THE UNIVERSITY OF MICHIGAN
SCHOOL OF NATURAL RESOURCES
& ENVIRONMENT

2002-2003 Ph.D. Handbook

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Approved by SNRE Faculty 18 December 2002

PH.D. GENERAL TIMELINE

Milestones		Timeline
1.	Initial guidance committee formed.	On admission.
2.	Meeting of initial guidance committee to certify progress.	By end of first year.
3.	Course of Study and Preliminary Examination Committee approved by the SNRE.	By the end of the second year.
4.	Schedule and pass the Preliminary Exam. A Preliminary Examination Report is completed by the Committee and submitted to the SNRE Associate Dean's Office. NOTE: Student must be registered for at least one credit hour.	During second or third year.
5.	The Dissertation Committee and Proposal approved by the SNRE AAC.	By end of third year.
	Dissertation proposal approved by committee.	By end of third year.
6.	The Associate Dean's Office prepares and submits the Nomination for Candidacy and Dissertation Committee forms to Rackham for approval immediately after the AAC approves the Dissertation Proposal and Committee.	By end of third year.
	Dissertation Committee meets and certifies progress of candidate.	Annually after third year.
7.	Pass format check.	
8.	Schedule the Dissertation Defense.	
9.	The Committee members submit individual written evaluations of the dissertation to the Rackham Dissertation Secretary.	No later than three days prior to date of defense.
10.	The candidate picks up the dissertation defense folder from the Rackham Dissertation Secretary.	Thirty minutes prior to the defense.
11.	Pass the Dissertation Defense. NOTE: The student must be registered for eight credits during the term of the defense.	
12.	The Dissertation Committee signs the Dissertation Approval Form.	
13.	The candidate makes any required changes to the dissertation.	
14.	The Dissertation Committee Chair or designee certifies that all required changes to the dissertation have been made.	
15.	The candidate submits one unbound copy of the dissertation to the bindery and obtains a receipt.	
16.	The candidate submits the completed Dissertation Approval Form, one unbound copy of the dissertation, and the bindery receipt to the Rackham Dissertation Secretary.	
17.	Completion of the Ph.D. program.	Within seven years.
18.	If additional time is required, a "Petition for Modification or Waiver of Regulation" form must be completed. This form is available in the SNRE Office of Academic Programs.	

OVERVIEW OF RACKHAM'S GENERAL REQUIREMENTS

The Ph.D. is granted by the Horace H. Rackham School of Graduate Studies (generally referred to as Rackham). Degree requirements for all doctoral programs can be found in the Rackham Graduate Student Handbook (2002-03) at www.rackham.umich.edu/StudentInfo/Publications/. Included here are some highlights.

Residence Requirement. At least 18 graduate credit hours must be completed on the Ann Arbor campus. Courses elected for "Visitor" status, NRE 900 (pre-candidacy), and NRE 995 (candidacy) may *not* be used to fulfill the residence requirement (Rackham Graduate Student Handbook, Chapter 9).

Fee Credit Requirements. No more than 9 fee credits may be accumulated in a full term (5 in a half term). This does not mean that you cannot elect more than 9 credits, but only a maximum of 9 will be counted toward the necessary number for any full term. (Rackham Graduate Student Handbook, Chapter 5).

The number of Rackham fee credits required for the doctoral degree is 68. However, this requirement can be reduced depending on prior graduate studies. (Rackham Graduate Student Handbook, Chapter 5).

> Students entering the doctoral program with a relevant master's degree from another accredited institution (i.e., not UM) need 50 fee-credit hours. The determination of whether the prior degree is "relevant" is made by SNRE faculty, not Rackham.
>
> Students who have completed a Rackham master's degree can count all their graduate credits toward the doctoral degree (up to the permitted 9 credits/full term; 5 credits/half term rule).
>
> At least 36 fee hours are required prior to admission to Candidacy (18 fee hours with relevant master's degree). (Rackham Graduate Student Handbook, Chapter 9).
>
> Students must be registered for at least 1 credit during the term in which they take prelims (Rackham Graduate Student Handbook, Chapter 9), although exceptions to this may apply.
>
> Students must be registered for 8 credits of NRE 995 during the term in which they defend their dissertation.
>
> Any deficiency in fee hours (both the minimum of 36 for Candidacy and the 68 for the Ph.D.) can be made up for by paying tuition at the current rate per credit hour.

Maximum Time Limit. Rackham stipulates that from the time of initial enrollment, Candidacy should be achieved within 4 years, and the Ph.D. should be completed within 7 years. Guidelines for petitions to extend these times are provided in the Rackham Graduate Student Handbook, Chapter 9.

Cognate Courses. Rackham's requirement of four hours of graduate-level coursework in a field outside the focus of the doctoral work (Rackham Graduate Student Handbook, p. 49) is generally already met by the

student's prior studies at the master's level. The cognate courses need the advisor's approval (Rackham Graduate Student Handbook, Chapter 9).

Admission to Candidacy. Upon completion of SNRE's candidacy requirements (discussed at length in this document), the necessary form is filed with SNRE's Associate Dean. The Associate Dean's review, in turn, leads to written recommendation from the School to Rackham. Rackham then certifies that candidacy status has been attained (Rackham Graduate Student Handbook, Chapter 9).

Dissertation Committee. This committee must consist of at least four faculty, including two SNRE faculty members plus one qualified cognate member. The Dissertation Handbook (www.rackham.umich.edu/StudentInfo/Publications/) includes a number of Rackham requirements related to the committee's membership and the steps required for its designation.

Defense of Dissertation. A full-term Candidacy enrollment (8 credits of NRE 995) is required when the dissertation defense is held. Students need to check the Rackham Graduate Student Handbook (Chapter 9), as well as Rackham's Dissertation Handbook to ensure that Rackham's requirements for the timing of the defense and for the dissertation itself are met.

PROCEDURES FOR SNRE DOCTORAL PROGRAMS

The School of Natural Resources and Environment (SNRE) offers two doctoral degrees: Ph.D. in Natural Resources and Environment and Ph.D. in Landscape Architecture. The policies, procedures, and requirements for these programs are described below in some detail for the guidance of faculty members and the guidance and protection of students.

Mission

The goal of the doctoral programs is to develop the creative abilities of selected exceptional students--training them for independent work that contributes to original scholarship at the forefront of their chosen fields. These students are expected to become leaders--both in training other professionals and in developing the scientific knowledge base for formulating natural resource policies and management practices that contribute to the sustainable use of natural resources.

The research activities in SNRE focus on

- defining and understanding critical natural and environmental resource problems; and
- developing knowledge and management strategies to address these problems.

To accomplish these objectives, research is also directed toward

- understanding the structure and function of natural resource and social-behavioral systems; and
- learning how these systems interact to create and solve resource problems.

The doctoral program is highly individualized, tailored to the academic and career goals of each student. As such, no two students in the program are likely to take the identical set of courses. At the same time, the program is guided by a framework to ensure that each student's academic efforts will lead to demonstrated research creativity and competence. Since students in the program come with diverse academic and professional backgrounds, it is important that this framework be interpreted to take advantage both of past accomplishments and of the resources available at the University.

Advising

Admission to the doctoral program includes the assignment of an advisor and one or more faculty members who agree to serve on the student's initial guidance committee. New students should interact regularly with their advisor and committee members to decide upon courses to take, research topics, sources of funding, and the like. While faculty members expect such interaction, it is up to the student to continue this request for advice. Students should probably meet monthly with an advisor during the first year, and less frequently but regularly after that. Before the end of winter term in the first year, the initial guidance committee should meet to review and approve a plan of study for the next year. The plan of study should include courses to be taken, courses already completed, and a description of the research activities to be undertaken for the next

year. The signed plan, submitted to the Office of Academic Programs (OAP), will certify satisfactory progress for that student during the first year of study.

Course of Study

The Course of Study is a plan that delineates how the student proposes to accomplish her/his goals for this degree in a timely fashion. The Course of Study is an important document, but it is not intended to be an unalterable contract. Because it guides the student's course selection and is the basis for the preliminary examination, the Course of Study should be prepared in time for the student's Preliminary Examination Committee approval--no later than the fourth term of enrollment. It is to be expected that subsequent changes may be necessary.

In addition to listing specific courses, the Course of Study must include a statement that explains the intent and goal of the doctoral program, including the areas of theory, methodology, analytics, and application that the student expects to combine in the preliminary examination and dissertation research. Use the Preliminary Exam Committee and Course of Study form (Appendix A). The Preliminary Exam Committee and Course of Study must be approved by the Associate Dean.

The Course of Study should outline a logical series of courses to provide the background for original academic work in the area of emphasis for each student. While the specific courses for such background obviously vary, the structure should follow from the general emphasis areas listed above. In completing the Course of Study, the student should outline courses taken or to be taken in each of three emphasis areas: theory, methods and analytics, and applications. Some courses might apply to more than one emphasis area, but most would count in one area. The course listing should include all courses taken as a graduate student, with courses taken as part of the Ph.D. Program noted clearly. Also, the student must take one course in each category from the University of Michigan as part of his/her doctoral program. In addition to these listings, the student can include undergraduate courses taken in each of these areas. Finally, at least 9 credit hours must be NRE courses.

Required Courses

Because the doctoral degree is a research degree, emphasis is placed on developing the skills to plan, implement, evaluate, and communicate about research. Gaining these skills requires several approaches; some approaches are common to all doctoral students, whereas other approaches are useful in particular kinds of research. To prepare students for carrying out research, the following are required:

Research paradigms. "Research Paradigms" (NRE 741) focuses on the varieties of scientific approaches to research in natural resource and environmental areas and is typically taken during the first winter term of study. Students evaluate the strengths and weaknesses of diverse approaches and assess the impact of the methods chosen on the nature of the results obtained. With background material supplied through readings and presentations by SNRE faculty, students discuss ethical, governmental, and legal forces that affect research in the environmental domain.

In many cases doctoral students will work closely with a faculty member on a research project starting in the first year of enrollment. Gaining experience in the various aspects of conducting research is not only helpful

in preparation for the dissertation, but also makes the issues raised in the course more useful and realistic. Such projects will be incorporated as much as possible as case material in the course.

Two analytic courses. Doctoral students are required to take (or have taken previously) at least two courses (400-level or above) that focus on tools of analysis, research design, research evaluation, and/or data collection methods. The particular areas of analytics appropriate to each student will vary. A list of courses that will fulfill the analytic requirement are found on the SNRE website. Appropriate substitutions to these courses can also be petitioned.

Cognate Course. Rackham's requirement of four hours of graduate-level coursework in a field outside the focus of the doctoral work may be already met by the student's prior studies at the master's level. The cognate courses need the advisor's approval (Rackham Graduate Student Handbook, pp. 51-52).

Course of Study Document

The Course of Study document should be formatted to include the following information:

1. A one-page, single-sided statement that explains the intent and goal of the doctoral program including the areas of theory, methodology, and application that the student expects to combine in the preliminary examination and dissertation research.

2. A list of relevant undergraduate courses, including credit hours and grades, organized by content (e.g., biological sciences, physical sciences, social sciences, analytic sciences, etc.).

3. A list of relevant graduate-level courses (including credit hours and grades) taken or to be taken. These courses should be listed in emphasis areas of theory, methods and analytics, and applications to show how they contribute to the student's background. Courses taken as part of the Ph.D. program should be clearly noted, and one course from each emphasis area must be taken at UM as part of the Ph.D. program.

4. An abstract of an undergraduate research project or master's thesis (if a thesis was written).

5. Curriculum vitae.

6. Timeline.

Preliminary Examination Committee

A faculty advisor is assigned to a student before the Preliminary Examination Committee is formally constituted. It is understood that the Chair of the Preliminary Examination Committee will subsequently serve as the faculty advisor once this Committee has been formed. Composition of the Preliminary Examination Committee must meet all of Rackham's requirements for dissertation committees. In addition, the Preliminary Examination Committee must have the following minimum composition:

1. At least four members, two of whom must be from SNRE

2. A chair or two co-chairs. The chair or one co-chair must be an SNRE faculty member who is a regular member of the Rackham Graduate Faculty.

3. A minimum of two SNRE members of the Rackham Graduate Faculty (may include adjuncts who must be petitioned to Rackham for approval to serve).

4. A minimum of three regular members of the Rackham Graduate Faculty.

5. A cognate member who

    - Is familiar with the standards for doctoral research;
    - Holds at least a .50 appointment in a Rackham doctoral program in a related field (not the home program);
    - Does not hold any fraction of an appointment in SNRE; and
    - Does not serve as a member of the interdepartmental degree program's steering committee (if the student is enrolled in an interdepartmental degree).

    * Faculty who hold only "dry" or "courtesy" appointments (as opposed to funded appointments) in the candidate's field may be considered for cognate membership on the dissertation committee.

During the first term of enrollment, the student should consult with her/his advisor and begin identifying potential members of the Preliminary Examination Committee. These members may be the same as the initial guidance committee or different. It is appropriate that the student ask faculty members whether they are willing to serve on the Committee. The student should meet with the Committee as soon as possible to review her/his program. The Committee should discuss, revise if necessary, and approve the Course of Study. The student is responsible for (1) having members sign the SNRE Preliminary Examination Committee form (Appendix A); (2) attaching the approved Course of Study to it; and (3) ensuring that these materials reach the Office of Academic Programs (1520 Dana). This should be done no later than the end of the fourth term of enrollment. The Office of Academic Programs and the Associate Dean review the Preliminary Examination Committee to see that guidelines are met and that the committee members have approved the Course of Study. If there are questions about the Course of Study, the student or members of the Preliminary Examination Committee may be asked to discuss them.

If for any reason the student and/or Preliminary Examination Committee Chair believes that a revision of the Preliminary Examination Committee is in the best interests of the student, a recommendation nominating the new members should be submitted to the Associate Dean. The recommendation for revision should include a brief explanation of the reasons for the change.

Preliminary Examination

The preliminary examination's purpose is to enable the candidate to demonstrate fundamental knowledge of the area of study at an advanced level before embarking on research for the dissertation. It is administered by the Preliminary Examination Committee and should not be scheduled until at least one full term after the Committee has been formally appointed. A student must be enrolled for at least one hour of credit in the

term in which the preliminary examination is administered (see Rackham Graduate Student Handbook, Chapter 9, for permitted grace periods). The preliminary examination should be passed, and proposal completed, by the end of the third year of study to maintain satisfactory progress. This will allow the student to advance to candidacy.

All preliminary examinations have both a written and oral component, but the precise format is determined by the Preliminary Examination Committee and the student to achieve the objectives in the most effective way. The examination should be challenging, stimulating, and leave no doubt in the minds of the Preliminary Examination Committee members or of the student about the student's readiness for advancement to candidacy. The examination should be a constructive experience in bringing together knowledge that is often gained in a fragmentary fashion.

Written Examination

The written component of the examination may be open- or closed-book, or a combination of the two. The format of the examination should be decided upon by the Preliminary Examination Committee and the student well in advance of the date selected, with the rules and procedures clearly understood by all parties. The following are examples of examinations drawn from various formats.

Open-book exam: Each member of the Committee prepares up to two questions that are collated by the Committee Chair and given to the student at a specified time. The student normally is allocated one day to answer questions from each member. Answers are prepared within guidelines of length (e.g., six pages) and format that were previously specified by the Preliminary Examination Committee. A set of answers to all questions should be given to each committee member at least one week prior to the oral examination.

Closed-book exam: Questions are prepared by the committee members and provided to the student as in the case of the open-book examination. Questions are answered within a specified time without the use of references or other resource materials. Answers are assembled, duplicated, and provided to each committee member at least a week prior to the oral examination.

Oral Examination

The student is responsible for arranging a location for the oral examination. Contact, by email, snre.rooms@umich.edu at least three weeks in advance to arrange for a room. The format of the oral examination is decided upon by the Preliminary Examination Committee and the student. A format that has proven workable follows:

Review of the student's preparation. At the start of the oral examination it is usually desirable for the Committee to excuse the student and review her/his record, the written portion of the examination, and other matters before the oral examination begins. The student is then invited to return to the room and the examination proceeds.

Committee questions. Oral-examination questions are intended to confirm for each committee member that the student is ready to advance to candidacy. The written component of the examination may provide a

springboard for oral questions, but questions should not be constrained by the boundaries of the written examination. It is most important that all committee members are satisfied with their basis for judgment of the student.

Grading the examination. There are four possible outcomes of the preliminary examination:

1. Pass. An unconditional pass.

2. Conditional pass. Generally scored as a passing performance, but with deficiencies in one or more areas. Such a score delineates that additional work will be conducted--designed to lead to a satisfactory level of knowledge in the judgment of the committee member or members concerned with the areas of specified weakness. Once the student meets the conditions, the examination is considered a pass, and further examination is not required. The Committee should submit paperwork indicating that the student has met their additional expectations.

3. Conditional fail. The candidate fails the examination, but shows sufficient promise for eventual successful completion of the doctorate to justify a second examination. The examination normally will be conducted under the guidelines for an original examination. No student will be allowed more than one repeat of the oral examination.

4. Fail. The candidate may not repeat the preliminary examination and is requested to discontinue the doctoral program.

Reporting the examination. At the conclusion of the oral examination, the student is asked to leave the room so that the Committee can discuss the outcome. After a consensus is reached, the student is invited back into the meeting where the outcome of the examination is openly and frankly discussed. If the outcome is conditional, the student will be told of the conditions as judged by the Committee, and such conditions will be confirmed in writing by the Chair, with a copy to the Associate Dean to be added to the student's academic file.

Prior to adjournment, committee members will sign the Report on the Preliminary Examination Form (Appendix B) and the Chair will officially file all transcripts, records of the examination, and other relevant materials with the Office of Academic Programs. A copy of the exam questions and written answers will be placed in the student's file.

Dissertation Proposal

Advancement to candidacy occurs when a student has completed all requirements of the doctorate degree except the dissertation research. To successfully progress to candidacy, the student must pass his/her preliminary exam. In addition, the student must submit--and have approved--a Dissertation Committee and Proposal. The preparation of the proposal is conducted under the direction of the faculty member who is likely to chair the Dissertation Committee.

Submission, discussion, and approval of the proposal may be scheduled as part of the preliminary examination, or it may be scheduled as a separate event. The student is expected to submit a dissertation

proposal within one year after passing the preliminary examination. Admission to candidacy does not preclude a student from modifying the proposal or developing a different proposal, provided that the student's Dissertation Committee agrees to the changes.
After the dissertation proposal has been approved by the faculty who are likely to serve on the Dissertation Committee, it is attached to a Dissertation Proposal Form (Appendix C), bearing the signatures of the faculty who approved the proposal, and submitted to the Associate Dean (1520 Dana). S/he reviews it for clarity of objectives, hypotheses, and methodology. If there are questions, s/he will discuss the issues with the student and/or the Committee chair.

Proposal Content

There is no single, prescribed format for all dissertation proposals. Students are encouraged to use formats such as proposals written to the National Science Foundation or other external sponsors. All proposals should include information as requested in the following sections.

1. Overview (1 page, double-spaced)

   (a) Overall objective. State in broad terms the general goals of the research.

   (b) Specific aims/hypotheses. State concisely the precise purpose of the research and what the hypotheses are to be tested.

2. Background (2-3 pages)

   Briefly describe the most significant previous work in the field under consideration. Critically evaluate existing knowledge. Specifically identify gaps that the proposed research is intended to fill by relating the specific aims of the proposed research to previous work in the field.

3. Research plan and methodology (4-5 pages).
   (a) Approach. State how the problem is to be resolved using general terms and relating this general approach to the specific aims and hypotheses to be tested. Use plain language (free of jargon) understandable to faculty who represent a broad range of academic disciplines.
   (b) Design. Provide specific details of the research design, (e.g., hypotheses, sample sizes, analytical approaches, etc.) and describe the formal analysis to be used to determine the certainty of inductive inferences.
   (c) Methods and techniques. Provide the technical details of methods to be used in the research.
   (d) Possible results. Indicate the kinds of results expected and how they will be used to support or refute the hypotheses being tested and/or how they will relate to the specific objectives.
   (e) Limitations and pitfalls. Indicate the technical pitfalls to the proposed approaches, methods, and techniques. If possible, indicate alternative approaches that might be used to circumvent these possible problems. Indicate the limitations to the interpretation or inferences that can be made from the findings.

5. Work schedule. Provide an estimate of the period during which the research and dissertation writing will occur, and a timeline for important accomplishments.

6. Literature cited.

Use of Vertebrate Animals and Human Subjects in Doctoral Research

University policy and federal law require the review of research projects. This is done to (a) ensure humane treatment and safe use of vertebrate animals, and (b) protect human participants. Before research on a project is actually started, the Dissertation Committee Chair should make clear whether the project involves either vertebrate animals or human participants. If the project does involve such research, the proposal must include one or more of the following forms approved by an appropriate University review committee.

(a) Application to Use Vertebrate Animals in Research, Testing or Instruction (www.ulam.umich.edu/UCUCA_Doc.html).

(b) Approval Form for Studies Involving Human Subjects (www.research.umich.edu/proposals/forms/forms.html).

SNRE does not require that dissertation proposals involving vertebrate animals and human participants be reviewed by a University review committee prior to candidacy, but doctoral students should be aware that such research must be reviewed by a University review committee before the research commences. Federal regulations and University policy require that **all** investigations using human beings as subjects of research be reviewed and approved by an appropriately constituted faculty committee **before** such investigations begin. Please call the Division of Research Development and Administration (DRDA) at (734) 764-5500 for details on how to apply for this review. No dissertation based on human beings as subjects can be accepted without this prior review and approval (Rackham Graduate Student Handbook, p. 41).

Dissertation Committee

Once a student is admitted to candidacy, guidance for the remainder of the student's doctoral program passes to the Dissertation Committee. The membership of the Dissertation Committee is often the same as the Preliminary Examination Committee, but this is not mandatory. The appointment process is initiated by the student and the Preliminary Exam Committee Chair in similar manner as that for the Preliminary Examination Committee (see Dissertation Committee and Proposal form, Appendix C). All of the guidelines applicable to the composition of the Preliminary Examination Committee also apply to the Dissertation Committee. This procedure is needed even if the composition of the Dissertation Committee is the same as the Preliminary Examination Committee. The Dissertation Committee should meet regularly with the student during candidacy, and at least once a year in winter term to review progress and future plans. The committee should certify at this meeting that satisfactory progress has been made that year. This certification (including date and signatures of all committee members) should be forwarded to the Office of Academic Programs.

Roles of the Chair (or Co-Chairs) and Cognate Member

The chair (or each co-chair) is responsible for guiding and encouraging the design and execution of an original, high-quality, doctoral-level research project. The end result of this effort is expected to be a dissertation that makes a substantive contribution to the discipline.

The cognate member's role is to broaden the scholarly representation of the dissertation committee beyond the home program. The cognate member also serves the Graduate School and its faculty by providing a non-specialist's perspective on the quality of the dissertation.

For additional information regarding eligibility and Dissertation Committees, see the Dissertation Handbook, Chapter 9.

Changes in Committee Membership

Membership of the Dissertation Committee may need to change for a variety of reasons. When such changes are occasioned by faculty members' unavailability (e.g., leaving the University for one reason or another) candidates may modify the membership of the Committee simply by submitting a "Revised Dissertation Committee" form (Appendix D) to the Office of Academic Programs.

If, however, at any time in the dissertation process the candidate believes that arrangements with, or disagreements among, committee members are so adverse as to constitute an insurmountable obstacle to successful completion of the dissertation, the candidate may petition for a revised Dissertation Committee. The petition should be submitted directly to the SNRE Associate Dean and must contain a full statement of facts as the candidate sees them.

The Associate Dean will review the petition. If necessary, s/he will contact members of the Dissertation Committee (existing or proposed). If the Associate Dean concurs with the petition, s/he will nominate a revised Dissertation Committee and submits this nomination to Rackham. Approval of this nomination by Rackham constitutes appointment of a revised Dissertation Committee. Notification of such action is handled in accord with standard Rackham procedures.

Additional Documentation Required

Any changes in the composition of the doctoral committee must be submitted for approval by the Graduate School using the Dissertation Committee Form. In the following cases, additional documentation is required, as specified:

- **Retired and *Emeriti* Professors Nominated to Serve as Sole Chair or Cognate Member:** The completed Dissertation Committee Form must be accompanied by a memorandum, signed by the faculty member's chair and by the dean of his/her school or college, requesting the appointment and affirming the professor's experience in teaching, advising and dissertation committee service. Once approved, the appointment will be in effect for 3 years and may be renewed with the approval of the faculty member's chair and dean, and the Dean of the Graduate School.
- **University Faculty and Staff Not Included on Pages 51-53 of the Dissertation Handbook, or Individuals Outside the University**: When individuals in these categories are nominated for dissertation committee service, the completed Dissertation Committee Form must be accompanied by
    (a) A memorandum from SNRE's Associate Dean describing the individual's qualifications for dissertation committee service; and
    (b) A copy of the nominee's *curriculum vitae*.

Admission to Candidacy

After the student has passed the preliminary examination (and has met any and all conditions), and after her/his dissertation committee and proposal has been approved by the Associate Dean, the School recommends to Rackham that the student be admitted to candidacy. The written recommendation must be received at Rackham at least 14 days before the last day of classes in the term preceding the term for which the candidacy is requested. In the event that the recommendation of the Dissertation Committee is not approved, every attempt will be made in a joint meeting of the Associate Dean and the proposed Dissertation Committee to reach a mutually agreeable decision. After receiving additional information from the Dissertation Committee, or after a joint meeting with it, the Associate Dean will forward the candidacy recommendation to Rackham.

Satisfactory Progress

Satisfactory progress through the Ph.D. program will be certified every year, by the student, advisor, and committee. This will include:

(1) Certification at the end of year 1 by the advisor and an initial guidance committee of two or more faculty members, based on courses taken, coursework planned, and research plan for year 2.

(2) Certification at the end of year 2 by the Preliminary Exam Committee based on the completed Course of Study Form.

(3) Certification at the end of year 3 by advancement to candidacy.

(4) Certification at the end of each year of candidacy, by the Dissertation Committee, based on a meeting and written documentation of research progress and plans.

Certification of satisfactory progress is required annually for Ph.D. students to maintain normal status. Students who are not certified for satisfactory progress will be ineligible to apply for Graduate Student Instructor (GSI) positions in SNRE and in the Program in the Environment, and also will be ineligible to apply for SNRE or Rackham funding that requires a signature from the Associate Dean.

Dissertation Evaluation and Defense

Members of Dissertation Committees vary in the degree to which they interact with students during the writing stage. Students should meet with all committee members to clarify mutual expectations.

The dissertation defense should be scheduled once the Chair of the Dissertation Committee is satisfied that the final draft of the dissertation is acceptable to a majority of the Committee. The defense itself, however, cannot be held before committee members complete Rackham's evaluation form. To set this process in motion the Rackham Dissertation Secretary must review an unbound copy of the dissertation for a format check. The steps entailed in this process are outlined in the Dissertation Handbook. Macintosh and DOS versions of the Dissertation Handbook and formatting templates are available on the Rackham website.

After approval by the Rackham Dissertation Secretary, one copy of the dissertation, along with the Rackham Dissertation Evaluation Form, is distributed by the candidate to each Dissertation Committee member. Each committee member completes an independent evaluation of the dissertation and conveys written opinions to the Rackham Dissertation Secretary on the dissertation evaluation form. These forms must be received by the Rackham Dissertation Secretary no later than three days prior to the date of the oral defense. The form requests evaluation of the scholarship, originality, contribution, quality of the writing, and quality of the dissertation. In addition, both the dissertation and the abstract are rated for acceptability (without revision, with minor revisions, with major revisions, or unacceptable). It is a good idea to check with the Rackham Dissertation Secretary to ensure that the completed evaluation forms have been returned.

Thirty minutes prior to the defense, the candidate picks up the folder from the Rackham Dissertation Secretary containing the completed evaluation forms and a form, signed by the Rackham School Dean, that authorizes the defense.

Dissertation defenses are open to the public, although the format for participation is determined by the Dissertation Committee. One model involves a public presentation, with opportunity for questions from the audience, followed by a closed session with the Dissertation Committee members only. A different model, with the audience invited to stay during questioning by the Committee members, generally begins with a very brief presentation by the candidate. Other doctoral students are encouraged to attend dissertation defenses; other individuals are also welcome to attend.

At the conclusion of the defense, the committee members should meet in executive session and sign the Rackham dissertation approval form. The Committee may delegate to one or more of its members the

responsibility for checking the final draft to see that required changes are made. The Chair is the most common delegate. The Chair should also ensure that the identity of the person(s) who will certify that all corrections have been made is clearly noted on the form.

Final Corrections and Bindings

After the defense, and before taking copies of the dissertation to the bindery, the candidate must make any changes that the Committee has required. When the corrections have been made, the designated representative(s) of the Dissertation Committee will sign the Certificate of Dissertation Approval to verify that all required changes have been completed. The completed form, together with one unbound copy of the dissertation, must be delivered to the Rackham Dissertation Secretary, who sends it to University Microfilms. The student also must deliver one unbound copy to a bindery and present the bindery receipt to the Dissertation Secretary. The student eventually returns the bound copy to the Dissertation Secretary, who sends it to the Graduate Library. It is customary for the student to present a complete, bound copy of the dissertation to each member of the Committee (members may require this).

Additional Resources:

Rackham Graduate Student Handbook: www.rackham.umich.edu/StudentInfo/Publications

Dissertation Handbook: www.rackham.umich.edu/StudentInfo/Publications

Ph.D. Deadlines: www.rackham.umich.edu/OARD/
(allow two weeks for internal SNRE processing of documents before submission to Rackham)

Rackham Ph.D. forms: www.rackham.umich.edu/OARD/

Appendix A

PRELIMINARY EXAM COMMITTEE AND COURSE OF STUDY - Page 1

- A Request for Approval -

The attached **Course of Study for _____,**
which includes the information listed below*, has been approved by the proposed members of the Preliminary Exam Committee. Please approve the Course of Study and membership of the Committee.

Student UMID _____ Email _____

Address: _____

Program Name: _____ Program Number _____

Committee Members' Name & Signatures	**Title**	**Department**	**UM ID (required)**
Chair/Co-chair:			
Print			
Co-chair or Member:			
Print			
Member:			
Print			
Member:			
Print			
Cognate:			
Print			

The Course of Study should include the following information:

1. A one-page, single-sided statement that explains the intent and goal of the doctoral program including the areas of theory, methodology, and application that the student expects to combine in the preliminary examination and dissertation research.
2. A list of relevant undergraduate courses, including credit hours and grades, organized by content (e.g., biological sciences, physical sciences, social sciences, analytic sciences, etc.).
3. A list of relevant graduate-level courses (including credit hours and grades) taken or to be taken. These courses should be listed in emphasis areas of theory, methods and analytics, and applications to show how they contribute to the student's background. Courses taken as part of the Ph.D. program should be clearly denoted, and one course from each emphasis area must be taken at UM as part of the Ph.D. program.
4. An abstract of an undergraduate research project or master's thesis (if a thesis was written).
5. Curriculum vitae.
6. Timeline.

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Appendix A—continued

PRELIMINARY EXAM COMMITTEE AND COURSE OF STUDY - Page 2

Composition of the Preliminary Examination Committee must meet all of Rackham's requirements for dissertation committees (see Rackham Student Handbook, http://www.rackham.umich.edu/StudentInfo/Publications/GSH/contents.html).

In addition, the Preliminary Examination Committee must have the following minimum composition:

1. At least four members, two of whom must be from SNRE

2. A chair or two co-chairs. The chair or one co-chair must be an SNRE faculty member who is a regular member of the Rackham Graduate Faculty.

6. A minimum of two SNRE members of the Rackham Graduate Faculty (may include adjuncts who must be petitioned to Rackham for approval to serve).

7. A minimum of three regular members of the Rackham Graduate Faculty.

5. A cognate member who
   - Is familiar with the standards for doctoral research;
   - Holds at least a .50 appointment in a Rackham doctoral program in a related field (not the home program);
   - Does not hold any fraction of an appointment in SNRE; and
   - Does not serve as a member of the interdepartmental degree program's steering committee (if the student is enrolled in an interdepartmental degree).

   * Faculty who hold only "dry" or "courtesy" appointments (as opposed to funded appointments) in the candidate's field may be considered for cognate membership on the dissertation committee.

Previous faculty advisor (if different from the Chair).

Signature states that the previous faculty advisor is aware of the Preliminary Examination committee membership and is no longer responsible for advising the student.

Signature: _____ Date: _____

Printed Name: _____

Preliminary Examination Committee Revision

If for any reason the student and/or Preliminary Examination Committee Chair believes that a revision of the Preliminary Examination Committee is in the best interests of the student, a recommendation nominating the new members should be

submitted to the Academic Affairs Committee. The recommendation for revision should include a brief explanation of the reasons for the change.

Appendix B

REPORT ON THE PRELIMINARY EXAMINATION

Student Name: _____ **Exam Date:** _____

Address: _____

Student UM ID _____ Email _____

Program Name _____ Program Number _____

Results of the exam: PASS COND. PASS* COND. FAIL* FAIL

***Conditions to be met:** _____

_____

- Note: When conditions are met, the Chair should make confirmation in writing, with a copy to the student and the Associate Dean.

Deadline for meeting conditions: _____ Will another exam be necessary? ___NO ___YES

Committee Members' Signatures	**Print Name**	**UMID (required)**
Chair/Co-chair:		
Co-chair:		
Cognate:		

Additional Comments and Recommendations

_____

_____

***Committee Chair: Please return this form to the Office of Academic Programs, Room 1520 Dana.**

Appendix C

DISSERTATION COMMITTEE AND PROPOSAL - Page 1
- A request for approval –

The attached **Dissertation Proposal for _____,** which includes the information listed below,* has been approved by the proposed members of the Dissertation Committee. Please approve the Dissertation Proposal and membership of the Committee.

Student UMID _____ Date _____

Address: _____ Email: _____

Program Name _____ Program Number _____

Committee Members' Name & Signature	Title	Department	UM ID #
Chair/Co-chair*:*			
Print			
Co-chair/Member			
Print			
Member			
Print			
Member			
Print			
Cognate			
Print			

Suggested Dissertation Proposal format:

1.Overview (1 page, double-spaced)
   a) overall objective
   b) specific aims/hypotheses
2.Background (2-3 pages)
3.Research Plan & Methodology (4-5 pages)
   a) approach
   b) design
   c) methods and techniques
   d) possible results
   e) limitations and pitfalls
4.Timeline
5.Literature Cited

Date approved by Associate Dean

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Appendix C—continued

DISSERTATION COMMITTEE AND PROPOSAL - Page 2

Once a student is admitted to candidacy, guidance for the remainder of the student's doctoral program passes to the Dissertation Committee. The membership of the Dissertation Committee is often the same as the Preliminary Examination Committee, but this is not mandatory. The appointment process is initiated by the student and the Preliminary Exam Committee Chair in similar manner as that for the Preliminary Examination Committee (see Dissertation Committee and Proposal form, Appendix C). All of the guidelines applicable to the composition of the Preliminary Examination Committee also apply to the Dissertation Committee. This procedure is needed even if the composition of the Dissertation Committee is the same as the Preliminary Examination Committee. The Dissertation Committee should meet regularly with the student during candidacy, and at least once a year in winter term to review progress and future plans. The committee should certify at this meeting that satisfactory progress has been made that year. This certification (including date and signatures of all committee members) should be forwarded to the Office of Academic Programs.

Composition of the Dissertation Committee must meet all of Rackham's requirements for dissertation committees (see Rackham Student Handbook, http://www.rackham.umich.edu/StudentInfo/Publications/GSH/contents.html)

In addition, the Dissertation Committee must meet the following minimum composition:

1. At least four members, two of whom must be from SNRE
2. A chair or two co-chairs. The chair or one co-chair must be an SNRE faculty member who is a regular member of the Rackham Graduate Faculty.
3. A minimum of two SNRE members of the Rackham Graduate Faculty (may include adjuncts who must be petitioned to Rackham for approval to serve).
4. A minimum of three regular members of the Rackham Graduate Faculty.
5. A cognate member who
    - Is familiar with the standards for doctoral research;
    - Holds at least a .50 appointment in a Rackham doctoral program in a related field (not the home program);
    - Does not hold any fraction of an appointment in SNRE; and
    - Does not serve as a member of the interdepartmental degree program's steering committee (if the student is enrolled in an interdepartmental degree).

    * Faculty who hold only "dry" or "courtesy" appointments (as opposed to funded appointments) in the candidate's field may be considered for cognate membership on the dissertation committee.

ºº

Preliminary Examination Committee Chair (if different from the Dissertation Committee Chair).

Signature states that the Preliminary Examination Committee Chair is aware of the Dissertation Committee membership and is no longer responsible for advising the student.

Signature: ____ Date:____________________

Printed Name:____

ºº

If for any reason the student and/or Dissertation Chair believes that a revision of the Dissertation Committee is in the best interests of the student, a recommendation nominating the new members should be submitted to the Academic Affairs Committee. The recommendation for revision should include a brief explanation of the reasons for the change.

Appendix D

R E V I S E D DISSERTATION COMMITTEE - Page 1

-- A request for approval --

Please approve the revised membership of the dissertation committee for

Student Name _____ **Date** _____

Student UM ID _____ **Email** _____

Address _____

Program Name _____ **Program Number** _____

Committee Members' Signatures	Print Name	Title	Dept.	UMID (required)
Chair/Co-chair:				
Co-chair/Member:				
Cognate:				

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OFFICE OF ACADEMIC PROGRAMS

ROOM 1520 DANA

Date Approved by Associate Dean

Appendix D

<u>*R E V I S E D*</u> DISSERTATION COMMITTEE - Page 2

Changes in Committee Membership

Membership of the Dissertation Committee may need to change for a variety of reasons. When such changes are occasioned by faculty members' unavailability (e.g., leaving the University for one reason or another) candidates may modify the membership of the Committee simply by submitting a "Revised Dissertation Committee" form (Appendix D) to the Office of Academic Programs.

If, however, at any time in the dissertation process the candidate believes that arrangements with, or disagreements among, committee members are so adverse as to constitute an insurmountable obstacle to successful completion of the dissertation, the candidate may petition for a revised Dissertation Committee. The petition should be submitted directly to the SNRE Associate Dean and must contain a full statement of facts as the candidate sees them.

The Associate Dean will review the petition. If necessary, s/he will contact members of the Dissertation Committee (existing or proposed). If the Associate Dean concurs with the petition, s/he will nominate a revised Dissertation Committee and submits this nomination to Rackham. Approval of this nomination by Rackham constitutes appointment of a revised Dissertation Committee. Notification of such action is handled in accord with standard Rackham procedures.

Additional Documentation Required

Any changes in the composition of the doctoral committee must be submitted for approval by the Graduate School using the Dissertation Committee Form. In the following cases, additional documentation is required, as specified:

- **Retired and *emeriti* Professors Nominated to Serve as Sole Chair or Cognate Member:** The completed Dissertation Committee Form must be accompanied by a memorandum, signed by the faculty member's chair <u>and</u> by the dean of his/her school or college, requesting the appointment and affirming the professor's experience in teaching, advising and dissertation committee service. Once approved, the appointment will be in effect for 3 years and may be renewed with the approval of the faculty member's chair and dean, and the Dean of the Graduate School.
- **University Faculty and Staff Not Included on Pages 51-53 of the <u>Dissertation Handbook</u>, or Individuals Outside the University**: When individuals in these categories are nominated for dissertation committee service, the completed Dissertation Committee Form must be accompanied by
    (a) A memorandum from SNRE's Associate Dean describing the individual's qualifications for dissertation committee service and
    (b) A copy of the nominee's *curriculum vitae*.