

# MARINE BIOLOGY AND ECOLOGY (MBE) PhD and MS STUDENT HANDBOOK 2017-2018

## LATEST REVISION 5-26-17

### A Concise PhD/MS Guide

#### SUMMARY

1. This handbook outlines the specific procedures and requirements for PhD and MS students in the Marine Biology and Ecology (MBE) Program at RSMAS. It serves as a supplement to the linked [RSMAS](#) and [UM](#) Graduate Handbooks.
2. In the first year, a PhD or MS student takes required course work, forms a dissertation/thesis committee, and has the first committee meeting. MS students move quickly to execute preliminary research in support of the thesis.
3. In the second year a student and the committee agree on a dissertation/thesis proposal topic, and the student writes and defends the proposal. MS students move quickly to execute research, write the thesis, defend it, and graduate. The PhD student passes qualifying exams. A successful qualifying exam admits the PhD student to candidacy.
4. In the third year and every year thereafter, a PhD student holds a committee meeting and provides an annual progress report to the committee. Committee chair and student should collaborate on a concise description of this meeting for their files, and the chair makes an annual summary to the faculty of the student's satisfactory progress.
5. To graduate with a PhD requires PhD candidacy and the candidate must apply to graduate by one semester prior to defending. The complete written dissertation must be made available to the dissertation committee four weeks prior to the oral defense. The announcement of defense, indicating that the committee tentatively approves of the dissertation, must occur 2 weeks prior to the defense. The student must make an oral presentation and defend the dissertation in public.
6. Documentation of committee membership and committee meetings must be provided to the GSO, and description of annual progress must be provided to the MBE AC.
7. It is expected that a student will defend the PhD five years after entering the MBE PhD program (four years if the student holds a Master's degree).

#### PREFACE

Graduate student education includes a close relationship between the advisor and student. The advisor is responsible for advising and supporting a student's research. The graduate student is responsible for his/her education and becoming an independent scientist. The student's dissertation committee plays an important role in the maturation and education of a graduate student. This committee is responsible for ensuring the quality of research, evaluating student progress for candidacy, and approving the dissertation. This MBE Student Handbook is designed to aid students and faculty by stating the Program's interpretations of RSMAS policy, and by stating specific Program requirements. It is ultimately the responsibility of each student and the advisor to meet all of the guidelines and requirements of the Program described in this document and the School stated in the RSMAS Graduate Handbook.

#### PhD TIME LINE

**Year 1:** All required courses taken. Student dissertation advisory committee formed, first committee meeting held.

**Year 2:** Proposal written and defended, and qualifying exams passed.

**Years 2-5:** Annual meetings with the dissertation committee and submission of concise annual progress reports.

#### Doctorate in Marine Biology and Ecology Degree (PhD)

##### The First Year

##### THE STUDENT'S DISSERTATION COMMITTEE

A student's dissertation committee is important to the student and to our academic institution because members of the committee both provide guidance and are the guardians of a program of excellence. A committee should be formed in the student's first year and a first committee meeting must be held. Students should discuss with their advisors possible committee members. The committee must meet once per year to review the student's progress. A short summary of the meeting is sent to the RSMAS Graduate Studies Office (GSO) for addition to the student's file.

*Importance of Faculty Participation:*

Faculty active participation in a student's dissertation committee is very important for a successful and excellent graduate program. The members of a dissertation committee are responsible for overseeing the student's research, approving the proposal, and evaluating the student for candidacy (passing qualifying exam). The committee is responsible for the student's development into an independent scientist and approving the student dissertation.

*DISSERTATION COMMITTEE:*

The dissertation committee will consist of no fewer than four<sup>1</sup> members: the chair, who will be a member of the University Graduate Faculty, two members also from the Graduate Faculty of the department, and one member from outside the department (this can be a faculty member at UM or outside the University).

*REQUIREMENTS*

The committee **must** meet at least once per year. The MBE AC requests copies of the approved appointment to Student's Committee form, changes in the membership of the committee, and the annual progress report.

**COURSE INFORMATION AND REQUIREMENTS**

The faculty advisor and student should consider carefully how many credits to transfer when the student enrolls in the MBE Program with an MS degree from another school (see the RSMAS Handbook).

All students must maintain a GPA >3.0 at all times. This is a requirement of the Graduate School (GS) and is checked each semester by GSO. A student whose GPA falls below 3.0 is automatically placed on RSMAS academic probation, and is not in good standing, as well as ineligible for many awards. Failure to maintain a 3.0 GPA may result in immediate dismissal from the Program. The decision to dismiss based on GPA, and the timing of the dismissal, is reserved by the MBE graduate faculty. The MBE comprehensive exam for PhD students has been abolished<sup>2</sup>.

*REQUIRED COURSES*

Students are required to take 3 of the following courses as MBE requirements: MBE704 Biological Oceanography, either MES608 Biometrics or RSM612 Statistics for Environmental Scientists<sup>3</sup>, MBE615 Tropical Marine Ecology, RSM710 Physical Environment of Marine Organisms (all of these are 3 cr each). MBE702 Graduate Student Seminar is a 1 cr course for which registration is not required. Throughout their tenure in the Program, attendance at all seminars every year they are an MBE student is required of all MBE students, and each student must give a talk in the series annually after the first year. Students arriving with an MS degree begin to give seminars in their first year.

**All RSMAS students are required to take the Research Ethics Course (RSM700; 0 cr)**

MBE students are not required to take a course outside the program<sup>4</sup>

All students anticipating serving as teaching assistants must take Educational Training RSM771, and the online course GRD 601 section 11 (both 0 cr).

The goal of the first year is to complete the 3 required courses and address foundation knowledge areas for

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<sup>1</sup>MBE vote 9-2-16 faculty meeting minutes to require 4 committee members (from 5); this policy begins with the 2016 entering PhD class

<sup>2</sup>MBE vote 3-31-17 faculty meeting minutes; this policy is in effect immediately

<sup>3</sup> MBE vote 4-28-17 faculty meeting minutes

<sup>4</sup>As referenced in RSMAS Graduate Academic Committee minutes of February 17, 2016; MBE vote 3-25-16 faculty meeting minutes.

dissertation via elective coursework and scholarly study of primary literature.

**FALL:**

MBE704 Biological Oceanography

MES608 Biometrics or RSM612 Statistics for Environmental Management

MBE615 Tropical Marine Ecology

MBE702 Student Seminars

RSM710 Physical Environment of Marine Organisms.

Alternating year electives or other courses

**SPRING:**

MBE702 Student Seminars

MBE other courses or research

In every subsequent fall and spring semester, students should be full-time enrolled via a combination of necessary course work and research activities. Full time status is achieved by either 9 course cr, or 1 cr research (MBE810 or 830).

*WAIVER OF THE REQUIRED COURSES:*

Any student who has successfully completed one or more equivalent courses at an accredited institution may petition the MBE AC to waive the requirement for *enrolling in* the relevant required course, so that the student may claim the course as a requirement met. This is accomplished by interview with the RSMAS course instructor, after which the instructor will send a recommendation memorandum to the MBE AC. Receiving course credits will be at discretion of the AC; for example, an undergraduate course in Biol Ocy can meet the requirement of the student having taken MBE704, but no course credit will be awarded toward the PhD degree; an elective may be taken in its place.

**The Second Year**

**DISSERTATION PROPOSAL**

*The dissertation proposal is the foundation for qualifying exams and both must be completed by the end of the second year.*

The first step in designing a research project is to formulate clearly stated hypotheses. Students are advised to "be specific and informative and avoid redundancies." The following components are suggested.

**SUMMARY** (1 page or less) describing the specific aims and the importance of the research,

**PROJECT DESCRIPTION** (12-15 pages for components 1-5) consisting of:

1. Specific Aims. Provide a list of aims that state concisely and realistically what the research described in the proposal is intended to accomplish and/or what hypothesis is to be tested. Do not exceed one page.
2. Background and Significance. Briefly sketch the background to the hypothesis, critically evaluate existing knowledge, and specifically identify how the research will advance the field. State concisely the importance of the research by relating the specific aims to longer-term objectives.
3. Progress Report/Preliminary Studies. This section provides an account of the investigator's preliminary studies pertinent to the research.
4. Experimental Design and Methods. Should discuss in detail the experimental design and how these experiments address the specific aims. Should provide detailed procedures for those approaches or techniques that are novel or not well established.
5. Provide a tentative sequence and timetable for the investigation. Discuss the potential difficulties and limitations of the proposed procedures and briefly list alternative approaches to achieve the aims.
6. Literature Cited. List all publications cited in the proposal in a standardized format.

*Recommendation in the event of numerous revisions:*

Numerous edits to the proposal by the committee should be avoided. The chair of the committee is primarily responsible for ensuring that a sound document is presented to the student's dissertation committee. The

committee is responsible for approving the proposal and experimental approach. If there are many questions concerning experimental design, a committee meeting should be held to discuss these problems.

### **PROPOSAL DEFENSE**

The proposal defense provides the student and the dissertation committee the opportunity to more fully discuss the objectives and methods of the proposed research, after the committee has had time to read and review it. The student provides a presentation on the proposed work and the hypothesis, methods, and breadth of the research are discussed, including alternate approaches. Finally, since the qualifying examination is based on subjects necessary to execute the proposed research, this meeting is an excellent time to define the reading and types of information the student should prepare for it.

### **QUALIFYING EXAMINATION**

At the end of the second year a *written* qualifying examination is required of all PhD students that focuses on the subject matter needed to complete the research proposed for the dissertation. The purpose of the qualifying examination is to demonstrate that the MBE doctoral student has the necessary understanding and expertise in research and related fields to complete the dissertation research. The topic areas should be agreed upon by the student, chair, and the dissertation committee soon after the proposal defense. The student is strongly encouraged to discuss the specific topics with each member of the dissertation committee, well in advance of the examination, to clarify the expected questions. The committee is encouraged to provide specific reading or areas of knowledge they will test the student on. The qualifying exam is 4-5 partial days (4 hours per day) on questions written by their committee. It is the advisor's responsibility to provide the test and to have the student's committee grade it in a timely manner. The scheduling of the exam sessions is the responsibility of the student's advisor, but in all cases the written portion of the examination shall be completed within one week. An additional oral qualifying examination may be required by the student's committee, but may not serve as a substitute for the written examination, which is a Graduate School requirement. The decision of passing or failing the qualifying examination rests with the dissertation committee. The qualifying examination (written and, if required, oral) must be successfully completed, as documented by the dissertation committee, before the student can be admitted to candidacy. In the event of a failure, a student may be re-examined once upon the recommendation of the student's committee in consultation with the AC. If permitted, the reexamination must be given before the end of the following semester.

### **ADVANCEMENT TO CANDIDACY**

Advancement to candidacy requires the completion of all course work and passing the qualifying exam. Students should advance to candidacy at the end of their second year but must advance at least one semester prior to defending and graduation.

### **The Degree**

PhD students are expected to finish the PhD program in five years. Students are required to meet annually with their committee and provide a succinct one-page progress report. The advisor is expected to provide a statement summarizing this committee meeting and the student's progress.

### **DISSERTATION**

The complete written dissertation must be provided to the committee four weeks prior to the oral defense. The Announcement of Defense form, signed by all committee members, must be submitted to GSO 2 weeks before the intended defense. The final dissertation/thesis must be signed by all committee members and turned in to GS by the end of the subsequent full semester following the date of defense.

### **DEFENSE**

MBE requires a public oral presentation of a PhD dissertation. The public presentation may occur only after the committee has had sufficient time to review the written dissertation. Students should consult closely with their advisor and committee members throughout the course of their studies to minimize any possibility for dissension at the defense.

*Procedure if there is dissent on the acceptability of a thesis or dissertation:*

Note that there is a School-wide policy on Academic Appeals. See the RSMAS student handbook for a description of this procedure. Alternatively for MBE students:

If during the final phase of evaluating a draft thesis/dissertation, or at the defense, a committee member refuses to approve the document and/or participate in the defense, and this results in fewer than the requisite number of signatures, the following procedure can be followed:

The student and his or her advisor will recommend to the MBE AC, and the AC will consent to a specific third party reviewer with expertise in the research area to read the document and render an opinion as to its acceptability. The reviewer will attend the defense (if possible), and provide the MBE AC with a written evaluation. The AC will then render a decision regarding the acceptability of the thesis/dissertation, weighing all evidence including the reviewer's report. This decision will be conveyed to the Department Chair in the form of a recommendation, and depending on the requirements for committee composition, with either the chairperson or Associate Dean signing the document. Dissenting members of the Thesis/Dissertation Committee do not sign the document but may register a minority report.

### **Degree Progress, Warnings, Problems, and Academic Probation**

The MBE faculty monitors students' progress each year. The expected time to completion for degrees is:

MS: 2 years

PhD: 4 years for students entering with an MS; 5 years for student entering with a bachelor's degree

### **MAXIMUM YEARS IN THE PROGRAM AND RECENCY OF CREDIT**

As designated by the Graduate School, PhD students must complete all degree requirements within eight years, including leaves of absence; credits must be revalidated after 7 years. If the student remains for a PhD after completing an MS at RSMAS, the date of entry is enrollment in the PhD program, and credits from that time forward are the only ones affected by this policy. The Associate Dean may refuse to allow a student completing the 8<sup>th</sup> year in the program to register for a future semester. In such cases, the PhD work is forfeited.

### **ACADEMIC WARNING AND PROBATION**

A student may not be allowed to enroll after the fall of the third year unless they have defended the proposal and passed the qualifying exam.

A student may not be allowed to enroll in the third or subsequent years unless they document the annual dissertation committee meeting.

If there is a problem with a student's progress, the student and advisor will be called to appear before the MBE AC to discuss the problem and possible solutions. If meeting with the AC does not solve the problem with the student's progress, the AC can recommend dismissal from the University. Students and their advisors can at any time speak to any member of the AC about a situation that is causing delays in the student's progress.

Confidentiality will be maintained, or why it cannot be maintained will be explained.

### *Resetting the timeline for degree completion*

If a student falls significantly behind the schedule for a degree because of a major event such as a change of advisor, change of research project, personal hardship, or other unforeseen events, the student and advisor may petition the AC to "reset the clock" for completion of the degree. Recency of credit is unaffected by resetting the clock.

### **ENTRY INTO THE PH.D. PROGRAM**

#### *Correcting Errors in Degree Program:*

Occasionally, a student who intended to enter the PhD program is registered as an MS student at the time of acceptance. To correct this error, a memorandum signed by the student's advisor is sent to GSO with a copy directed to the MBE AC. The same process is followed for the opposite circumstances.

#### *Enrollment in the PhD program after completion of the MS at RSMAS:*

Completion of the MS degree in MBE does not guarantee acceptance to the PhD program. If admission to the PhD program is desired, the thesis committee must recommend this at the time of the MS defense in the form of a memo to the AC. The student must then complete a readmission form. Finally, there must be a faculty

member with funds available to act as the student's advisor. It is recommended that this process be initiated at least three months in advance of the enrollment date.

### **LEAVE OF ABSENCE**

Any time the student is not registered at the University for a period of one or more semesters constitutes a leave of absence. All leaves must be approved in advance by the AC via memorandum from the student's advisor or committee and indicating the advisor's approval. The readmission form must be approved by the AC. Students are cautioned that the Recency of Credit rule set by the Graduate School continues during leaves of absence.

### **FUNDING**

Most PhD students in the Program are supported by research assistantships and teaching assistantships. These types of support include tuition, stipend, and research funds. In addition, certain departmental, School or University Fellowships provide support of varying duration and composition. Research Assistants and Teaching Assistants are awarded tuition scholarships under the terms of current RSMAS policy. See GSO for any questions on this policy. Most fellowships/scholarships are available only to doctoral students. Scholarship funds are listed in the RSMAS handbook.

### **STUDENT FILES**

The MBE AC tracks the progress of MBE students. Thus it is useful if students filing relevant forms with GSO correspond with the AC about these submissions.

### **APPEALS AND CHANGES IN POLICY**

The student may appeal any decision made by the MBE AC to the RSMAS Graduate AC, and, if necessary, subsequently to the Associate Dean for Graduate Education.

All students should be aware that there is no right to a degree, and that the MS and PhD degrees are conferred only with approval of their thesis or dissertation committees, respectively, and completion of all degree requirements issued by the Department, the School, and the University. The MBE faculty recognizes that the guidelines for obtaining degrees will evolve in any healthy program. Any faculty member or student who has recommendations should contact the AC.

## **Master of Science in Marine Biology and Ecology Degree (MS)**

### **Overview**

This is intended as a full time, 2-year (21-24 mos) degree that includes a thesis equivalent to a single published scientific paper<sup>5</sup>.

The advisor will be a member of the Graduate Faculty of the University who holds a faculty appointment in the Department.

Requires 30 credits: 24 course credits (18 of which must be from UM) and 6 research credits (RES810, 830). The first year of the 2-yr full time program will normally consist of 18 course credits over 2 semesters and 1 research credit for any semester in which enrollment in <9 credits, to reach full time student status. The third semester will normally consist of 6 course credits and 2 research credits; the 4<sup>th</sup> semester will consist of the balance of research credits required to reach 6.

The thesis research will begin during summer 1, continue at a reduced pace during the 3<sup>rd</sup> semester, and be completed during 4<sup>th</sup> semester.

Two funding models currently exist:

Stipend, tuition, insurance and research costs are borne by the advisor.

A self-funded MS for which no student stipend is required of the PI. Research costs of the thesis will be borne by the PI. Tuition and insurance are paid by the student.

Students may enter the program during fall or spring.

## **CURRICULUM**

Semesters 1-2 (~9 course credits/term)

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<sup>5</sup>RSMAS handbook states that a sole-authored peer-reviewed publication can substitute for the thesis

Three courses from fall core course offerings: MBE615, MBE704, MES608 or RSM612, RSM710 (see p. 3 for course names)

RSM700 (Research Ethics, required of all UM students)

plus electives

1 research credit for any term in which enrollment falls below 9 cr.

#### Semesters 3-4

Balance of course credits from electives.

≥1 research credit for any term in which enrollment falls below 9 cr.

Goal is to complete 24 course credits and 6 research credits by end of 4<sup>th</sup> term\*

\*some of the research credits can be taken during summer 2, if research continues

The MBE comprehensives exam for MS students has been abolished<sup>6</sup>. Students must maintain a minimum 3.0 GPA while in the program. Failure to maintain a 3.0 GPA, at minimum, will result in probation, and may result in immediate dismissal from the Program. The decision to dismiss based on GPA, and the timing of the dismissal, is reserved by the MBE graduate faculty.

#### **COMMITTEE**

Formed at end of year 1. Consists of 3 members: Advisor within the Department who is a member of the Graduate faculty, plus 1 RSMAS member, plus 1 member from outside MBE or outside RSMAS. Of these latter 2, one must be Graduate Faculty such that the committee has ≥2 Graduate Faculty members.

First committee meeting during 2<sup>nd</sup> semester.

#### **PROPOSAL**

Written and defended before semester 3 (Committee meeting #2), see format for dissertation proposal pp. 3-4 this guide; MS thesis proposal may be more succinct.

#### **THESIS**

Preliminary research executed summer 1 (for some students this will precede 1<sup>st</sup> Committee meeting)

Research Semester 3

Research Semester 4, analyze data and draft thesis

Thesis written and defended during or shortly after Semester 4.

#### **Master of Professional Science Degree (MPS)**

As undergraduate degrees become more commonplace, many employers require graduate degrees and/or experience for even entry level jobs, especially in scientific and science related fields. The MPS degree is an accelerated 1-2 year program involving 1 year (two full 12 credit semesters) of course work, a 3-12 month internship, and ending with both a written internship report and oral presentation/defense. This degree differs from the traditional MS degree in that it is often faster, does not require a full thesis equivalent to a scientific paper, and focuses on equipping students with practical skills and experience not obtained through a traditional bachelor degree. MPS students can achieve an accelerated graduate degree and enter jobs not available to those with only an undergraduate degree. Specific requirements can be found in the MPS handbook, [here](#).

#### **TRANSFER FROM MPS TO MS**

Students may request to be considered for transfer from the MPS program into the MS program. These requests must be submitted PRIOR to the start of the second semester and/or before the completion of 12 graduate course credits. Transfers from the MPS to the MS will not be considered after students have completed 12 or more credits.

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<sup>6</sup>MBE vote 3-31-17 faculty meeting minutes; this policy is in effect immediately

**Appendix**  
**MBE GRADUATE FACULTY 2017-2018**

Elizabeth Babcock  
Andrew Baker  
Larry Brand  
Douglas Crawford  
Evan D'Alessandro  
Lynne Fieber  
Peter Glynn  
Martin Grosell  
Gary Hitchcock  
Christopher Langdon  
Diego Lirman  
Kevin McCracken  
M Danielle McDonald  
John McManus  
Liza Merly  
Marjorie Oleksiak  
Peter Ortner  
Claire Paris  
Michael Schmale  
Joseph Serafy  
Nikki Traylor-Knowles  
Christopher Wood