

Graduate Program
in
Environmental Science
Student Handbook



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Introduction

Purpose of this Handbook

The purpose of this handbook is to answer those questions which we anticipate you will need answered as you enter and progress towards your MS degree or Graduate Certificate. It will not necessarily address every issue that will arise but we hope it is a good start. It also presents the policies that affect your progress and success in our graduate program. **We expect you to be familiar with these policies and abide by them.**

There are two other publications that you can and should turn to for assistance. The [Graduate Catalog](#) describes policies and procedures applicable to all graduate students at TU, regardless of their program of study. A new catalog is produced each year and you should **download the PDF version** of the edition that comes out the year **you begin** your program of study. In general, you are only required to meet the graduation requirements stated in that edition of the graduate catalog to obtain your degree. If changes in the program are implemented during your tenure in the program and you should wish to “adopt” a new catalog relative to the requirements, you must have this change approved by the graduate program director and notify the graduate school of the change. You should not assume that you can adopt new requirements; permission is required.

This handbook reiterates some of the policies and procedures described in the *Graduate Catalog* and discusses how these policies and procedures affect Environmental Science Graduate students. The handbook also outlines policies and procedures regarding coursework, thesis research and the research practicum that are specific to our program.

The other publication is the “[Graduate Student Resource Guide](#)” published by the Graduate Student Association which is full of helpful information which will enhance your quality of life as a graduate student. It is recommended that you refer to it for information on general campus life, such as library, health & wellness, One Card, how to register for courses, and parking information. The Office of Graduate Studies also maintains “[Guidelines for Preparing Theses and Dissertations](#)” which will be very important for those students in our program wishing to complete a research thesis Masters.

Revisions to this Handbook – A Request

It is our goal that this handbook will be useful to students (and their advisors). We anticipate regular updates. If you detect errors, omissions or find certain sections unclear, please let Ms. Linda Morton, the Administrative Assistant for the Environmental Science and Studies Programs, know.

ADMINISTRATIVE ORGANIZATION

The Office of Graduate Studies

The Office of Graduate Studies (OGS) is located on the third floor of the Administration Bldg., Room 301, and can be reached at gradstudies@towson.edu or 410-704-GRAD (4723). The head of the Graduate School is the Dean of Graduate Studies.

The OGS maintains a [web site](#) with information on subjects such as graduation requirements, thesis preparation guidelines, records and transcripts, how to register and services available to you as a graduate student.

After admission to the Environmental Science Graduate Program, students normally will not have much contact with the OGS. If questions or problems arise while you are trying to complete your degree, you should first contact your faculty advisor, and then, if necessary, the Environmental

Science Graduate Program Director or the program assistant (Ms. Linda Morton) who will then contact OGS, if need be.

Administrative Structure: Environmental Science Graduate Program

The Environmental Sciences Graduate Programs is offered through the Environmental Science and Studies (ESS) Program at Towson University. The Interim Director of ESS is Dr. Joel Moore.

Director: The Environmental Science Graduate Program Director is Dr. John Sivey (jsivey@towson.edu). In consultation with other faculty members, Dr. Sivey is responsible for:

- Assigning faculty advisors
- Keeping graduate students informed about changes in policies and procedures (usually via e-mail)
- Scheduling graduate level courses
- Reviewing proposals for new courses and changes to existing courses
- Approving/disapproving requests for courses to be transferred from other institutions
- Monitoring progress of students towards their degree and assisting as necessary
- Mediating in conflicts and disputes between thesis research advisors and their advisees
- Assisting students in identifying thesis defense moderators
- Approving/disapproving requests for exceptions to stated requirements, policies and procedures in unusual circumstances (or, where appropriate, petition the Dean of Graduate Studies to grant certain exceptions)
- Reviewing transcripts of students applying for graduation to ensure degree requirements are met

In general, if students have questions relating to completion of degree requirements they should contact the Graduate Program Director. The director should be able to answer their question or obtain an answer from the appropriate authority.

The program director reports directly to the Director of the ESS Program. The director works closely with the departments whose course offerings are part of the Environmental Science graduate program curriculum (Geography and Environmental Planning, Biological Sciences, Chemistry, Mathematics, and Physics, Astronomy and Geosciences) to ensure that the interests of Environmental Science graduate students are represented as course scheduling decisions are made.

Support Staff: Ms. Linda Morton is the Administrative Assistant for the program (Science Complex – Room 5301/ 410-704-4920, lmorton@towson.edu).

Ms. Morton is key to our continued growth and success. She will assist you as best she can when the need arises but be mindful of her many responsibilities. She is the sole staff member for the entire Environmental Science and Studies Program.

The Graduate Student Association

All graduate students are automatically members of the “GSA.” Offices of the GSA are in the Psychology, Room 204 (410-704-3967). The GSA holds an orientation a few days before the

beginning of the fall and spring semesters. We urge you to take advantage of these orientations which can ease your entry into the TU community. For information on this group and to register for the orientation, go to their [web site](#) and follow them on Twitter, Facebook and Instagram. The GSA provides students with some funds for research and for travel to meetings to present papers (see [Financial Support for Research](#), below).

GENERAL ACADEMIC POLICIES AND PROCEDURES

The Environmental Science graduate program follows the policies and procedures described in the most recent version of the [Graduate Catalog](#). Below are brief summaries of the relevant sections from the catalog along with links to the corresponding page.

Admission and Conditional Status

At the time of application, admitted students are granted either a full admission or conditional admission. Students who are admitted conditionally must complete the stipulations presented in their admission letter to have their status changed from conditional to full.

Students who are conditionally admitted pending receipt of their undergraduate degree are responsible for having an official copy of their final transcript sent to the graduate school as soon as possible after their graduation. <https://catalog.towson.edu/graduate/procedures-policies/application-graduate-admission/>

Full-time vs. Part-time Status and Maximum Course Load

Students registering for 9 or more graduate units in a semester are considered full-time students; those students taking 6 to 8 units are half-time and students with <6 units are less than half-time and therefore ineligible for financial aid. <https://catalog.towson.edu/graduate/procedures-policies/registration-fees/>

Suggested courses of study for full-time and part-time students are presented along with the discussion of program requirements in [Appendix 8 & 9](#)

Students cannot register for more than 12 unit hours per semester.

Academic Standing

“Good academic standing” requires a grade point average of ≥ 3.0 in all graduate courses. Students whose GPA falls below 3.0 are placed on academic probation (they receive a warning letter). Students on probation must raise their GPA to 3.0 or above within the next 9 units. Students who do not raise their GPA in this manner will be dismissed from the graduate program. <https://catalog.towson.edu/graduate/procedures-policies/policies-academic-progress/academic-standing/>

Note: Graduate courses taken at Towson prior to your admission to our program count as part of your graduate GPA even though these courses do not necessarily count towards your graduate degree.

Students cannot graduate with more than two C grades in all the courses being counted towards their program of study. If a student should receive more than two C grades among their electives, they have to either repeat these courses (to raise the grade) or take an additional elective which can substitute for an elective in which a C grade was received. Taking (and receiving a grade of B or better) in an additional course that can count towards your degree does not replace, on your records, one of the courses in which you received a C. Rather, the new course, with the new grade, is counted towards the degree and one of the courses in which you received a C is not. Unlike the electives for

which another elective can be substituted, all four core courses are required to graduate from the program. <https://catalog.towson.edu/graduate/procedures-policies/graduation-requirements/>

The Seven Year Rule

All requirements for the degree must be completed within seven years of initial entry into the program. This time limit includes all coursework and thesis completion. The ‘count’ towards the seven years begins with the date of registration for the earliest course which is applied towards the degree. That is, if you take graduate courses prior to entering our program and wish to apply these units towards your degree (either because you took these courses at Towson as a non-degree student or you wish to transfer these courses to Towson from another institution), the start of the seven year period begins with the date you enrolled in these courses (even though you were not yet part of this graduate program). <https://catalog.towson.edu/graduate/procedures-policies/graduation-requirements/>

Continuous Enrollment Policy

Students are expected to register for courses on a regular basis throughout their tenure in the program. If, during the early stages of your graduate career, two consecutive semesters are missed, students must be reactivated for enrollment. If two academic years elapse during which a student does not enroll in courses for graduate credit, the student is considered to have abandoned work on their degree and they must reapply for admission to the program if they wish to continue work on their degree. <https://catalog.towson.edu/graduate/procedures-policies/registration-fees/>

Should a student reactivate their status after a lapse in enrollment they need to be aware that their seven-year rule “clock” was not suspended during the inactive semesters.

Students who are involved in completing a research thesis must remain actively enrolled every semester (except summer and minimester) after they enroll for thesis units until the work is completed, submitted and approved by registering for at minimum one unit of Thesis Continuum (ENVS 899) every semester until the project is completed. Should a student miss a semester of registration he/she will have register for the missed semesters after the fact. <https://catalog.towson.edu/graduate/procedures-policies/thesis-dissertation/>

Taking 500-level Courses

Graduate students are permitted to take three 500 level courses towards completion of their degree requirements. Some upper level (i.e., 300 and 400-level) undergraduate courses are cross-listed in the *Graduate Catalog* as 500-level courses that may be taken by a graduate student (e.g., BIOL 456, Ornithology, a senior level undergraduate elective is also listed in the *Graduate Catalog* as BIOL 556, Ornithology). Although they attend class with upper-class undergraduates, graduate students are given course requirements that exceed those for undergraduates. These additional requirements are determined by the instructor and will vary, depending on the course and the instructor. The additional requirements of graduate students should involve a deeper exploration of the science of the subject. In contrast, courses at the 600-level and above are designed for and taken almost exclusively by graduate students. <https://catalog.towson.edu/graduate/procedures-policies/graduation-requirements/>

Students should not take a course at the 500-level which repeats a course taken as an undergraduate at the 300 or 400-level at TU or elsewhere. An exception may be made if the student obtained a D or F or W grade as an undergraduate student if the repeated course is required by the graduate program. Note, however, that the repeated course, when taken at the 500-level will not normally count towards graduate degree requirements. Note also that for TU undergraduate students, the grade at the 500-level will *not* replace the grade obtained as an undergraduate. Any student wishing to take a course at the 500 level which they took at the 300-400 level as a

undergrad must first obtain the consent of their advisor and written permission of the Graduate Program Director.

Transferring Coursework

Coursework Taken As a Non-Degree Student: On occasion, students begin their graduate work as “non-degree” students. If a non-degree student eventually decides to obtain a degree, it is Graduate School policy that only 12 units worth of courses taken as a non-degree student can count towards the degree. It is important to remember that the “seven year rule,” the amount of time available to complete a degree, will “run” from the date of the “earliest taken” course that you wish to apply towards your degree. For example, if you take a graduate Math course in 2015 and wish to apply it towards your degree which you started in 2019, you will have to complete your degree requirements by 2022 (the “clock” started in 2015 with the Math course).

<https://catalog.towson.edu/graduate/procedures-policies/graduation-requirements/>

Courses at other University System of Maryland Institutions: Students are eligible to take courses at other University System of Maryland schools, including the University of Maryland at College Park and the University of Maryland – Baltimore County, both of which are nearby. If the course is approved, by your Advisor and the Environmental Science Graduate Program Director, to count towards your degree, both the units and the grades will transfer to your TU record (i.e., your grades will figure into your TU GPA). Before registering for a course at another USM institution, students should visit the Graduate School office and have their staff review both the regulations regarding this type of enrollment and registration procedures. Your advisor and the program director will want to review course descriptions and the syllabus.

Coursework from Other Institutions: The Graduate Catalog states that “a maximum of up to 50 percent of the units required for a degree program may be transferred [from other institutions], subject to approval by the program director.” Units can be awarded for courses similar to those courses we offer. How many units will be approved for transfer is at the discretion of the Graduate Program Director and will depend on the nature of the courses involved, where the course was completed obtained, and how recently the course was completed.

<https://catalog.towson.edu/graduate/procedures-policies/policies-academic-progress/transfer-credit/>

Dropping a Course and Withdrawing from a Course

At the start of the semester, there is a brief “change of schedule” period, usually encompassing the first 7-10 days of classes. If a student drops a course during this period, the course will not appear on the student’s transcript. To drop a course, students can simply use Towson Online Services (registration site).

After the change of schedule periods ends, there is a several week period during which time a student can “withdraw” from a course. The last date to do so is listed on the academic calendar. The course will appear on the student’s record with a grade of “W.” A student can withdraw from a course through your Student Center before the term deadline. Students who receive financial aid should review the policy on [Drops and Withdrawals](#).

Students with documented medical problems, family emergencies or verified circumstances beyond their control may petition the Dean of the Graduate School to withdraw and take a grade of W after the normal withdrawal deadline date. A letter must be sent to the Dean of the Graduate School in which the student details the request, provides the justification, and submits supporting documentation (e.g., letter from physician). <https://catalog.towson.edu/graduate/procedures-policies/policies-academic-progress/course-withdrawal/>

Repeating Courses

Courses for which a grade has been awarded can be repeated once (unless special circumstances, i.e., conditional admission or the course description precludes this option). If a student repeats a course, the higher of the two grades obtained is included in the GPA but both grades appear on the transcript. The student gets only one set of units for the course, assuming the course is passed.

Courses that conditionally admitted students take in order to change their status to full admission **cannot** be repeated in order to meet the minimum GPA requirement for a change of status from conditional to full admission. Grades from similar or identical courses at other institutions will not replace grades for courses taken at TU. <https://catalog.towson.edu/graduate/procedures-policies/policies-academic-progress/repeating-courses/>

Code of Conduct/Academic Honesty

Towson University has a Code of Conduct to which all members of the community are expected to comply. <https://catalog.towson.edu/graduate/appendices/appendix-e-code-student-conduct/>

The Towson University Code of Conduct prohibits all forms of dishonesty, including cheating and plagiarism. Plagiarism is the unacknowledged use of another's words or ideas. The most flagrant type of plagiarism is turning in someone else's work as one's own. But plagiarism also includes borrowing another author's ideas, as part of an argument you are developing in your written work, without documenting the source properly. Cheating on a test or plagiarism in any assignment will result in a failing grade for the course and could result in expulsion from the program.

POLICIES AND PROCEDURES RELATING TO THE ENVIRONMENTAL SCIENCE GRADUATE PROGRAM

Program of Study: Coursework Requirements for Environmental Science MS

The official requirements for the program are in the *Graduate Catalog* and may be updated more often than this handbook. <https://catalog.towson.edu/graduate/degree-certificate-programs/jess-mildred-fisher-science-mathematics/environmental-science-ms/>

1. Thirty (30) units worth of coursework consisting mostly of 600 level and higher courses; no more than three courses at the 500 level can apply towards the degree. Thesis students earn 6 units upon completion and successful defense of their thesis. Non-thesis M.S. students earn 3 units from completing their Research Practicum. All students must successfully complete one of these two capstone experiences before a degree can be awarded.

Students completing a research thesis will register for 6 units of ENVS 896 across multiple semesters as determined by their advisor. Students completing a non-thesis MS must register for ENVS 798 (Research Practicum).

Should a student wish to take an elective which is not listed among those accepted for their concentration and have it count towards the degree, they must request permission to do so from the Graduate Program Director **before** they take the class using the "Course approval for off-list courses" form found in Appendix 6 or [online](#). There is no guarantee that requests for permission will be granted.

2. Required courses: ENVS 601 Topics in Environmental Geology (4 units)
 ENVS 602 Environmental Chemistry (4 units)
 ENVS 603 Environmental Law and Regulation (3 units)

ENVS 604 Ecosystem Ecology (4 units)

3. Elective courses: 12 units of elective coursework are required for students in the non-thesis track; 9 units are required for students in the thesis track. The elective courses must be appropriate for the area of concentration and should be approved by the academic advisor. These courses are presented in [Table 1](#).

Program of Study: Coursework Requirements for Graduate Certificate in Environmental Science

The official requirements for the program are in the *Graduate Catalog* and may be updated more often than this handbook. <https://catalog.towson.edu/graduate/degree-certificate-programs/jess-mildred-fisher-science-mathematics/environmental-science-certificate/>

Students pursuing a Graduate Certificate must complete 18 units. Two of the core courses (see above) must be completed and additional electives, selected in consultation with an advisor, from one concentration (see [Table 1](#)). No more than three 500 level courses can be counted towards the certificate.

Additional Electives: Additional electives may be developed and added to the curriculum during a student's tenure in the program. All students in the program are permitted to take any ENVS coded elective and count it towards their degree.

Should a student wish to use a graduate course from another Towson graduate program that is not on the list of electives, s/he should apply for permission to include it using the "Course approval for off-list courses" form found in Appendix 6 or [online](#).

Table 1: Electives approved for each concentration in Environmental Science.

Course #	Topic	Water Resource Mgmt. & Asses.	Biological Res. Mgmt.	Wetland Asses. & Mgmt	Env. Spatial Analysis
BIOL 506	Limnology (4)	X	X		
BIOL 510	Conservation Biology (4)		X	X	
BIOL 518	Microbiology (4)			X	
BIOL 532	Vascular Plant Taxonomy (4)		X		
BIOL 535	Plant Ecology (4)		X	X	
BIOL 555	Fish Biology (4)	X	X		
BIOL 556	Ornithology (4)		X		
BIOL 561	Entomology (4)		X		
BIOL 567	Herpetology (4)		X		
BIOL 601*	Current Topics in Biology (1-4)	X	X	X	X
BIOL 603	Data Analysis and Interpretation for Biologists (3)	X	X	X	
BIOL 609	Community Analysis and Bioassessment (3)	X		X	
BIOL 610	Population and Community Biology (3)	X	X		
BIOL 611	Global Change Biology (3)	X	X	X	
BIOL 619	Environmental Microbiology (3)	X		X	
BIOL 654	Landscape Ecology (3)	X	X	X	
ENVS 611	Water Policies of the United States	X		X	
ENVS 620	Environmental Policy and Sustainable Management	X	X		
ENVS 625	Science and Policy of the Chesapeake Bay Restoration (3)	X	X	X	
ENVS 630	Concepts of Environmental Engineering (3)	X		X	
ENVS 635	Wetlands Ident. Conserv. & Delineation (3)	X	X	X	X
ENVS 640	Ecotoxicology (3)	X	X		
ENVS 645	Fluvial Geomorphology and Hydrology (4)	X	X	X	X
ENVS 650	Aqueous Geochemistry (4)	X		X	
ENVS 670	Independent Study in Environmental Science (1-3) ♦	X	X	X	X
ENVS 680-89	Selected Topics in Environ. Sci. (1-4)	X	X	X	X
GEOG 503	Soils and Vegetation (3)		X		X
GEOG 516	Quantitative Methods in Geography (3)				X
GEOG 523	GIS Applications (3)	X		X	X
GEOG 557	Studies in Natural Hazards (3)				X
GEOG 587	Environmental Impact Analysis (3)	X	X	X	X
GEOG 631	Remote Sensing (3)	X			X
GEOG 654	Climate Change: Science to Policy (3)				X
GEOG 672-9*	Special Topics [i.e., Water Resources Management] (3)	X		X	X
GEOL 515	Hydrogeology				X
MATH 539	Biostatistics II (3)	X	X	X	X
MATH 545	Sampling Techniques (3)	X	X	X	X
MATH 575	Mathematical Models (3)	X	X	X	X
MATH 630	Statistics-An Integrated Approach (4)	X	X	X	X
MATH 632	Computational Stochastic Modeling (3)	X	X	X	X

Note: Some of these specialized courses have specific prerequisites that are not required for admission to the program. Students are expected to complete the prerequisites prior to enrolling in these courses.

*Courses offered under this number might be appropriate for this concentration. Check with the director or your advisor.

♦ An independent study course is designed with a member of the faculty to serve a particular curricular need. See below for details.

Environmental Science, Independent Studies Course

A student wishing to undertake an independent study course must identify an appropriate faculty member with whom to take the course and obtain the faculty members commitment to teach the course. Courses can be for 1-4 units. Each independent study course must be approved by the Graduate Program Director ([Appendix 7](#)) and registered with the Registrar prior to the start of the semester. Be aware that some faculty members will request development of a formal proposal for an independent study course before agreeing to one.

Suggested Courses of Study

Students come to the program as either full-time or part-time students, with an interest in either completing a research thesis or completing their degree without completing a thesis. Students, can move between these categories, although students who decide to become thesis students must find and be accepted by a thesis advisor. Suggested plans of study for part-time, non-thesis students and full-time thesis students are presented in [Appendix 8](#) and [9](#). *These are to serve as guidelines only.* Our suggestions are based on the challenging nature of the material, the demanding nature of laboratory courses and the need for weekend field trips in many of the courses. Students who chose to follow a different program of study are advised to discuss their plans with the Graduate Program Director.

Completing your MS Degree

All MS students must register for and successfully complete either ENVS 798 Research Practicum or ENVS 896 Thesis Research, prior to receiving their MS degree. It is critical that each student wishing to pursue a research thesis identify a thesis advisor among the graduate faculty early in their tenure in the program. Thesis advisors might want a student to complete specific courses before undertaking their research. Note that an *academic advisor* is not the same as a *thesis advisor*.

The research thesis and research practicum have similar objectives, to demonstrate to the faculty and the scientific community the ability of the student to formulate, investigate, assess, and analyze current environmental problems/questions. They differ in the complexity of the problem addressed and the route of assessment (the research thesis assumes collection of original data).

Students who are currently employed in the environmental field are encouraged to consider questions/problems associated with their current work as appropriate for their thesis/practicum if their employer agrees that it would be appropriate. The selection of topics for the research projects (theses and practica) will be carefully reviewed to minimize the potential for conflict between a student's academic success and his/her professional position. While the potential for conflict does arise when utilizing work-related problems, undertaking a major project that is relevant to the work place (and supported by the employer) will facilitate the student's academic progress and success.

Students are permitted to switch from the thesis to the non-thesis track at any time by informing the Graduate Program Director of their decision. If at the time of this decision, they have a thesis research advisor and a research committee, they must be informed simultaneously in writing. To obtain a degree, such students switching to the non-thesis track must complete 30 hours of "regular" coursework; ENVS 896 – Thesis Research can no longer count towards their degree and they will have to complete ENVS 798 – Research Practicum.

Students can also request a switch from the non-thesis to the thesis track via a letter (e-mail) to the Graduate Program Director. The student's letter must be accompanied by notice from a professor who agrees to serve as the student's thesis advisor. *It is the student's responsibility to secure a thesis advisor.*

ENVS 798 – Research Practicum

Developing and writing a research practicum paper involves synthesis of current thought from a variety of disciplines on an important environmental issue/problem. All students seeking a non-thesis MS degree need to demonstrate that they are able to develop such a document.

The most common model for this course involves a cohort of students working together, as a class, with each student working independently (but with the support of colleagues) developing his/her own paper. An alternative model involves working with a governmental agency and taking on specific projects the agency would like addressed. Developing a paper to address the needs of a governmental agency will also provide a valuable learning opportunity for students. Both models involve a scheduled class. Only one of the models will be offered in a given year, generally in the spring semester. Regardless of the format for the practicum, students are expected to present their work to the community at large in a publicly announced forum. In each model, the responsible faculty member will determine the student's grade. Should a student wish to appeal his/her grade s/he can do so. Within 10 days of receiving a grade s/he must present a letter to the graduate program director requesting that two other members of the faculty read and evaluate their work.

Students will receive letter grades in this course. A student who receives a grade below a B in this course will be considered unqualified for a Masters degree. Such a student will receive credit for the course and it could, potentially, transfer to another institution, but only grades of B or better will be acceptable to graduate from our program. **Note: This course cannot be repeated.**

ENVS 896 – Thesis Research

A total of six thesis research units are required for the degree. Any combination of units across semesters may be used towards your degree. Please consult with your thesis advisor for how many units to register for in a given term.

Students can register for these units any time **after** successfully defending their research proposal (see below), but note that until the thesis is completed, defended and approved by the Graduate School, your "grade" for thesis units on any transcript you get will be "IP" or "In Progress"

You must obtain permission from the Graduate Program Director to register for ENVS 896.

Should your thesis take longer than expected, students who have completed 6 units of ENVS 896 must register for ENVS 899, Thesis continuum, until their thesis is completed, defended and they have graduated. See the section on "[Maintaining 'Continuous Enrollment' After Coursework is Completed.](#)" above, for details.

Thesis or Practicum, which is best for you?

Many students entering the program know that they want to complete a research thesis or that they do not want to undertake such a project. Others want to know which option is best suited to them. A thesis project is an opportunity to discover whether you wish to enter a career of research, either in academia, business, governmental agencies or with non-governmental agencies. While neither the research thesis nor the research practicum are 'easy' to complete, the research thesis demands a greater commitment of time and effort. A research thesis can be expected to occupy almost all of your non-classroom, non-sleeping hours during the time you are involved in developing your research proposal, collecting and analyzing your data. You must be willing to make that commitment. A research practicum will help you develop different types of analytical and investigative skills. You will be reviewing an important topic/issue and will have to search the literature, both published, gray, and web-based, to gather relevant information. You will need to be able to digest, organize, assess

and present this information in a well-structured document. These skills are also very valuable in the market place and demonstrate your mastery of the field.

Thesis Research

Many students enter a program thinking they want to complete a Thesis. Indicating on your application that this is your intent does not obligate the program to assign a research thesis advisor to you nor does it commit you to completing a research thesis. If you are certain you wish to complete a research thesis it is to your benefit to contact members of the faculty prior to coming to campus and discussing research opportunities with them. A student can come to the program with an interest in research but not having identified a research advisor. The student is responsible for finding an interested/willing thesis advisor among the Graduate Faculty. If a student's interest changes, or s/he decides they no longer wish to complete a research thesis, or if s/he cannot locate a Research Thesis Advisor to work with him/her, s/he can complete their degree by completing the Research Practicum (see above).

Why complete a research thesis?: For most students, the thesis will be their first attempt at designing a major, long-term research project, collecting, analyzing and interpreting a substantial amount of data, and describing the results in a manuscript or manuscripts that could be submitted for publication in a scientific journal (i.e., the research is of publishable quality). The thesis research experience will give you a chance to know, firsthand, the pleasure of discovering something new, or analyzing information in a way that no one else has. It undoubtedly will also give you an opportunity to experience, firsthand, the fact that research is time consuming, sometimes tedious, and often very frustrating and difficult as one works the "bugs" out of the methodology. At the same time it is a phenomenal learning experience.

You must be prepared both for the thrill of discovery and the agony of equipment failures, uncooperative subjects, unpredictable weather, etc. You need to recognize before you start that research is hard work and very time-consuming. It will require a major commitment on your part of time, energy and patience. However, when it finally all comes together, there is nothing quite like it.

The procedures outlined below are intended to minimize delays and disappointments. The sooner a student begins the process the better. There are several steps you must complete along the route, which are described below. They are presented in the order they need to be completed. Note: You cannot register for your thesis research course until your thesis proposal is defended.

Identifying a Research Project

One of the things M.S. thesis students most agonize over is identifying a good thesis research project. A "good" research project is one that:

is of interest to you, something to which you would be willing to devote a lot of time and energy to see the end result.

is "doable" given the equipment on hand, funds available for consumable supplies, your time limitations, etc.

is of publishable quality. This is important to both you and your research advisor. One can argue that it is hardly worth investing blood, sweat and tears and substantial money into a research project if the results are forever condemned to lie buried on your bookshelf unread by others. There is one currency by which your qualities and abilities as a research scientist will be measured away from TU and that is the quality of your *publications*.

While a strong desire to produce a good, solid piece of original research is, from a professor's standpoint, a highly desirable trait in a new graduate student, professors do not expect beginning thesis students to be able to walk into their office the first week and lay out, in detail, the hypotheses

they wish to test, the methodological procedures, statistical analyses, etc. Professors do not expect beginning students to be up-to-date on the latest advances and unanswered questions in a particular field of study. Indeed, one of the primary functions of your research advisor is to assist you in identifying a good research project.

Different professors will approach this in different ways. While it is fair to say that professors don't expect beginning students to have their project all sorted out before they arrive at TU, professors *do* expect students to be able to describe what specific areas in a major field of study are of most interest to them, given their coursework and other experiences either academic or professional. It is possible that your research interest derives from a particular problem you have been addressing at your workplace. That is certainly an appropriate source for a research question, but the research question you wish to address should be applicable beyond the specific confines of the stream or the watershed (for example) you are working in. The student should be able to describe specific areas of interest and this will help the professor guide the student to possible projects. In some cases, professors will listen to your interests, then send you off to the library with a list of references related to your interests to allow you to become more familiar with what has been done within your area(s) and what still needs to be investigated. Sometimes you know what needs to be investigated and the library research will expose you to a variety of tools that can be used to address your question.

At some point, the professor will help combine your interests and preliminary proposals for a project with his or her knowledge of the field, and the two of you will settle on a potential project that you both think can be done given the time and resources at hand. In some cases, the idea for the project will be largely the student's with only minor modifications suggested by the professor. In other cases, the professor will listen to your interests and suggest a project that fits into your interests.

Forming a Thesis Committee

After (sometimes before or during) the time that you are identifying a project, you and your advisor will pick two or more other individuals, either faculty members or environmental professionals, who are knowledgeable about your area of research, to serve on your research advisory committee. There must be a minimum of two Graduate Faculty members on your committee in addition to your advisor. These people should have certain skills or an expertise that would be helpful to you in designing and completing your research project. Consult with the Graduate Program Director if in doubt about who can and cannot sit on your committee. Members of your committee can also come from academic institutions outside the university, governmental agencies and the private sector.

When you have formed your committee, you need to fill out and have signed the "Thesis Research Committee" approval form. Links to this form are found on the OGS webpage or and in the appendix of the "[OGS Guidelines for Preparing Theses and Dissertations.](#)"

Note: If you do want to have someone from outside the university on your committee (1) The outside person's affiliation (home institution or company) and credentials (degrees) have to be put on the committee approval form, (2) attached to the form must be a copy of the outside member's curriculum vitae (i.e., professional resume) and (3) the individual must also provide a letter to the program director indicating that they are willing to serve in this capacity. This person must apply and be approved for [Graduate Faculty Status](#) at TU.

As discussed above, when the Thesis Committee form has been submitted to the Graduate School, and after the student successfully presents his/her research proposal to the committee (i.e., completes the thesis proposal defense), the student will be able to register in a subsequent semester for ENV 896 – Thesis Research.

A student should submit the approval form as soon as the committee has been developed. This moves the process along and prevents a lack of signature from preventing enrollment in the thesis research course when appropriate.

The Thesis Research Proposal

One of your first tasks as a thesis student is to prepare your Thesis Research Proposal. This proposal states your research objective(s), provides some background information to place your research in context, discusses the methods and materials that you will use, and describes the significance of your research. Your research advisor will go over the details of preparing your proposal with you. While most of the input on your research proposal will come from your advisor, you should discuss your thoughts with as many people as you think can give you valuable insight and suggestions. Assume that like everything else associated with research, it will take 2-3 times longer to complete your proposal than you might expect.

There is no specific format required for a thesis research proposal. They generally contain an introduction, a literature review, a statement of the hypothesis that will be evaluated, methods and materials, and references cited section. Ask your advisor for guidance as you develop your proposal.

Your advisor will review your draft proposal and will undoubtedly have many suggestions for improvement. The first time you get it back, it may look like it was simply dipped in red ink! The revisions your advisor requests may be numerous and involved! Do not be aghast and don't be insulted – this happens to *everybody*. Putting together a succinct, clear-cut proposal is not an easy task.

After one or more revisions, your advisor will tell you that your proposal is ready to go to your committee. At this point, you will give drafts to your committee members and contact the graduate director to select a moderator for your “proposal defense.” The proposal defense consists of two parts. The first part, which is open to the public, involves a short presentation about your proposed research. The public then asks you questions specifically about your project and after they are addressed, the public is asked to leave by the moderator. The moderator of your proposal defense and your committee then continue the discussion with you in private. At this time you will be asked for details and clarification about parts of your proposal and you will probably be given lots and lots of advice. The meeting will usually last 1-1½ hours. Your committee might suggest additional changes to your proposal which you should complete in a week or so.

Your proposal must have a proper title/approval page. The format for the thesis proposal approval form appears in [Appendix 2](#). Once you successfully defend your proposal, **a copy of the signed title/approval page and the entire proposal must be forwarded, by the student, to the Graduate Program Director.**

Need for collecting/research permits: Along with the above material, students must also submit confirmation that approvals and permits have been obtained or applied for as described in Appendix 3 if such permits and approvals are necessary. If the student is working with vertebrate animals it is necessary that the student and/or faculty supervisor has applied for approval of the research protocol either through the [Institutional Animal Care and Use Committee \(IACUC\)](#). If the student is working with humans it is necessary to get permission from the [Institutional Review Board for the Protection of Human Subjects \(IRB\)](#). Students working with animals or plants that are regulated by state or federal agencies may require collection permits which must be obtained from state/federal agencies. See below for more information on approvals.

Responsibilities of Thesis Research Advisor

The thesis research advisor is not necessarily the student's originally assigned academic advisor. Once a Thesis Research Advisor is identified, this person assumes the role of academic advisor.

The Thesis Research Advisor is expected to:

- Spend an adequate amount of one-on-one time advising student on coursework and research
- Advise student on what coursework to take to complete degree
- Assist student in choosing a research topic
- Assist student in identifying new, critical research papers in their field
- Assist student in identifying sources of funding for research
- Prepare letters of reference/recommendation for student in a timely fashion
- Review thesis proposal thoroughly and in a timely fashion
- Review drafts of thesis thoroughly and in a timely fashion
- Assist in preparation of thesis or thesis chapters in a ready-to-publish manner if appropriate

Graduate students have every right to hold their advisor to the above responsibilities. If students feel that their advisors are not meeting these responsibilities, and cannot resolve the problem through discussions with their advisor, they should discuss the problem with the Graduate Program Director.

Responsibilities of the Thesis Committee Members

- Respond promptly to student inquiries regarding committee meeting times and make time for meetings to avoid excessive delay
- Be available, on occasion, to meet one-on-one with students regarding research
- Prepare letters of reference/recommendation in a timely fashion
- Review thesis proposal thoroughly and in a timely fashion
- Review drafts of thesis thoroughly and in a timely fashion

A student has every right to hold their committee members to the above responsibilities. In the event that committee members are failing to meet these responsibilities, and students cannot resolve the problem through discussions with their advisor, they should not hesitate to discuss the problem with the Graduate Program Director.

Responsibilities of the Proposal Moderator or Thesis Defense Chair

- Respond promptly to student inquiries regarding defense times and make time for meetings to avoid excessive delay
- Bring required ENVS assessment forms to the proposal or thesis defense, distribute them to committee members, collect them at the end of the defense and return them to the Graduate Program Director
- Keeps the defense moving, limits the discussion between committee members that may go off topic, refocuses discussion to the proposal or thesis at hand.

- Keep notes during the defense on changes suggested by the committee members; provide a copy of these notes to the student in a timely manner after the defense.
- It is the moderator's responsibility to maintain an exam atmosphere. The moderator should ensure that the student (and not a committee member) answers each question. Committee members will have an opportunity for discussion after the exam.
- The moderator may call for an intermission during the course of questioning to provide the student or committee and opportunity to regroup.
- The moderator facilitates discussion towards a consensus decision on pass/fail of the defense. Once the decision has been reached, it is generally the major advisor's prerogative to recall the student and explain the outcome of the exam.

Responsibilities of the Student

- Investigate coursework options before consulting advisor on which courses to take.
- Do a substantial amount of reading, on her/his own, to keep abreast of critical and current research in their chosen field; this will assist in preparation of research proposal and thesis.
- Meet deadlines, mutually agreed to by student and professor, for completion of various stages of research; in the event that a deadline cannot be met, you should notify your advisor in a timely fashion and explain the nature of the problem
- Accept full responsibility for the quality of the data collected. Others can help you collect data but you are responsible for the accuracy and quality of the data that goes into your thesis.
- Apply to appropriate sources of research funds as necessary
- Realize that the research project is theirs and only they can make it successful

The thesis research advisor has every right to hold students to the above responsibilities. In the event that students are failing to meet these responsibilities, and discussions with the student do not seem to alleviate the problem, the thesis research advisor can petition the Graduate Program Director, in writing, that the advising relationship be terminated. If it is clear that the advisor has made an effort to remedy problems, without success, the relationship will be terminated.

Research Permits/Permission to Use Human Subjects in Your Research

Permission to Use Human Subjects In Your Research: Thesis research that involves the use of human subjects must be approved by the [Towson University Institutional Review Board](#) for the Protection of Human Subjects. Contact the Office of Sponsored Programs & Research (410-704-2236) or irb@towson.edu for forms to apply for approval to use human subjects and to obtain information on where to submit paperwork and the number of copies required. Your advisor may prepare the paperwork or you may complete it together. Research cannot commence until the permit is in hand or waived by the IRB.

Permission to Use Vertebrate Animals in Your Research: Any research involving vertebrate animals, including simple observation, requires permission from the [Institutional Animal Care and Use Committee](#). The IACUC approval form is found on the [IACUC webpage](#). Your advisor may prepare the paperwork or you may complete it together.

Permits/Permission to Collect Samples (public lands, private lands): The student is responsible for obtaining permission for field investigation and sampling if necessary. Written permission should always be obtained to access and sample on private lands. Specific questions regarding the permit requirements should be addressed to the research advisor.

Financial Support for Thesis Research

Research can incur expenses. We list below some potential sources of financial support but if the anticipated expenses are substantial, a student is wise to apply for as many sources of support as possible. This list is not extensive and different professional societies might offer other research support programs. You should never assume that your research advisor can financially support your research project.

Departmental Support: The Environmental Science program sets aside a certain portion of its budget each year to support graduate student research. There are enough funds to provide some students with \$200-\$500 worth of funds once in a given academic year. Guidelines and the format for application for departmental funds appear in [Appendix 3](#).

Workplace Support: Projects with direct applicability to the workplace can, potentially, benefit from workplace support. It is critical to minimize potential conflict of interest between the research project, financial support, and the student's professional position. Students should always consult their research advisor before accepting workplace funding for their research.

Towson University Graduate Student Association: The TU GSA provides small grants (i.e., up to \$500) that can be used to offset research expenses. All thesis track students in the Environmental Science program are expected to apply for GSA funds if funds are necessary. For details on applications, deadlines, etc., check out the following web site:
<https://www.towson.edu/academics/graduate/gsa/awards.html>

Grants-in-Aid-of-Research: Sigma Xi Scientific Research Society: Sigma Xi provides hundreds if not thousands of small grants (\$500-\$1500) each year to graduate students. Information on deadlines, applications, etc. can be found at the following web site: <https://www.sigmaxi.org/programs/grants-in-aid>.

Other External Funding Sources: Depending on the nature of the project, there may be sources of funding other than those listed above (i.e., EPA, USGS). Students are encouraged to seek out sources of funding using the Web or other tools. A student's advisor can often identify other external funding sources but the burden of applying falls onto the student.

Completing the Thesis Document

What to Expect: Putting together a coherent, concise synopsis of a scientific research project with background information, objectives, methods and materials, results, interpretation and discussion of results, is very demanding. It takes years of practice to properly write scientific papers. And, as many professors can tell you, even after you have been doing this for decades, manuscripts still come back from the peer review process with many suggestions for improvement and revision.

In short, be prepared to turn in your first draft to your advisor and have it come back with dozens of suggestions for improvement and requests for major modifications. Be prepared to revise and resubmit your thesis to your advisor several times before it is ready to go to the rest of the committee. Extensive and multiple revisions are to be expected. Be patient with yourself and try to learn from the revisions suggested. These revisions will aid in future publication.

Official Thesis Guidelines: Like graduate schools at all universities, TU's Graduate School has **very strict** regulations about the format of your thesis, governing everything from the fonts you use, to where you put page numbers to the type of paper you print on. Guidelines are found at <https://www.towson.edu/academics/graduate/office/documents/guidelines.pdf>

The Thesis Defense – Preparation

After you have a draft of your thesis that is acceptable to your research advisor, you need to:

1. Inform the Graduate Program Director that you are about ready to defend your thesis. The graduate director will assist you in finding a “Thesis Defense Chair” (another professor, not on your committee) who will oversee the proceedings.
2. Prepare and give copies of your thesis to your committee members. As a courtesy, you can ask the Thesis Defense Chair if he/she would like a copy. Remember this person moderates your defense; he/she is not a member of the committee.
3. Find a time, at least two weeks in the future (giving committee members enough time to read your thesis) that you, your advisor, your committee members and the Thesis Defense Chair can all get together for ~2 hours.
4. Work with the Administrative Assistant to locate a room in which to hold your defense. When you have a room, inform your Thesis Defense Chair and your committee as to final date, time and location for the defense AND immediately complete the “[Thesis Defense Announcement](#)” form and send it by e-mail to lmorton@towson.edu. This should be done at least 10 working days before the defense. The thesis defense should publicly advertised.
5. Prepare a “Report of Results of Thesis Defense to Graduate Program Director” form. This [form](#) will be submitted by your Thesis Defense Chair to the Graduate Program Director after the defense.
6. The Thesis Approval page which will be inserted into your thesis is now a DocuSign form. After your defense complete the appropriate form for the number of committee members and it will route for their signatures.

[Post- defense Thesis Approval Page Form for Chair and 2 Members](#)

[Post- defense Thesis Approval Page Form for Chair and 3 Members](#)

[Post- defense Thesis Approval Page Form for Chair and 4 Members](#)

Thesis Defense – Format

You may begin by making a short public presentation (25-40 minutes). Typically your presentation will be a short review of your objective, methods, major results and their interpretation; i.e., the high points.

Presentations should also be used to provide visual illustrations (e.g., slides, computer simulations) of various aspects of your research such as your study species, your research site, procedures that you used, computational methods, etc. For example, if you were studying the endangered purple-snouted mugwump living in the marshes of Upper Slobovia, your committee and the public would probably appreciate seeing pictures of the mugwump, those amazing marshes of Upper Slobovia, life

history models, maps of seasonal distribution of the different age classes, etc. Alternatively, if you were doing chemical research and your research results relied heavily on interpreting print-outs from analytical equipment, a picture of a print-out and a walk-through of the interpretation would be helpful to your committee.

The oral presentation is open to other faculty, your fellow graduate students, co-workers, friends and family, etc.

After your presentation, people not on your thesis committee will depart and your committee members will remain. The thesis defense chair will lead this part of the defense. Your committee members will ask you questions, make suggestions, etc. Questions may be about anything regarding your research and thesis. You may be asked about the methods that you used, the analyses you did, or how you interpreted specific results. You may also be asked about previous research in the area, the significance of your contribution, what you would do differently if you could start over, or what you might do next, given the current results. *It is not uncommon to have professors keep asking questions until you run out of answers; they are trying to discover the extent of your knowledge.* Is this nerve-racking? You bet. But hang in there. It may not seem like it at times but each professor will be pulling for you to successfully answer all the questions that you are asked.

When there are no more questions, you will be asked to step out of the room. A discussion will ensue and committee members will come to a consensus as to whether your research efforts and thesis merit a “passing grade.” They will be considering two things. First, they will be looking at the quality of the research and the significance of the contribution that your thesis research makes. Second, they will be asking whether you, despite the results that you obtained, learned a substantial amount about the process of doing research (recall that one purpose of the M.S. thesis experience is to *teach* you about doing research). Your advisor and all committee members must vote to pass you for your defense to have been deemed “successful.” If one or more committee members do not pass you, the defense is deemed “unsuccessful.”

Each committee member will then mark and sign their vote on your “[Report of Defense Results to the Graduate Program Director](#)” form. You will then be called back into the room to be informed of the results by your advisor.

If you are successful, and have to make either no revisions or minor to moderate revisions of your thesis, your committee will probably sign your approval page. Your research advisor will then be responsible for overseeing any revisions. Once you have your advisor’s final approval, you can turn your thesis into the Graduate School for final approval (see below).

If you are not successful, i.e., if you are not passed by one or more of your committee members, you will be informed as to what changes are recommended in the content of your thesis before you should attempt a second defense. You are allowed one more defense, which must come within one year of the first defense. If the second defense is not successful, you and your advisor should schedule a meeting with the Graduate Program Director to discuss your options (e.g., additional coursework for a non-thesis degree).

Final Approval of the Thesis

1. Following a successful defense, meet with your research advisor to agree on any minor revisions necessary to the document. Make those revisions. Carefully check for errors.
2. The student is to submit the final approved thesis/dissertation, signed Thesis/Dissertation Approval Page, Thesis/Dissertation Format Review Page and the Internet Release Page in electronic form to the Office of Graduate Studies at gradstudies@towson.edu at least 10 working days prior to the official end of the term in which the student intends to graduate. The Office of Graduate Studies

evaluates an electronic copy of the thesis, after it has been approved by the committee, to ensure compliance with the procedural and formatting requirements stipulated in the “Guidelines for Preparing Theses and Dissertations”. Theses that do not follow the guidelines will need to be corrected by the student before receiving final approval from the Office of Graduate Studies.

3. Once approved, the Office of Graduate Studies will forward the electronic copy to Cook Library (See Section VI of the Guidelines for Preparing Theses for more details). Students are welcome to produce paper copies and have them bound for themselves, their committee chairperson, committee members and others. Neither the Office of Graduate Studies nor Cook Library requires a hard bound copy. Students may request binding of personal copies on a paper of their choice through Cook Library for a nominal fee. Even though paper copies are not being submitted, the formatting requirements of a paper copy must be followed.

Prototype Thesis Schedule:

A prototype thesis research schedule is presented in [Appendix 10](#).

GRADUATION

Applying for Graduation

Students apply for graduation on line through their student center (Towson Online Services/PeopleSoft). Deadlines for submission of applications are published in the Academic Calendar of the *Graduate Catalog* and are typically Jan 15 for spring, July 4 for summer, and Aug 15 for fall graduation. Applications for graduation are generally due about 4 months before the scheduled graduation date.

When you submit an application for graduation, both the Graduate School and the Graduate Program Director examine your record to determine whether you meet all requirements for graduation and notify you if there are any deficiencies.

APPENDICES

Appendix 1. Thesis Committee Establishment Forms

After you have formed your committee you need to complete this DocuSign form. It will automatically route to your committee members and Dean of Graduate Studies for approval. Make sure to have the e-mail addresses for your committee members available when you complete the form.

To establish your thesis committee, use these forms:

- [Thesis Committee Approval Form for Chair and 2 Members](#)
- [Thesis Committee Approval Form for Chair and 3 Members](#)
- [Thesis Committee Approval Form for Chair and 4 Members](#)

Appendix 2: Sample cover/approval page for Thesis Research Proposal.

At the end of the proposal defense, this form should be signed, attached to your proposal and forwarded to the Graduate Program Director.

PROPOSAL FOR A THESIS ENTITLED

**"ADAPTIVE SIGNIFICANCE OF SWOONING BEHAVIOR IN THE
PURPLE-SNOURED MUGWUMP (*MUGWUMPUS RHINOPURPLI*)"**

by

Joan Q. Student

Approved by Thesis Committee:

Chair _____

Member _____

Member _____

Date _____

Received by Graduate Program Director on _____

Appendix 3: Application for research funds from the Environmental Sciences Program

The Environmental Science Program sets aside a certain portion of its budget each year to support graduate student research when funding levels allow. There are usually enough funds to provide some students with \$200-\$500 worth of funds **once** in a given academic year. Deadline for applications during the fall semester is October 15th. Deadline for applications during the spring semester is March 15th. Students who are unsuccessful in obtaining departmental funds in the fall may revise their application and reapply in the spring. Students should not apply in the spring if they received funding in the fall.

The decision whether to fund a student's research will be made by the ESS Graduate Advisory Committee. Decisions will be based largely on (1) the scientific merit of the proposed research, (2) progress made to date with the research, especially for continuing students, (3) efforts made by the student to pursue funding from other sources and (4) the availability of funds.

To qualify for funding, students must have applied for funding from an external source during the current academic year. All students are, at a minimum, expected to apply for a Grant-in-Aid-of-Research from the Sigma Xi Scientific Research Society (see www.sigmaxi.org for more information) and funds from Towson University's Graduate Student Association.

Applications should include:

1. A cover sheet (next page)
2. Description of the Proposed Research which includes:
 - Introduction and Relevant Background
 - Objective(s) of the Proposed Research
 - Brief Description of Materials and Methods
 - Statement of the Significance of the Proposed Research
 - Statement of Progress to Date (required for students who have already begun their research)
 - Literature cited (if references are cited)
 - Timeline (when do you anticipate accomplishing different phases of your research?)

The first four sections above should not exceed **5** pages (single spacing, size 12 type)

3. Estimated budget for your research project (on separate page). Provide an estimate of the *complete* budget for your thesis research. You do not have to indicate how departmental funds will be used.
4. Evidence of application for *external* funds (copy of application, letter acknowledging receipt of application or decision on your request, etc. Please also provide evidence of application for funds from the GSA.

SAMPLE COVER SHEET*

APPLICATION FOR RESEARCH FUNDS – ENVIRONMENTAL SCIENCES

Your name: **Jessica Smith**

Your mailing address: **123 York Road. Baltimore MD 21212**

Your email address: **JSmith8@towson.edu**

Name of your major professor: **Dr. Rebecca Jones**

Name of research committee members: **Drs. Heather Frank and Steve Rodgers**

Semester/year you started at TU: **Fall 2003**

Title of thesis research project: **Effect of urbanization on species diversity of forest under story plants in the Baltimore Metropolitan area.**

History of application for external funds to support research:

<u>Source of funds</u>	<u>Date Applied</u>	<u>Result (e.g., amount awarded, request denied, pending)</u>
Society for Conservation Biology- Student Research Award	Jan 200X	Awarded \$500
Sigma Xi Grant-in-Aid-of-Research	March 200X	Decision pending

Your signature: _____

Signature of major professor: _____

Appendix 4: Thesis Defense Announcement Form

TOWSON UNIVERSITY
COLLEGE OF GRADUATE STUDIES AND RESEARCH
Thesis Defense Announcement Form

Student's Name _____

Department/Program _____

Chair, Thesis Committee _____

Title of Thesis: _____

Date of Defense: _____

Time of Defense: _____

Location of Defense: _____

Appendix 5: Form to report results of thesis defense to the Graduate Program Director.

This form to be forwarded by the Thesis Defense Chair to the Graduate Program Director immediately after the defense.

**TOWSON UNIVERSITY
ENVIRONMENTAL SCIENCE PROGRAM**

**REPORT OF RESULTS OF THESIS DEFENSE TO THE
GRADUATE PROGRAM DIRECTOR**

Name of Student:

Title of Thesis:

Date of Defense:

Signatures and Votes of Thesis Committee Members:

	Approve	Disapprove
_____ (Thesis Advisor)	_____	_____
_____ Member	_____	_____
_____ Member	_____	_____
_____ Member	_____	_____

Result of thesis defense.

Pass____ Fail____

Unanimous approval is required.

Signature of Thesis Defense Chairperson _____

This form to be forwarded by the Thesis Defense Chair to the Graduate Program Director immediately after the defense.

Appendix 6: The Environmental Science Course Approval Form for Off-List Courses

This form must be completed and submitted to the Director BEFORE a student registers for a graduate course NOT listed as an acceptable elective within their selected concentration.

Environmental Science Course Approval Form

Name:

Course:

Number of Units (1 - 4):

Semester/Year of Enrollment in Approved Course:

Briefly explain, in terms of career goals and your concentration, the basis for your request.

Student Signature

Date

Program Director Signature (approval)

Date

Appendix 7: Environmental Science Independent Study Approval Form

This form must be completed and submitted to the Graduate Program Director BEFORE a student takes part in an independent study course/project.

Environmental Science Independent Study Approval Form

Name:

Independent Study Faculty Instructor:

Number of Units (1 - 4):

Semester/Year:

Brief Project/Course Description:

Expected Outcomes (e.g. research paper, presentation):

Student Signature

Date

Faculty Signature

Date

Program Director Signature

Date

Appendix 8: Recommended course of study for part-time non-thesis track students

The general idea expressed in the plan below is that you take required courses before electives, no more than two courses a semester (and usually only one). On occasion an elective is offered that will not be offered again during your time in the program. Take it if you feel it is important to your program.

Fall Semester 1: (at least one of the following)

ENVS 601 Topics in Environmental Geology (4 units)* **or** ENVS 604 Ecosystems Ecology (4 units)*

Spring Semester 1: (at least one of the following)

ENVS 602 Environmental Chemistry (4 units)* **or** ENVS 603 Environmental Law and Regulation (3 units)*

Optional Summer Semester 1: *Any elective approved for your concentration (2-4 units)*

Fall Semester 2:

3rd required core course (4 units) **or** 3rd required core course and 1 approved elective (7-8 units)
or at least one but no more than 2 approved electives (3-8 units)

Spring Semester 2:

4th required core course (3-4 units) **or** 4th required core course and 1 approved elective (7-8 units)
or [if you are in your last or penultimate semester] ENVS 798 Research Practicum (3 units)
(permission required) **and/or** one but no more than 2 approved electives (3-8 units)

Optional Summer Semester 2: *Any elective approved for your concentration (2-4 units)*

Fall Semester 3: (if needed)

At least one but no more than 2 electives approved for your concentration (3-8 units)

Spring Semester 3: (as needed)

ENVS 798 Research Practicum (3 units) (permission required)

*** Core courses**

Total of at least 30 units required for graduation including ENVS 601, 602, 603, 604 and 798

Appendix 9: Recommended course of study for full-time thesis track students

Fall Semester 1:

ENVS 601 Topics in Environmental Geology (4 units) * **and** ENVS 604 Ecosystems Ecology (4 units)*

Select and request that a member of the faculty serve as your Thesis Advisor, determine the topic and scope of thesis research project

Spring Semester 1:

ENVS 602 Environmental Chemistry (4 units)* **and** ENVS 603 Environmental Law and Regulation (3 units)*

Develop thesis committee in consultation with your Thesis Advisor

Prepare thesis proposal

Defend thesis proposal

Summer Semester 1: *Any elective approved for your concentration (2-4 units) (this should be cleared with your research advisor)*

Work on your research

Fall Semester 2:

ENVS 896 Research Thesis (3 units)

1 elective approved for your concentration (2-4 units) (this should be cleared with your research advisor)

Work on your research

Spring Semester 2:

ENVS 896 Research Thesis (3 units)

1 elective approved for your concentration (2-4 units) (this should be cleared with your research advisor)

Work on your research

Prepare and Defend Thesis

Summer Semester 2: *(as needed) Research Continuum (1 unit)*

Prepare and Defend Thesis

Total of at least 30 units required for graduation including ENVS 601, 602, 603, 604 and 896

Appendix 10: Prototype Thesis Research Calendar

Fall Semester 1

September-October: Identify, if you haven't already done so, a research advisor. Then working with your advisor, identify a research project.

October-December: Begin literature review.

Spring Semester 1

January: Identify a thesis committee and file signed thesis committee approval form with ENVS graduate director and the Graduate School. The committee is composed of a thesis advisor and two other members one of whom may be external to Towson.

February: Draft abstract of thesis proposal for approval by your research advisor.

March: Submit thesis proposal approved by your research advisor to thesis committee members

Schedule a proposal defense date for two weeks from the date you submit your thesis proposal to your committee (all committee members and the ENVS Graduate Director must approve the date). Submit proposal defense notification form to the ENVS office.

Upon successful defense of your thesis proposal, begin supervised research.

Fall Semester 2

Register for 3 units of Research Thesis (ENVS 896).

Spring Semester 2

Register for 3 units of Research Thesis (ENVS 896).

Apply for graduation if it is your intention to defend your thesis during the spring semester and you will have satisfied all program requirements.

Subsequent Semesters (as needed)

Register for Thesis Continuum (ENVS 899 - 1 unit), apply for graduation during the semester in which you will have completed and defended the thesis and have satisfied all program requirements.