold an endorsement to chair. | The reading committee is appointed to read and approve the dissertation. Responsibility of reading committee to (a) ensure that the dissertation. is a significant contribution to knowledge and acceptable piece of scholarly writing; (b) determine the appropriateness of dissertation as a basis for issuing a warrant for Final Exam; (c) approve candidate's dissertation and; (d) sign two original Signature Pages after revisions are made. |
| Request for Doctoral Final Examination form  (Appendix S) | After passing the General  Exam in a previous quarter; Reading Committee has read an entire near-to-final draft of the dissertation and; the entire supervisory committee has agreed that the student is prepared and approves student to schedule exam. | Completed form is forwarded to the GPA. |
| Online Graduate School Request for Final Examination | Submit online request after the Request for Doctoral Final Exam form has been submitted. | Must be completed in addition to the Request for Doctoral Final Examination form.  Student completes online form found at:  http://www.grad.washington.edu/mygrad/student.htm |
| Warrant for Doctoral Degree form (provided by GPA) | Submitted to QERM GPA after Final Exam | Certifies whether or not a student has been approved for graduation following final examination. |
| Doctoral Dissertation submission | Must be submitted within 60 days from final exam; must be registered for a minimum of two credits the quarter Final Exam is taken AND the quarter the dissertation is submitted. If the 60-day time period expires, another Final Exam may be required. | Electronic dissertation submitted by last day of quarter.  PDF of dissertation submitted to QERM program.  A candidate certificate and the doctoral degree may not be awarded the same quarter. |

***Appendix M***

***QERM – Request to Establish Ph.D. Supervisory Committee***

**Student Name: Date Submitted:**

**Guidelines for forming your Ph.D. supervisory committee:**

* The committee should be formed as soon as appropriate – typically after a research topic has been established.
* Consists of a minimum of 4 members, at least three of whom (including chair and the GSR) must be members of the Graduate Faculty with an endorsement to chair doctoral committees.
* A majority of the committee (including the chair) must be members of the Graduate Faculty.
* A minimum of two members, including the chair, must be members of the QERM faculty.
* The GSR must not hold a primary, joint, adjunct, or affiliate appointment in the student’s degree-offering unit or the committee chair’s department. *(Contact QERM Graduate Program Adviser for additional information).*

Additional information regarding supervisory committee responsibilities are outlined in Graduate School Memo No. 13:

Supervisory Committees for Graduate Students http://www.grad.washington.edu/policies/memoranda/memo13.shtml

**NOTE:** If you are unable to obtain a signature from each committee member you may attach an email that includes their agreement to serve on your committee.

**The following people have agreed to serve on my Ph.D. Supervisory Committee:**

|  |  |
| --- | --- |
| Chairperson: | Title: |
| Department: | UW Box #: |
| Email: | Telephone: |
| Member of Graduate Faculty *(circle):* Yes No | Signature: |
| Member of QERM Faculty*(circle):* Yes No | Date: |
| GSR: | Title: |
| Department: | UW Box #: |
| Email: | Telephone: |
| Member of Graduate Faculty *(circle):*Yes No | Signature: |
| Member of QERM Faculty *(circle):*Yes No | Date: |
| Name: | Title: |
| Dept or Agency: | UW Box #: |
| Email: | Telephone: |
| Member of Graduate Faculty *(circle):*Yes No | Signature: |
| Member of QERM Faculty *(circle):*Yes No | Date: |
| Name: | Title: |
| Dept or Agency: | UW Box #: |
| Email: | Telephone: |
| Member of Graduate Faculty *(circle):*Yes No | Signature: |
| Member of QERM Faculty *(circle):*Yes No | Date: |

***(See reverse side if your committee consists of more than four members)***

Student signature: Date:

Please attach a brief narrative of your proposed research (approximately one page), including objective(s), approach, and significance of your work. Return this form and narrative to the QERM Student Services Office (Ocean Teaching Building, Box 357941) for approval.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Office use only: Approved by GPC: |  |  |  |  |  | Date: |
| Notification of approval to committee members and student: |  |  |  | Date: |  |  |

|  |  |
| --- | --- |
| Name: | Title: |
| Department: | UW Box #: |
| Email: | Telephone: |
| Member of Graduate Faculty *(circle):* Yes No | Signature: |
| Member of QERM Faculty*(circle):* Yes No | Date: |
| Name: | Title: |
| Department: | UW Box #: |
| Email: | Telephone: |
| Member of Graduate Faculty *(circle):*Yes No | Signature: |
| Member of QERM Faculty *(circle):*Yes No | Date: |
| Name: | Title: |
| Dept or Agency: | UW Box #: |
| Email: | Telephone: |
| Member of Graduate Faculty *(circle):*Yes No | Signature: |
| Member of QERM Faculty *(circle):*Yes No | Date: |
| Name: | Title: |
| Dept or Agency: | UW Box #: |
| Email: | Telephone: |
| Member of Graduate Faculty *(circle):*Yes No | Signature: |
| Member of QERM Faculty *(circle):*Yes No | Date: |

***Appendix N***

***Plan of Study toward the QERM Doctoral Degree***

Student Name: Faculty Adviser:

Year Passed QERM Qualifying Exam: Master’s Bypass? (circle) Yes No **A. List required QERM coursework completed:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course** | **Title** | **Credits** | **Qtr. & Yr.** | **Grade** |
| STAT 516 | Stochastic Modeling of Scientific Data I | 3 |  |  |
| STAT 517 | Stochastic Modeling of Scientific Data II | 3 |  |  |
| INDE 513 (or 599) | Linear Optimization Models in Engineering | 3 |  |  |
| BIO/SEFS/FISH 567 | Topics in Advanced Ecology | 3 |  |  |
| QERM 514 | Analysis of Ecological and Environmental Data | 4 |  |  |
| SEFS 540 | Optimization Techniques for Natural Resources | 5 |  |  |
| AMATH 523    AMATH 535 | Mathematical Analysis in Biology and Medicine --or, when offered:  Mathematical Ecology (offered odd numbered years) | 5    5 |  |  |
| QERM 597 | QERM Special Topics (Autumn Quarter - first year students) | 2 |  |  |
| QERM 597 | QERM Winter Seminar (Student research presentations/annually) | 2 |  |  |
| QSCI 486\* | Experimental Design |  |  |  |
| Ecology Elective | Refer to list of recommended ecology electives | variable |  |  |
| QERM 600 | Independent Study (as needed) | variable |  |  |
| QERM 800 | Doctoral Dissertation Credits (minimum of 27 required) | 27 |  |  |

\* Not required but recommended during years course is offered

1. **Additional required coursework determined in conjunction with Doctoral Supervisory Committee** (12 or more credits of 400-, 500-, or 600-level courses must be completed before advancing to doctoral candidacy. Do not include QERM 800.):

|  |  |  |  |
| --- | --- | --- | --- |
| **Course** | **Title** | **Credits** | **Qtr & Yr.** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. **Recommended coursework determined in conjunction with Supervisory Committee. These courses are recommended, but not required to graduate. Include audited courses in this section.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Course** | **Title** | **Credits** | **Audited?** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. **Estimated milestone completion dates** (for planning purposes only):

|  |  |  |
| --- | --- | --- |
| **Milestone** | **Suggested Timeline** | **Estimated Completion** |
| Form Doctoral Supervisory Committee | Winter Qtr of Year 1\* |  |
| Plan of Study Approved by Supervisory Committee | Spring Qtr of Year 1\* |  |
| Dissertation Proposal Approved by Committee | Autumn Qtr of Year 2\* |  |
| General Exam | Autumn Qtr of Year 3\* |  |
| Form Reading Committee (well before completion of first draft) | Spring Qtr of Year 4\* |  |
| Final Exam (oral defense) | Year 5 (variable)\* |  |
| Dissertation Submission *(must be registered qtr of submission)* | Within 60 days final exam |  |

\* Indicates year in doctoral program, not initial year in QERM program

**Overall minimum course requirements (each must be satisfied before graduation using all completed coursework):**

* + 90 total credits completed (can include 30 credits from a master’s degree from the UW or another institution)
  + 60 credits earned in residence at the UW (400-level or higher, including QERM 800)
  + 18 credits of UW courses at 500-level or above (can include QERM 800)
  + 18 credits of numerically graded UW courses at the 400- or 500-level
  + Cumulative GPA of 3.0
  + Grades of 2.7, CR, or S in all courses counted toward the Ph.D.
  + 27 or more credits of QERM 800 – Doctoral Dissertation credits earned over a period of 3 quarters, one quarter of which must occur after passing the General Exam.

1. **Proposed Dissertation Title:**

1. **Estimated Dissertation Proposal Submission Date:**

1. **Additions, modifications, or other notes by the Supervisory Committee** (complete Doctoral Committee Mtg. Doc Form)

**Approval of Supervisory Committee (GSR signature is optional):**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Role** | **Printed Name** |  | **Signature** |  |  | **Date** |

Chair

GSR

Member

Member

Member

Member

Member

**Forward to QERM Student Services Office (Ocean Teaching Building, Box 357941) for final review and approval by QERM GPC.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Office use only:    Approved by QERM GPC: |  |  |  |  |  |  |  | Date: |

***Appendix O***

***QERM Doctoral Supervisory Committee Meeting Documentation Form***

Student Name:

Supervisory Committee Chair:

Committee Meeting Date:

Committee Members Present:

**SUMMARY OF MEETING DISCUSSION:**

**NOTE:** It is the student’s responsibility to provide this form at each supervisory committee meeting. The form is to be completed by the chair and returned to the QERM Graduate Program Adviser, Ocean Teaching Building, Box 357941. A copy will be kept in the student’s permanent file.

***Appendix P***

***QERM Doctoral Dissertation Proposal Approval***

The doctoral supervisory committee approves the student’s dissertation proposal and guides the student in carrying out appropriate research for the dissertation. The Graduate School does not stipulate the content of the dissertation; guidance on the dissertation is the responsibility of the supervisory committee.

**This it to certify that I have read and approved the doctoral dissertation proposal**

**prepared by**

**TITLE:**

**Approval of Supervisory Committee:**

*(email approval is acceptable – attach copy of email to this form)*

**Printed Name: Signature: Date:**

(Chair)

(GSR)

**Please attach this completed form to a copy of the final dissertation proposal and return to the QERM Student Services Office (Ocean Teaching Building, Box 357941).**

|  |  |  |
| --- | --- | --- |
| ***Office use only:***    *Reviewed and approved by QERM GPC:* |  | Date: |

#### 

***Appendix Q***

#### Request for QERM Doctoral General Examination

**\*\*VERY IMPORTANT\*\*** After submitting this form to the QERM GPA, the student must **ALSO** complete the Graduate School’s online request for the General Examination using the MyGrad system.

A General Examination may be scheduled if:

* the student has completed 60 credits (some of these credits may be taken the same quarter of the exam);
* all required program examinations that do not need Graduate School approval have been completed and;
* all members of the supervisory committee agree that the student's back-ground of study and preparation is sufficient and have approved the student to schedule a General Examination.

**At least four members of a supervisory committee (including the Chair, Graduate School Representative, and one additional Graduate Faculty member) must be present at the examination.**

**Student Name:**

**Date Dissertation Proposal approved:**

**The General Exam is scheduled for:**

Time:

Day:

Date:

Location:

*(Contact Erica Owens at owense@uw.edu for assistance with reserving room)*

**ALL members of the Supervisory Committee MUST sign this form;** however, the exam may take place with the minimum number of required members specified in Graduate School Memorandum No. 13 (i.e., at least 4 members including the Chair, GSR, and another Graduate Faculty member). Email approvals or faxed signatures are acceptable if attached to this form. The date, time, and location of the exam must be indicated in all approvals.

**Committee Member Name: Signature: Date:**

Chair

GSR

**Return form to the QERM GPA (Ocean Teaching Building, Box 357941) at last 2 weeks prior to the exam.**

***Appendix R***

#### QERM Doctoral Reading Committee Request

**OVERVIEW OF APPOINTMENT AND RESPONSIBILITIES OF THE READING COMMITTEE:**

After the General Examination, the Graduate Program Coordinator uses MyGradProgram to inform the Dean of The Graduate School of at least **three members of the supervisory committee** who will serve on the dissertation reading committee. At least one of the members of the reading committee must hold an endorsement to chair doctoral committees. The reading committee is appointed to read and approve the dissertation. It is the responsibility of a reading committee to:

* ensure that the dissertation is a significant contribution to knowledge and is an acceptable piece of scholarly writing;
* determine the appropriateness of a candidate's dissertation as a basis for issuing a warrant for a Final Examination; • approve a candidate's dissertation and;
* sign the dissertation approval form that is submitted to the Graduate School after all revisions have been completed.

When the reading committee has read a draft of the entire dissertation and the members of the doctoral supervisory committee agree that the Candidate is prepared to take the Final Examination, all members of the doctoral supervisory committee must give the student approval to schedule the Final Examination.

**ESTABLISHMENT OF READING COMMITTEE:**

Dissertation Title:

*This certifies that the following members of my Ph.D Supervisory Committee have agreed to serve on my dissertation reading committee:*

**Committee Member Name: Signature: Date:**

*(Email from committee member is acceptable – attach a copy of email to this sheet)*

Chair

Student Signature: Date:

**Please return to the QERM Student Services Office (Ocean Teaching Building, Box 357941) for final approval.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Office use only:*    *Approved by GPC:*    *Date Reading Committee entered in MyGrad program:* |  |  |  | *Date:* |

***Appendix S***

## *Request for QERM Doctoral Final Examination*

**\*\*VERY IMPORTANT\*\*** After returning this form to the QERM GPA, students must **ALSO** file the Request for Final Exam with the Graduate School using the online MyGrad system.

**Final Examination -- Dissertation Defense:** A Final Examination may be scheduled if:

* a student passed a General Examination in a previous quarter;
* a reading committee is officially established with the Graduate School;
* the reading committee has read an entire draft of the dissertation and;
* the **entire** supervisory committee has agreed that the student is prepared and has approved the student to schedule a Final Examination.

At least four members of a supervisory committee (including the Chair, Graduate School Representative, and one additional Graduate Faculty member) must be present at the examination.

**The Reading Committee members have read an entire draft of the doctoral dissertation written by:**

Student Name:

Dissertation Title:

The **entire** supervisory committee has agreed that the student is prepared and has approved the student to schedule a Final Examination. *(****ALL*** *members of the Supervisory Committee* ***MUST*** *sign this form. Email approvals or faxed signatures are acceptable if attached to this form. The date, time, and location of the exam must be indicated in all approvals.)*

**Committee Member Name: Signature: Date:**

Chair

GSR

**The Final Exam is scheduled for:**

Time:

Date:

Location:

*(Contact Erica Owens at owense@uw.edu for assistance with reserving room)*

**Return form to the QERM Student Services Office (Ocean Teaching Building, Box 357941) at last 2 weeks prior to the final exam.**