

Graduate Student Handbook

Department of Earth and Environmental Sciences
Michigan State University



2019 – 2020 Academic Year

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Cover photo by Dr. David T. Long

President Theodore Roosevelt

The Grand Canyon fills me with awe. It is beyond comparison—beyond description; absolutely unparalleled through-out the wide world... Let this great wonder of nature remain as it now is. Do nothing to mar its grandeur, sublimity and loveliness. You cannot improve on it. But what you can do is to keep it for your children, your children's children, and all who come after you, as the one great sight which every American should see.

The Grand Canyon (Hopi: Ongtupqa; Yavapai: Wi:ka'i:la, Navajo: Tsékooh Hatsoh, Spanish: Gran Cañón) is 446 km long, up to 29 km wide and attains a depth of over 1,857 meters). The Colorado River has been carving the Grand Canyon for about 6 million years (although some argue 17 million years); however, it is flowing through canyons that date back about 70 million years. The down cutting reveals about 2 billion years of Earth's geologic history and is part related to the uplift of the Colorado Plateau. The Ancestral Puebloans (1200 BCE) were the first people know to live in the Grand Canyon and considered it a holy site. Air quality and visibility was impacted by emissions from urban centers in southern California and from nearby smelter operations. The results of the Clean Air Act has made the canyon area one of the cleanest in the U.S.

The Grand Canyon is an excellent example of key aspects of **Earth and Environmental Sciences**. These aspects include the interactions of the three major cycles; *tectonic* (e.g., uplift), *water* (erosion), *biologic* (human and ecosystem health), that are driven by the *External and Internal Energy* systems and *Gravity* and the changes in these interactions over human and geologic time scales

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INTRODUCTION

Welcome

Welcome to the Department of Earth and Environmental Sciences (GLG) at Michigan State University (MSU).

This handbook is designed for students entering the M.S. or Ph.D. Programs in Earth and Environmental Sciences, Environmental Geosciences, and Environmental Geosciences/Toxicology during the 2018 – 2019 academic year. It provides an overview of the program, specifies program requirements, and contains information about policies that relate to the graduate experience. In general, the policies in effect when a student enters the program remain applicable to that student through completion of their degree program. You should be aware of two key issues with respect to using this handbook. First, it covers the primary requirements established by the Program, Department, College and University, but there may be additional expectations established by your advisor or employment supervisor. It is essential that you communicate as soon as possible on arriving at MSU, and regularly throughout the year with your advisor/supervisor. You should ask them directly about their expectations of you regarding the frequency and approach to regular communication. Second, this handbook does not cover all of the applicable rules, especially those relating to special circumstances. If you have any questions or concerns relating to your graduate experience, requirements, or policies, you are encouraged to discuss them with:

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Degree Requirement Timelines at a glance

Degree	M.S. (Plan A)	M.S. (Plan B)	Ph.D. (w/ M.S.)	Ph.D. (w/o M.S.)
Advisor Selection	By March 1 (second semester in program)	By March 1 (second semester in program)	By March 1 (second semester in program)	By March 1 (second semester in program)
Guidance Committee Selection	By March 1 (or second semester in program)	By March 1 (or second semester in program)	By March 1 (or second semester in program)	By March 1 (or second semester in program)
Guidance Committee Report	By March 1 (second semester in program)	By March 1 (second semester in program)	By March 1 (second semester in program)	By March 1 (or second semester in program)
Final Evaluation	N/A	Within six-year time limit	N/A	N/A
Thesis/ Dissertation Proposal	By October 31 (third semester in program)	N/A	By April 15 (fourth semester in program)	By November 15 (fifth semester in program)
Written Comprehensive Exam (Must be retaken if degree not received within eight-year degree time limit)	N/A	N/A	By April 15 (fourth semester in program)	By November 15 (fifth semester in program)
Oral Comprehensive Exams (Must be retaken if degree not received within eight-year degree time limit)	N/A	N/A	By April 15 (fourth semester in program)	By November 15 (fifth semester in program)
Department Research Presentation	At least once during academic program	N/A	At least once during academic program	At least once during academic program
Final Oral Defense	Within six-year time limit	N/A	Within eight-year time limit	Within eight-year time limit
Final Oral Examination	N/A	Within six-year time limit	N/A	N/A
Completion of Annual Evaluation	March 20	March 20	March 20	March 20
Degree Completion Time Limit	Six years from the beginning of the first semester in which credit was earned toward the degree	Six years from the beginning of the first semester in which credit was earned toward the degree	Eight years from the beginning of the first semester in which credit was earned toward the degree	Eight years from the beginning of the first semester in which credit was earned toward the degree

Key dates Fall 2018, Spring 2019, Summer 2020

Fall 2018

- 7/21/18 - Graduate, graduate certificate, professional students, and teacher interns, who have not enrolled for Fall 2018 by 8 p.m. are subject to a \$50 late enrollment fee (fee waived for newly admitted and readmitted students).
- 8/16/18 - RAs and TAs are to report to department.
- 8/17-18/18 - New TA Institute – If you are scheduled to be a TA in FS17 and have not been a TA before, you must take this orientation class.
- 8/29/18 - Classes begin. Students should follow their Monday class schedule on Wednesday, 8/29/18. Thursday and Friday classes will meet as normally scheduled.
- 8/31/18 - Degree candidates for Fall should apply for graduation by this date to ensure the listing of your name in the commencement program – www.reg.msu.edu
- 9/5/18 - Online open add period ends at 8 p.m.
- 9/24/18 - End of tuition refund period for fall semester courses.
- 11/9/18 - Graduate, graduate certificate, professional students, and teacher interns, who have not enrolled for Spring 2019 by 8 p.m. are subject to a \$50 late enrollment fee (fee waived for newly admitted and readmitted students).
- 12/7/18- Classes end for Fall Semester 2018.
- 12/19/18 - Deadline for graduate degree candidates to turn in theses/dissertations to The Graduate School for Fall 2018.

Spring 2019

- 1/7/19 - Classes begin.
- 1/11/19 - Degree candidates for Spring and Summer should apply for graduation by this date to ensure the listing of your name in the commencement program – www.reg.msu.edu
- 1/11/19 - Online open add period ends at 8 p.m.
- 2/1/19 - End of tuition refund period for Spring semester.
- 3/11/19 - Enrollment by appointment time begins for Summer 2019.
- 3/23/19 - Open Enrollment begins for Summer 2019.
- 4/26/19 - Classes end for Spring Semester 2019.
- 5/8/19 - Deadline for graduate degree candidates to turn in theses/dissertations to The Graduate School for Spring 2019.

Summer 2019

- 5/13/19 - Classes begin for Full and First Summer Sessions 2019.
- 6/27/19 - Classes end for First Summer Session.
- 7/1/19 - Classes begin for Second Summer Session 2019.
- 8/15/19 - Classes end for Full and Second Summer Sessions 2019.
- 8/21/19 - Deadline for graduate degree candidates to turn in theses/dissertations to The Graduate School for Summer 2019.

New Student Checklist

- _____ Check and add important dates to your personal calendar:
MSU Academic calendar <https://reg.msu.edu/ROInfo/Calendar/Academic.aspx>
Graduate School calendar <https://grad.msu.edu/calendar>
- _____ University Picture ID: 427 N. Shaw Ln, Room 170, International Center 517-355-4500.
- _____ Set up University email account: see <https://netid.msu.edu/>
- _____ Apply for social security card: Applications are available at the office for International Students & Scholars, 103 International Center, 353-1720.
- _____ Complete I-9 Form (TA/RA graduate assistants ONLY): Come to department front office, 207 Natural Science, and speak to Dallas Coryell to complete form electronically. Please bring your driver's license or passport with you. You will need to know your social security number.

International Students – Please go to OISS, 103 International Center
- _____ Set up City of Lansing Income Tax Withholding (Lansing residents ONLY): If you live within the Lansing City limits (not East Lansing or Lansing Township) and would like to have your City of Lansing income tax withheld from your pay, you must go to the payroll office, 350 Administration Building, and fill out a withholding form in person.
- _____ Graduate Employees Union deduction/authorization form/membership card: Teaching assistants, except for those TAs specifically excluded by the GEU/MSU agreement, may fill out a payroll deduction authorization and membership card to become full members of the GEU or they may pay a representation fee without becoming a GEU member. Research assistants and fellows may also become GEU members with an annual payment.
- _____ Vehicle Registration: Parking permits are available for graduate assistants from the Department of Police and Public Safety located at 87 Red Cedar Road (517-355-8440). Graduate assistants may apply for a parking permit on-line at www.dpps.msu.edu. Your appointment form must be finalized on the system before you will be allowed to purchase a parking permit.
- _____ University bicycle registration: If you intend on using a bicycle on campus, you must register it with the university police every year and have an associated sticker visible on the frame. Registration is free and available through the MSU police website. If your bike is ever lost or stolen, and then found by the police, or impounded by the police, registration is required to reclaim it.
- _____ Select advisor (5.1, 8.1, 11.1)
- _____ Initial meeting with advisor to determine class schedule. See enrollment at <http://www.reg.msu.edu/ROInfo/Enrollment.aspx>.

Your Graduate Program Checklist

- ___ GradPlan: Ph.D. students create their graduate program in GradPlan.
- ___ Selection of thesis/dissertation committee and submit to Grad Secretary. (5.3, 8.3, 11.3)
- ___ Meet with thesis/dissertation committee and create and submit guidance report. (5.5, 8.5, 11.5)
- ___ Select thesis/dissertation topic.
- ___ Thesis proposal presentation to committee and submit acceptance form. (5.6, 13.1)
- ___ GLG 900 taken (Research Strategies and Methods I).
- ___ GLG 901 taken (Research Strategies and Methods II).
- ___ Hours (5) for initial Responsible Conduct of Research completed and turned in. (Appendix A)
- ___ Hours (3) for yearly Responsible Conduct of Research completed and turned in. (Appendix A)
- ___ Mandatory Training in The Relationship Violence and Sexual Misconduct Policy. (Appendix A)
- ___ Presentation of Thesis/Dissertation proposal/research to department. (5.7, 13.2)
- ___ Written comprehensive examination taken (Ph.D. only) (12)
- ___ Oral comprehensive examination taken (Ph.D. only) (12)
- ___ Final evaluation (M.S. plan B only) (8.6)
- ___ Thesis/dissertation final examination (except M.S. Plan B) (6, 14)
- ___ Submit yearly progress reports (16, Appendix F)

Links to Online Forms

[Advisor Selection/Agreement Form](#)

[Report of the Guidance Committee—M.S. Program \(Environmental Geosciences\)](#)

[Report of the Guidance Committee—M.S. Program \(Earth and Environmental Sciences\)](#)

[Report of the Guidance Committee--Ph.D. Program](#)

[Thesis/Dissertation Proposal Title/Signature Page](#)

[Thesis/Dissertation Review/Examination Approval](#)

PROGRAM OVERVIEW

The Program and Degrees

The Department of Earth and Environmental Sciences offers the following programs:

- Master of Science in Environmental Geosciences (Plan A and B, with/without thesis)
- Master of Science in Geological Sciences (Plan A)
- Doctor of Philosophy in Earth and Environmental Geosciences [New starting Spring 2019]
- Doctor of Philosophy in Environmental Geosciences [Grandfathered]
- Doctor of Philosophy in Geological Sciences [Grandfathered]
- Doctor of Philosophy in Environmental Geosciences-Environmental and Integrative Toxicology
- Doctor of Philosophy in Ecology, Evolutionary Biology and Behavior

The goal of the graduate programs in the Department of Earth and Environmental Sciences is to develop creative and productive scientists who will address problems facing the modern environment and problems related to understanding the Earth's past and future.

The Department's graduate programs emphasize the study of the biological, chemical, and physical processes of the Earth and the application of knowledge about these processes to solve applied and basic problems. The Department is focused around three research areas: 1) The Environment, 2) Geochemistry and Geophysics, and 3) Education and Cognition.

- The Environment - In the context of the geosciences, the environment integrates biotic and abiotic aspects of the lithosphere, hydrosphere, and atmosphere. Over a wide range of time scales, this group examines the chemical, physical, and biological impacts of environmental disturbances of pristine to highly degraded natural systems. Such research helps sustain natural communities and ecosystems, and allows us to predict the impacts of projected changes in climate and land use on the sustainability of water resources and the health of aquatic ecosystems. This group also studies the significance of environmental changes on extinction and speciation.
- Geochemistry and Geophysics – Dynamic processes of our planet's interior over its history generated Earth's habitable surface and are responsible for the natural distribution of mineral resources and geologic hazards including earthquakes, volcanic eruptions, and tsunamis. Solid Earth geochemistry and geophysics research at MSU addresses fundamental questions regarding the evolution of the Earth and the formation of geologic structures we observe today. We offer opportunities for students to study tectonics and petrology at field sites around the globe, to image the Earth's interior, and to model physical and chemical processes using laboratory and computational methods
- Education and Cognition - This group examines how people perceive and understand the Earth and its evolutionary history. Faculty include a leader in geocognition research, and active participants in state and national science education organizations who provide professional development for science teachers in Michigan and nationally. This work includes novel approaches to research on visual representation, discourse, and reasoning through analogs.

Students who are enrolled in the Master of Science degree program in the Department of Earth and Environmental Sciences may elect to complete a specialization in Ecology, Evolutionary Biology and Behavior. A dual degree Doctor of Philosophy program in Ecology, Evolutionary Biology and Behavior is also available. Additional information on the Ecology, Evolutionary Biology and Behavior Program can be found at <https://eebb.natsci.msu.edu/>.

Students who are enrolled in the Master of Science degree program in the Department of Earth and Environmental Sciences may elect a specialization in environmental toxicology. A dual degree Doctor of Philosophy program in Environmental Geosciences-Environmental and Integrative Toxicology is also available. Students who are enrolled in the Doctor of Philosophy program in in the Department of Earth and Environmental Sciences may elect a specialization Environmental Science and Policy

MSU offers a number of other specializations and certificates that may interest you. A full listing can be found here: <http://www.reg.msu.edu/AcademicPrograms/>

The Graduate Experience

The responsibilities of graduate degree-granting units, administrators, faculty advisors, graduate committees, and graduate students, with respect to graduate studies, are outlined in the Guidelines for Graduate Student Advising and Mentoring Relationships. (available online at: <https://grad.msu.edu/sites/default/files/content/researchintegrity/guidelines.pdf>.) However, the graduate experience has aspects not fully articulated in either the Academic Programs catalog or the Guidelines for Graduate Student Advising and Mentoring Relationships. Graduate training is a period of learning and research experience in your area of interest and to that end; the courses you decide to take are largely your own choice.

There are many ways to gain experience and knowledge in the earth and environmental sciences and these may be gained in ways other than taking course work alone. Since these sciences are multidisciplinary and draw heavily from other fundamental sciences, you may find it advantageous to take courses in biology, physics, mathematics, chemistry, or engineering. These areas can contribute to your formulation of a research problem and to your general understanding of the natural sciences. Much can be gained by talking with your fellow graduate students: What research problems are they working on? How do they go about identifying a problem in their specialty and, once found, how do they plan their research to solve this problem?

As part of the learning experience, students are required to attend Alumni Distinguished Lecture Series for a one semester credit in their first year and are then expected to attend these guest lectures (when course/teaching schedules permit). These lectures are generally scheduled at a time that is convenient for most students and faculty in the Department and are advertised in advance of the lecture date. In addition, attendance at thesis and dissertation defenses is encouraged, particularly as it will help you learn about the examination process and expectations.

You should be aware that it is possible that the break between semesters may occupied with your research activities, literature researches in the library, or in some other aspect of your program. If you have a teaching assistantship, you may have duties preparing laboratory materials before classes start.

Graduate students have the opportunity to serve on university, college and department committees. Each spring the Geology Club will elect a graduate student to serve for one year as graduate student representative (with vote on some items) at faculty meetings. In addition, graduate students will serve on select Departmental committees (with vote) (see Article 23).

At this University, general policies regarding graduate training are established on three general levels of administration: University, College, and Department. This system tends to separate general policies into three categories and results in no single reference giving a complete statement of policy. This handbook is intended to bring together these policies as they pertain to the Department of Earth and Environmental Sciences and to clarify those that may appear contradictory.

In general, university policies override college policies which, in turn, override departmental policies. In most cases policies regarding graduate training are established at the departmental level except when pre-empted at a higher level. As presented in this handbook, the various policies are not distinguished but are presented as a uniform group. This system reflects the true nature of the university and places more responsibility upon the department, or more specifically, upon you, your major professor and your guidance committee. Your later accomplishments will reflect the training you received here as a graduate student.

Many of the questions that you may have are answered in the pages to follow including additional benefits such as office space and use of departmental facilities (see Article 19). There are, of course, many other questions that may require specific answers and cannot be covered here. The office staff in the Department of Earth and Environmental Sciences is there to assist you in any way possible. Please do not hesitate to use this valuable source of information.

The Graduate School offers a number of workshops, seminars, and fellowships that can enhance your graduate education. We encourage you to explore these opportunities at <https://grad.msu.edu/>. The Graduate School is located in Chittenden Hall (the old Forestry Building on the east end of Circle Drive across from Linton Hall). In addition, Chittenden Hall houses the TA program staff, the Ph.D. Career Services, Graduate Life and Wellness, and the Council of Graduate Students (COGS). Thus, Chittenden Hall is the graduate education “neighborhood”.

Research Guidelines, Policies and Regulations

The Guidelines for Integrity in Research and Creative Activities is another important document containing information on professional ethics for all members of the University community. You will be required to acknowledge (in writing) that you have read and understood this document, a copy of which is included as Appendix A. Copies of the Research Integrity newsletters can be found online at <http://grad.msu.edu/researchintegrity/>.

Research involving the use of radiation or hazardous chemicals is subject to the rules and regulations of the Office of Radiation, Chemical and Biological Safety (ORCBS). Information pertaining to training, manuals, hazardous waste disposal, etc., can be found at <http://www.orcbs.msu.edu/>.

Research involving the use of humans for research is subject to the rules and regulations of the Human Research Protection Program (<http://www.humanresearch.msu.edu/>). Research involving the use of vertebrate animals is subject to the rules and regulations of the All University Committee for Animal Use and Care (AUC/AUC; <http://iacuc.msu.edu/>)

Professional Behavior and Conflict Resolution

The establishment and maintenance of the proper relationship between instructor and student, or between student and student, are fundamental to the University's function, and require both faculty and students to recognize the rights and responsibilities which derive from it. The relationship between faculty and student as individuals, or student and student as individuals, should be founded on mutual respect and understanding together with shared dedication to the education process. As the primary functions of an academic community, learning, teaching, scholarship, and public service must be characterized by a fundamental commitment to academic freedom and maintained through reasoned discourse, intellectual honesty, mutual respect and openness to constructive criticism and change. The graduate student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards (Article 2.3.7 in the Graduate Student Rights and Responsibilities (GSRR)). Graduate students and faculty members share

the responsibility for maintaining professional relationships based on mutual trust and civility (Article 2.3.11 of the GSRR). Refer to Article 2.3 of the GSSR in its entirety.

Conflicts, disagreements, and issues sometimes arise during the course of a graduate program. Students are encouraged to address problems relating their academic performance by first speaking informally with their advisor(s). This may be followed by presenting the issue to the Graduate Director, the Department Chairperson, and the Associate Dean for Graduate Studies, generally in this order. If the problem cannot be resolved informally, a student may petition the Department Chair for a hearing (Article 22). Students' rights and responsibilities, including grievance procedures are detailed in the AFR. Procedures more specifically designed for graduate students may be found in the GSSR. In accordance with the AFR and the GSRR, the GLG Department has established the Hearing Board procedures (see Article 22). See also <http://splife.studentlife.msu.edu/#Spartan%20Life%20Student%20Handbook>).

If you find that you have exhausted the internal resources for resolving the issue, you may contact the Office of the University Ombudsperson. The Office of the University Ombudsperson provides assistance to students, faculty, and staff in resolving University-related concerns. Such concerns include: student-faculty conflicts; communication problems; concerns about the university climate; and questions about what options are available for handling a problem according to Michigan State University policy. The University Ombudsperson also provides information about available resources and student/faculty rights and responsibilities. The office operates as a confidential, independent, and neutral resource. It does not provide notice to the University - that is, it does not speak or hear for the University.

Contact the Ombudsperson at any point during an issue when a confidential conversation or source of information may be needed. The Ombudsperson will listen to your concerns, give you information about university policies, help you evaluate the situation, and assist you in making plans to resolve the conflict.

Contact information:

Office of the University Ombudsperson
129 N. Kedzie Hall
(517) 353-8830
ombud@msu.edu
<https://ombud.msu.edu>

Useful Links

[Department of Earth and Environmental Sciences https://ees.natsci.msu.edu](https://ees.natsci.msu.edu)

[College of Natural Science https://natsci.msu.edu](https://natsci.msu.edu)

[Michigan State University https://www.msu.edu](https://www.msu.edu)

[Information for Students https://msu.edu/academics/](https://msu.edu/academics/) [Research https://msu.edu/research/](https://msu.edu/research/)

E-mail <https://mail.msu.edu/locator/>

Admissions <https://admissions.msu.edu/>

Financial Aid <https://finaid.msu.edu/>

Registrar <https://reg.msu.edu/>

Academic Calendars <https://reg.msu.edu/ROInfo/Calendar/Academic.aspx>

Academic Programs Catalog <https://reg.msu.edu/AcademicPrograms/>

Description of Courses <https://reg.msu.edu/Courses/search.aspx>

Schedule of Courses & Schedule Planner <https://schedule.msu.edu/>

Enrollment System <https://reg.msu.edu/ROInfo/Enrollment.aspx>

The Graduate School <https://grad.msu.edu/>

Graduate Student Rights & Responsibilities <https://grad.msu.edu/gsrr>

MSU/GEU Contract <https://hr.msu.edu/contracts/documents/GEU2015-2019.pdf>

Guidelines for Integrity in Research and Creative Activities <https://careersuccess.msu.edu/node/msu-guidelines-integrity-research-and-creative-activities>

Guidelines for Graduate Student Advising and Mentoring Relationships
<https://grad.msu.edu/sites/default/files/content/researchintegrity/guidelines.pdf>

DEPARTMENT POLICIES AND REGULATIONS

General Policies and Requirements

1. General Admission Requirements

Note that degree-specific admission requirements are outlined in Appendix B)

1.1 Admission Inquiries:

Inquiries regarding admission should be directed to the Graduate Director, Department of Earth and Environmental Sciences, Michigan State University, 207 Natural Science Building, East Lansing, MI 48824-1115; e-mail geosci@msu.edu.

1.2 Application Review Process:

Applications for admission should be submitted at <http://admissions.msu.edu/apply.asp>. Candidates must possess a bachelor's degree (or equivalent) from a recognized educational institution. Necessary application materials include: official transcripts, GRE scores (general test only), TOEFL scores (for international applicants), TSE/SPEAK scores (for international applicants wishing to be considered for a teaching assistantship), and three letters of recommendation. For more information please see Prospective Graduate Students at http://www.glg.msu.edu/grad_application.html. Completed applications are transmitted to the Graduate Student Affairs Committee for evaluation. Committee's recommendations are given to the Chair of the Department.

1.3 Basis for Admission:

Admission is based on scholastic average, recommendations, academic background, Graduate Record Examination scores, and availability of space in the research program of the applicant's area of interest. Scholastic average requirements are based on recommendations by the Graduate Student Affairs Committee.

1.4 International Students:

Applicants for whom English is not a native language are required to certify English proficiency for admission to graduate school and potential teaching assistantships:

1.4.1 For paper-based TOEFL, a minimum score of 550 (no subscore below 52) is required to be considered for admission to our department. For internet-based TOEFL, a minimum score of 80 (no subscore below 19 for reading, listening and speaking, no writing subscore below 22) is required to be considered for regular admission, and a minimum of 70 is required for provisional admission. For IELTS a minimum score of 6.5 is required to be considered for regular admission to our department, and a minimum of 6 is required for provisional admission. Other English tests, including MELAB, MSU-ELT, and PTE A, are also accepted. For more information about alternative English certification, please contact the department graduate secretary.

1.4.2 Applicants who wish to be considered for a teaching assistantship are required to obtain a score of 50 or higher on SPEAK test (see English Learning Center) or take English 097 (the ITA Speaking and Listening Class) and get a score of 50 or higher on the ITA Oral interview (ITAOI). The ELC administers the ITAOI. Students with a score of 45 on the SPEAK test are eligible for an appeal; see <http://www.tap.msu.edu/>.

1.5 Admission Status:

Candidates for the M.S., Ph.D. (following the M.S.) or a direct Ph.D. can be admitted as follows:

1.5.1 Regular: Satisfactory grade point average and no subject matter deficiencies.

1.5.2 Provisional: Candidates with a less than satisfactory grade point average (generally 3.0), GRE scores, or subject matter deficiencies (as determined by the graduate affairs committee) may be admitted on a provisional status. The Graduate Student Affairs Committee is responsible for stating the terms of the provisional status (see section 3.3.1). An individual who is deficient in any of the foregoing areas will be admitted on condition of fulfilling these requirements within the first year of residency, and prior to the acceptance of the thesis/dissertation proposal.

1.6 Direct Ph.D.:

Candidates for a direct Ph.D. will be evaluated during the first year and if their performance is not considered satisfactory at the Ph.D. level, by the advisor and guidance committee, they may be terminated or diverted to the M.S. program. Recommendations for dismissal will be reviewed by the Grad director followed by the Department Chair. Students will be notified that they are not meeting expectations and provided an opportunity to improve.

1.7 Transfer from M.S. to Direct Ph.D.:

Persons entering as an M.S. candidate and wishing to change to a direct Ph.D. program may, upon the approval of their advisor, petition the Department Chair through the Graduate student affairs Committee for a change of status.

1.8 Lifelong Education Status:

Students wishing to continue their education at MSU, but not to pursue a graduate degree, can apply for admission as a Lifelong Education student. Students who have obtained a baccalaureate degree are considered Graduate Lifelong Education students. Information concerning Lifelong Education can be found at <https://reg.msu.edu/ROInfo/EnrReg/LifeLongEducation.aspx>. Online applications are available from this website. A student wishing to later pursue a graduate degree can request that a maximum of 10 graduate credits earned while in Lifelong status be transferred to their graduate program. Students wishing to transfer such credits must request approval in writing to the Department Chair.

1.9 CNS Dual B.S.-M.S. Degree:

The [College of Natural Science](#) has developed a very unique program for academically talented undergraduates. Students enrolled in a B.S. program in the College of Natural Science have the opportunity to consider enrolling in graduate courses and conducting research toward a M.S. degree after completing the first two years of their bachelor's degree. The M.S. degree must be in a Natural Science major. For more information contact the CNS Office of Student Affairs (103 Natural Science Building, 517-355-4470)

1.10 University Dual Enrollment by Undergraduates

Dual enrollment provides an opportunity for academically talented undergraduate students to enroll in graduate courses and conduct research towards a graduate degree while completing the last two years of their bachelor's degree(s) programs. To be considered for dual enrollment, the student must first file an Application for Admission to Graduate Study, as indicated under Application Procedure in this section of the catalog and be admitted into a graduate program. Subsequent to admission to a graduate program, in regular status, the student must complete a Request for Dual Enrollment Status form, available from the Office of the Registrar. A student who is accepted for dual enrollment can be admitted to both the undergraduate and graduate degree program upon reaching junior standing. Within the first semester of dual enrollment, the student's graduate degree program adviser must be identified and the appropriate graduate degree guidance committee established. The adviser and committee assist the student in

developing a program of study for the graduate degree. Admission to graduate study must be approved before work to apply toward a graduate degree program is undertaken. Credits completed prior to admission to graduate study cannot be applied toward a graduate degree program. A student will be classified as an undergraduate until the minimum number of credits required for a first bachelor's degree is completed. When the student is classified as a graduate student, eligibility begins for graduate assistantships, other forms of graduate student financial aid, or those services and prerogatives normally reserved for graduate students. A student pays undergraduate tuition up to the total number of credits required for a first bachelor's degree(s) in his/her major(s), at which point graduate tuition is applicable and students are eligible for graduate fellowships and assistantships. If approved by the graduate program, a maximum of nine credits, at the 400-level or higher, from the undergraduate degree program can be applied toward the requirements for the graduate degree program for credits completed after admission to graduate study. In semesters when the student is dually enrolled, federal financial aid designated for the first bachelor's degree (Federal Pell Grant and Federal Supplemental Educational Opportunity Grant (SEOG)) will be determined based upon the number of undergraduate credits only. Awards will be manually adjusted as necessary once the student is registered. Students are not eligible for financial aid as a graduate student until the semester after the minimum number of credits required for the first bachelor's degree has been earned.

1.11 University Linked Bachelor's-Master's Degree:

Undergraduate students may request the application of up to 9 credits toward the master's program for qualifying 400-level and above course work taken at the undergraduate level at Michigan State University or another postsecondary accredited institution of comparable academic quality. The number of approved credits, not to exceed 9, is applied toward the credit requirement of the master's degree. Credits applied to the Linked Bachelor's-Master's Program are not eligible to be applied to any other graduate degree program.

2. Temporary Advisor, Preliminary Advising, and Orientation

2.1 Temporary Advisor:

New graduate students who have not as yet determined the area of the Earth and Environmental Sciences in which they will specialize will be assigned the Graduate Director as a temporary advisor. Normally a temporary advisor will serve (at maximum) until By March 1 (second semester in program).

2.2 Preliminary Advising:

All new graduate students without a permanent advisor will work with the Graduate Director and the Graduate student affairs Committee prior to the first day of classes of the semester in which the student intends to enroll to assist in planning their program and provide other guidance, part of which shall be assistance in helping the student select a permanent advisor. Students who have selected a permanent advisor(s) will work with that advisor to plan their programs.

2.3 Orientation:

A graduate student orientation will be conducted by the Department Chair and/or the Graduate Director the week prior to the beginning of fall semester classes to inform students of the policies and procedures of the Department, and of the expectations of the students. Students commencing their graduate program in the spring or summer semester will be required to meet with the Graduate Director or Department Chair upon arrival at MSU for this purpose.

3. General Degree Requirements

Specific course requirements are outlined in Appendix B

3.1 University Requirements

3.1.1 Maximum Credit Load:

Graduate students who are not funded have no credit limitations. Students with assistantships may carry a maximum of 16 course credits (for a quarter-time appointment), 12 course credits (for a half -time appointment), or 8 credits (for three-quarter time appointment) per semester. A student load above these credits (not counting GLG 899/999) requires approval of the Dean.

3.1.2 Full Time Enrollment:

For the Master's it is 9 credits and for the Ph.D. it is 6 credits.

3.1.3 Half Time Enrollment:

For the Master's it is 5-6 and for the Ph.D. it is 3 credits. Also see Section 17.1.

3.1.4 Minimum Registration:

All students using University and/or faculty services must register for a minimum of one credit.

3.1.5 Minimum Credits Required for Graduation:

M.S. 30 credits (at least 16 of which must be at the 800 level, including thesis research credits). Minimum 4 thesis credits; 7 thesis credits maximum (department limit).

Ph.D. Minimum 24 and maximum of 36 dissertation research credits (GLG 999); additional course credits to be determined by the Guidance Committee. (Students request dissertation research credits through the department office. This includes completion of paperwork and approval by graduate advisors.)

3.1.6 Time Limit

M.S. 6 years from the beginning of the first semester in which credit was earned toward the degree.

Ph.D. All requirements within 8 years from the beginning of the first semester in which credit was earned toward the degree; take comprehensive exam (written and oral) within 2 years (with MS) and 3 years (without MS). Application for extensions of the eight-year period of time toward degree must be submitted by the department/school for approval by the dean of the college and the Dean of the Graduate School. Upon approval of the extension, doctoral comprehensive examinations must be passed again.

3.2 College Requirements

3.2.1 Minimum Academic Standard:

The minimum academic standard is a 3.0 grade-point average in courses stated as program requirements on the Guidance Committee Report. A student will be dropped from the program if the student receives:

- a) grades below 3.0 in more than 3 program courses of 3 or more credits each,
or
- b) deferred credits in more than 3 program courses of 3 or more credits each at any given time,
or
- c) a combination of the above in excess of 4 courses.

3.2.2 *Transfer Credit Limitation:*

(must have received at least a 3.0 grade or its equivalent to be considered for transfer):

M.S.: Allow a combined maximum of 9 credits to be applied to a Master's degree program from transfer courses. Lifelong Education enrollment status, and the Graduate Certificate level with no more than 9 credits from each category, except for 12 graduate certificate credits permitted in the College of Education.

Ph.D.: Maximum number is determined by the Guidance Committee and the work must have been taken within the MSU time limit for completion of the Ph.D.

3.2.3 *Residence Minimums:*

Students are required to be enrolled and take classes at MSU for a minimum period of time to receive the degree.

M.S. 6 credits in residence

Ph.D. 2 consecutive semesters of at least 6 credits of graduate work each semester

3.3 **Department Requirements**

See Appendix B for additional requirements.

3.3.1 *Candidates on Provisional Status:*

Time Limit: Provisional requirements must be completed within the first year of residency, and prior to the acceptance of the thesis/dissertation proposal. Students requiring more time to complete provisional courses may petition the Graduate Student Affairs Committee with a request for a specific extension.

Minimum Grade Requirement: Credit must be earned (2.0 or above) in courses taken to fulfill undergraduate deficiencies.

Course requirements: Provisional students are required to take at least nine credit hours of which at least six must be regular graduate credit courses. Special problems courses or seminar courses do not count as regular graduate credit courses.

Minimum Grade Point Average: Students on a provisional program are required to attain a 3.0 grade point average by the end of the second semester; this includes courses taken to complete undergraduate deficiencies and any science courses taken outside the department.

Withdrawal from Program: Failure to complete the provisional agreement will result in the student being required to withdraw from the program.

3.3.2 *Part-time Status:*

A part-time student will be required to:

Submit a statement from their employer stating that he/she will give the student release time to complete courses.

Enroll in a minimum of three credits per semester. (One credit for PhD students who have passed the comprehensive examination.)

Maintain a 3.0 GPA after two semesters.

Adhere to the same timelines for completing department requirements as for full-time students unless otherwise approved by the Graduate Student Affairs Committee and Department Chair.

3.3.3 Research Credit Limitations:

Prior to submitting a thesis/dissertation proposal: M.S. candidates may enroll for a maximum of one thesis research credit (GLG 899); Ph.D. candidates may enroll for a maximum of seven dissertation research credits (GLG 999). Until a proposal is submitted, subsequent research credits will not be allowed and students who enroll for GLG 899/999 credits in excess of the above limits must drop these credits immediately upon notification. If a student fails to drop these credits, the Department will drop these credits from the student's schedule; the student will be notified of the action.

3.3.4 Research Methods

All students are expected to attend the EES speaker program and enroll one time in GLG 900 (1 credit) and GLG (ENE) 901 (1 credit).

Masters of Science Degrees

4. M.S. Degree Requirements (Plan A)

Plan A (with thesis) M.S. degrees are offered in [Environmental Geosciences](#) and [Geological Sciences](#). Specific admission and course requirements are outlined in [Appendix B](#). A summary of degree requirement timelines can be found in the DEGREE REQUIREMENT TIMELINES AT A GLANCE table at the beginning of this document. Each student working toward a Master's of Science (Plan A) must conduct original research upon which a thesis which makes a significant contribution to knowledge is to be prepared and published. The research is to be under the direction of and acceptable to the guidance committee. Multi-investigator publications in which the student is not first author, are not accepted as Thesis chapters.

5. M.S. Guidance Committee, Guidance Committee Report and Thesis Proposal (Plan A)

5.1 Selection of the Advisor:

The selection of the advisor, who will also be the Thesis Advisor and Guidance Committee Chair, shall be a matter of mutual agreement between the student and the faculty member (see Appendix C for more information on student/advisor relationships). An advisor must be selected no later than March 1 of the second semester in the program. (see Advisor Selection/Agreement form on page *xiii*).

5.2 Changing the Advisor:

A change in the advisor can be made upon the request of either the student or the advisor and is subject to the mutual agreement of the student, the proposed new advisor, and the Department Chair. Such a request

must be made in writing to the Department Chair, and signed by the student and the new advisor. The student must discuss the advisor change in person with both the current advisor and the new advisor prior to submitting the written request. Upon approval by the Department Chair, a copy of the signed letter will be returned to the student, the previous advisor and new advisor.

5.3 Selection and Composition of the Guidance Committee:

In consultation with the advisor, a Guidance Committee must be selected no later than March 1 of the second semester in the program. The Guidance Committee Report serves as the official forum for selection of the Graduate Committee.

5.3.1 Committee Structure:

At least two of the core Committee must be from the Department of Earth and Environmental Sciences. In addition to the Committee Chair, the core of the Guidance Committee must consist of a minimum of two other Michigan State University faculty who are regular¹ faculty members or:

With the approval of the Chair, an exception may be granted to allow an Emeritus faculty member to serve as one of the three required faculty members on the Guidance Committee. In addition, an Emeritus faculty member may continue to serve as the Chair of the Guidance Committee following the granting of Emeritus status but may not serve as Chair of a newly-formed committee.

A non-tenure stream faculty member, with the approval of the Dean of The Graduate School, may serve on the Guidance Committee as one of the three required faculty members or as the Chair of the Guidance Committee.

Exceptions: More than three persons may be members of the Guidance Committee. Persons other than those specified above may serve as voting members of the Committee providing they have a Ph.D. in an appropriate field and have been approved by the Department Chair, and the number of such persons does not exceed the total number of regular Committee members.

5.4 Changing the Composition of the Guidance Committee:

A change in composition of the Guidance Committee can be made upon the request of either the student or a member of the Guidance Committee. Such a request must be made in writing to the Department Chair, and signed by the student, all members of the current Guidance Committee and the new member of the Guidance Committee. The student must have discussed the membership change in person with all current Guidance Committee members and the new member prior to submitting the written request. Upon approval by the Department Chair, a copy of the signed letter will be returned to the student, all members of the current Guidance Committee and the new committee member.

5.5 Guidance Committee Report for the Program of Study:

In conjunction with the Guidance Committee, the student must submit a report listing all degree requirements approved by the Committee and Department Chair, by March 1 (second semester in program). Separate Guidance Committee Report forms are available for the M.S. in Environmental Geosciences and the M.S. in Earth and Environmental Sciences; both can be found online (See Online Forms List on page

¹ As defined in the Faculty Handbook, The "regular faculty" shall consist of all persons appointed under the rules of tenure and holding the rank of professor, associate professor or assistant professor and all persons appointed as librarians"

xiii). This Guidance Committee Report, as changed or amended in full consultation between the student and the Committee, shall be regarded as the statement of program requirements. If by this deadline (excluding summer semester) a Guidance Committee Report is not filed with all approving signatures, permission for subsequent registration will be denied until such time as this requirement has been met. Changes in the Guidance Committee Report require the concurrence of all Committee members and the student and must be filed with the Department Chair and the Dean. In the situation in which concurrence is not reached among the committee members, the student may petition the Department Chair for assistance in resolving the conflict.

5.6 Thesis Proposal:

Your ability to synthesize knowledge that demonstrates proper preparation to conduct independent and original research is assessed through the development of a thesis proposal and presentation to your graduate committee. In consultation with the Guidance Committee, the student must submit a thesis proposal no later than October 31 (in the third semester in program) (see Appendix D for required guidelines, and the Thesis/Dissertation Proposal Title/Signature Page available online). The proposal is to be presented orally at a meeting of the Guidance Committee and if approved (after possible revision), signed by them and the Department Chair. The department as a whole is then informed by posting of the Title of the Research, Student Name, Advisor, Committee Members, and Abstract outside of the department office. This information, on one page is submitted to the Graduate Secretary for posting. If by this deadline (excluding summer semester) the thesis proposal is not approved (signed by all Guidance Committee members and the Department Chair), permission for subsequent registration for courses will be denied until such time as this requirement has been met.

5.7 Thesis Work Presentation:

All graduate students will present their work to the department at a Department Colloquium. This will be done at least once prior to the oral defense.

6. M.S. Thesis Defense (Plan A)

6.1 General:

The purpose of the thesis defense is to assess your ability to communicate the results of your research to an audience of peers as well as to a broader community and to assess your ability to defend the results of your work. Thus, the defense is not only the culmination of your Master's education, but also an integral part of your training to conduct research and other professional activities in the future. The student must have written permission from the Guidance Committee to set an oral examination date (see Thesis/Dissertation Review/Examination Approval form on page *xiii*). If circumstance in which a Committee member cannot attend the defense the Committee may ask another qualified faculty member to serve in his/her place. No more than one substitute will be allowed.

The advisor will approve the distribution of a preliminary draft of the completed thesis to the Committee. This draft must be submitted to the committee members at least two weeks prior to the anticipated examination date, unless all committee members agree to a shorter review period.

Within one week, after a preliminary review of the thesis, each committee member will determine if they believe the thesis is defensible. If so they will sign a form agreeing to a defense date that is mutually acceptable to the committee and student. If more than one member of the Committee does not certify that the thesis is defensible at this stage, the thesis defense cannot be scheduled.

Notice of the examination will be emailed to the faculty after the appropriate signatures have been included on the Thesis/Dissertation Review/Examination Approval form (See Online Forms List on page *xiii*).

Committee members will return a copy of the thesis with comments and suggestions to the student prior to or at the defense.

The final oral defense consists of two parts described. The first is a presentation that is be open to faculty members and members of the public without a vote. Only dissertation committee members may attend the second part, which is the examination portion of the defense M.S. thesis examinations are open to the public.

6.2 Enrollment

Students must be enrolled for a minimum of one credit during the semester in which the thesis is defended.

6.3 Examination Results

At the end of the examination, the Committee will file a recommendation regarding the M.S. degree and the student's suitability as a Ph.D. candidate with the Department Chair.

The thesis examination must be approved by at least two-thirds of the voting committee members and with not more than one dissenting vote from among the core Committee members, as defined in section 5.2 above.

A failed thesis examination may only be retaken once, and this needs to occur within one calendar year of the initial examination.

6.4 Approval of Thesis Revisions

After the student incorporates any recommended changes and corrections to the thesis, the advisor needs to approve the final document before submitting it to The Graduate School. If committee members wish to review the final copy, they need to inform the advisor and student of this at the defense.

6.5 Formatting

Refer to the Graduate School's online [Formatting Guide](#) for specific requirements regarding the formatting.

6.6 Deadlines in Order to Graduate

University deadlines pertaining to degree certification and thesis submission will be adhered to. The Graduate School's deadlines for thesis submission are available online at <https://grad.msu.edu/etd>. The Department has a collection of thesis/dissertations that can be reviewed. Arranging this review is handled through the department office staff.

7. M.S. Degree Requirements (Plan B)

A Plan B (without thesis) M.S. degree is offered in Environmental Geosciences. Specific admission and course requirements are outlined in Appendix B. A summary of degree requirement timelines can be found in the DEGREE REQUIREMENT TIMELINES AT A GLANCE table at the beginning of this document.

8. M.S. Guidance Committee and Guidance Committee Report (Plan B)

8.1 Selection of the Advisor

The selection of the advisor, who will also be the Guidance Committee Chair, shall be a matter of mutual agreement between the student and the faculty member (see Appendix C for more information on student/advisor relationships). An advisor must be selected no later than March 1, the second semester in the program. (see Advisor Selection/Agreement form on page *xiii*).

8.2 Changing the Advisor

A change in the advisor can be made upon the request of either the student or the advisor and is subject to the mutual agreement of the student, the proposed new advisor, and the Department Chair. Such a request must be made in writing to the Department Chair, and signed by the student and the new advisor. The student must discuss the advisor change in person with both the current advisor and the new advisor prior to submitting the written request. Upon approval by the Department Chair, a copy of the signed letter will be returned to the student, the previous advisor, and the new advisor.

8.3 Selection and Composition of the Guidance Committee

In consultation with the advisor, a Guidance Committee must be selected no later than March 1, the second semester in the program. The Guidance Committee Report serves as the official forum for selection of the Graduate Committee.

8.3.1 Committee Structure:

At least two of the core Committee must be from the Department of Earth and Environmental Sciences. In addition to the Committee Chair, the core of the Guidance Committee must consist of a minimum of two other Michigan State University faculty who are regular² faculty members or:

With the approval of the Chair, an exception may be granted to allow an Emeritus faculty member to serve as one of the three required faculty members on the Guidance Committee. In addition, an Emeritus faculty member may continue to serve as the Chair of the Guidance Committee following the granting of Emeritus status, but may not serve as Chair of a newly-formed committee.

A non-tenure stream faculty member, with the approval of the Dean of The Graduate School, may serve on the Guidance Committee as one of the three required faculty members or as the Chair of the Guidance Committee.

Exceptions: More than three persons may be members of the Guidance Committee. Persons other than those specified above may serve as voting members of the Committee providing they have a Ph.D. in an appropriate field and have been approved by the Department Chair, and the number of such persons does not exceed the total number of core Committee members.

³Published in this sense means that the dissertation has been accepted by ProQuest

8.4 Changing the Composition of the Guidance Committee

A Change in composition of the Guidance Committee can be made upon the request of either the student or a member of the Guidance Committee. Such a request must be made in writing to the Department Chair and signed by the student, all members of the current Guidance Committee, and the new member of the Guidance Committee. The student must discuss the membership change in person with all current Guidance Committee members and the new member prior to submitting the written request. Upon approval by the Department Chair, a copy of the signed letter will be returned to the student, all members of the current Guidance Committee and the new committee member.

8.5 Guidance Committee Report (Program of Study)

In conjunction with the Guidance Committee, the student must submit a report listing all degree requirements approved by the Committee and Department Chair (see Report of the Guidance Committee available on page *xiii*), no later than the end of the tenth full week of classes of the student's second semester in residence. This Guidance Committee Report, as changed or amended in full consultation between the student and the Committee, shall be regarded as the statement of program requirements. If by this deadline (excluding summer semester) a Guidance Committee Report is not filed with all approving signatures, permission for subsequent registration will be denied until such time as this requirement has been met. Changes in the Guidance Committee Report require the concurrence of all Committee members and the student and must be filed with the Department Chair and the Dean. In the situation in which concurrence is not reached amongst the committee members, the student may petition the Department Chair for assistance in resolving the conflict.

8.6 Final Evaluation Format

The Guidance Committee, in consultation with the student, shall determine the format of the final evaluation (oral or written) when the Guidance Committee Report is filed (see Article 9 for more details). This format is to be included in the appropriate section on the Guidance Committee Report. The purpose of the final evaluation is to evaluate the knowledge and skills you have gained in graduate program.

9. M.S. Final Evaluation (Plan B)

9.1 General

The final evaluation will be administered by the Guidance Committee during the semester in which the student receives the degree. The Guidance Committee, in consultation with the student, shall determine the format of the final evaluation when the Guidance Committee Report is filed. This evaluation should be related to the courses taken to complete the M.S. program and test the student's ability to carry out professional work in these areas.

The student must be enrolled during the semester in which the evaluation is completed.

At the end of the evaluation, the Committee will file with the Department Chair a recommendation regarding the M.S. degree.

The evaluation must be approved by at least two-thirds of the voting committee members and with not more than one dissenting vote from among the core committee members, as defined in section 8.2 above.

A failed evaluation may be retaken once, but must be passed within one semester of the initial date of the evaluation.

9.2 Exceptions

More than three persons may be members of the Guidance Committee. Persons other than those specified above may serve as voting members of the Committee providing they have a Ph.D. in an appropriate field and have been approved by the Department Chair, and the number of such persons does not exceed the total number of core Committee members.

Doctor of Philosophy Degrees

10. Ph.D. Degree Requirements

Ph.D. degrees are offered in Earth and Environmental Sciences [New degree, Spring 2019], Environmental Geosciences [Grandfathered], Geological Sciences [Grandfathered], Environmental Geosciences-Environmental and Integrative Toxicology, and Ecology, Evolutionary Biology and Behavior. Specific admission and course requirements are outlined in Appendix B. Dual doctoral degrees can be obtained but must be approved by the Dean of the Graduate School. A request for the dual major degree must be submitted within one semester following its development and within the first two years of the student's enrollment at Michigan State University. A copy of the guidance committee report must be attached. [See Academic Programs](#) for details. Ph.D. residency status is defined as A year of residence will be made up of two consecutive semesters, involving the completion of credits at the level of full-time status of graduate work each semester. A summary of degree timelines can be found in the DEGREE REQUIREMENT TIMELINES AT A GLANCE table at the beginning of this document. All doctoral students must register for and successfully complete a minimum of 24 credits and no more than 36 credits of doctoral dissertation research (course number 999). Requests for overrides to exceed the maximum of 36 (24 in the College of Education) credits of 999 must be directed to the Office of the Registrar. To do so, access the **Request for RNR Override** at the Registrar's Online Forms Menu at <https://www.reg.msu.edu/Forms/FormsMenu.aspx>. *Select the RN override and fill in the requested information.* Should the total number of credits go above 45, the RO will confer with the Graduate School before considering the request for an override. For additional information see [Costs in the General Information, Policies, Procedures and Regulation](#). Each student working toward a Doctor of Philosophy degree must conduct original research upon which a dissertation which makes a significant contribution to knowledge is to be prepared and published³. The research is to be under the direction of and acceptable to the guidance committee. The Department requires that at least one paper from the Dissertation work be submitted for publication in a peer reviewed journal prior to graduation. Multi-investigator publications, in which the student is not first author, are not accepted as one of the Dissertation chapters.

11. Ph.D. Guidance Committee, Guidance Committee Report and Dissertation Proposal

11.1 Selection of the Advisor

The selection of the advisor, who will also be the Dissertation Advisor and Chair of the Guidance Committee, shall be a matter of mutual agreement between the student and the faculty member (see

³ Published in this sense means that the dissertation has been accepted by ProQuest.

Appendix C for more information on student/advisor relationships. An advisor must be selected no later than March 1, or the second semester in the program (see Advisor Selection/Agreement form on page *xiii*).

11.2 Changing the Advisor

A change in the advisor can be made upon the request of either the student or the advisor and is subject to the mutual agreement of the student, the proposed new advisor, and the Department Chair. Such a request must be made in writing to the Department Chair, and signed by the student and the new advisor. The student must discuss the advisor change in person with both the current advisor and the new advisor prior to submitting the written request. Upon approval by the Department Chair, a copy of the signed letter will be returned to the student, the previous advisor, and the new advisor.

11.3 Selection and Composition of the Guidance Committee

In consultation with the advisor, a Guidance Committee must be selected no later than March 1, the second semester in the program. The Guidance Committee Report serves as the official forum for selection of the Graduate Committee.

11.3.1 Committee Structure:

At least half of the core Committee must be from the Department of Earth and Environmental Sciences. In addition to the Committee Chair, the core of the Guidance Committee must consist of a minimum of three other Michigan State University faculty who are regular⁴ faculty members or:

With the approval of the Chair, an exception may be granted to allow an Emeritus faculty member to serve as one of the three required faculty members on the Guidance Committee. In addition, an Emeritus faculty member may continue to serve as the Chair of the Guidance Committee following the granting of Emeritus status but may not serve as Chair of a newly-formed committee.

A non-tenure stream faculty member, with the approval of the Dean of The Graduate School, may serve on the Guidance Committee as one of the three required faculty members or as the Chair of the Guidance Committee.

Exceptions: More than four persons may be members of the Guidance Committee. Persons other than those specified above may serve as voting members of the Committee providing they have a Ph.D. in an appropriate field and have been approved by the Department Chair, and the number of such persons does not exceed the total number of core Committee members.

11.4 Changing the Composition of the Guidance Committee

A change in composition of the Guidance Committee can be made upon the request of either the student or a member of the Guidance Committee. Such a request must be made in writing to the Department Chair and signed by the student, all members of the current Guidance Committee, and the new member of the Guidance Committee. The student must discuss the membership change in person with all current Guidance Committee members and the new member prior to submitting the written request. Upon approval by the Department Chair, a copy of the signed letter will be returned to the student, all members of the current Guidance Committee, and the new committee member.

⁴ As defined in the Faculty Handbook, "The 'regular faculty' of Michigan State University shall consist of all persons appointed under the rules of tenure and holding the rank of professor, associate professor, assistant professor, or instructor, and persons appointed as librarians. In addition, the principal administrative officer of each major educational and research unit of the University shall be a member of the 'regular faculty.'"

11.5 Guidance Committee Report (Program of Study)

In conjunction with the Guidance Committee, the student must submit a report listing all degree requirements approved by the Committee and Department Chair (see Report of the Guidance Committee on page *xiii*), no later than March 1 of the second semester in the program. This Guidance Committee Report, as changed or amended in full consultation between the student and the Committee, shall be regarded as the statement of program requirements. If by this deadline (excluding summer semester) a Guidance Committee Report is not filed with all approving signatures, permission for subsequent registration will be denied until such time as this requirement has been met. Changes in the Guidance Committee Report require the concurrence of all Committee members and the student and must be filed with the Department Chair and the Dean.

11.6 Comprehensive Examination Areas

The Guidance Committee, in consultation with the student, shall determine the examination areas for the comprehensive examination when the Guidance Committee Report is filed. These areas are to be included in the appropriate section on the Guidance Committee Report.

11.7 GradPlan

Students must enter their program plan into [GradPlan](#). GradPlan is developed for Ph.D. students to lay out their Ph.D. program of study, record faculty approval, and make notes on all the requirements as they are completed. GradPlan is also the only way final degree certification/degree audit will be conducted beginning in Fall 2016. The Graduate School will certify the acceptance of each dissertation final format using GradPlan. The Office of the Registrar will access GradPlan to complete degree certification once a student completes an application for graduation.

12. Ph.D. Comprehensive Examination

12.1 General

The Comprehensive Examination will be conducted by the Guidance Committee and must include both a written and an oral portion. The purpose of the comprehensive examination is to assess the breadth of your knowledge and skills necessary to conduct independent and original doctoral research. The Guidance Committee, in consultation with the student, shall determine the format of the comprehensive examination when the Guidance Committee Report is filed.

- 12.1.1 Both portions of the exam must be approved by at least three-fourths of the voting committee members and with not more than one dissenting vote from among the core Committee members, as defined in section 11.3.1 above.
- 12.1.2 The written portion of the exam will be divided into subject matter areas, determined by each member of the Guidance Committee. The written exam must be taken within a two-week period, by April 15, the fourth semester in residence (PhD with MS) or November 15, the fifth semester in residence (PhD without MS) unless an extension is granted by the graduate director.

- 12.1.3 The oral examination must be completed by April 15, fourth semester in residence (PhD with MS) or November 15, fifth semester in residence (PhD without MS) unless an extension is granted by the graduate director.
- 12.1.4 Failed portions of the written examination may be retaken once but must be passed less than one semester after the initial date of the written examination.
- 12.1.5 A failed oral examination may be retaken once but must be passed less than one semester after the initial date of the orals.
- 12.1.6 If a student fails to complete written and oral exams by these deadlines, permission for subsequent registration for classes will be denied until the exams are scheduled.
- 12.1.7 Should the degree requirements not be completed within the 8-year time limit, an application for an extension of the time limit must be submitted by the Department for approval by the Dean of the College and the Dean of The Graduate School. Upon approval of the extension, doctoral comprehensive examinations must be passed again.

13. Ph.D. Dissertation Proposal

13.1 General

Your ability to synthesize knowledge that demonstrates proper preparation to conduct independent and original doctoral research is assessed through the development of a dissertation proposal and the defense of the proposal. In consultation with the Guidance Committee the student must submit an approved dissertation proposal no later than April 15, the fourth semester in residence (PhD with MS) or November 15, the fifth semester in residence (PhD without MS). (see Appendix D for required guidelines and the Thesis/Dissertation Proposal Title/Signature Page available online). The proposal is to be presented orally at a meeting of the Guidance Committee. **A draft of the proposal must be submitted to committee members one week before the oral presentation.** If the proposal defense is approved (after possible revision), it must then be signed by student's Guidance Committee and the Department Chair. The department as a whole is then informed by posting the Title of the Research, Student Name, Advisor, Committee Members, and Abstract outside of the Department Office. If by this deadline the dissertation proposal is not approved (signed by all Guidance Committee members and the Department Chair), permission for subsequent registration for classes will be denied until such time as this requirement has been met.

13.2 Dissertation Work Presentation

All graduate students will present their work to the department at a Department Colloquium. This will be done at least once prior to the oral defense.

14. Ph.D. Oral Dissertation Defense

14.1 General

The purpose of the dissertation defense is to assess your ability to communicate the results of your research to an audience of peers as well as to a broader community and your ability to defend the results of your work. Thus, the defense is not only the culmination of your graduate education, but also an integral part of your training to conduct research and other professional activities in the future. The student must have

written permission from the Guidance Committee to set an oral examination date (see Thesis/Dissertation Review/Examination Approval form page *xiii*). If circumstance in which a Committee member cannot attend the defense the Committee may ask another qualified faculty member to serve in his/her place. No more than one substitute will be allowed.

- 14.1.1 The advisor will approve the distribution of a preliminary draft of the completed dissertation to the Committee. This draft must be submitted to the committee members at least four weeks prior to the anticipated dissertation defense date.
- 14.1.2 The Committee will return the corrected copy to the student within two weeks. During this period all efforts will be made to resolve major differences between the student and the committee members concerning the content of the dissertation. If more than one member of the Committee does not approve of the dissertation at this stage, the dissertation examination cannot be scheduled.
- 14.1.3 A completed copy of the dissertation essentially in final form, but not bound, will be returned to each committee member at least one week before the dissertation examination.
- 14.1.4 Notice of the examination time will be circulated to the faculty after the appropriate signatures have been included on the Thesis/Dissertation Review/Examination Approval form (See Online Forms List on page *xiii*).
- 14.1.5 The final oral defense consists of two parts. The first is a presentation that is be open to faculty members and members of the public without a vote. Only dissertation committee members may attend the second part, which is the examination portion of the defense.

14.2 Enrollment

Students must be enrolled in school the semester in which the dissertation is defended.

14.3 Examination Results

At the end of the examination, the Committee will file with the Department Chair a recommendation regarding the Ph.D. degree.

- 14.4.1 When the Guidance Committee has reviewed and approved the dissertation and the student has passed an oral examination, the student shall incorporate in the dissertation any recommended changes and corrections before submitting it to the Graduate School.
- 14.4.2 The dissertation examination must be approved by at least three-fourths of the voting examiners and with not more than one dissenting vote from among the core Committee members, as defined in section 11.3.1 above.
- 14.4.3 A failed dissertation examination may be retaken once within one calendar year of the initial examination.

14.4 Formatting

Refer to the Graduate School's online [Formatting Guide](#) for specific requirements regarding the formatting.

14.6 Deadlines in Order to Graduate

University deadlines pertaining to degree certification and dissertation submission will be adhered to. The Graduate School's deadlines for thesis submission are available online at <http://grad.msu.edu/etd>.

15. Exceptions

Any student who considers that his/her case is an exception to the above rules may petition the Department Chair for a hearing (Article 22).

16. Review of Academic Progress

Each semester, the Graduate Secretary will monitor that the students are on time with the expectations for their degree (see DEGREE REQUIREMENT TIMELINES AT A GLANCE for the schedule) and send out reminders to the student and advisor(s) with a copy to the Graduate Director if these expectations are not being met. If deadlines are not met, appropriate holds on enrollments will be placed through the Dean's office of the College of Natural Science.

Students and their advisor(s) will complete an annual progress report. The forms are shown in Appendix F and are available at (e.g., <http://grad.msu.edu/forms>). These are to be turned in by March 20 to the Graduate Secretary. At the same time, the student is to turn in an updated CV (see example template in Appendix G) that will include parts 3, 4, 5, 6 the information needed under the Professional Performance and Potential section of the annual progress report form.

The faculty advisor(s) and graduate student will meet to discuss this evaluation and sign the annual progress report document. Copies of this report should be distributed to the student and the advisor(s), with the original submitted to the Graduate Secretary for placement in the student's academic file. A student who disagrees with the content of this evaluation, or who wishes to provide additional documentation, has the right to appeal in writing to the Department Chair or Graduate Director. A copy of this response will be given to the advisor(s), with the original placed in the student's academic file. If necessary, the student has the right to petition the Department Chair for a hearing (see Article 22 for details). The student can refer to MSU Graduate Student guidelines in the preparation of the petition.

The Graduate Director will review these evaluations and as necessary work with the Graduate Student Affairs Committee on recommendations concerning completion of requirements, changes from provisional status, and action to be taken for students not making satisfactory progress toward a degree. Students and their respective advisors will be notified of any such actions.

When it has been determined, by either the advisor(s), the Graduate student affairs Committee, or the Department Chair that a student is not meeting departmental standards, a conference will be held between the Guidance Committee, the Department Chair, and the Chair of the Graduate Student Affairs Committee. If they determine that these deficiencies endanger the student's status in the program, a statement shall be written to this effect and the statement shall be signed by the advisor and the student and a copy placed in the student's file.

16.1 Evaluation criteria guidelines

16.1.1 *Academic standards:* Each graduate student is must meet the minimum academic standards of the College of Natural Science (see 3.2.1 above, and also <https://reg.msu.edu/AcademicPrograms/>).

16.1.2 *Research:* Graduate students should be capable of pursuing meaningful research. The evaluation of a student's research ability is the responsibility of his/her Guidance Committee.

16.1.3 *Academic progress:* Each graduate student shall make normal progress toward his/her degree. This includes meeting the expectations outlined in DEGREE REQUIREMENT TIMELINES AT A GLANCE at the beginning of this handbook. In addition, as a general guide, the Department suggests the following for full-time students:

M.S.	2 years
Ph.D.	4-5 years

16.2 Dismissals and Withdrawals

A student whose work is deficient will have received an evaluation from his/her advisor stating these deficiencies (see Article 16). After this warning notice has been given, if adequate improvement is not made during the following semester in which the student is enrolled (excluding summer), the Chair of the Department, in consultation with the Guidance Committee and Chair of the Graduate Affairs Committee, will terminate the student's candidacy for a degree. A student who fails to meet the academic standards for any program may, on recommendation of the Chair, be required by the Dean to withdraw at the end of any semester.

16.3 Appeal of Academic Dismissal

Any student who does not agree with the Department's decision to terminate their candidacy for a degree may petition the Department Chair for a hearing (see Article 22 for details).

WORK RELATED POLICIES

17. General Information for Graduate Assistants

(please see Graduate School for additional information)

17.1 Registration Enrollment Requirements—Academic Year

A Graduate Assistant must be registered each semester in which an assistantship is held. Employment periods are August 16 to December 31, January 1 to May 15, and May 16 to August 15. Below are the maximum and minimum credit loads for various types of assistantships during the academic year.

17.1.1 Doctoral students with quarter-time or half-time assistantships must carry at least 3 credits until they have successfully completed their comprehensive exams, after which the minimum is 1 credit. If there are explicit written conditions that require that you enroll for more than 1 credit (some external or international fellowships may require more), please let your graduate secretary know and provide a copy of the written requirement so a special waiver request can be processed. Excluding 999 credits you

may carry a maximum of 16 (1/4 time), 12 (1/2 time), or 8 (3/4/ time) course credits. Enrolling with these minimum credits meets the 1 credit requirement needed to be exempt from IRS withholding for FICA and Medicare.

17.1.2 Master's students with quarter-time or half-time assistantships must carry at least 6 credits. Excluding 999 credits you may carry a maximum of 16 (1/4 time) or 12 (1/2 time) course credits. Enrolling for the 6 credits meets the 5 credit requirement needed to be exempt from IRS withholding for FICA and Medicare.

17.1.3 Doctoral and master's students with three-quarter-time assistantships must carry at least 3 credits. The minimum enrollment for doctoral students who have successfully completed their comprehensive exams, however, is 1 credit. For Doctoral students, if there are explicit written conditions that require that you enroll for more than 1 credit (some external or international fellowships may require more), please let your graduate secretary know and provide a copy of the written requirement so a special waiver request can be processed. Excluding 999 credits you may carry a maximum of 8 course credits. However, you need to enroll in 5 credits (MS) and 3 credits (PhD) in order to be exempt from IRS withholding for FICA and Medicare.

17.2 Registration Enrollment Requirements—Summer

A three-credit minimum registration is required for all types of assistantships during summer semester unless they have successfully completed their comprehensive exams, after which the minimum is 1 credit. Students may be paid on an hourly basis during the summer, in which case there is no registration requirement.

17.3 Time Limitations on Financial Aid

All financial aid (N.D.E.A., company fellowships, research assistantships, etc.) shall be considered as equivalent to a teaching assistantship. Normal time limits for holding a teaching assistantship or a combination of fellowships (etc.) and teaching assistantships:

M.S. 2 years
Ph.D. 4 years

An advisor may fund a student on a Research assistantship for a longer period, and in circumstances where the department needs additional students for Teaching Assistantships, students may be offered additional funding on a semester by semester basis.

17.4 Outside Work for Pay

It is expected that your graduate career and graduate assistantship will be a full-time obligation, and that your first priority when accepting a graduate assistantship is to MSU and the Department of Earth and Environmental Sciences. Outside work for pay, however, is permitted as long as it does not interfere with your responsibilities and obligations as a graduate student and graduate assistant, and you remain in good academic standing.

17.5 Traveling

Students should fill out a Travel Authorization forms before each trip that involves MSU activities. These forms should be turned in to the Graduate Secretary prior to travel. Students traveling abroad should visit

the “Travel Smart” website (<http://grad.msu.edu/travel/>) before their trip. When students appointed as TAs or RAs travel outside the U.S. to conduct required thesis or dissertation research or to collaborate with investigators conducting research abroad, the department or research grant supporting the work will pay for all needed vaccinations and or medications (e.g., anti-malarials) as determined by the MSU Travel Clinic. Students may include those costs in applications for funds from the Research Enhancement or Travel Grant programs administered by the Graduate School. Graduate students traveling internationally for MSU-related work (research data collection, international professional conferences, courses, or other academic business, are strongly encouraged to sign up using the International Travelers Database (even if they are not being reimbursed for travel). This is the best way for MSU to stay in touch with our students if there is an emergency. http://www.isp.msu.edu/travel/travelers_database.htm.

17.6 Stipends, Tuition Waivers/Exemptions and Fee Waivers

The information below is subject to yearly change. Please consult The Graduate School home page for the latest information at <http://grad.msu.edu/>

17.6.1..Stipend Levels and Advancement:

Current stipend ranges can be obtained at [Human Resources](#). Within the range established for the University, the stipend depends upon the qualifications of the individual, the availability of funds in the Department, and your prior year’s salary, if applicable. Stipends are not tax exempt. For stipend level explanations and advancement information, refer to Article 19 of the MSU/GEU employment contract.

17.6.2 Tuition Waiver:

Students holding a graduate assistantship will receive a nine-credit tuition waiver for each semester during the academic year in which the assistantship is held. A four-credit tuition waiver will be awarded for each summer semester in which an assistantship is held.

17.6.3 Out-of-state Tuition Rate Exemption:

An out-of-state student holding an assistantship will receive exemption from out-of-state tuition rates for credits over nine for each semester in which the assistantship is held during the academic year. Also, students holding an assistantship during the entire academic year will receive exemption from out-of-state tuition rates for the summer semester preceding and following his/her appointment.

17.6.4 Matriculation Fee Waiver:

Graduate assistants receive a waiver of their matriculation and infrastructure/technology support fees for each semester included in the appointment.

17.7 Grief Absence Policy:

For master’s (Plan A), master’s (Plan B) with research responsibilities, and doctoral students, it is the responsibility of the student to: a) notify their advisor/major professor and faculty of the courses in which they are enrolled of the need for a grief absence in a timely manner, but no later than one week from the student’s initial knowledge of the situation, b) provide appropriate verification of the grief absence as specified by the advisor/major professor and faculty, and c) complete all missed work as determined in consultation with the advisor/major professor and faculty. It is the responsibility of the advisor/major professor to: a) determine with the student the expected period of absence – it is expected that some bereavement processes may be more extensive than others depending on individual circumstances, b) receive verification of the authenticity of a grief absence request upon the student’s return, and c) make reasonable accommodations so that the student is not penalized due to a verified grief absence. If employed as a RA or TE, the graduate student must also notify their employer. Both employer and student will swiftly communicate to determine how the student’s responsibilities will be covered during their absence. Graduate teaching assistants (TAs) should refer to the bereavement policy in the MSU GEU CBU Article 18.

Students in the graduate professional colleges (CHM, COM, CVM, LAW) with their own grief absence policies are excluded from the above and should follow their own policies. Students who believe their rights under this policy have been violated should contact the University Ombudsperson.

18. Graduate Teaching Assistants

18.1 Assistantship Selections

The total number of Teaching Assistantships available each semester is determined by departmental course needs. The Graduate Director and Department Chair work together to assign teaching assistantships based on balancing department needs, advisor needs, support commitments, student ability and background required to teach particular courses, and satisfactory academic standing.

Further considerations in determining assistantship availability can include grade point average in upper division undergraduate courses, strength of background in supporting sciences (mathematics, physics, and chemistry), Graduate Record Examination Scores in the verbal and quantitative tests, and previous graduate record (if any).

The Graduate Director and Department Chair will utilize the advice of the Graduate Affairs Committee as a general guide in making appointments within the framework of a candidate's willingness to commit himself/herself at a particular time. The Graduate Director and Department Chair shall, in selecting new graduate teaching assistants, endeavor to maintain a reasonable balance between the various Earth and environmental sciences disciplines.

18.2 Evaluation/Termination of Teaching Assistants

18.2.1 Faculty Evaluation of Teaching Assistants:

Every faculty member shall, at the end of the semester, submit to the Department Chair an evaluation of each graduate assistant who has assisted him/her during that semester. The evaluation will be on a standard form (see Appendix E), a signed copy of which will be given to the graduate assistant and faculty supervisor. Additional information pertaining to teaching assistant evaluations can be found in Article 16 of the MSU/GEU employment contract.

18.2.2 Student Evaluation of Teaching Assistants:

The Student Instructional Rating System (SIRS) provides an opportunity for students to evaluate the instruction they receive. The purpose of this system is to provide student input toward assessing and improving course design and teaching performance. Typically SIRS data are collected online students notified (and reminded) by email when SIRS Online surveys are available for their classes. The notification period, and the period during which the forms are “open” for completion varies depending on whether the class is a sub-term or full-term class. In certain circumstances a professor may choose to use a paper format. A rating consisting of the average grade assigned on these forms to the assistant for his/her overall teaching ability shall be recorded in a department SIRS file, and the SIRS summaries shall be placed in the student's personnel file. The results of these surveys are made available to the instructor and to teaching assistant, but are not made public. These are made available after grades for the respective semester have been submitted to the Office of the Registrar. Additional information pertaining to student evaluations of teaching assistants can be found in Article 16 of the MSU/GEU employment contract and at the [Student Instructional Rating System](#).

18.2.3 Terminations:

Assistantships can be terminated for the following reasons:

Time: Lack of progress his/her degree. In the Department of Earth and Environmental Sciences, this means an M.S. should be completed in 2 years, a Ph.D. in 4-5 years. Failure to make such progress is sufficient reason for withdrawal of the assistantship.

Academic Standards: See Article 12 of the MSU/GEU employment contract.

Lack of funds: University, college or department cutbacks in funds for graduate teaching assistantships can result in withdrawal of the assistantship.

18.3 Work Load and Duties

The Graduate Director and Department Chair will work in conjunction with the Graduate Secretary to determine graduate teaching assistant assignments.

18.4 Office Hours

Graduate teaching assistants must schedule a minimum of two office hours per week, or more as required by the course instructor.

18.5 The Graduate Employees Union (GEU)

Teaching assistants should be aware of their rights and responsibilities under the current version of the contract between MSU and the GEU. You may obtain the agreement, and other information about the GEU, at the web site <http://geuatmsu.org/>. Grievance Procedures: See Article 26 of the MSU/GEU employment contract. Union membership is voluntary; meeting the definition of TA under the GEU contract is independent of union membership. One can be a TA, covered by the contract and enjoy all the rights and responsibilities of the agreement but not a member of the union. Union membership is not tied to the employment relationship and is a private matter between the employee and union.

18.6 Grievance Procedures

See Article 22 below.

18.7 GEU Stipend Levels and Advancement

Refer to Article 19 of the MSU/GEU employment contract for information regarding stipends, tuition and fee benefits, and health insurance coverage. Stipends are not tax exempt.

18.8 Orientation and Teaching Expectations

New TAs must undergo training by the Graduate School, which is provided each August. TAs should also contact the professor of the course they are teaching several weeks before the beginning of the semester to go over expectations and possible additional training specific to the course.

The general policy of the Department of Earth and Environmental Sciences is that graduate assistants shall not teach lecture sections. Graduate assistants who have unusual expertise in a certain aspect of the Earth and Environmental Sciences, upon specific permission from the Chair and the faculty member involved, may be invited to give one to three lectures to a lecture section.

Graduate assistants assigned to laboratory sections are not expected to develop laboratory exercises; this is the responsibility of the faculty member assigned to the lecture section related to that laboratory. Graduate

assistants are must follow the laboratory exercises given to them by the faculty member and to do whatever teaching is required to implement the exercise.

Graduate assistants are required to attend an orientation session conducted by the Department Chair or his/her faculty representative prior to fall semester and may be required to attend a series of training workshops, and/or orientation sessions conducted by the University.

18.9 Employee Leave Time

Refer to Article 18 of the MSU/GEU employment contract for information regarding leave time related to for example, jury duty, medical issues, etc.

19. Graduate Research Assistants

19.1 Research Assistantship Selections

Research assistantships are generally offered directly by individual faculty members who have research grant funding available. Students are encouraged to correspond directly with individual faculty members to express their interest in an available research assistantship. A complete list of faculty and their research areas of interest can be found at the front of this manual. Teaching exempt assistants are selected using the same guidelines as those for teaching assistants (see 18.1 above). Considerations in judging applicants may include grade point average in upper division undergraduate courses, strength of background in supporting sciences (mathematics, physics, and chemistry), Graduate Record Examination Scores in the verbal and quantitative tests, and previous graduate record (if any).

19.2 Performance

Research assistantships can be terminated for the following reasons:

- 1) Time: To retain an assistantship a student must make reasonable progress toward his/her degree. In this Department this means a M.S. should be on track to be completed in 2 years, a Ph.D. on track to complete in 4 years. Failure to make such progress is sufficient reason for withdrawal of the assistantship.
- 2) College Academic Standards: Assistantships can be terminated for failure to maintain the minimum academic standards of the College of Natural Science found in the Academic Programs.
- 3) Lack of funds: Research assistantships are offered on a semester by semester basis depending on availability of grant funding associated with a student's area of research.

20. Additional Benefits

20.1 Parking

Graduate assistants are eligible to purchase a parking sticker for their vehicle(s) that will allow them to park in designated lots on campus. Information and applications are available from the Department of Police and Public Safety, online at <http://www.dpps.msu.edu/>. Questions concerning parking should be directed to DPPS at 517-355-8440.

20.2 Health Care

Health care benefits are currently provided by Blue Care Network.. Health care coverage is provided for the graduate assistant (at no cost to the student); with optional dental benefits and spouse/family coverage available at the graduate assistant's expense. Additional information is available from the MSU Benefits Office, 517-353-4434 or 1-800-353-4434, ext. 356; or online at <https://www.hr.msu.edu/graduate-assistants.html>. See also Article 22 of the MSU/GEU employment contract.

20.3 Office Space

Graduate assistants are provided with office space and telephone access for local and campus calls. *Desk space is assigned first to teaching assistants, those awarded fellowships, and research assistants.*

20.4 Photocopy Machine and Department Computer

Graduate students also have access to the Department's photocopy machine, during regular business hours with a code allowing a specified number of copies. Please contact the office staff for your code.

20.5 Mailbox

All graduate students will be provided a mailbox (unsecured) and can receive U.S. mail addressed to you at the Department's address.

20.6 Student Awards

Students may be nominated by their advisor or Graduate Student Affairs Committee for various annual Department or College awards. The basis for selection for these awards varies, but may include 1) excellence in research, 2) excellence in teaching, and 3) GPA. In addition students will have the opportunity to apply for Departmental research funds and Departmental and College research funds. Receiving an award in a specific category is typically for one time. The selection process and may evaluate the broader impact of the student on the department. This includes participation in student groups and assisting other students. Nominations for these awards are generally made by a faculty member and the student may be asked by his/her advisor to provide credentials and supporting documentation.

20.7 Library

Students have full online and collection privileges for the MSU library system.

GRADUATE STUDENT RIGHTS AND RESPONSIBILITIES

The Graduate Students Rights and Responsibilities document was adopted by the Board of Trustees on June 18, 1971. The Department of Earth and Environmental Sciences adopted the general provisions of the GSRR on February 7, 1973. A copy of the GSRR document can be found online at <http://grad.msu.edu/gsrr/>. Under GSRR provisions, each department is required to list the criteria or outline the procedures required

by certain sections of the document. The numbers listed below are not addressed in the previous sections and refer to specific sections of the GSRR document.

21.0 Student Records at Michigan State University

Graduate students shall have the right to inspect any of their own educational records, barring confidential letters of recommendation, including their official transcript. Students also shall have the right to inspect reports and evaluations of his/her academic performance. Students wishing to inspect their educational records must put such a request in writing to the Department Chair, stating the purpose for this inspection. An appointment will then be made in a timely manner for the student to inspect his/her records. These records shall not be removed from the Department Office; an appropriate room will be made available to the student for this purpose.

22. Adjudication of Cases Involving Graduate Student Rights and Responsibilities

22.1 Each right of an individual places a reciprocal duty upon others

The duty to permit the individual to exercise the right. The student, as a member of the academic community, has both rights and duties. Within that community, the student's most essential right is the right to learn. The University has a duty to provide for the student those privileges, opportunities, and protections which best promote the learning process in all its aspects. The student also has duties to other members of the academic community, the most important of which is to refrain from interference with those rights of others which are equally essential to the purposes and processes of the University. (GSRR Article 1.2).

The Michigan State University Student Rights and Responsibilities (SRR) and the Graduate Student Rights and Responsibilities (GSRR) documents establish the rights and responsibilities of MSU students and prescribe procedures to resolve allegations of violations of those rights through formal grievance hearings. In accordance with the SRR and the GSRR, the Department of Earth and Environmental Sciences Graduate Programs has established the following Hearing Board procedures for adjudicating graduate student academic grievances and complaints. (See GSRR 5.4.)

22.2 Jurisdiction of the Department of Earth and Environmental Sciences Graduate Programs

1. The Hearing Board serves as the initial Hearing Board for academic grievance hearings involving graduate students who allege violations of academic rights or seek to contest an allegation of academic misconduct (academic dishonesty, violations of professional standards or falsifying admission and academic records). (See GSRR 2.3 and 5.1.1.)
2. Students may not request an academic grievance hearing based on an allegation of incompetent instruction. (See GSRR 2.2.2)

22.3 Composition of the Hearing Board

1. The Department Hearing Board shall consist of two faculty members drawn by lot from the elected Faculty Advisory Committee, the two graduate students on the Student Advisory Committee, and the Department Chair. The Department Chair will chair the committee. The Department of Earth and Environmental Sciences shall constitute a hearing board no later than the beginning of the fourth week of classes of fall semester of each academic year. Hearing Board members serve one year terms with reappointment possible. (See GSRR 5.1.2 and 5.1.6.)

2. The Chair of the Hearing Board shall be the faculty member with rank who shall vote only in the event of a tie. In addition to the Chair, the Hearing Board shall include an equal number of voting graduate students and faculty. (See GSRR 5.1.2, and 5.1.5.)

3. The Program will train hearing board members about these procedures and the applicable sections of the GSRR. (See GSRR 5.1.3.)

22.4 Referral to the Hearing Board

1. After consulting with the instructor and appropriate unit administrator, graduate students who remain dissatisfied with their attempt to resolve an allegation of a violation of student academic rights or an allegation of academic misconduct (academic dishonesty, violations of professional standards or falsifying admission and academic records) may request an academic grievance hearing. When appropriate, the Department Chair, in consultation with the Dean, may waive jurisdiction and refer the request for an initial hearing to the College Hearing Board. (See GSRR 5.3.6.2.)

2. At any time in the grievance process, either party may consult with the University Ombudsperson. (See GSRR 5.3.2.)

3. In cases of ambiguous jurisdiction, the Dean of The Graduate School will select the appropriate Hearing Board for cases involving graduate students. (See GSRR 5.3.5.)

4. Generally, the deadline for submitting the written request for a hearing is the middle of the next semester in which the student is enrolled (including Summer). In cases in which a student seeks to contest an allegation of academic misconduct and the student's dean has called for an academic disciplinary hearing, the student has 10 class days to request an academic grievance to contest the allegation. (See GSRR 5.3.6.1 and 5.5.2.2.)

5. If either the student (the complainant) or the respondent (usually, the instructor or an administrator) is absent from the university during that semester, or if other appropriate reasons emerge, the Hearing Board may grant an extension of this deadline. If the university no longer employs the respondent before the grievance hearing commences, the hearing may proceed. (See GSRR 5.4.9.)

6. A written request for an academic grievance hearing must (1) specify the specific bases for the grievance, including the alleged violation(s), (2) identify the individual against whom the grievance is filed (the respondent) and (3) state the desired redress. Anonymous grievances will not be accepted. (See GSRR 5.1 and 5.3.6.)

22.5 Pre-Hearing Procedures

1. After receiving a graduate student's written request for a hearing, the Chair of the Department will promptly refer the grievance to the Chair of the Hearing Board. (See GSRR 5.3.2, 5.4.3.)

2. Within 5 class days, the Chair of the Hearing Board will:

a. forward the request for a hearing to the respondent and ask for a written response;

- b. send the names of the Hearing Board members to both parties and, to avoid conflicts of interest between the two parties and the Hearing Board members, request written challenges, if any, within 3 class days of this notification. In addition to conflict of interest challenges, either party can challenge two hearing board members without cause (GSRR 5.1.7.c);
 - c. rule promptly on any challenges, impanel a Hearing Board and send each party the names of the Hearing Board members. If the Chair of the Hearing Board is the subject of a challenge, the challenge shall be filed with the Dean of the College, or designee (See GSRR 5.1.7.). Decisions by the Hearing Board chair or the College Dean (or designee) on conflict of interest challenges are final;
 - d. send the Hearing Board members a copy of the request for a hearing and the respondent's written response, and send all parties a copy of these procedures.
3. Within 5 class days of being established, the Hearing Board shall review the request, and, after considering all requested and submitted information:
- a. accept the request, in full or in part, and promptly schedule a hearing.
 - b. reject the request and provide a written explanation to appropriate parties; e.g., lack of jurisdiction. (The student may appeal this decision.)
 - c. the GSRR allows the hearing board to invite the two parties to meet with the Hearing Board in an informal session to try to resolve the matter. Such a meeting does not preclude a later hearing. However, by the time a grievance is requested all informal methods of conflict resolution should have been exhausted so this option is rarely used. (See GSRR 5.4.6.)
4. If the Hearing Board calls for a hearing, the Chair of the Hearing Board shall promptly negotiate a hearing date, schedule an additional meeting only for the Hearing Board should additional deliberations on the findings become necessary, and request a written response to the grievance from the respondent.
5. At least 5 class days before the scheduled hearing, the Chair of the Hearing Board shall notify the respondent and the complainant in writing of the (1) time, date, and place of the hearing; (2) the names of the parties to the grievance; (3) a copy of the hearing request and the respondent's reply; and (4) the names of the Hearing Board members after any challenges. (See GSRR 5.4.7.)
6. At least 3 class days before the scheduled hearing, the parties must notify the Chair of the Hearing Board the names of their witnesses and advisor, if any, and request permission for the advisor to have voice at the hearing. The chair may grant or deny this request. The Chair will promptly forward the names given by the complainant to the respondent and visa versa. (See GSRR 5.4.7.1.)
7. The Chair of the Hearing Board may accept written statements from either party's witnesses at least 3 class days before the hearing. (See GSRR 5.4.9.)
8. In unusual circumstances and in lieu of a personal appearance, either party may request permission to submit a written statement to the Hearing Board or request permission to

participate in the hearing through an electronic communication channel. Written statements must be submitted to the Hearing Board at least 3 class days before the scheduled hearing. (See GSRR 5.4.9c.)

9. Either party to the grievance hearing may request a postponement of the hearing. The Hearing Board may either grant or deny the request. (See GSRR 5.4.8.)

10. At its discretion, the Hearing Board may set a reasonable time limit for each party to present its case, and the Chair of the Hearing Board must inform the parties of such a time limit in the written notification of the hearing.

11. Hearings are closed unless the student requests an open hearing, which would be open to all members of the MSU community. The Hearing Board may close an open hearing to protect the confidentiality of information or to maintain order. (See GSRR 5.4.10.4.)

12. Members of the Hearing Board are expected to respect the confidentiality of the hearing process. (See GSRR 5.4.10.4. and 5.4.11.)

22.6 Hearing Procedures

1. The Hearing will proceed as follows:

a. Introductory remarks by the Chair of the Hearing Board: The Chair of the Hearing Board introduces hearing panel members, the complainant, the respondent and advisors, if any. The Chair reviews the hearing procedures, including announced time restraints for presentations by each party and the witnesses, and informs the parties if their advisors may have a voice in the hearings and if the proceedings are being recorded. Witnesses shall be excluded from the proceedings except when testifying. The Chair also explains:

- In academic grievance hearings in which a graduate student alleges a violation of academic rights, the student bears the burden of proof.
- In hearings in which a graduate student seeks to contest allegations of academic misconduct, the instructor bears the burden of proof.
- All Hearing Board decisions must be reached by a majority of the Hearing Board, based on a "clear and convincing evidence." (See GSRR 8.1.18.)

(See GSRR 5.4.10.1 and 8.1.18.) For various other definitions, see GSRR Article 8.)

b. If the complainant fails to appear in person or via an electronic channel at a scheduled hearing, the Hearing Board may either postpone the hearing or dismiss the case for demonstrated cause. (See GSRR 5.4.9a.)

c. If the respondent fails to appear in person or via an electronic channel at a scheduled hearing, the Hearing Board may postpone the hearing or, only in unusual circumstances, hear the case in his or her absence. (See GSRR 5.4.9-b.)

d. If the respondent is absent from the University during the semester of the grievance hearing or no longer employed by the University before the grievance procedure concludes, the hearing process may still proceed. (See GSRR 5.3.6.1.)

e. To assure orderly questioning, the Chair of the Hearing Board will recognize individuals before they speak. All parties have a right to speak without interruption. Each party has a right to question the other party and to rebut any oral or written statements submitted to the Hearing Board. (See GSRR 5.4.10.2.)

f. Presentation by the Complainant: The Chair recognizes the complainant to present without interruption any statements relevant to the complainant's case, including the redress sought. The Chair then recognizes questions directed at the complainant by the Hearing Board, the respondent and the respondent's advisor, if any.

g. Presentation by the Complainant's Witnesses: The Chair recognizes the complainant's witnesses, if any, to present, without interruption, any statement directly relevant to the complainant's case. The Chair then recognizes questions directed at the witnesses by the Hearing Board, the respondent, and the respondent's advisor, if any.

h. Presentation by the Respondent: The Chair recognizes the respondent to present without interruption any statements relevant to the respondent's case. The Chair then recognizes questions directed at the respondent by the Hearing Board, the complainant, and the complainant's advisor, if any.

i. Presentation by the Respondent's Witnesses: The Chair recognizes the respondent's witnesses, if any, to present, without interruption, and statement directly relevant to the respondent's case. The Chair then recognizes questions directed at the witnesses by the Hearing Board, the complainant, and the complainant's advisor, if any.

k. Rebuttal and Closing Statement by Complainant: The complainant refutes statements by the respondent, the respondent's witnesses and advisor, if any, and presents a final summary statement.

l. Rebuttal and Closing Statement by Respondent: The respondent refutes statements by the complainant, the complainant's witnesses and advisor, if any, and presents a final summary statement.

m. Final questions by the Hearing Board: The Hearing Board asks questions of any of the participants in the hearing.

22.7 Post-Hearing Procedures:

1. Deliberation:

After all evidence has been presented, with full opportunity for explanations, questions and rebuttal, the Chair of the Hearing Board shall excuse all parties to the grievance and convene the Hearing Board to determine its findings in executive session. When possible, deliberations should take place directly following the hearing and/or at the previously scheduled follow-up meeting. (See Section IV.D above.)

2. Decision:

a. In grievance (non-disciplinary) hearings involving graduate students in which a majority of the Hearing Board finds, based on "clear and convincing evidence," that a violation of the student's academic rights has occurred and that redress is possible, it shall recommend

an appropriate remedy to the Department Chair or School Director. Upon receiving the Hearing Board's recommendation, the Department Chair or School Director shall implement an appropriate remedy, in consultation with the Hearing Board, within 3 class days. If the Hearing Board finds that no violation of academic rights has occurred, it shall so inform the Chair or Director. The Chair of the Hearing Board shall promptly forward copies of the final decision to parties and the University Ombudsperson. (See GSRR 5.4.11.)

b. In grievance (non-disciplinary) hearings involving graduate students in which the Hearing Board serves as the initial hearing body to adjudicate an allegation of academic dishonesty and, based on "clear and convincing evidence," the Hearing Board finds for the student, the Hearing Board shall recommend to the Department Chair or School Director that the penalty grade be removed, the Academic Dishonesty Report be removed from the student's records and a "good faith judgment" of the student's academic performance in the course take place. If the Hearing Board finds for the instructor, the penalty grade shall stand and the Academic Dishonesty Report regarding the allegation will remain on file, pending an appeal, if any to the College Hearing Board within 5 class days of the Hearing Board's decision. If an academic disciplinary hearing is pending, and the Hearing Board decides for the instructor, the graduate student's disciplinary hearing before either the College Hearing Board or the Dean of The Graduate School would promptly follow, pending an appeal, if any, within 5 class days. (See GSRR 5.5.2.2 and 5.4.12.3)

3. Written Report:

The Chair of the Hearing Board shall prepare a written report of the Hearing Board's findings, including recommended redress or sanctions for the complainant, if applicable, and forward a copy of the decision to the appropriate unit administrator within 3 class days of the hearing. The report shall indicate the rationale for the decision and the major elements of evidence, or lack thereof, that support the Hearing Board's decision. The administrator, in consultation with the Hearing Board, shall then implement an appropriate remedy. The report also should inform the parties of the right to appeal within 5 class days following notice of the decision, or 5 class days if an academic disciplinary hearing is pending. The Chair shall forward copies of the Hearing Board's report and the administrator's redress, if applicable, to the parties involved, the responsible administrators, the University Ombudsperson and the Dean of The Graduate School. All recipients must respect the confidentiality of the report and of the hearing board's deliberations resulting in a decision. (See GSRR 5.4.12 and 5.5.2.2)

22.8 Appeal of the Hearing Board Decisions:

1. Either party may appeal a decision by the Hearing Board to the College Hearing Board for cases involving (1) academic grievances alleging violations of student rights and (2) alleged violations of regulations involving academic misconduct (academic dishonesty, professional standards or falsification of admission and academic records.) (See GSRR 5.4.12.)

2. All appeals must be in writing, signed and submitted to the Chair of the College Hearing Board within 5 class days following notification of the Hearing Board's decision. While under appeal, the original decision of the Hearing Board will be held in abeyance. (See GSRR 5.4.12, 5.4.12.2 and 5.4.12.3.)

3. A request for an appeal of a Hearing Board decision to the College Hearing Board must allege, in sufficient particularity to justify a hearing, that the initial Hearing Board failed to follow applicable procedures for adjudicating the hearing or that findings of the Hearing Board were not supported by "clear and convincing evidence." The request also must include the redress sought. Presentation of new evidence normally will be inappropriate. (See GSRR 5.4.12.1, 5.4.12.2 and 5.4.12.4.)

22.9 Reconsideration:

If new evidence should arise, either party to a hearing may request the appropriate Hearing Board to reconsider the case within 30 days upon receipt of the hearing outcome. The written request for reconsideration is to be sent to the Chair of the Hearing Board, who shall promptly convene the Hearing Board to review the new material and render a decision on a new hearing. (See GSRR 5.4.13.)

22.10 File Copy:

The Chair of the Department shall file a copy of these procedures with the Office of the Ombudsperson and with the Dean of The Graduate School. (See GSRR 5.4.1.)

23. Academic Governance

23.1 Academic Governance

The Geology Club shall elect a graduate student at the beginning of the fall semester to serve for one year as graduate student representative (with vote) at faculty meetings. When faculty discussions involve matters where the presence of students is not desirable, the Chair may exclude the student from that portion of the meeting. In the event that the student should challenge the decision, a majority vote of the faculty members present shall decide the issue.

23.2 Representation on Department Committees

Graduate student representatives (with vote) shall serve on all department standing committees with the exception of Advisory, Promotion/Tenure, and Student Affairs; they shall serve on appropriate ad hoc committees. Should a dispute arise in defining "appropriate" ad hoc committees, it will be adjudicated in accordance with Article 22.

23.3 University Committees

The department graduate students shall elect representatives to the Council of Graduate Students (COGS) (<http://cogs.msu.edu>) and to the Graduate Employee Union Steward Council (<http://geuatmsu.org>) at the beginning of the fall semester. There are opportunities to serve on sub committees. The representatives serves as a liaison between department graduate students and the university graduate/professional population.

APPENDIX A: INTEGRITY AND SAFETY IN RESEARCH AND CREATIVE

These are excerpts from [Guidelines for Integrity in Research and Creative Ideas](http://grad.msu.edu/researchintegrity/docs/guidelines.pdf) (<http://grad.msu.edu/researchintegrity/docs/guidelines.pdf>).

The MSU Perspective

The conduct of research and creative activities by faculty, staff, and students is central to the mission of Michigan State University and is an institutional priority. Faculty, staff, and students work in a rich and competitive environment for the common purpose of learning, creating new knowledge, and disseminating information and ideas for the benefit of their peers and the general public. The stature and reputation of MSU as a research university are based on the commitment of its faculty, staff, and students to excellence in scholarly and creative activities and to the highest standards of professional integrity. As a partner in scholarly endeavors, MSU is committed to creating an environment that promotes ethical conduct and integrity in research and creative activities.

Innovative ideas and advances in research and creative activities have the potential to generate professional and public recognition and, in some instances, commercial interest and financial gain. In rare cases, such benefits may become motivating factors to violate professional ethics. Pressures to publish, to obtain research grants, or to complete academic requirements may also lead to an erosion of professional integrity.

Breaches in professional ethics range from questionable research practices to misconduct. The primary responsibility for adhering to professional standards lies with the individual scholar. It is, however, also the responsibility of advisors and of the disciplinary community at large. Passive acceptance of improper practices lowers inhibitions to violate professional ethics.

Integrity in research and creative activities is based not only on sound disciplinary practice but also on a commitment to basic personal values such as fairness, equity, honesty, and respect. These guidelines are intended to promote high professional standards by everyone — faculty, staff, and students alike.

Key Principles

Integrity in research and creative activities embodies a range of practices that includes:

- Honesty in proposing, performing, and reporting research
- Recognition of prior work
- Confidentiality in peer review
- Disclosure of potential conflicts of interest
- Compliance with institutional and sponsor requirements
- Protection of human subjects and humane care of animals in the conduct of research
- Collegiality in scholarly interactions and sharing
- Adherence to fair and open relationships between senior scholars and their coworkers

Honesty in proposing, performing, and reporting research. The foundation underlying all research is uncompromising honesty in presenting one's own ideas in research proposals, in performing one's research, and in reporting one's data. Detailed and accurate records of primary data must be kept as unalterable

documentation of one's research and must be available for scrutiny and critique. It is expected that researchers will always be truthful and explicit in disclosing what was done, how it was done, and what results were obtained. To this end, research aims, methods, and outcomes must be described in sufficient detail such that others can judge the quality of what is reported and can reproduce the data. Results from valid observations and tests that run counter to expectations must be reported along with supportive data.

Recognition of prior work. Research proposals, original research, and creative endeavors often build on one's own work and also on the work of others. Both published and unpublished work must always be properly credited. Reporting the work of others as if it were one's own is plagiarism. Graduate advisors and members of guidance committees have a unique role in guiding the independent research and creative activities of students. Information learned through private discussions or committee meetings should be respected as proprietary and accorded the same protection granted to information obtained in any peer review process.

Confidentiality in peer review. Critical and impartial review by respected disciplinary peers is the foundation for important decisions in the evaluation of internal and external funding requests, allocation of resources, publication of research results, granting of awards, and in other scholarly decisions. The peer-review process involves the sharing of information for scholarly assessment on behalf of the larger disciplinary community. The integrity of this process depends on confidentiality until the information is released to the public. Therefore, the contents of research proposals, of manuscripts submitted for publication, and of other scholarly documents under review should be considered privileged information not to be shared with others, including students and staff, without explicit permission by the authority requesting the review. Ideas and results learned through the peer-review process should not be made use of prior to their presentation in a public forum or their release through publication.

Disclosure of potential conflicts of interest. There is real or perceived conflict of interest when a researcher has material or personal interest that could compromise the integrity of the scholarship. It is, therefore, imperative that potential conflicts of interest be considered and acted upon appropriately by the researcher. Some federal sponsors require the University to implement formal conflict of interest policies. It is the responsibility of all researchers to be aware of and comply with such requirements.

Compliance with institutional and sponsor requirements. Investigators are granted broad freedoms in making decisions concerning their research. These decisions are, however, still guided, and in some cases limited, by the laws, regulations, and procedures that have been established by the University and sponsors of research to protect the integrity of the research process and the uses of the information developed for the common good. Although the legal agreement underlying the funding of a sponsored project is a matter between the sponsor and the University, the primary responsibility for management of a sponsored project rests with the principal investigator and his or her academic unit.

Protection of human subjects and humane care of animals in the conduct of research.

Research techniques must not violate established professional ethics or federal and state requirements pertaining to the health, safety, privacy, and protection of human beings, or to the welfare of animal subjects. Whereas it is the responsibility of faculty to assist students and staff in complying with such requirements, it is the responsibility of all researchers to be aware of and to comply with such requirements.

Collegiality in scholarly interactions and sharing of resources. Collegiality in scholarly interactions, including open communications and sharing of resources, facilitates progress in research and creative activities for the good of the community. At the same time, it has to be understood that scholars who first report important findings are both recognized for their discovery and afforded intellectual property rights that permit discretion in the use and sharing of their discoveries and inventions. Balancing openness and protecting the intellectual property rights of individuals and the institution will always be a challenge for the community. Once the results of research or creative activities have been published or otherwise

communicated to the public, scholars are expected to share materials and information on methodologies with their colleagues according to the tradition of their discipline.

Faculty advisors have a particular responsibility to respect and protect the intellectual property rights of their advisees. A clear understanding must be reached during the course of the project on who will be entitled to continue what part of the overall research program after the advisee leaves for an independent position. Faculty advisors should also strive to protect junior scholars from abuses by others who have gained knowledge of the junior scholar's results during the mentoring process, for example, as members of guidance committees.

Adherence to fair and open relationships between senior scholars and their coworkers. The relationship between senior scholars and their coworkers should be based on mutual respect, trust, honesty, fairness in the assignment of effort and credit, open communications, and accountability. The principles that will be used to establish authorship and ordering of authors on presentations of results must be communicated early and clearly to all coworkers. These principles should be determined objectively according to the standards of the discipline, with the understanding that such standards may not be the same as those used to assign credit for contributions to intellectual property. It is the responsibility of the faculty to protect the freedom to publish results of research and creative activities. The University has affirmed the right of its scholars for first publication except for "exigencies of national defense". It is also the responsibility of the faculty to recognize and balance their dual roles as investigators and advisors in interacting with graduate students of their group, especially when a student's efforts do not contribute directly to the completion of his or her degree requirements.

Responsible Conduct of Research Plans (RCR)

Training in the Responsible Conduct of Research is essential in the preparation of future scholars and professionals. An understanding of the issues concerning the conduct of research in an increasingly complex world has become critical in successfully navigating the research landscape. The plan is predicated on the principles that a basic understanding of issues is necessary through didactic training and a periodic reinforcement of the principles through discussion. It is the belief that this plan will provide a foundation for all graduate students in the Department of Earth and Environmental Sciences and will offer the basic information to meet most, if not all, federal agency granting requirements. The plan below represents the basic university plan. Other requirements* might be required.

All graduate Master's (Plan A and Plan B) and Doctoral Students

1) Year 1

All new graduate and graduate professional students will complete 4 CITI** online modules within the first year of enrollment in their program: Completion of this requirement will be tracked in SABA***

- Introduction to the Responsible Conduct of Research
- Authorship
- Plagiarism
- Research Misconduct

2) Discussion-Based Training****

All graduate and graduate professional students must complete a minimum of 6 hours of discussion-based training prior to receiving their degrees. These hours can be completed at any point in the graduate program, including during the first 2 years (e.g., as part of a course), or as part of the ongoing training requirement (for Doctoral Students). For Master's Plan A and PhD Students, completion of this requirement will be

recorded by the department in GradInfo as “Initial” training. Please see the graduate secretary to complete this requirement.

Master’s Plan A and Doctoral Students (In addition to 1 and 2 above, Master’s Plan A and Doctoral Students will complete the following)

3) Year 2

Within the first 2 years of enrollment in their program, Master’s Plan A and Doctoral Students will complete 3 additional MSU online training modules, to be selected from the following list. Completion of this requirement will be tracked in SABA. Please see the graduate secretary to complete this requirement.

- CITI Collaborative Research CITI Conflicts of Interest
- CITI Data Management
- CITI Financial Responsibility
- CITI Mentoring
- CITI Peer Review
- IACUC Tutorial for Animal Care Training (in <http://Train.ORA.msu.edu>)
- Human Research Protection/ IRB Certification (in <http://Train.ORA.msu.edu>)
- Rigor and Reproducibility Course (in production)

Doctoral Students (In addition to 1, 2 and 3 above, Doctoral Students will complete the following)

4) Annual Refresher Training

Starting in year 3, all doctoral students must complete 3 hours of annual refresher training; this can include discussion-based training and online courses beyond the 7 required in basic training. Specifics about the number of hours required, the content, and the timing of this training will be defined in the individual department/program or college plan. Completion of this requirement will be recorded by the department in GradInfo as “Annual” training.

*Additional requirements as necessary

- Students who are supported by NSF, NIH, or USDA grants may be required to complete additional specific training; they must meet the timeline and content requirements of training for that grant.
- Students engaged in research involving human subjects or animal use must complete the Michigan State University training modules for those subjects before submitting IRB or IACUC approvals. These modules may be completed as part of the training requirements below, or in addition to them, depending on the department/program or college plan.

•
**Collaborative Institutional Training Initiative at CITIprograms.org.

***Saba Learning management System (LMS) at <https://ora.msu.edu/new-saba-learning-management-system-lms>.

****Discussion Based Training

The 6 hours required for discussion-based training can be obtained by the following

1. The Graduate School RCR Workshop series maybe used to help fulfill both the annual refresher and discussion-based training requirements.
2. Selected courses can be used. Currently these courses are
 - ENE (GLG) 900 (1 hour of RCR lecture is included as part of the course work) Research Strategies and Methods in Environmental Engineering and Science (Spring of every year, total credits: 1)

- GLG 862 (4 hours of RCR lectures are included as part of the course work) Igneous Petrology (Fall of even years, total credits: 4)

3. Discussions with your advisor, with research group meetings can be used.
4. Department arranged seminars on RCR topics.

All students (graduate and undergraduate), postdoctoral fellows, and technicians conducting research in laboratories of the Department of Earth and Environmental Sciences will receive training in the following areas:

1. Conflict of Interest and Commitment
2. Data Acquisition, Management, Sharing and Ownership
3. Research Misconduct
4. Publication Practices and Responsible Authorship
5. Mentor / Trainee Responsibilities
6. Peer Review
7. Human Subjects (where required)
8. Animal Welfare (where required)

Questions, comments, and concerns are to be directed to the GLG Responsible Conduct of Research Coordinator (Dr. McNamara for the 2017-2018 year).

Mandatory Training in Relationship Violence and Sexual Misconduct Policy

All TAs and RAs must complete the on-line training about the Relationship Violence and Sexual Misconduct Policy. To Access the training, login to the ORA training website at: <http://goo.gl/pLh01o>. **Click "Register," "Complete Registration" and then "Launch" to begin the Relationship Violence and Sexual Misconduct (RVSM) Policy - Faculty, Staff Training. (If it indicates that you have already registered, use "In Progress Training", then "Launch.").** You will want to reserve approximately 30 minutes to complete all assignments. If you need assistance, contact the Helpdesk at 517-884-4600 or train@ora.msu.edu.

Misconduct in Research and Creative Activities

Federal and University policies define misconduct to include *fabrication* (making up data and recording or reporting them), *falsification* (manipulating research materials, equipment or processes, or changing or omitting data such that the research is not accurately represented in the record), and *plagiarism* (appropriation of another person's ideas, processes, results, or words without giving appropriate credit). Serious or continuing non-compliance with government regulations pertaining to research may constitute misconduct as well. University policy also defines retaliation against whistle blowers as misconduct. Misconduct does not include honest errors or honest differences of opinion in the interpretation or judgment of data.

The University views misconduct to be the most egregious violation of standards of integrity and as grounds for disciplinary action, including the termination of employment of faculty and staff, dismissal of students, and revocation of degrees. It is the responsibility of faculty, staff, and students alike to understand the University's policy on misconduct in research and creative activities, to report perceived acts of misconduct of which they have direct knowledge to the University Intellectual Integrity Officer, and to protect the rights and privacy of individuals making such reports in good faith.

Research involving human subjects

The University Human Research Protection Program serves as the home for MSU's Institutional Review Board (IRBs). Federal regulations and University policy require that all research projects involving human subjects and materials of human origin be reviewed and approved by an IRB before initiation. *Research* is defined as "a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge". The "generalizable knowledge" criteria may include developing publications/papers, theses/dissertations, making public presentations, etc. A *human subject* of research is a) a living individual from whom an investigator obtains data by interaction or intervention or b) identifiable private information. All research involving human subjects and/or data collected from living human subjects (including preexisting data) is subject to IRB review. Instructions for applying for approval are available at <http://www.humanresearch.msu.edu>.

Research involving animals

The use of vertebrate animals in research, teaching, and outreach activities is subject to state and federal laws and guidelines. University policy specifies that: all vertebrate animals under University care (that is, involved in projects under the aegis or sponsorship of the University) will be treated humanely; prior to their inception, all vertebrate animal projects receive approval by the All University Committee on Animal Use and Care (AUCAUC); Michigan State University (MSU) will comply with state and federal regulations regarding vertebrate animal use and care.

Responsibility for assuring compliance with state and federal regulations belongs to the Vice President for Research and Graduate Studies. The Vice President has designated the Assistant Vice President for Research and Graduate Studies to be the "Institutional Official" as defined in federal regulations. The AUCAUC works closely with the Institutional Official, and has responsibility and authority under federal law for specific actions.

University Laboratory Animal Resources (ULAR), which reports to the Vice President for Research and Graduate Studies, provides a comprehensive program of animal care for all laboratory animal colonies, as well as training for researchers. ULAR also participates in developing institutional policies designed to insure humane treatment of vertebrate animals and to assist investigators in maintaining high quality care of animals used in MSU projects.

An animal use form (AUF) must be submitted to the AUCAUC for review prior to the start of the project, regardless of the source of funding for the project. The AUF can be obtained from the AUCAUC office; the completed form will include descriptions of experimental protocols, plans for animal care, available facilities, and any other matters relevant to the project. Some granting agencies require review and approval of the AUF before a grant application will be processed. An agency-approved grant will not be accepted by the Board of Trustees, nor will an account number be assigned, unless the AUF has been approved by the AUCAUC. For an animal use application form contact: Candy Flynn at 432-4151, email flynnc@msu.edu

Safety Training and Compliance

The EES Department aims to ensure the safety of all its students by requiring knowledge and understanding of safety hazards and, if required, providing the appropriate training so that their work can be conducted safely. The Department monitors compliance with safety requirements of all graduate students by requiring the completion of Safety Training Forms every year. All graduate students will be provided with such a form and must complete it with the help of their graduate advisor and return it to the GLG Graduate Secretary within the first 2 weeks of the Fall semester. The completed form must include evidence of compliance with the safety training requirements identified in form, for example, by printing the completion statement found at the end of most on-line training modules. The safety training form must be completed

even if the student is not actively working in a laboratory environment. In such cases, the advisor must note that only the mandatory “hazard communication” training is required. Failure to complete and submit the safety training form will result in an enrollment hold being placed on the student.

Your training requirements will depend on your specific job duties and they may include University-wide or laboratory-specific training. If your work activities change, the form must be updated by the advisor, and the revised form and evidence of compliance submitted to the Graduate Secretary.

The use of hazardous materials in research, teaching, and outreach activities is subject to state and federal laws and guidelines. The Vice President for Research and Graduate Studies has been assigned responsibility to see that appropriate practices are followed where hazardous materials are involved, to maintain a safe environment for campus personnel, to protect the surrounding community, and to assure that MSU meets its obligations under the law.

It is University policy that faculty members and principal investigators (PIs) are responsible for the day-to-day safety and well-being of all personnel engaged in activities under their aegis. Administrative officers, and the Office of Radiation, Chemical and Biological Safety (ORCBS) are responsible for making available to faculty information needed to maintain a safe working environment, for providing safety training, for keeping project directors informed about changes in regulations, and for assaying laboratories and work areas for radiation, chemical, or biological hazards.

APPENDIX B: GRADUATE DEGREES & DEGREE REQUIREMENTS

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES

Please also see **University, College, and Department General Requirements in the General Degree Requirements section (earlier in this handbook), which includes additional items.**

Master of Science in Environmental Geosciences (Degree code 3928)

The Master of Science degree program in environmental geosciences is available under either Plan A (with thesis) or Plan B (without thesis).

In addition to meeting the requirements of the University and of the College of Natural Science, students must meet the requirements specified below.

Admission

When applying for admission to the program, an applicant must specify either Plan A or Plan B.

Academic record, letters of recommendation, and Graduate Record Examination (GRE) General Test scores are considered in admission decisions.

For regular admission under Plan A, the student must have:

1. A bachelor's degree in a physical or biological science or in engineering from a recognized educational institution.
2. Completed the courses in physics, chemistry, and mathematics that are required for the Bachelor of Science degree with a major in Earth and Environmental Sciences at MSU, or equivalent courses.
3. At least 12 credits in Earth and Environmental Sciences courses.
4. A grade-point average of at least 3.0.
5. Satisfactory scores on the GRE General Test.

Provisional admission may be granted to an applicant who has not completed the course work referenced in items 2. and 3. above. Deficiencies must be removed by completing collateral courses.

For regular admission under Plan B, the student must have:

1. Completed a Master of Science degree in the geosciences for which a thesis was required.
2. A grade-point average of at least 3.0.
3. Satisfactory scores on the GRE General Test.

Requirements for Both Plan A and Plan B

The student's program of study must be approved by the student's guidance committee. The student must meet the requirements specified below:

Total credits (minimum of 16 credits, including GLG 899, at 800 level)..... 30

1. Tier I Requirement^{1,2}..... 10-12
 - a. General Component:
GLG 423 Environmental Geosciences (*course no longer offered*) 1
 - b. Soil Component (One of the following):

CSS 455	Pollutants in the Soil Environment	3
CSS 825	Clay Mineralogy and Soils Genesis.....	4
CSS 855	Surface Chemistry of Soils and Colloidal Systems	4

c. Chemical Component (One of the following):

GLG 421	Environmental Geochemistry	3
GLG 821	Aqueous Geochemistry.....	3
GLG 823	Isotope Geochemistry	3

d. Hydrogeology Component (One of the following):

CE 421	Engineering Hydrology	3
CE 821	Groundwater Hydraulics.....	3
GLG 411	Hydrogeology	4

2. Tier II Requirement (One of the following):^{1,2,3}3-4

GEO 408	Soil Geomorphology Field Study	4
GLG 412	Glacial and Quaternary Geology	3
GLG 422	Organic Geochemistry.....	3
GLG 471	Applied Geophysics	4
GLG 481	Reservoirs and Aquifers	4
GLG 822	Biogeochemistry.....	3
GLG 824	Stable Isotope Biogeochemistry	2
GLG 863	Mineral-Water Interactions	4

Additional Requirements for Plan A

1. Tier III Requirement (courses must be approved by student's guidance committee).....7-13
2. Tier IV Requirement: Thesis Research (GLG 899). The research area may focus on any topic that may have applications to solving problems related to the environment. The student must include in the thesis proposal a paragraph that addresses the environmental applications of the thesis topic selected.4-7

Additional Requirements for Plan B

1. Tier III Requirement (courses must be approved by student's guidance committee) 13-16
2. Tier IV Requirement: 1
GLG 898 Special Problems in Environmental Geosciences⁴

¹A student who completed any course listed in the Tier I requirements or in the Tier II requirement prior to enrollment in the program must substitute another course approved by the student's guidance committee.

²A given course may be used to satisfy either the Tier I or the Tier II requirement, but not both of those requirements.

³With the approval of the guidance committee, a student may substitute a course listed in the Tier I requirements for one of the courses listed below.

⁴The student must complete a research paper or project while enrolled in GLG 898. The topic of the paper or project must be mutually agreed upon by the student and the student's academic advisor.

Master of Science in Geological Sciences (Degree code 3925)

PLAN A ONLY (THESIS REQUIRED)

In addition to meeting the requirements of the University and of the College of Natural Science, students must meet the requirements specified below.

Admission

Academic record, letters of recommendation, and Graduate Record Examination (GRE) General Test scores are considered in admission decisions.

For regular admission, the student must have:

1. A bachelor's degree in a physical or biological science or in mathematics from a recognized educational institution.
2. Completed the courses in physics, chemistry, mathematics, and Earth and Environmental Sciences that are required for the Bachelor of Science degree with a major in Earth and Environmental Sciences at MSU, or equivalent courses.
3. A grade-point average of at least 3.0.
4. Satisfactory scores on the GRE General Test.

Depending on the proposed area of specialization, provisional admission may be granted to an applicant who has not completed the courses referenced in item 2. above. Deficiencies must be removed by completing collateral courses before a thesis proposal will be accepted.

Requirements for the Degree

Total credits (minimum of 16 credits, including GLG 899, at 800 level).....	30
1. Program course credits	23-26
2. Thesis (research) credits (GLG 899).....	4-7

Note about Doctor of Philosophy Degrees

Starting Fall 2018, we are offering a new **Doctor of Philosophy in Earth and Environmental Sciences** degree that will effectively merge and replace our two current doctoral degrees in **Environmental Geosciences** and **Geological Sciences**. Graduate students that are already in our environmental and geological doctoral programs (those that entered before Spring 2019) may remain in their original program. Starting in Spring 2019, all incoming doctoral students will enter the new degree program. Any students that arrived before Spring 2019 that are interested in switching over to the new program should inform either the graduate secretary or the graduate director.

Doctor of Philosophy in Earth and Environmental Sciences (Degree code TBD)

The core of the Doctor of Philosophy program is independent research. Course requirements are designed to support the candidate's professional goals. Commonly, research programs are pursued within the specialty of the staff, but innovative research is encouraged in any area of the Earth and Environmental Sciences.

In addition to meeting the requirements of the University and of the College of Natural Science, students must meet the requirements specified below.

Admission

Students holding bachelor's or master's degrees may be admitted for study at the doctoral level on the basis of their performance during the previous two years of academic work. Satisfactory scores on the GRE General Test are required.

Requirements for the Degree

The program of study is determined by mutual agreement between the candidate and the guidance committee. The student must complete the following:

1. Thesis (research) credits (GLG 999) 24
2. A student must complete, or have completed prior to admission, 9 credits of course work in Earth and Environmental Sciences including 3 credits in 800-level course work.
3. A comprehensive examination which involves both an oral and a written portion, covering the area of the student's research specialty and those areas that interface with that specialty must be passed during the second year of enrollment in the program (if coming in with a Master's degree) or third year of enrollment in the program (if coming in with a Bachelor's degree).

Doctor of Philosophy in Environmental Geosciences (Degree code 3952)

The core of the Doctor of Philosophy program is independent research. Course requirements are designed to support the candidate's professional goals. Commonly, research programs are pursued within the specialty of the staff, but innovative research is encouraged in any area of the Earth and Environmental Sciences.

In addition to meeting the requirements of the University and of the College of Natural Science, students must meet the requirements specified below.

Admission

Students holding bachelor's or master's degrees may be admitted for study at the doctoral level on the basis of their performance during the previous two years of academic work. Satisfactory scores on the GRE General Test are required.

Requirements for the Degree

The program of study is determined by mutual agreement between the candidate and the guidance committee. The student must complete the following:

1. Thesis (research) credits (GLG 999) 24
2. A student must complete, or have completed prior to admission, 9 credits of course work in Earth and Environmental Sciences including a course in physical geology and 3 credits in 800-level course work.
3. A comprehensive examination which involves both an oral and a written portion and covers the area of the student's research specialty, those areas that interface with that specialty, and the program with master's degree must pass the comprehensive examination during the second year of enrollment in the program. Students who are admitted to the doctoral program with bachelor's degrees must pass the comprehensive examination during the third year of enrollment in the program.

Doctor of Philosophy in Geological Sciences (Degree code 3927)

The core of the Doctor of Philosophy program is independent research. Course requirements are designed to support the candidate's professional goals. Commonly, research programs are pursued within the specialty of the staff, but innovative research is encouraged in any area of the Earth and Environmental Sciences.

In addition to meeting the requirements of the University and of the College of Natural Science, students must meet the requirements specified below.

Admission

Students holding bachelor's or master's degrees may be admitted for study at the doctoral level on the basis of their performance during the previous two years of academic work. Satisfactory scores on the GRE General Test are required.

Requirements for the Degree

The program of study is determined by mutual agreement between the candidate and the guidance committee. The student must complete the following:

1. Thesis (research) credits (GLG 999) 24
2. A comprehensive examination which involves both an oral and a written portion and covers the area of the student's research specialty, those areas that interface with that specialty, and the significance of the proposed research program. Students who are admitted to the doctoral program with master's degree must pass the comprehensive examination during the second year of enrollment in the program. Students who are admitted to the doctoral program with bachelor's degrees must pass the comprehensive examination during the third year of enrollment in the program.

Doctor of Philosophy in Environmental Geosciences-Environmental Toxicology (Degree code 3968)

For information about the dual-degree Doctor of Philosophy degree program in Environmental Geosciences-Environmental Toxicology, refer to the statement on *Multidisciplinary Doctoral Programs in Integrative Toxicology* at <http://www.iet.msu.edu/>.

Doctor of Philosophy in Ecology, Evolutionary Biology and Behavior (Degree code 3986)

For information about the dual-degree Doctor of Philosophy degree program in Ecology, Evolutionary Biology and Behavior, refer to the statement on *Dual Major Doctoral Programs* at <http://eebb.msu.edu/>

Handicapper accommodations for GLG courses may be requested by calling the Department of Earth and Environmental Sciences at 517-355-4626 two months prior to the beginning of the semester in which a course is to be taken to ensure sufficient time to make arrangements. Requests received after this time will be met when possible.

/Curriculum\Graduate\Grad Degree Requirements (12-6-04)

APPENDIX C: GUIDELINES FOR GRADUATE STUDENT ADVISING AND MENTORING RELATIONSHIPS

<http://grad.msu.edu/researchintegrity/docs/ris04.pdf>.

Graduate education, research, and creative activities take place within a community of scholars where constructive relationships between graduate students and their advisors and mentors are essential for the promotion of excellence in graduate education and for adherence to the highest standards of scholarship, ethics, and professional integrity. The effective advising and mentoring of graduate students is the joint responsibility of the graduate degree-granting and program units (henceforth referred to as academic units), the faculty advisors, and the students. The following guidelines are intended to foster faculty-graduate student relationships that are characterized by honesty, courtesy, and professionalism and that provide students with intellectual support and guidance. These guidelines recognize that good advising and mentoring of graduate students entail a considerable commitment of time and effort on the part of the faculty and the academic unit. The academic unit forms the community of scholars responsible for cultivating a stimulating intellectual environment and, through the joint efforts of all faculty members of the unit, for mentoring of graduate students.

The responsibilities of the academic unit include:

- Preparing and maintaining a graduate handbook that includes the information outlined in the Graduate Handbook Template¹, as well as academic unit and college requirements for degree completion
- Providing opportunities for graduate students to interact with a wide array of colleagues from within and outside the University through such activities as speaker series, colloquia, and other formal and informal events
- Creating opportunities for graduate students to become familiar with the various forms of scholarship in the field
- Sharing responsibility with guidance committees and faculty advisors in fostering the professional and career development of graduate students, for example, by providing venues for honing

professional writing and presentation skills and organizing seminars on such issues as ethics, professional integrity and grantsmanship

The responsibilities of the chair or director of the academic unit and/or director of graduate studies include:

Knowing University and academic unit rules, procedures and policies applicable to graduate study, research, and creative activities (including those in *Academic Programs*², *Graduate Student Rights and Responsibilities*³ or *Medical Student Rights and Responsibilities*⁴, and *Academic Freedom for Students at Michigan State University*⁵) and ensuring that they are followed in the academic unit

- Distributing to incoming graduate students the academic unit's Graduate Handbook
- Organizing orientation sessions for incoming graduate students
- Ensuring that required courses and examinations are scheduled on a regular basis, thereby enabling graduate students to make timely progress in their degree programs
- Providing advice on matters such as course selection until a permanent faculty advisor and guidance committee are selected, or appointing a committee or temporary advisor to assume that role
- Facilitating selection of a faculty advisor and guidance committee and facilitating changes of faculty advisor and/or guidance committee should this become necessary
- Monitoring at least annually the progress of students in the graduate program and the quality of their research or creative activity, as well as the standards and fairness of examinations

- Monitoring the performance of faculty advisors and guidance committees to ensure that graduate students are receiving appropriate mentoring
- Working toward fair resolution of conflicts between graduate students and faculty

The responsibilities of the faculty advisor include:

- Ensuring that graduate students receive information about requirements and policies of the graduate program
- Advising graduate students on developing a program plan, including appropriate course work, research or creative activity, and on available resources
- Advising graduate students on the selection of a thesis or dissertation topic with realistic prospects for successful completion within an appropriate time frame and on the formation of a guidance committee
- Providing training and oversight in creative activities, research rigor, theoretical and technical aspects of the thesis or dissertation research, and in professional integrity
- Encouraging graduate students to stay abreast of the literature and cutting-edge ideas in the field
- Helping graduate students to develop professional skills in writing reports, papers, and grant proposals, making professional presentations, establishing professional networks, interviewing, and evaluating manuscripts and papers
- Providing regular feedback on the progress of graduate students toward degree completion, including feedback on research or creative activities, course work, and teaching, and constructive criticism if the progress does not meet expectations

- Helping graduate students develop into successful professionals and colleagues, including encouraging students to participate and disseminate results of research or creative activities in the appropriate scholarly or public forums
- Facilitating career development, including advising graduate students on appropriate job and career options, as well as on the preparation of application materials for appropriate fellowship, scholarship, and other relevant opportunities
- Writing letters of reference for appropriate fellowship, scholarship, award, and job opportunities
- Providing for supervision and advising of graduate students when the faculty advisor is on leave or extended absence

The responsibilities of the guidance committee include:

- Advising graduate students on course work, research, or creative activities
- Providing at least annually feedback and guidance concerning progress toward the degree
- Administering exams in a fair and professional manner
- Reviewing the thesis or dissertation in a timely, constructive and critical manner

The responsibilities of the graduate student include:

- Learning and adhering to University and academic unit rules, procedures, and policies applicable to graduate study and research or creative activities, including those outlined in *Academic Programs*², *Graduate Student Rights and Responsibilities*³ or *Medical Student Rights and Responsibilities*⁴, and *Academic Freedom for Students at MSU*⁵

- Meeting University and academic unit requirements for degree completion
- Forming a guidance committee that meets University requirements^{2,3}, as well as requirements that are outlined in the Graduate Handbook of the academic unit
- Following disciplinary and scholarly codes of ethics in course work, thesis or dissertation research, and in creative activities
- Practicing uncompromising honesty and integrity according to University and federal guidelines in collecting and maintaining data
- Seeking regulatory approval for research in the early stages of thesis or dissertation work where applicable
- Keeping the faculty advisor and guidance committee apprised on a regular basis of the progress toward completion of the thesis or dissertation

Resources

- “Adviser, Teacher, Role Model, Friend: On Being a Mentor to Students in Science and Engineering”, National Academy Press, Washington, D.C., 1997, 84 pp (<http://bob.nap.edu/html/mentor/>)
- “Integrity in Scientific Research: Creating an Environment that Promotes Responsible Conduct”, National Academies Press, Washington, D.C., 2002, 216 pp (<http://www.nap.edu/books/0309084792/html/>)
- “On Becoming a Scientist: Responsible Conduct in Research”, Second Edition, National Academy Press, Washington, D.C., 1995, 27 pp (<http://bob.nap.edu/html/obas/>)
- “On the Right Track: A Manual for Research Mentors”, M.F. King; D.D. Denecke (Ed.), Council of Graduate Schools, Washington, D.C., 2003, 26 pp (<http://www.cgsnet.org/pdf/RightTrackExSum.pdf>)

APPENDIX D: THESIS/DISSERTATION PROPOSAL AND FORMATTING GUIDELINES

Proposal

Your thesis/dissertation proposal must include the following:

- A. Proposed Title
- B. The problem to be studied—its general nature and significance
- C. Hypothesis(es) constructed to address the problem
- D. Proposed test(s) of the hypothesis(es)
- E. Other methods to be used, if applicable
- F. Possible sources of error
- G. Time table (include field work, course work, lab work, travel, drafting, writing, etc.)
- H. Budget—include all estimated costs for the project and, if possible, source of funds
- I. Pertinent literature

Final Thesis/Dissertation

The final structure of your thesis will be determined by discussions with your advisor or guidance committee. For the PhD degree it is required that at least one paper be submitted to a peer reviewed journal for graduation. Guidelines for formatting and submission to the university are available at <http://grad.msu.edu/etd/>.

Some new policies and guidelines:

1. A public or lay audience Abstract is to precede the conventional disciplinary/technical one. The formatting requirements for this additional abstract are identical to those for the conventional abstract. This abstract will also be posted on the Departments web site.
2. In addition to the main body of a thesis or dissertation, the Graduate School now permits the submission of supplementary materials to ProQuest. These supplemental materials will not be reviewed by the Graduate School for formatting requirements, but they must be acceptable by ProQuest and comply with ProQuest's criteria and storage limits. All supplementary materials need the written approval of the thesis/dissertation committee chair.
3. The MSU library may accept supplementary materials approved by the thesis/dissertation committee chair per their collection criteria. The Graduate School does not review these materials for formatting requirements. Questions about submission of these materials to the MSU library should be directed to the Assistant Director for Digital Information, currently Shawn Nicholson (nichol147@mail.lib.msu.edu).
5. For a Thesis or Dissertation that consists of one or more chapters that are already published papers (a) multi-investigator publications in which the student is not first author, are not accepted as one of the Thesis/Dissertation chapters, (b) these chapters must be introduced with the list of all authors, citation for the publication, and include a copy or notation of the written permission from the publisher (who generally holds the copyright) to reprint the article, and (c) if multiple articles make up the document, these must be "tied together" with a required general introduction and summary/discussion. The dissertation/guidance committee chair will decide any further requirements.

APPENDIX E: TEACHING ASSISTANT EVALUATION FORM

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES
MICHIGAN STATE UNIVERSITY

Teaching Assistant: _____ Faculty Representative: _____

Course Number: _____ Section(s): _____ Semester: _____

Course Name: _____

Number of Students: _____ Class time(s) of week: _____

Was the faculty able to make classroom visit(s): _____

**Instructions—Respond to each of the following statements by indicating one of the following:
*Meets expectations (M), Does not meet expectations (D), Not applicable (NA)***

	<u>M</u>	<u>D</u>	<u>NA</u>
Interaction with Instructional Team—Class Administration:			
1. Good interaction and communication with instructional team.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Kept office hours and was available to students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Grading was performed in a consistent and timely manner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lab Organization/Presentation Clarity:			
4. Set up classroom/lab experiment safely and effectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Defined and presented lab objectives clearly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Presented content in a systematic, organized way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Presented clear examples, illustrations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Explained difficult concepts well.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Summarized the main ideas of the session.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Used board, overhead, slides, etc., well.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Lab demonstration performed competently.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Demonstrates subject knowledge and proficiency.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lab Management:			
13. Safely handled lab materials.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Encouraged student safety.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Student Performance:			
15. Asked questions to ascertain student understanding.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Allowed sufficient time for students' answers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Offered meaningful encouragement and support.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Encouraged effective student partnerships.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Was approachable and accessible to students.

Comments/Recommendations:

Please include below details for any of the above rated as “Does not meet expectations (D).” Additionally, please indicate areas where the teaching assistant excels.

Date

Signatures:

I have discussed this evaluation with the Teaching Assistant.

Faculty Representative's Signature

- I agree with this evaluation.
- I disagree with this evaluation and have attached a response document.

Teaching Assistant's Signature

Date

**APPENDIX F: FORMS FOR ANNUAL PROGRESS
REPORTS.**

Michigan State University
Annual Progress Report for Ph.D. Students

Name _____ Student PID Number _____

Portion Completed by the Student

Academic Progress

A copy of the current program of study should be attached to this report.

Date of entrance into program* _____ Expected completion date _____

*If admitted under provisional status, date provisional status removed: _____

Most recent contact with the guidance committee/academic advisor: _____

Date or expected date of qualifying exams (if applicable) _____ Passed? _____

Date or expected date of comprehensive exams _____ Passed? _____

Date or expected date of dissertation proposal approval _____

Date or expected date of dissertation defense _____

Current GPA: _____ Number of credits below 3.0: _____

Remaining required courses:

Professional Performance and Potential

The student should attach the following information:

- | | |
|--|---|
| 1. Professional goal statement | 6. Participation in undergraduate education |
| 2. Goals for the next academic year | (e.g. courses taught, mentoring of |
| 3. Papers published or submitted | undergraduates) |
| 4. Presentations at professional conferences | 7. Other |
| 5. Participation on funded grants | |

Comment briefly on your progress in achieving your academic goals during the past year. Note areas in which you are experiencing any difficulty.

Comment briefly on your progress toward achieving your career goals during the past year. If you feel you are not making progress, explain why. Include perceived departmental/school obstacles that hinder your program.

Michigan State University
Annual Progress Report for Plan A Master's Students

Name _____ Student PID Number _____

Portion Completed by the Student

Academic Progress

A copy of the current program of study should be attached to this report.

Date of entrance into program* _____ Expected completion date _____

*If admitted under provisional status, date provisional status removed: _____

Most recent contact with the guidance committee/academic advisor: _____

Date or expected date of thesis proposal approval _____

Date or expected date of thesis defense _____

Current GPA: _____ Number of credits below 3.0: _____

Remaining required courses:

Professional Performance and Potential

The student should attach the following information:

- | | |
|--|---|
| 1. Professional goal statement | 6. Participation in undergraduate education |
| 2. Goals for the next academic year | (e.g. courses taught, mentoring of |
| 3. Papers published or submitted | undergraduates) |
| 4. Presentations at professional conferences | 7. Other |
| 5. Participation on funded grants | |

Comment briefly on your progress in achieving your academic goals during the past year. Note areas in which you are experiencing any difficulty.

Comment briefly on your progress toward achieving your career goals during the past year. If you feel you are not making progress, explain why. Include perceived departmental/school obstacles that hinder your program.

Name _____ Student PID Number _____

Portion Completed by the Major Professor**Academic Performance**

1. Has the student made acceptable progress during the evaluation period? Please comment below.

2. Please comment on the overall academic performance of the student, including teaching experiences, if applicable.

Student Your signature below indicates that you have discussed the contents of this progress report with your major professor.

Student _____ Date _____

Major Professor Your signature below indicates that you have discussed the contents of this progress report with the student.

Major Professor _____ Date _____

Dept/School Chair/Director _____ Date _____

When both the major professor and student have reviewed and signed this progress report, copies of the report should be given to the student and the major professor. The original progress report should be placed in the student's file in the department/unit office. Students who wish to appeal any part of the major professor's evaluation may do so in writing to the department chair/school director.

****Note:** Departments/Units may choose to use this form for annual or academic year evaluations.

Michigan State University
Annual Progress Report for Plan B Master's Students

Name _____ Student PID Number _____

Portion Completed by the Student

Academic Progress

A copy of the current program of study should be attached to this report.

Date of entrance into program* _____ Anticipated completion date _____

*If admitted under provisional status, date provisional status removed: _____

Date or anticipated date of certifying exam or evaluation
(Evaluation methods may differ across departments/units): _____

Are all program requirements completed? _____ Yes _____ No

If no, what requirements remain?

Most recent contact with the guidance committee/academic advisor: _____

Current GPA: _____ Number of credits below 3.0: _____

Professional Performance and Potential

The student should attach the following information:

1. Professional goal statement for the year (noting both academic and career goals)
2. Goal statement for the next year
3. Vitae including
 - Presentations at professional conferences or meetings
 - Service to the department/school/college, if any
 - Any publications for lay or professional audiences
 - Participation with faculty on research projects or similar endeavors
 - Participation with faculty on community projects, workshops or other outreach efforts
4. Other

Comment briefly on your progress in achieving your academic goals during the past year. Note areas in which you are experiencing any difficulty.

Comment briefly on your progress toward achieving your career goals during the past year. If you feel you are not making progress, explain why. Include perceived departmental/school obstacles that hinder your program.

Name _____ Student PID Number _____

Portion completed by Academic Advisor/Program Director**Academic Performance**

1. Has the student made acceptable progress during the evaluation period? Please comment below.

2. Please comment on the overall academic performance of the student, including teaching experiences, if applicable.

Student Your signature below indicates that you have discussed the contents of this progress report with your major professor.

Student _____ Date _____

**Academic Advisor/
Program Director** Your signature below indicates that you have discussed the contents of this progress report with the student.

Academic Advisor/Program Director _____ Date _____

Dept/School Chair/Director _____ Date _____

When both the major professor and student have reviewed and signed this progress report, copies of the report should be given to the student and the major professor. The original progress report should be placed in the student's file in the department/unit office. Students who wish to appeal any part of the major professor's evaluation may do so in writing to the department chair/school director.

****Note:** Departments/Units may choose to use this form for annual or academic year evaluations.

APPENDIX G: EXAMPLE CV TEMPLATE

VITA: Name

Dept. of Earth and Environmental Sciences
Michigan State University
East Lansing, MI 48824-1115
Voice: xxx.xxx.xxxx **FAX:** 517.353.8787
Email: xxx@msu.edu **WWW:** http://www.msu.edu~xxx/

Personal

Education

BA College – Field (year) (*advisor:* Dr. X. XXX)
MS College – Field (year or year expected) (*advisor:* Dr. X. XXX)
Ph.D. College – Field (year or year expected) (*advisor:* Dr. X. XXX)

Research Field: xxx

Research experience

- Interesting stuff, with details about your role
- Interesting stuff
- Interesting stuff

Teaching Experience

2013 course xxx

Awards

2013: Department Excellence in Teaching Award

Example Service and Synergistic Activities

Selected Academic Activities

2012 – present e.g. president of Geology Club.
2012 – present e.g. Department of Earth and Environmental Sciences Advisory
Committee.
2012 – present e.g. University Graduate Student Council

Selected Outreach and Service Activities

2013 – present Talks at local high school

International Research and Teaching Program Development

2013 – present xxx

Publications

Articles

In preparation

In review

In revision

In press

Published

Books, Book Chapters

Reports

Abstracts at Conferences

Skills

Professional memberships



The quote by Theodore Roosevelt very much expresses the feeling one has when seeing the Grand Canyon. There is much known about the history of the canyon, but there are some interesting questions. For example:

1. It is commonly said that the down cutting action of the Colorado River is has created the canyon. Yet when looking at some of the images of the canyon captured by John Wesley Powell in 1869, shows little evidence of change today. So how do we know the Colorado River is indeed creating the Grand Canyon and that the Canyon is not simply the result of an earthquake and the river running along the faults?

2. Images of the canyon show that the Colorado River has a meandering shape. Considering the depth of the valley, is this the expected shape? Why or why not? What is the long term fate of the shape of the river system?

3. Consider the figure, modified from the image in the textbook by (Garrells, 1951), to the right. This is the longitudinal or long profile of the Colorado River. When a stream comes into dynamic equilibrium this its landscape, what should the profile look like? Considering this how would you explain this profile?



