2023

NRES GRADUATE STUDENT HANDBOOK

Department of Natural Resources and Environmental Sciences College of Agricultural, Consumer, and Environmental Sciences University of Illinois at Urbana-Champaign

Welcome!

Welcome to the Department of Natural Resources and Environmental Sciences, where we highly value graduate education as the primary means to develop future leaders in environmental and natural resource sciences. You will study under faculty recognized nationally and internationally for their expertise, at a University that provides tremendous resources to facilitate your research and academic pursuits. Our campus provides some of the finest library resources available in the U.S., a wide array of laboratory and field facilities, and opportunities for cross-disciplinary training and collaboration. We expect you to make use of these resources as you progress through your graduate program, and you can expect NRES and the University to challenge and support you through your degree program.

The Department of Natural Resources and Environmental Sciences (NRES) is a broad and diverse department offering a wide range of options for graduate study, leading to both M.S. and Ph.D. degrees. The mission of the department is to establish and implement research and educational programs that enhance environmental stewardship in the management and use of natural, agricultural, and urban systems in a socially responsible manner. NRES is composed of 24 faculty and 195 graduate students along with support staff. Approximately half of our graduate students are enrolled in our online M.S. program. The department includes the following specialization areas of research and teaching: agronomy/agroecology; ecology; ecosystem science; fish and wildlife; global environmental change; human dimensions of natural resources and ecology; landscape ecology, microbial ecosystems; plant ecology, physiology, and genetics; quantitative and spatial methods; restoration ecology; soil science and conservation; sustainability; and water/biogeochemistry.

In addition to departmental faculty, NRES offers students the opportunity to work with a wide range of affiliates who are housed in the Prairie Research Institute, Illinois Natural History Survey, or one of several other related agencies. Many areas of our research are interdisciplinary across departments or include one or more areas of specialization. Graduate study in NRES involves developing an expertise through course work and research experience in one or more of these disciplines, and using this knowledge to address and solve problems.

Well-equipped laboratory and greenhouse facilities are available for each field of specialization within the department, complemented by nearby experimental farms and natural areas. NRES faculty members are located primarily in Turner Hall on the second, fourth, and fifth floors. The Main Office, Department Head's Office, Business Office, Human Resources Office, and Student Services Center are all located on the fifth floor of Turner Hall.

It is important for graduate students to understand that the Department of Natural Resources and Environmental Sciences at the University of Illinois at Urbana-Champaign has duties and responsibilities for teaching, research, and extension. **Teaching** undergraduate and graduate students and preparing them to effectively assume leadership roles within the various professions of NRES is a primary responsibility. **Research** programs within the department are primarily designed to generate information needed by the public or private sector for solving

environmental problems, but are often equally critical in providing students the research experience that ultimately determines the direction of their thesis or dissertation. Many of these research efforts are applied in nature, while some may be designed to discover more fundamental information needed to further advance applied technology. Within the department, there are <u>outreach</u> programs to assist the public in applying new technologies generated through research. Each of the faculty, whether department, adjunct, or affiliate, has responsibilities in instruction, research and/or outreach and most of them have responsibilities in more than one area. Graduate students are expected to be aware of and contribute to these areas as part of their professional development.

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Graduate Education — What Is It?

Graduate education provides the opportunity to gain a deeper knowledge of your subject area than was possible as an undergraduate. It also familiarizes you with the academic, research, and professional culture of your field of study. As a graduate student, you have opportunities for activities and experimentation that are unlikely to recur. We encourage you to take full advantage of this relatively short period of transition, as you become a teacher, researcher, extension specialist, consultant, or other related professional.

You alone can decide on the extent and quality of the educational and research experience gained from your graduate program. Your initiative, more than anything else, will dictate how much you will learn and how far and in what direction this training will take you. Unlike undergraduate studies, the graduate program is not based entirely on the ability of the student to earn good grades in organized course work. You are expected to develop some appreciation for the broad field of NRES; this will be accomplished through attending seminars, talking with faculty and graduate students who work in other specialties and working closely with the faculty, staff, and other graduate students who work on research related to your interests. To help thesis (campus) graduate students accomplish this, they must register for and attend the weekly NRES seminar series (NRES 500) each semester. M.S. students are excused for one semester (usually the semester they defend), and doctoral students are excused for two (usually when they take their Preliminary Examination and their Final Examination). You must complete the form at http://go.illinois.edu/NRES500 exception request to request an excused semester. Non-thesis (online) graduate students are welcome but not required to enroll in NRES 500. What you get out of this experience in terms of preparation for a stimulating professional career will largely be determined by what you put into it. Always keep in mind that you can never really know what experiences will be valuable in the future. Consequently, the more complete and varied these experiences are, the better trained and qualified you will be.

The schedule of course work that you will complete is developed by you and your Advisory Committee rather than being specifically prescribed by our graduate program. Talk with your adviser and committee about your interests and career goals as you prepare your plan of study so that they can provide you the best advice possible on the courses you should take. Remember that a vital part of your graduate education is developing and conducting your research program. Bear in mind that as you proceed through your program of study and related activities, all of your interactions with others, particularly with your adviser and committee, are influencing your future letters of recommendation. The strength of these recommendations will depend upon you.

Each graduate student will typically specialize in a single area of academic research, but most faculty members have discipline training and backgrounds that enable them to provide guidance in more than one specific area. Students are encouraged to get to know and seek technical help from as many of the faculty as possible, whatever their specific area of interest.

Important Sources Concerning the Rules, Policies, and Codes

As graduate students, it is helpful to understand where you are in the institutional structure of the University. You are in the Graduate College and are governed by its policies and procedures. All tenure track faculty and some adjunct faculty/researchers are members of the Graduate Faculty of the Graduate College. You, the department, its faculty, and its undergraduate students are also members of the College of Agricultural, Consumer, and Environmental Sciences (ACES). All Colleges, Schools, and Units are under the directives put forth by the campus, namely the Provost's Office, the Board of Trustees of the University of Illinois, and the Illinois Board of Higher Education. This means you are governed by all University policies and the campus ethical code.

The purpose of this handbook is to provide information concerning departmental policies, timelines, and guidelines for the progression through your program of study. It outlines departmental expectations for student faculty roles and responsibilities and is intended to supplement the following items:

- A Handbook for Graduate Students and Advisers (The Graduate College), http://www.grad.illinois.edu/gradhandbook
- Other Policies and Laws that Affect Graduate Students, https://grad.illinois.edu/other-policies
- The current (2017-2022) GEO contract, http://humanresources.illinois.edu/assets/docs/GEO-2017-22-Contract.pdf
- University of Illinois Degree Programs, http://catalog.illinois.edu/degree-programs/
- University of Illinois Course Catalog, http://catalog.illinois.edu/courses-of-instruction/
- University Code of Conduct,
 https://www.ethics.uillinois.edu/cms/one.aspx?portalId=1216&pageId=9238
- Policies and Procedures on Academic Integrity in Research and Publication, https://www.vpaa.uillinois.edu/userfiles/Servers/Server_420372/file/Integrity-in-Research-Publication-policy%20(3).pdf
- Code of Policies and Regulations Applying to All Students, http://admin.illinois.edu/policy/code/

We hope your graduate experience is rewarding, and encourage you to direct any questions to the NRES Student Services Center, N-509 Turner Hall, (217) 333-5824, or to the Graduate College, 204 Coble Hall, (217) 333-0035. Below are the key contacts for the NRES Graduate Program:

- NRES Student Services Center (Karen Claus), (217) 333-5824, nres-ssc@illinos.edu
- Piper Hodson, Director of the NRES Online M.S. Program and Student Services Coordinator, (217) 244-5761, phodson@illinois.edu
- Jeff Matthews, NRES Graduate Coordinator, (217) 244-2168, jmatthew@illinois.edu
- Bob Schooley, NRES Department Head, (217) 333-2770, schooley@illinois.edu

NRES Graduate Degrees

The Department of Natural Resources and Environmental Sciences offers Master of Science degrees (Thesis, Non-Thesis and Joint M.S.-J.D.) and a Doctor of Philosophy degree, which can also be pursued as part of the Medical Scholars Program.

Master of Science

NRES offers a Thesis M.S. and a Non-Thesis M.S. option for graduate students. The Thesis M.S. option emphasizes the development of the skills necessary to create, plan, and carry out independent research. The Non-Thesis M.S. option offers preparation and career advancement for students with interests in the management, protection, and stewardship of natural resources and the environment.

NRES also offers two ways to pursue the M.S. degree: <u>on-campus</u> and <u>online</u>. Applicants to the NRES M.S. program on campus are admitted into the thesis option, while applicants to the online M.S. program are admitted into the non-thesis option. It is possible to change options once a student has begun the program.

All M.S. students must earn 32 credit hours, at least 12 of which must be 500-level credit. NRES 594 Professional Orientation (1 credit hour) is required of all NRES M.S. students in their first semester.

Thesis Option

Students pursuing the Thesis M.S. complete at least 20 hours of coursework and between 4 and 12 hours of NRES 599 Thesis Research. In order to graduate, students in the thesis option must complete, successfully defend, and deposit a research thesis that meets the standards of the Department of Natural Resources and Environmental Sciences and follows all formatting requirements of the Graduate College. M.S. students in the thesis option are required to enroll in NRES 500 Seminar (for either 0 or 1 hour) every semester except one.

Required Courses:	Thesis option - Required Hours
NRES 594	1
NRES 500	Minimum of 0
Electives	19-27
Thesis Hours Required NRES 599 (min/max applied toward degree):	4-12
Total Hours	32
Minimum 500-level Hours Required Overall:	12
Other Requirements:	Completion, defense, and deposit of thesis.
Minimum GPA:	3.0

Non-Thesis Option

Students pursuing the Non-Thesis M.S. complete at least 28 hours of coursework and 4 hours of capstone credit.

In order to graduate, students in the non-thesis option must:

- 1. Successfully complete NRES 594 Professional Orientation (1 credit hour)
- 2. Accrue at least 28 hours of coursework, at least 8 of which must be at the 500-level (NRES 594 and all core courses count toward these requirements)
- 3. Pass written final examination over the fou<u>r core areas</u> (typically submitted in the January or August following completion of the five core courses):
 - Methods Core (2 courses required)
 - Environmental Science Core (1 course required)
 - Ecology Core (1 course required)
 - Human Dimensions Core (1 course required)
- 4. Successfully complete capstone project:
 - Students are eligible to enroll after passing the written core exam
 - Capstone enrollment is over two semesters (2 credit hours each semester, either fall then spring or spring then fall, which is best for those wanting to conduct field research).
- 5. Submit acceptable capstone paper, recorded presentation, and pass oral final examination.

Required Courses:	Non-thesis option - Required Hours
NRES 594	1
Capstone 2 credit hours in each of the last two semesters in the program (NRES 503 or 505)	4
Electives At least five elective courses must be from core study areas.	23-28
Total Hours	32
Minimum 500-level Hours Required Overall:	12
Other Requirements:	Successful completion of the written final examination based on the four <u>core study areas</u> , preparation, oral presentation/exam, and approval of a capstone project paper.
Minimum GPA:	3.0

Joint M.S.-J.D. Degree

Students interested in specializing in environmental or natural resource law should consider the joint M.S.-J.D. program, a unique program offered through collaboration between the College of Law and the Department of Natural Resources and Environmental Sciences. Students interested in pursuing the joint degree must apply to both the Graduate College and the College of Law, indicating this program on both applications.

Required Courses:	Thesis option - Required Hours	Non-thesis option - <u>Required</u> <u>Hours</u>
NRES 594	1	1
LAW 616	3-4	3-4
LAW 618	2-4	2-4
LAW 622	2-4	2-4
Capstone 2 credit hours in each of the last two semesters in the program (NRES 503 or 505)	0	4
NRES 500	Minimum of 0	Enrollment not required of non-thesis students
Thesis Hours Required NRES 599 (min/max applied toward degree):	4-12	0
Total Hours in NRES	32	32
Minimum 500-level Hours Required Overall:	12	12
Law Requirements:	90	90
Other Requirements:	Completion, defense, and deposit of thesis.	Successful completion of the written final examination based on the four core study areas, preparation, oral presentation/exam, and approval or a capstone project report.
Students may count up to 12 hours of NRES course work toward the required 90 hours of Law course work. They may also count 8 hours of Law credit toward the 32 hours required for the M.S. degree.		

Minimum GPA:	3.0	3.0	
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Doctor of Philosophy

The Ph.D. program prepares students to be an expert in their fields. Earning a Ph.D. involves mastering a field of study and increasing the knowledge and understanding in that field through the completion of a dissertation that makes a contribution to existing research. Students working toward the Ph.D. degree are required to demonstrate competency in at least three content areas by passing a general examination (the preliminary examination) before admission to candidacy for the doctoral degree. Students consult with their advisers to identify their competency content areas and the courses they will take, which are recorded on the Doctoral Plan of Study. To earn the doctorate, students must successfully complete a final oral examination (thesis defense). In most cases, students earn a M.S. before starting work on a Ph.D. However, in certain cases, it is possible to earn the additional credit for the M.S. as part of a Ph.D. program (32 credit hours, 19 of which must be coursework). Ph.D. students are required to be enrolled in NRES 500 Seminar (for either 0 or 1 hour) every semester except two.

Required Courses:	Required Hours
NRES 594 (need not be repeated if taken as an NRES M.S. student)	0-1
NRES 500	Minimum of 0
Graded Coursework (excludes all courses graded satisfactory/unsatisfactory, NRES 501, 512, and other independent study or readings course)	min 12
Thesis Hours Required – NRES 599 (min/max applied toward degree):	Max 52
Electives	0-51
Total Hours	64
Other Requirements:	
Minimum GPA:	3.0
Master's Degree Required for Admission to Ph.D.?	Yes
Qualifying Exam Required	No
Preliminary Exam Required	Yes
Final Exam/Dissertation Defense Required	Yes

Medical Scholars Program

• The Medical Scholars Program permits highly qualified students to integrate the study of medicine with study for a graduate degree in a second discipline, including Natural Resources and Environmental Sciences. Students may apply to the Medical Scholars Program prior to beginning graduate school or while in the graduate program. Applicants to the Medical Scholars Program must meet the admissions standards for and be accepted into both the doctoral graduate program and the College of Medicine. Students in the dual degree program must meet the specific requirements for both the medical and graduate degrees. On average, students take eight years to complete both degrees. Further information on this program is available by contacting the Medical Scholars Program, 125 Medical Sciences Building, (217) 333-8146 or at http://www.med.illinois.edu/msp/.

Affiliated Programs in Which NRES Students Can Enroll

Program in Environmental and Resource Economics: Students involved in the program in Environmental and Resource Economics (pERE) explore the complex relationships between natural resource allocation, environmental quality and economic prosperity. Students and faculty from five other University departments in addition to NRES are using economics to analyze policy toward some of today's most critical environmental and natural resource issues. Information is available at http://pere.ace.illinois.edu/files/pereinfo.html.

Specialization in Physiological and Molecular Plant Biology: The Department of Natural Resources and Environmental Sciences also participates in the multi-departmental, interdisciplinary program in physiological and molecular plant biology for doctoral students. The program is flexible and provides the student with proficiency in several areas of plant physiology and molecular biology. Interested students should direct inquiries and applications to the program coordinator in the School of Integrative Biology.

The Applied M.S. in Statistics is intended for students pursuing advanced degrees in other fields who wish to enhance their statistical knowledge and credentials by obtaining a degree in Statistics in addition to their primary field of study. Admission to this program requires that students be admitted for graduate studies in another field at UIUC. Students apply to the Applied M.S. program after they have begun their studies in NRES. For more information on the requirements and applications process, see https://stat.illinois.edu/academics/graduate-programs/degree-programs/ms-statistics-applied. Please note that a student's adviser must grant permission for the pursuit of this degree.

Academic Administrative Information

All graduate students are governed by the <u>Graduate Student Policies</u> of the Graduate College.

Registering for Courses

Students are responsible for their own registration and for ensuring the accuracy of their schedules. All students control their registration using the Enterprise Self-Service system at https://apps.uillinois.edu/selfservice/index.html. More information on this process can be found at http://archive.registrar.illinois.edu/registration/procedures.html.

Graduate College policies governing registration can be found in Chapter 2 of the Graduate College Handbook: https://grad.illinois.edu/handbooks-policies

Holds

Holds can be placed on a student's record for several reasons. Most commonly, these include departmental deficiencies, immunization requirements, disciplinary reasons, financial encumbrance to the University, lack of academic progress, failure to submit transcripts, low GPA, failure to take the English Placement Test (EPT). Holds may prohibit the student from making changes to their registration, from receiving a transcript, or from graduating. Holds will appear in the Registration section of a student's profile in Self-Service.

Students newly admitted to the NRES campus graduate programs will have an advising hold until the adviser notifies NRES Student Services that they have discussed course choices. Ask your adviser to e-mail nres-ssc@illinois.edu to request that the advising hold be removed.

Academic Deadlines

There is a variety of deadlines governing student registration activity. See the <u>Graduate College Academic Calendar</u> for the upcoming dates. The deadlines for students to add and drop classes vary depending on the length of the class (e.g. full semester or part of term). Full semester course deadlines are:

10th day of classes is the last day students can add a course without permission.

End of the 8th week of classes is the last day students can drop a course without permission.

For instructions on how to make changes after these deadlines, see Chapter 2 of https://grad.illinois.edu/handbooks-policies. Graduate College policy states that the last time to submit changes to a student's current term registration is 5:00 p.m. on Reading Day.

Full-Time Status

NRES requirements for full-time enrollment are the same as the Graduate College policy, available at https://grad.illinois.edu/handbooks-policies. There are several circumstances that can impact a student's requirements, so it is essential to become familiar with the policy, particularly for international students who are required to be enrolled full time by the 10th day of classes.

In general, <u>full-time enrollment</u> in fall or spring semester requires 12 credit hours for students <u>without an appointment</u> or <u>with a fellowship</u>, and 8 credit hours for students with a waivergenerating assistantship. Students with a fellowship that is paid during the summer must be enrolled during the eight-week portion of the summer term.

Courses Counting toward the Degree

Only courses 400-level and above may count toward a graduate degree. Many graduate courses have rules governing how many hours can be counted toward a degree. Students should always carefully review these rules, which are included in the class description in the Class Schedule and Academic Catalog and/or this handbook. NRES has the following limits:

- No more than 8 hours of NRES 501, 503, 505, or, 507 may be counted toward an M.S. degree.
- No more than 4 hours of NRES 512 may be counted toward a degree.
- No more than 12 hours of NRES 598 may be counted toward a degree.
- No more than 12 hours of NRES 599 may be counted toward an NRES M.S. degree.

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Alternative Types of Course Registration and Enrollment

Alternative Options for Registration

Alternative options for registration include:

In absentia registration is designed for students who wish or need to remain registered, but plan to be studying or doing research for at least one semester at least 50 miles away from campus. While tuition remains the same, the student is assessed only the general fee.

Zero hours registration—Graduate students who have completed all degree requirements except the thesis or dissertation may consider registering for zero hours of research credit.

Graduate College (GC) 599 is a zero credit hour registration option for advanced doctoral students who do not have any financial assistance (such as an assistantship, fellowship, etc.) that would cover the student's tuition and fees for the semester but must maintain fulltime enrollment to defer student loans.

More information on these options and their consequences can be found in Chapter 2 at https://grad.illinois.edu/handbooks-policies.

Alternative Methods of Course Enrollment

There may be circumstances in which a student does not wish to take a course for a letter grade. In these cases, students have two options:

Audit—the student is only a listener, not a participant, in the course.

<u>Credit/No Credit</u> is a permanent notation on the academic record that a student may request, with the adviser's approval.

Enrollment Verification

Students requiring enrollment verification for any reason (such as student loan deferment, employer reimbursement, insurance, etc.) must use the National Student Clearinghouse, accessed at http://www.registrar.illinois.edu/enrollment-degree-verification, after the 10th day of classes. If you have a form that requests a signature, you print and attach the verification from the Clearinghouse in place of the signature.

Grading System

The explanation of grades, grade symbols, and grade point average calculation is available at https://registrar.illinois.edu/explanation-of-grades.

Leaves from the Graduate Program

Students needing to interrupt their graduate studies should make arrangements with their adviser and department prior to departure. The student should talk with the adviser to clarify the anticipated length of the leave and any conditions the adviser requires for re-entry and complete the <u>Leave of Absence Form</u>. That form must be submitted to NRES Student Services for processing. There are significant ramifications of academic leaves for both domestic and international students, so students must review Part I – Graduate Student Policies, Chapter 2: Section 2.5 at https://grad.illinois.edu/handbooks-policies.

Requesting Exceptions to Graduate College Policy

If, for any reason, a graduate student needs to ask for an exception to a policy of the Graduate College, that request must be made using the <u>Graduate Student Request Form</u> (petition).

Transfer of Credit

Graduate College policy governs the transfer of credit from non-degree courses taken here at Illinois, courses taken in another program here at Illinois, and courses taken elsewhere. Those rules can be found at https://grad.illinois.edu/handbooks-policies.

All require the completion of the Curriculum Change/Transfer of Credit form. Instructions and a link to the form can be found at http://www.grad.illinois.edu/gsas/curriculum-transfer.

In all cases, credit will be considered for transfer only if it is credit that has not previously been applied toward a degree or a transcripted certificate, that is graded graduate-level course work from an accredited institution for which the student has achieved a grade of B or better and that would not be more than the time allowed to complete the degree at the time of degree conferral.

<u>Courses Taken as a Non-Degree Seeking Student at University of Illinois</u> Urbana-Champaign

Students who have earned graduate credit while enrolled as a non-degree student at the University of Illinois Urbana-Champaign may request up to 12 hours to be counted toward their degree program. These <u>requests</u> may be submitted after the student receives their notice of admission. This is in addition to the 12 hours of graduate credit that may be requested to transfer from another institution.

<u>Transferring Courses between Programs at University of Illinois Urbana-</u> <u>Champaign</u>

To request a transfer of credit from one program to another within the Graduate College, a student should submit a <u>Curriculum Change/Transfer of Credit</u> form. For these requests, there is no limit on the number of hours that a student may request be transferred. This requests the approval of both the academic program in which the student was enrolled when taking the course and the academic program to which the student wishes to transfer it.

Transferring Credit from another Institution

Graduate students may request transfer of credit from outside the University of Illinois at Urbana-Champaign to be counted toward a graduate degree, but it is limited to a maximum of 12 semester hours. The credit must meet the four requirements listed above. Most transfer credit will be reflected on the transcript without course titles and grades. See http://www.grad.illinois.edu/gsas/curriculum-transfer for exceptions.

A student must have successfully completed at least 8 semester hours of graded graduate work at the University of Illinois at Urbana-Champaign before submitting a request for transfer of credit. To request transfer of credit from another institution, a student should submit the appropriate form, accompanied by new official transcripts, and validation by specialists in the area of the course work in the student's department that the course work is both applicable and of an appropriate level of difficulty.

Annual Review of Academic Progress

In the spring semester of each academic year, graduate students in NRES on campus programs are required to complete an annual progress review. The annual review is designed to assist students in maintaining progress toward completing their degree requirements. This information

will also be used to report on departmental activities and as a resource to identity students for scholarships, awards, and other recognitions. A key component of the review progress involves the communication between faculty advisers and their graduate students to address previous progress and future expectations in their graduate career.

It is extremely important that students take this process seriously and report their accomplishments accurately and with adequate detail. The Graduate Coordinator, Graduate Admissions and Policy Committee, and NRES Student Services use these reviews for identifying students to be nominated for awards and to report on a number of important measures of graduate education.

The process is as follows: The NRES Student Services Center emails instructions for the annual review to all graduate students at the beginning of the spring semester. Students complete the student section of the review. After the major adviser receives the student's self-evaluation, the advisor provides an evaluation of the student's progress. It is recommended that advisers review this document with their students in person, though the Annual Review System will notify the student of the availability of the adviser's review as soon as it is submitted. The Annual Graduate Student Review becomes part of the graduate student file in the NRES Student Services Center. If students have any questions or concerns regarding the adviser's comments, they are encouraged to discuss these with their adviser. Students are welcome to request a meeting with the Graduate Coordinator or a member of the Graduate Admissions and Policy Committee to discuss the feedback received.

Academic Standing

All <u>NRES</u> graduate students must maintain a minimum program grade point average (GPA) of 3.0 in order to have the degree certified and to graduate. The Graduate College monitors minimum program cumulative GPA, and failure to meet this requirement in any term can result in the student being placed on probation or dismissed from the Graduate College. NRES Student Services monitor other factors that determine satisfactory academic progress, and failure to meet these requirements can result in a recommendation to the Graduate College that the student be placed on probation or dismissed from the Graduate College. See https://grad.illinois.edu/handbooks-policies for full details on academic standing, probation, limited status admission, and dismissal.

Problem Solving Procedures for Disputes and Conflicts

Students and faculty in NRES are a diverse group whose personalities, experiences, activities, and personal goals vary widely. Most conflicts and problems that arise in this environment can be resolved without invoking formal grievance procedures; such informal resolution, where possible, is generally best for all concerned.

There are several sources of assistance for pursuing an informal resolution of the dispute. Students may seek advice about how to address their situation informally from their faculty advisers, the NRES Student Services Coordinator, the NRES Graduate Coordinator, the NRES Department Head, the Graduate College Academic Services office, the Office of the Dean of Students, and the Office of International Student Affairs. It is generally best to begin with the Graduate Coordinator or Student Services Coordinator to explore which resources for informal resolution would be most appropriate.

At times, however, disputes may not be resolved through informal efforts and employment of the Graduate College Grievance Procedure may be necessary. The Graduate College Policy and Procedures on Grievances by Graduate Students is found in Chapter 9 at https://grad.illinois.edu/handbooks-policies.

The Department of NRES follows all problem solving/grievance procedures established and approved by the Graduate College and University. Prior to initiating formal procedures, please contact the NRES Graduate Coordinator for consultation.

In addressing a dispute/conflict, the following documents will be useful:

- Graduate College Handbook, Conflict Resolution and Grievance Policy for Graduate Students, https://grad.illinois.edu/handbooks-policies
- NRES Graduate Handbook, http://nres.illinois.edu/graduate/handbook
- Code on Campus Affairs and Handbook of Policies and Regulations Applying to All Students, http://studentcode.illinois.edu/

Guidelines for Graduate Student Mentoring

Mentoring plays a central role in graduate education. The Graduate College has developed a set of Guidelines for Graduate Student Mentoring, which articulate expectations for mentors, mentees, and programs. NRES has adopted these guidelines to provide faculty, students, and staff with transparent expectations for student mentoring.

NRES FACULTY	NRES GRADUATE STUDENTS	NRES PROGRAM
POSITIVE & SUPPORTIVE ENVIRONMENT	POSITIVE & SUPPORTIVE ENVIRONMENT	POSITIVE & SUPPORTIVE ENVIRONMENT
 Foster the overall wellbeing of students Provide students a safe, supportive environment Interact ethically and professionally with other members of the university community Be responsive and receptive to students' requests for academic feedback and professional advice 	 Interact ethically and professionally with other members of the university community Seek guidance when feedback is needed Communicate about needs and concerns regarding academic and professional progress 	Foster the wellbeing of students Provide students a safe, supportive environment Interact ethically and professionally with other members of the university community Connect students with appropriate university offices and resources Help resolve student problems and conflicts
ACADEMIC SUCCESS	ACADEMIC SUCCESS	ACADEMIC SUCCESS
 Guide students in developing academic and research skills Convey clear expectations for academic and research progress Provide timely, constructive feedback and periodic evaluations Evaluate students' performance fairly and objectively Promote students' timely academic and research progress Advise students on requirements for academic integrity, responsible conduct of research and other relevant policies 	esearch skills xpectations for esearch progress , constructive Take responsibility for knowing and fulfilling degree requirements Take responsibility for knowing and fulfilling degree requirements Take responsibility for knowing and executing ethical, professional norms Take responsibility for knowing and executing ethical, professional norms Monitor stup progress, pr	 Provide information about degree requirements, academic policies and expectations Share information about fellowships, awards and other academic opportunities Monitor student academic progress, providing at least yearly evaluations and communicating these with students
CAREER DEVELOPMENT	CAREER DEVELOPMENT	CAREER DEVELOPMENT
Foster the professional development of students to prepare for a wide range of future employment options Assist students in achieving their career goals Encourage engagement in professional communities and meetings to foster potential career opportunities Advise students regarding the ethics of their profession	 Identify professional development needs and pursue appropriate opportunities Take initiative for career exploration and the job search 	Promote student engagement in professional development programs Foster the professional development of students to prepare for a wide range of future employment options Direct students to resources that can help them pursue and succeed in their careers of choice

Financial Support

NRES students pursuing the M.S. Thesis option and the Ph.D. typically have a research assistant, teaching assistant, or fellowship appointment.

Sources and Awarding of Financial Support

Several sources of financial support are available within the department for recruiting high quality students: research assistantships supported by federal, state, or private grant funds made available to NRES faculty; competitive research assistantships supported by NRES are offered for excellent students. Additional support includes teaching assistantships, University Fellowships, the Jonathan Baldwin Turner Graduate Fellowship Program, the Odell Graduate Fellowship in Soil Science, the Spaeth & Boggess Graduate Fellowship in Forestry, Federal Work Study programs, and waivers of tuition and fees. The Graduate College Fellowship Office also administers competitive fellowships and grants to currently enrolled and prospective graduate students. Check the requirements for these awards at the Graduate College Fellowship Office website, http://grad.illinois.edu/fellowships.

Assistantship appointments are made on a percentage basis. All 25% to 67% appointments as research or teaching assistants for at least three-quarters of the academic term, as well as all fellowships of at least \$5,000 per semester or \$10,000 an academic year, will provide a stipend and tuition and fee waiver. A student who resigns an appointment even one day before the **91st day** of the semester (for spring and fall, see the <u>Graduate Policy</u> for the summer information), will lose the tuition and fee waiver, becoming responsible for paying all tuition and fees. See Chapter 7 at https://grad.illinois.edu/handbooks-policies for more details on policy governing tuition waivers.

Several graduate scholarships are awarded annually to continuing students in the department. The call for applications goes out in the spring to continuing students. More information about each of the graduate scholarships we award is available on the NRES website (http://nres.illinois.edu/graduate/scholarships).

Departmental financial support is granted on a competitive basis at the time of admission. Using the application for admission; applicants are judged for academic potential based on past performance, experience, motivation, dedication to the designated area of interest, and, where applicable, the potential to satisfy the objectives of a donor. Information about the current availability of financial aid can be obtained from the Graduate Coordinator or, in the case of research and teaching assistantships, directly from faculty members working in the area of interest. Continuing students can apply for some sources of funding, such as teaching assistantships. In these cases, a call for application is emailed to all NRES graduate students.

In addition, the department supports the NRES Educational Opportunity Travel Grants to continuing NRES students. This program of support is for student travel that enhances their graduate training and career opportunities. Applications for financial support can include attendance at professional conferences, workshops, events, or for training to learn research

techniques at other laboratories. Two competitions are held, one each in the spring and fall semesters, following email announcement.

In the awarding of financial support for graduate study, there are always many more applicants than support funds. Consequently, a careful evaluation of each applicant is made, and offers are extended to those candidates who show the greatest potential for graduate study and the use of the knowledge gained. The department does not assume the responsibility for supporting students who agree to enter the program at their own expense. Acceptance for graduate study in the department is not considered to be a commitment for present or future financial support, unless specifically stated in the acceptance letter.

Students who qualify for federal work-study must notify the NRES Human Resources Manager in order to take advantage of the program. In order to qualify, you must complete the FAFSA form in the winter, and be notified by the Office of Student Financial Aid that you qualify for this funding source.

Appointment Processing

Because the first day of the pay period is August 16, students should plan to begin working on that date. If that day is a weekend, students should discuss the actual start date with their faculty adviser. Additionally, students may not work before their paperwork is completed. For these reasons, new students or students on new appointments who will be working as research or teaching assistants should report to the NRES Human Resources Manager as soon as they arrive on campus (no later than August 15) in order to fill out the necessary forms and to avoid a delay in receiving their first paycheck. Students who are advised by adjunct or affiliate faculty will need to see the Human Resources Manager in their employing department. Students on fellowships need to contact the unit that awarded the fellowship. For JBT and Graduate College fellowships, that unit will be the Graduate College Fellowship Office (333-0036). Both assistantship appointments and fellowships must be accepted by signing and returning an offer letter.

International students are required to have applied for a social security number before beginning employment. The <u>International Student and Scholar Services</u> (ISSS) office has streamlined this process so that it can be done on campus and usually within a week. Students must make this a priority once they arrive on campus.

Continuing students should check with their advisor to verify that their appointment will be extended into the next semester, summer, or the following academic year, depending on individual circumstances. A reminder from the student may be useful since advisers are required to renew graduate appointments every semester. Summer percentages are not always the same as fall and spring semesters, and some students work hourly during the summer, so your situation may vary. If you have questions about your appointment, see the NRES Human Resources Manager. Additionally, RA and TA funding is provided by your adviser, unless you have been awarded a fellowship or merit-based assistantship. If you change advisers, your new adviser will become responsible for supporting your program of study.

Pay periods begin on August 16 for the fall term and on January 1 for the spring term. All assistants should be on campus and have their appointment processing done by these dates. Arriving late or not finishing processing by these dates will result in late paychecks and/or paychecks for less than a complete month for the first pay period. All graduate assistants are paid on the 16th day of each month via direct deposit. If the 16th falls on a weekend, pay is deposited on the preceding Friday. Fall appointments are from 8/16 to 12/31. Spring appointments are from 1/1 to 5/15, and summer appointments are from 5/16 to 7/15. Once again, regular graduate assistants are 11-month appointments and are not paid in the month of August. As all assistants are paid by direct deposit, the only way to view your earnings statement is by using the NESSIE system.

Assistantship Work Required

Research and teaching assistants are expected to work part-time for their assistantship. Depending on the nature of the research assistantship, this service can be exclusive of their thesis research. However, it is virtually impossible to determine absolutely the number of hours of work per week expected of most assistants. For instance, one cannot be specific about the time one devotes to a research assistantship that is tied to thesis research. The specific nature of research assistant service is determined by the student's major advisor. Students should expect that research assistant commitments and thesis research together will represent *at least* a full-time commitment. Students who cannot make a full-time commitment to their graduate studies (particularly their thesis research) will not make timely progress toward completion of their degree. Support for students not fulfilling responsibilities may be terminated.

Teaching assistants are selected by the faculty member teaching the course assigned an assistant. Inquiries about position availability should be made to them directly. When seeking assistantships outside of NRES, students should refer to the <u>Assistantship Clearinghouse</u> that lists hourly positions and assistantships available on campus. All teaching assistants in NRES are required to successfully complete the University's two-day Graduate Academy for College Teaching, which occurs **before the semester begins**, as well as one 90-minute Microteaching session. In addition, international students are required to earn a level 5 or better on the English Proficiency Interview (**in advance of agreeing to TA**). The <u>English Proficiency Interview</u> is offered each semester. The NRES Student Services Center sends an email announcing the EPI and the <u>Graduate Academy for College Teaching</u> training as soon as it becomes available each semester. E-mail nres-ssc@illinois.edu for more information.

Departmental Stipends

The Department of NRES maintains minimum stipend rates for assistants. Teaching and research assistants are paid at the same rates. An assistant may be appointed for 13%, 25%, 50%, 67%, or 100% time. However, 50% time appointments are considered standard. The monthly rate table for 2021-2022 NRES RA and TA stipends are shown below. These rates are subject to change annually as the University pay rates increase. Graduate assistants are normally appointed by the semester for a 9- or 11-month appointment. The monthly stipend rate below is then paid for each month in which the assistant is appointed. Students with a 9-month appointment are not paid in June, July, or August. Students on an 11- month appointment are not paid in August.

2023-2024 NRES Research Assistant and Teaching Assistant Stipends (permonth)

% Appointment	M.S.	Ph.D.
67%	\$3,410.30	\$3,635.42
50%	\$2,545.00	\$2,713.00
25%	\$1,272.50	\$1,356.50

Expenses and Compensation

The <u>Estimated Expenses and Compensation Table</u> represents anticipated expenses of graduate study for most recent academic year for a new, full time student and the most common compensation package. (All rates are variable and subject to change.) Tuition rates can be found at http://www.registrar.illinois.edu/tuition-fee-rates, and fees are provided at https://registrar.illinois.edu/fee-info. The Campus Tuition Waiver Policy is available at https://www.pb.uillinois.edu/dr/tuitionpolicy.cfm.

Other Resources

- Tuition Waiver Policy
- Current Graduate Employees' Organization Contract
- Taxability of Tuition and Fee Waivers
- Taxability of Fellowships
- Health Insurance
- <u>Injured</u> on the Job?

Milestones and Procedures for M.S. Students

This section explains the learning outcomes, milestones, deadlines, and procedures that are part of the sequence of each of our M.S. programs. If you have questions about academic requirements, see the previous section, NRES Graduate Degrees.

Learning Outcomes for M.S. Thesis Students

The NRES M.S. program is designed to facilitate the following student learning outcomes:

- Student has the ability to design and implement research that integrates core knowledge related to their discipline.
- Student can apply the research tools and techniques, data analysis techniques, and professional skills necessary for their subject matter.
- Student has written and oral communication skills appropriate for their disciplinary field.
- Student exhibits professionalism through leadership, well-developed problem-solving abilities, and ethical thinking.
- Student has skills necessary for effective college/university teaching and mentoring.

M.S. Thesis Sequence of Program

Before Admission

- Applicant must identify a willing adviser.
- If NRES decides to admit the applicant, the Department recommends admission to the Graduate College.

After Admission

- Accept admission.
- Complete all of the tasks on the Graduate College Checklist for New Students.
- Accept appointment, if offered.
- Complete employment paperwork.
- Discuss course selection with adviser and request that the advisor notify Student Services that the advising hold may be removed (by email to nres-ssc@illinois.edu).
- Enroll in courses.
- Attend the NRES Graduate Student Orientation that, typically, occurs the Friday before classes begin in August.
- Complete the Annual Review of Academic Progress each spring.

In the First Semester

- Successfully complete NRES 594, including attending the NRES seminar throughout the semester to gain exposure to research of interest to the NRES department. See http://nres.illinois.edu/calendar/seminar for the schedule.
- Turn in the adviser approved Plan of Study the end of the semester (December 15th for fall; May 15th for spring) to NRES Student Services. Students whose first semester is summer must meet the fall deadline.
- Appoint the Advisory Committee.
- During this semester, students should begin drafting their research proposals, which are due at the end of the second semester.

In the Second Semester

- Register for NRES 500 every semester (for either 0 or 1 hour).
- Meet with the Advisory Committee and receive their feedback on the plan of study and research proposal.
- Revise plan of study and research proposal to meet the requirements of the committee.
- If your research involves human subjects, begin process of seeking approval from the Institutional Review Board (IRB).
- This is a good time to begin taking advantage of Graduate College Grant Writing Workshops and Proposal Writing Resources.
- Turn in the plan of study and research proposal, both approved by the full Advisory Committee, to NRES Student Services by the end of the semester (December 15th for fall; May 15th for spring). See Appendix A for guidance on the research proposal.

In Subsequent Semesters

- Register for NRES 500 every semester (for either 0 or 1 hour).
- Complete coursework.
- Pursue funding for research.
- Conduct thesis research.
- Consult the Graduate College <u>Thesis</u> information to become familiar with copyright issues and format requirements.
- <u>Draft</u> and revise manuscripts that will become the thesis.
- Submit manuscripts for publication.
- Submit paper and/or poster proposals to professional meetings.
- Complete the Annual Review of Academic Progress each spring.

As the Thesis Nears Completion

- E-mail <u>nres-ssc@illinois.edu</u> to request instructions and forms.
- Check the Graduate College Thesis and Dissertation deadlines.
- Add of name to Graduate College's pending degree list via student selfservices at the beginning of the semester you intend to graduate.
- Submission of thesis/project to Examination Committee.
- Schedule final examination and advertise thesis seminar.

- Thesis seminar, followed by comprehensive exam and defense of thesis/project.
- Submit thesis to NRES Student Services for Departmental Format review and Department Head approval.
- Submission of thesis to the Graduate College.
- Completion of <u>NRES Exit Survey</u>.
- Return of all office and lab keys to the area secretary.
- Graduation.

Time Limit

The Graduate College requires M.S. candidates to complete all requirements for the degree within five calendar years after their first registration; however, within NRES there is an expectation that M.S. students who are funded (through assistantship or fellowship) complete the M.S. within 3 calendar years. Upon entry in the Graduate College, you are assigned an Expected Graduation Date (EGD), which is the last term you are allowed to enroll. If you want to enroll after your EGD, you will have to petition the Graduate College for approval of a time extension and for the use of coursework older than five years. Please note that M.S. students are **not** required to be enrolled the semester they take the final examination, deposit the thesis, or graduate if they are not on an assistantship or fellowship requiring the student to be enrolled.

Enrollment in NRES 500 Graduate Seminar

NRES requires graduate students to enroll in NRES 500 Graduate Seminar each semester (M.S. students in the thesis option are exempt for one semester, generally the semester in which they defend the thesis). Students have the option of enrolling for 0 or 1 hour, which does count toward full-time enrollment. Because this requirement is an effort to enhance the professional development of graduate students by exposing them to academic research and methods outside of their immediate experience and creating an important networking opportunity within the department, exceptions to this requirement will very rarely be granted. Any student wanting to request an exception to this requirement (by enrollment in the online section or exemption for the semester) must submit a Request for Exception to the Requirement to Enroll in the Campus Section of NRES 500 form.

Committee Composition

The Advisory Committee for an M.S. Thesis student must have three to five members, at least one of whom must be a <u>tenured or tenure track faculty member</u> whose primary appointment is in the Department of Natural Resources and Environmental Sciences. A list of those faculty members is found at http://nres.illinois.edu/directory/faculty. Additionally, to avoid potential conflicts of interest, the student's advisor, together with any committee members who directly report to the student's advisor, should not compose a majority of the Advisory Committee.

The adviser may request the inclusion of a voting member who is **not employed** by the University of Illinois at Urbana-Champaign by submitting a letter of justification and curriculum vitae (≤6 months) for the individual to NRES Student Services with the committee signed Research Proposal and Plan of Study. Please address the letter of justification to the Director of Graduate Studies.

Final Examination Procedures for the M.S. Thesis Option

For the thesis-based M.S. degree, the student's final examination is held after submission and approval of the thesis by the major adviser and must involve an open seminar. This seminar will occur immediately before the final exam, will be advertised two weeks in advance, and will be open to the public. The M.S. Examining Committee for students completing a thesis consists of the student's Advisory Committee with the major adviser as chairperson. The adviser/chair must be present in person for the exam. The Examination Committee will determine the scope and format of the final examination in advance. To clarify committee expectations, the student is

urged to visit with each committee member prior to the examination. The M.S. Exam Committee Appointment form must be submitted to Student Services **4 weeks prior** to your exam for approval from the Graduate Coordinator. Contact NRES Student Services for the form.

At the conclusion of the examination, the committee will complete the Final Examination for the Master's Degree form. This form reports the results of the examination and is available at the NRES Student Services Center (SSC). The form, signed by all the Examination Committee members, will then be submitted to the SSC for inclusion in the student's file. The possible outcomes of the M.S. examination are pass, fail (and elimination from the program), or incomplete. If the student receives an incomplete, the M.S. examination must be repeated within three months. The final examination shall be taken during the final semester the student is enrolled as an M.S. candidate.

Depositing the Thesis

Students should refer to the Deposit Checklist: https://grad.illinois.edu/thesis/deposit-checklist

During the final semester, students are responsible for ensuring that their names have been added to the degree list by using Enterprise Self-Service.

All of the following documents will be required when depositing a thesis and can be sent to you by the NRES Student Services Center:

- NRES Graduate Student Exit Survey (NRES Student Services)
- One signed Thesis Approval Form (<u>TAF</u>).
- Data Signature Form (NRES Student Services)
- Final Examination for the Master's Degree Form (NRES Student Services)

When the completing a M.S. thesis, the student will be required to write up the research in a format acceptable to the Graduate College. Students should be sure to consult the <u>Graduate College Thesis Requirements</u>. The <u>Deposit Checklist</u> is also a useful resource. If the research findings have been published, please note that the Department of NRES requires thesis formatting as follows:

- A one-page single paragraph abstract summarizing the entire work must appear at the beginning of the document. This should summarize how the research fits into the broader knowledge of the topic area.
- An in-depth literature review must be included. This review will serve as the first chapter of the thesis and synopsize what is known about the research topic(s). Students may wish to use the literature review from their research proposal as the foundation for this chapter, and then build on this as they continue to explore the literature while conducting the research.
- Any data not reported within the body of the thesis must be included in appendices.

• Theses with multiple chapters (not including the introductory literature review) must provide a summary that integrates the scope of their experiments into a broader research theme. This summary will serve as the final chapter in the thesis.

For thesis-based M.S., well in advance of the final exam, a draft of the thesis is to be submitted to the student's adviser. The adviser will review the document and make appropriate suggestions in a timely manner. Copies of the revised draft are then provided to the members of the Examining Committee a minimum of two weeks in advance of the date of the exam. The student will then defend the research at the final examination. The Final Examination for the Master's Degree form must be completed and submitted to the Student Services Center immediately following the exam by the Committee Chair. Providing the student passes the examination and all thesis revisions are complete, the student should have the members of the Examining Committee affix their signatures the Thesis Approval form (TAF).

The student will then incorporate suggestions/recommendations for change from the Examination Committee into the document and resubmit it to the adviser and/or committee members as agreed upon at the completion of the exam. Students completing a thesis must then submit a Word Document of the thesis along with the committee signed Thesis Approval Form (TAF) to NRES Student Services Center for department format review.

The Thesis Approval Form (TAF) and thesis will be reviewed by the Director of Graduate Studies before being given to the Department Head for final approval. The department requires a minimum two weeks prior to the Graduate College's deposit deadline for approvals and format review by NRES Student Services. Students will be notified of any changes needed before Departmental Approval is granted. It is *strongly* recommended that students use reference management software such as Mendeley, Endnote, or Zotero to format citations and the bibliography. While no specific citation style is required, consistent citation style is required. Use of reference management software ensures consistent style and reduces the chances that the thesis will be returned due to formatting issues. The University will officially confer degrees after approval by the Board of Trustees of the University of Illinois. M.S. degrees are conferred in December, May, and August of each year. Diplomas will be mailed to graduates at the permanent address on record or the address on record in Enterprise Self-Service approximately six weeks later.

M.S. students, in consultation with their major adviser, are strongly encouraged to prepare one or more manuscripts for scientific publication, describing their research and results. The major adviser will provide guidance regarding the type of publication and the appropriate journal.

Graduation

Graduate degrees are conferred in May, August, or December. Consult the Graduate College Thesis and Dissertation <u>Calendar</u> for dates and deadlines for the specific term during which you plan to graduate. The only graduation ceremony at the University of Illinois is held in May, though the College of ACES also hosts a December graduation reception. Students graduating in August or December will be invited to participate in graduation the following May, when two

ceremonies are held. The campus-wide ceremony is held at the State Farm Center. A second ceremony is held by the College of ACES, also in the State Farm Center. Graduation tickets are sent by the College of ACES Placement office, directly to all those on the graduation list.

Milestones and Procedures for M.S. Non-Thesis Students

Learning Outcomes for M.S. Non-Thesis Students

Completing the non-thesis M.S. program requires a broad grasp of current scholarly understanding of natural resources and environmental sciences. In particular, students are responsible for demonstrating adequate mastery in four core areas of study:

- 1. Research Methods and Tools (2 courses)
- 2. Environmental Science (1 course)
- 3. Ecosystem Science (1 course)
- 4. Human Dimensions of the Environment (1 course)

Students must take at least five core courses (two in Research Methods and Tools, one in each of the other three) and pass a final written exam that covers them. In order to graduate, students must demonstrate, at a masters level, the following learning objectives:

- Broad grasp of current scholarly understanding of natural resources and environmental sciences,
- Understanding and application of the scientific process,
- Skills in the analysis and interpretation of relevant scientific information, and
- Proficiency in communicating scientific information

M.S. Non-Thesis Sequence of Program

Before Admission

• If NRES decides to admit the applicant, the Department recommends admission to the Graduate College.

After Admission

- Accept admission.
- Complete all of the tasks on the Graduate College Checklist for New Students
- Discuss course selection with Adviser (make appointment at https://go.nres.illinois.edu/Online_Grad_Advising_Appointment).
- Enroll in courses.

In the First Semester

- Successfully complete NRES 594.
- Enrollment in NRES 500 Seminar is recommended to gain exposure to the research of interest to the NRES department. See http://nres.illinois.edu/calendar/seminar for the schedule.
- Turn in the adviser approved plan of study the end of the semester (December 15 for fall; May 15 for spring) to NRES Student Services (nres-ssc@illinois.edu). Students whose first semester is summer must meet the fall deadline.

• During this semester, students should begin considering the capstone options and write a statement of capstone interest.

In Subsequent Semesters

- Complete coursework.
- Take the written final examination as soon as the five core area courses are completed.
- Talk with NRES faculty members and other experts about capstone ideas and decide on project choice before completing 28 hours toward the degree.
- Produce a research proposal or Graduate Internship Approval Form that earns the approval of the Program Director in order to receive permission to enroll in capstone credit.
- All NRES graduate students are encouraged to submit manuscripts for publication and paper and/or poster proposals to professional meetings.
- Complete the Annual Review of Academic Progress each spring.

In First Semester of Capstone

- Follow capstone Canvas site for information and instructions.
- Develop formal capstone proposal.
- Conduct capstone research.
- Develop task list and timeline for completion of capstone.

In Second Semester of Capstone (final semester in the program)

- Follow capstone Canvas site for information and instructions.
- Add of name to pending degree list in <u>Enterprise Self-Service</u>.
- Submit draft of capstone for feedback.
- Seek feedback on presentation.
- Revise and submit final capstone paper.
- Submit recording of capstone presentation.
- Oral final examination with the NRES Non-Thesis Standing Committee.
- Complete any required revisions of capstone project.
- Completion of NRES Exit Survey.
- Graduation.

Time Limit

The Graduate College requires M.S. candidates to complete all requirements for the degree within five calendar years after their first registration; however, within NRES there is an expectation that M.S. students who are funded (through assistantship or fellowship) complete the M.S. within 3 calendar years. Upon entry in the Graduate College, you are assigned an Expected Graduation Date (EGD), which is the last term you are allowed to enroll. If you want to enroll after your EGD, you will have to petition the Graduate College for approval of a time extension. Please note that M.S. students are **not** required to be enrolled during the semester they take the final examination, deposit the thesis, or graduate.

Final Examination Procedures for the M.S. Non-Thesis Option

All students completing the Non-Thesis M.S. must pass written and oral final examinations. The final examination for all non-thesis option M.S. students will be administered by a committee consisting of three NRES faculty members. The committee members will be assigned by the department head on a rotating basis.

The final written examination will consist of a portfolio of the student's work from across the core study areas accompanied by a reflective essay. The final written exam process will be scheduled twice a year on designated dates (one in late summer/early fall and the other in winter/early spring. Students are expected to have saved the work they submit in all core courses for later use in the final written exam process. Students are to work independently on this assignment, with no discussion or consultation with any other person. Students should take the written final examination at the earliest opportunity after completing core courses (two classes in Research Methods and Tools; one class in each of the other three core areas).

To achieve approval of the capstone project, the student is required to spend at least two semesters preparing, writing, and revising their capstone project. The oral exam will take the form of a recorded presentation on the capstone process and results. Submission of the capstone paper and presentation are followed by an oral examination and answers oral questions from the committee. In the event of unsatisfactory performance in the oral final exam, students will be given one opportunity to resubmit a revised capstone paper and presentation for the next oral exam session. A capstone presentation session will be scheduled once each fall and spring semester.

Graduation

Graduate degrees are conferred in May, August, or December. Consult the Graduate College Thesis and Dissertation Calendar for dates and deadlines for the specific term during which you plan to graduate. The only graduation ceremony at the University of Illinois is held in May, though the College of ACES also hosts a December graduation reception. Students graduating in August or December will be invited to participate in graduation the following May, when two ceremonies are held. The campus-wide ceremony is held at the State Farm Center. A second ceremony is held by the College of ACES, also in the State Farm Center. Graduation tickets are sent by the College of ACES Placement office, directly to all those on the graduation list.

Milestones and Procedures for Ph.D. Students

Learning Outcomes for Ph.D. Students

The NRES Ph.D. program is designed to facilitate the following student learning outcomes:

- Student has the ability to design and implement research that integrates core knowledge related to their discipline.
- Student can apply the research tools and techniques, data analysis techniques, and professional skills necessary for their subject matter.
- Student has written and oral communication skills appropriate for their disciplinary field.
- Student exhibits professionalism through leadership, well-developed problem-solving abilities, and ethical thinking.
- Student has skills necessary for effective college/university teaching and mentoring.

Stages of the Doctoral Program

The doctoral degree is commonly thought of in three phases or stages of progress, with each stage having unique components and milestones. These are described in Chapter 6 at https://grad.illinois.edu/handbooks-policies. The majority of NRES Ph.D. students have already earned a master's degree and enter the program in Stage II. The student advances to Stage III after passing the Preliminary Examination. In the rare case in which a student enters the Ph.D. program without completing a master's degree, the student is in Stage I until passing a qualifying examination. For NRES Ph.D. students in Stage I, submitting a committee-approved research prospectus in the third semester will serve as the qualifying exam.

Ph.D. Sequence of Program

Before Admission

- Applicant must identify a willing adviser.
- If NRES decides to admit the applicant, the Department recommends admission to the Graduate College.

After Admission

- Accept admission.
- Complete all of the tasks on the Graduate College Checklist for New Students.
- Accept appointment, if offered.
- Complete employment paperwork.
- Discuss course selection with adviser and request that the advisor notify NRES Student Services that the advising hold may be removed (by e-mail to nres-ssc@illinois.edu).
- Enroll in courses.

- Attend the NRES Graduate Student Orientation that occurs the week (usually Friday) before classes begin in August.
- Complete the Annual Review of Academic Progress each spring.

In the First Semester

- Successfully complete NRES 594, including attending the NRES seminar throughout the semester to gain exposure to the research of interest to the NRES department. See http://nres.illinois.edu/calendar/seminar for the schedule. If NRES 594 was completed as an M.S. student, then enrollment in NRES 500 (for either 0 or 1 hour) is required.
- Appoint the Advisory Committee.
- During this semester, students should begin drafting the research prospectus, which is due at the end of the third semester.

In the Second Semester

- **Register for NRES 500** every semester (for either 0 or 1 hour).
- Turn in the adviser approved plan of study the end of the semester (December 15 for fall; May 15 for spring) to NRES Student Services. Students whose first semester is summer must meet the spring deadline.

In the Third Semester

- Meet with the Advisory Committee and receive their feedback on the plan of study and draft research prospectus.
- Revise plan of study and research prospectus to meet the requirements of the committee.
- If your research involves human subjects, begin process of seeking approval from the Institutional Review Board (IRB).
- This is a good time to begin taking advantage of Graduate College <u>Grant Writing Workshops</u> and <u>Proposal Writing Resources</u>.
- Turn in the plan of study and research prospectus, both approved by the full Advisory Committee, to NRES Student Services by the end of the semester (December 15 for fall; May 15 for spring). See Appendix A for guidance on the research prospectus.
- Begin discussing the <u>Preliminary Examination</u> with adviser.

In the Fourth Semester

- Download and prepare the <u>Pre-Preliminary Examination Form</u>. This form must be submitted 1-3 months in advance of the Preliminary Examination.
- Begin writing the research proposal, which must be approved by the full Advisory Committee before the end of the sixth semester. See Appendix A for guidance on the Research Proposal.
- Complete coursework.
- Pursue funding for research (http://nres.illinois.edu/graduate/funding-your-research).
 - » The Preliminary Examination should be taken in the 4th or 5th semester and

must be passed before the end of the 6th semester.

In Subsequent Semesters

- Register for NRES 500 every semester (for either 0 or 1 hour).
- Enroll for the semester in which the Preliminary Examination will occur.
- Continue dissertation research.
- Consult the Graduate College Thesis information (http://www.grad.illinois.edu/thesis/development) to become familiar with copyright issues and format requirements.
- Draft and revise manuscripts that will become the dissertation.
- Submit manuscripts for publication.
- Submit paper and/or poster proposals to professional meetings.
- Complete the Annual Review of Academic Progress each spring.

As the Thesis Nears Completion

- E-mail <u>nres-ssc@illinois.edu</u> to request instructions and forms.
- Check the Graduate College Thesis and Dissertation <u>deadlines</u>.
- Review Graduate College requirements for the Final Examination Committee.
- Add name to pending degree list in Enterprise Self-Service.
- Submit of thesis/project to Examination Committee.
- Schedule final examination and advertise thesis seminar.
- Thesis seminar, followed by comprehensive exam and defense of thesis/project.
- Submit thesis to NRES Student Services for department format review and Department Head approval. (*Firm* submission deadline of two weeks prior to the <u>deposit deadline</u>.)
- Submission of thesis to the Graduate College.
- Completion of <u>NRES Exit Survey</u>.
- Return of all office and lab keys to secretary. Graduation.

Time Limit

NRES follows the Graduate College limits on <u>time to degree</u>. The easiest way for a doctoral student to check this time limit is to log into <u>Enterprise Self-Service</u>, navigate to Registration & Records \rightarrow Student Records and Transcripts \rightarrow View Student Information. On that page, find the Expected Graduation Date. Enrolling or graduating after that date will require an approved <u>petition</u> for a time extension.

Enrollment in NRES 500 Graduate Seminar

NRES requires graduate students to enroll in NRES 500 Graduate Seminar each semester they are registered. Students have the option of enrolling for 0 or 1 hour, which does count toward full-time enrollment. This requirement is an effort to enhance the professional development of graduate students by exposing them to academic research and methods outside of their immediate experience and creating an important networking opportunity within the department. Exceptions to this requirement are rarely granted. Any student wanting to request an exception to this requirement (by enrollment in the online section or exemption for the semester) must submit a Request for Exception to the Requirement to Enroll in the Campus Section of NRES 500 form.

Committee Composition

The Ph.D. Advisory Committee must include at least four voting members, three of whom must be members of the Graduate Faculty and two of whom must be tenured members of the faculty. NRES requires one member to be an NRES tenure-track (not necessarily tenured), faculty member. Additionally, to avoid potential conflicts of interest, the student's advisor, together with any committee members who directly report to the student's advisor, should not compose a majority of the Advisory Committee. Non-voting members, such as an external reader, a member of the faculty who is off campus, or others who can make a significant contribution to the research, may be appointed. For any non-member of the Graduate Faculty, a letter of justification is required, along with a current CV (\leq 6 months). The committee should include faculty members from more than one area of specialization. The committee requirements set by the Graduate College are explained in Chapter 6 at https://grad.illinois.edu/handbooks-policies. It is strongly recommended that students meet with their Advisory Committee at least once annually.

Preliminary Examination

You must be registered in the semester in which you take the preliminary exam.

The preliminary exam is required by the Graduate College (https://grad.illinois.edu/handbooks-policies) and is meant to be a test of the student's knowledge of the basic content areas that are foundational to the research subject matter. Students should take their preliminary exam after they have completed the bulk of their course work and are readying themselves to devote most of their time to independent research. Students are expected to prepare for the exam after meeting with their examining committee, which will outline the scope of the exam within at least three basic content areas for mastery. The intent of this effort is that, through the process of review, the student will develop a new, more unified understanding of how core knowledge areas inform the student's area of inquiry. Ideally, the exam should be taken during the 4th or

5th semester of the Ph.D. program. Students must take the exam within 6 semesters in residence (not including summers) or request a waiver from the NRES Student Services including a justification signed by their adviser.

The exam will include written and oral portions. The written exam should be completed at least one week prior to the oral exam, and the committee should have access to the written answers for each member's questions at that time. The student in consultation with the student's adviser and advisory committee will determine the scope and specific topics to be covered by the written exam. The format for the written exam will consist of questions prepared by each member of the examining committee. These questions will be given to the adviser to administer in the order of the adviser's choosing.

Planning for the Preliminary Examination

Students will work with their adviser to develop an exam plan that will outline the core content areas for coverage, timing, and steps for exam administration. This preliminary exam plan should include deadlines for written exam completion and the date for the oral exam. The plan must be submitted to the NRES Student Services with the adviser's signature one month before the written exam begins. The Pre-Preliminary Examination Form covering the plan for the preliminary exam is available as a PDF. Students should download this form 3-4 months in advance of the oral portion of the preliminary exam and solicit input about the exam format from their adviser and committee members.

The required information in this form includes:

- 1. Date for the oral exam
- 2. Director of dissertation research (the student's adviser)
- 3. Oral exam committee chair (a committee member, NOT the student's adviser)
- 4. Members of the student's committee and their departments along with a brief description of the expertise they bring to the committee
- 5. Other committee members
- 6. Core content areas to be covered in the exam
- 7. A description of the written exam format, including the following:
 - a. Types of questions to be asked (set by each member for their questions) i Open book essay, short answer, or review questions
 - ii Closed book essay or short answer questions
 - iii Technical, analytical questions that require numerical solution
 - b. Duration for each set of questions (set by each member for their questions)
 - c. Location where the exam should be completed

You must submit a completed and committee approved <u>Pre-Prelim Examination</u> Form to NRES Student Service at least one month before the date of your exam.

Appointing the Preliminary Exam Committee

Once the committee has agreed to a preliminary examination date, students must e-mail

nres- ssc@illinois.edu to request the appointment of the Preliminary Examination Committee. Unless the student has a special circumstance (such as wanting to appoint a member of the committee who is not on the faculty of the University of Illinois at Urbana-Champaign), the information needed to appoint the committee is on the Pre-Prelim Form.

You must provide NRES Student Services with all of the required information for the committee request form so that it can be submitted to the Graduate College at least three weeks before the date of your exam.

Chairing and Administering the Oral Portion of the Preliminary Exam

Prior to the exam, the student's guidance committee, in consultation with the adviser, will identify a committee member to serve as the preliminary examination chair. The exam chair will act as a neutral intermediary between the student, the adviser, and the other members of the committee. The role of the chair will be to convene the committee, administer the exam, and submit results certifying the outcome to the NRES Student Services. The chair will receive copies of the written exam questions and student responses at least one week before the oral exam and will distribute copies to the committee members. The chair's participation is intended to: help standardize the oral exam process, prevent any party from unduly or unfairly dominating the exchange, allow the adviser to participate in the exam more fully, and raise difficult questions that advisers and committee members who are close to the student may overlook or find difficult to broach. The two- to three-hour oral exam will pertain to the student's responses on the written exam as well as general knowledge within the student's core areas of emphasis.

At the completion of the oral exam, the student will leave the room as the committee decides whether the student has passed the examination. The decision for satisfactory performance must be unanimous. A satisfactory performance on the written and oral exam qualifies the student as a Ph.D. candidate. If a student does not pass a preliminary exam, the committee may:

- 1. Adjourn with its decision deferred for a period of time not exceeding six months (no later than 180 days **after the appointment of the committee**, <u>not</u> the date of the examination).
- 2. Record a failure but grant the student another opportunity to take the examination after completing additional course work, independent study, or research. In this case, the Graduate College will be informed of the failure, and the committee chair will indicate that the student should be given a second examination. The second exam must occur within 180 calendar days of the first date of the exam, and the outcome of the second exam must be pass or fail.
- 3. Determine that the failure is final and the student will not be allowed to retake the exam.

Only the voting members of the dissertation committee sign the Preliminary Exam Result Form (PER). The result of the examination must be promptly submitted to the NRES Student Services, and will be immediately reported to the Graduate College. If the Graduate College is not informed of the result of the examination within six months after the scheduled examination date, the committee is considered to be dissolved, and a new committee must be appointed before the examination occurs. The newly appointed committee may, but does not have to, consist of the same members as the dissolved committee.

Defending a Research Proposal

Students pursuing a Ph.D. must submit and defend a research proposal no later than the end of their sixth semester. The proposal defense, in most cases, should occur after successful completion of the preliminary examination. The student must provide the proposal to the advisory committee at least 14 days, or committee-arranged date, prior to a proposal defense meeting. The format of this proposal is described on page 45 and should be determined in consultation with the student's advisory committee. The purpose of the proposal is to provide the student's advisory committee with enough information to determine whether successful completion of the proposed research would be sufficient for a Ph.D. in Natural Resources and Environmental Sciences.

Preparation of Dissertation

Students should refer to the <u>Deposit Checklist</u> for guidance on the dissertation and preparing for graduation. When the dissertation is completed, the student will be required to write up the research in a format acceptable to the Graduate College. If the research findings have been published, please note that the Department of NRES requires thesis formatting as follows:

- A one page, single paragraph abstract summarizing the entire body of work must be included. This should summarize how the research fits into the broader knowledge of the topic area.
- An in-depth literature review must be included. This review will serve as the first chapter of the dissertation and synopsize what is known about the research topic(s). Students may wish to use the literature review from their research prospectus as the foundation for this chapter, and then build on this as they continue to explore the literature while conducting their research.
- Any data not reported within the body of the dissertation must be included in appendices.
- Dissertations with multiple chapters must provide a summary that integrates the scope of their experiments into a broader research theme. This summary will serve as the final chapter of the dissertation.
- The formatting must be consistent throughout the document, meeting Graduate College format requirements. If the student is including previously published work, this typically requires reformatting to ensure that items such as any figure and heading numbering, page numbers, line spacing, etc. are consistent throughout the dissertation.

It is *strongly* recommended that students use reference management software such as Mendeley, Endnote, or Zotero to format citations and the bibliography. While no specific citation style is required, consistent citation style is required. Use of reference management software ensures consistent style and reduces the chances that the thesis will be returned due to formatting issues.

All of the following documents will be required when depositing a dissertation:

- One committee signed <u>Dissertation Approval Form</u> (DAF)
- One ProQuest/UMI Release Options
- Proof of completed AIDE Exit Survey (certificate of completion accepted by fax or email) https://www.grad.illinois.edu/exitsurvey/
- Proof of completed Survey of Earned Doctorates (certificate of completion accepted by fax or email) https://sed-ncses.org/login.aspx?redirect=true
- (If applicable) One copy of each permission letter to reprint copyrighted material (accepted by fax or email)
- One Data Transfer Form (request from NRES Student Services)
- NRES Graduate Student Exit Survey (request from NRES Student Services)

The <u>Graduate College Thesis & Dissertation page</u> and the <u>Graduate College Thesis</u> Requirements are useful resources.

During the last semester, students are responsible for being sure that their names have been added to the degree list by using UI Integrate. If unable to apply for graduation using UI Integrate, the student should contact NRES Student Services for assistance.

Well in advance of the final oral exam, a draft of the dissertation is to be submitted to the student's adviser. This draft should comply with the <u>Graduate College format guidelines</u> and the <u>NRES format requirements</u>. The major adviser will then review the dissertation and make appropriate suggestions. Once these suggestions have been incorporated into the draft, it is to be circulated to the student's Examination Committee for review. All members of the final Examination Committee should receive the dissertation two weeks in advance of the date of the examination. The Examining Committee's recommendations for change will be presented to the student at the final exam. The dissertation is due to NRES Student Services for department format review two weeks prior to the <u>deposit deadline</u> at the Graduate College. This is a *firm* deadline.

Exit Seminar

A seminar presented at the end of the student's program is a report on the dissertation research. This 50-minute seminar is presented immediately prior to the thesis defense, and is open to the public. The student is responsible for contacting the NRES Student Services at least two weeks prior to the defense to arrange for a room reservation and advertising of the seminar.

Final Examination

Doctoral students must be registered in the semester in which they take the final exam.

When the student's dissertation is nearing completion, the student should contact NRES

<u>Student Services</u> to request instructions on procedures and necessary forms. One task the student must request is the appointment of the Doctoral Final Examination Committee. The Graduate College rules governing committee composition and the exam process are outlined in Chapter 6 of the <u>Graduate College Handbook</u>.

Ph.D. students must be enrolled (typically in NRES 599) in the semester in which the final exam is taken, regardless of when the thesis will be deposited. Refer to the Graduate College academic <u>calendar</u> for details. Usually the Final Examination Committee consists of the same members as the student's Advisory Committee.

The final exam and exit seminar take place on the same day. The seminar is 50 minutes, open to the public. After the seminar, the committee and student may move to a smaller room for the examination. The time and date of the final seminar and exam shall be communicated to NRES Student Services in order to be announced to the faculty of the department, at least two weeks prior to the exam. Before the exam, a member of the committee must sign for and pick up the Final Examination Result Form (FER) and Thesis Dissertation Approval Form (TDA) from the NRES Student Services Center. Traditionally, this examination is described as the "the defense of the dissertation," and generally the research on which the dissertation is based provides the starting point of questions posed. However, it will also challenge the student's general knowledge and ability to integrate their research into the wider framework of their discipline.

It is the general practice for questioning in the exam to pursue lines of thought and argument from data and concepts that have contributed to the research and to its critical evaluation by the student. This broadening of the base is acceptable for the purpose both of "defending the dissertation" and of determining the intellectual qualifications of the candidate for the degree. Inasmuch as the Ph.D. degree is conferred on the basis of originality, independence of thought, and capacity to synthesize and interpret, the oral examination generally deals more with principles and historic perspective than with factual data. The student is pursuing an academic degree of high order, and the final oral examination should be conducted on a corresponding plane of intellectual inquiry. The examination itself is not a routine exercise to be taken lightly by the student or the Examination Committee, but one on which depends the issue of qualification for a degree having the broad connotation of Doctor of Philosophy. In judging the qualification for a degree of this type, the Committee is responsible for evaluating not only the quality of the research presented, but also the manner of its defense and the evidence provided of associated intellectual capacity. The student is recommended to be prepared well in advance of the final examination. To clarify for the student the expectations of the committee members, the student is urged to visit with each committee member prior to the examination.

The possible outcomes of this examination are pass with no revisions required, pass pending revisions, and fail. If the outcome is fail, the committee decides:

1. That the failure to pass should be recorded, but that the candidate should be given another opportunity after completing additional coursework or research. In this case, the certificate, noting failure, should be signed and returned with a brief note from the Chairperson indicating that the Committee believes the student should

have a second examination.

2. That the failure is final. In this case, the certificate should be signed and returned.

Immediately after the exam is completed, the decision is marked on the Final Examination Result Form and, if the Committee is not requiring substantial revision of the dissertation, the members of the Committee sign the Final Examination Result Form (FER) and the Dissertation Approval Form (DAF). The adviser returns both forms to the NRES Student Services Center.

The Student Services Center will upload the forms into the student's file and submit the originals to the Graduate College.

Submission of the Dissertation

If the draft submitted to the Examination Committee is acceptable, the members can sign the Dissertation Approval Form immediately following the final examination. If revisions are required, signatures can be collected at a later date after the examination. Once revisions are satisfactory, a Word Document of the dissertation and the Dissertation Approval Form must be submitted to the Student Services office for format approval, as required by the Graduate College. In addition, the Department of NRES requires some additional format requirements. See guidelines under Preparation of Dissertation. A properly formatted dissertation is required.

Once the <u>format</u> is approved, the dissertation and Dissertation Approval Form will be electronically submitted to the NRES Department Head for review, approval, and signature. The student will be notified when the dissertation is ready to be electronically deposited. Allow a minimum of two weeks for the Graduate Coordinator and Department Head approvals. At this time, the student will be asked to complete the NRES Graduate Student <u>Exit Survey</u>.

Acceptance of the dissertation by the Graduate College marks the official end of the graduate program, regardless of when the degree is conferred. The University will officially confer the degree after approval by the Board of Trustees of the University of Illinois. Ph.D. degrees are conferred in December, May, and August of each year. Diplomas will be mailed to graduates approximately one month later to the permanent address on record or the address provided by the student when applying to graduate.

Graduation

Graduate degrees are conferred in May, August, or December. Consult the Graduate College Thesis and Dissertation <u>Calendar</u> for dates and deadlines for the specific term during which you plan to graduate. The only graduation ceremony at the University of Illinois is held in May, though the College of ACES also hosts a December graduation reception. Students graduating in August or December will be invited to participate in graduation the following May, when two ceremonies are held. The campus-wide ceremony is held at the State Farm Center. A second ceremony is held by the College of ACES, also in the State Farm Center. Graduation tickets are sent by the College of ACES Placement office, directly to all those on the graduation list.

Appendix A: Outline of Research Proposal or Prospectus for Program Milestones

Students pursuing the Ph.D. or the M.S. thesis option are required to submit committee approved research proposals during their program. Specifically, Ph.D. students are required to submit a research prospectus by the end of the third semester and a full research proposal by the end of the sixth semester, and M.S. students are required to submit a research proposal no later than the end of their second semester. This Appendix provides guidance for writing these proposals.

Ph.D. Prospectus and M.S. Proposal

The research prospectus for Ph.D. students and the research proposal for M.S. students should be submitted for committee approval prior to the initiation of research. Therefore, it is not expected that this document should contain extensive preliminary results or completed experiments. An appropriate length for this document is 8-15 single-spaced pages. The M.S. research proposal and Ph.D. research prospectus should include the following sections.

<u>Title</u> – A clear, concise statement of the subject of the research. The title, used by itself, should give a good indication of what the project is about.

<u>Previous Work</u> – A review of the current state of knowledge on the problem, how it falls short of meeting current and future needs, and how the proposed work will extend present knowledge (literature citations should be included throughout the review of prior work, and full citations should be listed at the end of the project outline. Use of reference management software such as Mendeley, Endnote, or Zotero is strongly recommended). This literature review section should be a narrative that leads to a knowledge gap – critical information that is missing that will be addressed in the proposed research project. The conclusion of this section should lead the reader directly into the next two subsections of justification for further work and the statement of objectives for the proposed work.

<u>Justification</u> – This is a concise statement of the need for the proposed research derived from the knowledge gap outlined in the literature review above. State the importance of the topic in terms of conservation or management of natural resources, sustainability, environmental quality, or other appropriate framework. The justification may also indicate the reasons for doing the work at the proposed location at this particular time, and potential benefits to stakeholders, the scientific community, and the public at large.

<u>Objectives</u> – A clear, complete, and logically arranged statement of the specific objectives of the project that will address the need for research identified above. Each objective should be identified by a number.

<u>Procedures</u> – A statement of the essential working plans and methods to be used in attaining each of the stated objectives. The procedures should correspond to the objectives and follow the same order. Phases of the work to be undertaken immediately and concurrently should be designated. The location of the work and the facilities and equipment available and needed should be indicated. The statement on procedure should indicate that the research has been carefully planned

and provide for changes when they are necessary to improve the work. This section also describes the data that will be collected, and the statistical analyses that will be used to analyze the data. This section should include references to appropriate published literature for the methods that are described.

<u>Outcomes or Expected Results</u> – This section indicates how the data collected will fit into hypotheses derived from prior research, or how the proposed research might address the knowledge gap that was identified in the literature review.

<u>Timeline</u> – This section is a list or table that contains an estimate of the time required to complete the research planned and publish the results. The timeline should be presented as a series of tasks (derived from the Objectives or Procedures sections), where the approximate timing for completion of each task is indicated.

<u>References</u> – Citations should be included in a complete and consistent format that is suitable for publication in a scientific journal. It is strongly recommended that students use reference management software such as Mendeley, Endnote, or Zotero to format citations and the bibliography. While no specific citation style is required, consistent citation style is required. Use of reference management software ensures consistent style, and will be a valuable skill for later academic endeavors.

Ph.D. Proposal

The full dissertation proposal submitted by Ph.D. students for committee approval before the end of the sixth semester should be considered a transitional document between the research prospectus and the dissertation. The purpose of the proposal is to provide the student's advisory committee with enough information to determine whether successful completion of the proposed research would be sufficient for a Ph.D. in Natural Resources and Environmental Sciences. The proposal should include a well-developed literature review and a detailed methods section for each proposed component or chapter of the dissertation. This document should reflect any changes made to the planned research since the completion of the research prospectus. It may contain preliminary results or even draft versions of completed dissertation chapters. Students should consult their advisory committee to determine the appropriate content and length for this document, but the recommended format is one that closely matches the format of the planned dissertation, with a separate section for each planned chapter. Some students will have already written a lengthy and detailed dissertation proposal as the research prospectus. In these cases, the advisory committee may accept an updated version of the original research prospectus, which reflects any changes to the research plans since the approval of the prospectus.