



*Handbook and Forms for  
Graduate Students in  
Earth Sciences*

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August 2022

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## I. INTRODUCTION

This Handbook informs students about and systematically guides them through the graduate program. In addition to summarizing the requirements and expectations of the Department of Earth Sciences, it advises students about the sequence and timing of various requirements. It is the responsibility of all students to become familiar with the procedures described in this Handbook and to seek clarification from their advisors, the Graduate Coordinator, or other faculty about those requirements or procedures not clear to them. Generally, the Graduate Handbook that is in effect during the first Fall semester in which a graduate student enrolls is the Graduate Handbook that guides a student's program requirements.

In addition to this Handbook, it is the responsibility of graduate students to familiarize themselves with policies and procedures outlined in the [Kent State University Graduate Catalog](#), which can be found online. The current Graduate Catalog is the Catalog of Record for all graduate students regardless of year of admission.

Also see the [Guide to Graduate Education at Kent State University](#) for a summary of the policies and procedures for graduate education.

The Department of Earth Sciences is committed to the integration of teaching, the advancement of knowledge, and public service in an inclusive and accessible environment.

Our DEI core values are to create a supportive and accessible environment for education and scientific discovery in the Earth Sciences. Inclusion is essential to support the well-being of our students. Faculty and staff are committed to supporting students to achieve their academic and professional goals, while being respectful and welcoming of each student's cultural identities, background, and life experiences. We are committed to removing barriers and empowering students through a holistic educational experience.

## II. GRADUATE PROGRAMS

The Department of Earth Sciences offers a comprehensive course of study leading to the M.S. in Geology or Ph.D. in Applied Geology. Our degree programs allow for great flexibility and a personalized course of study.

Each year, the full-time Graduate Faculty members support about 24 graduate students who pursue a broad range of research interests in Ohio or at field sites throughout the world. Approximately half of the faculty focus on Environmental Research (Water, Surface and Subsurface Processes; Geohazards; and Natural Resources). The department's other major focus is Evolution of Earth Systems Research (Climate Change, Paleoecology and Evolution, Crustal Processes). In the graduate programs, emphasis is placed on research designed not only to advance the understanding of the geological sciences, but also to solve societal problems. Research projects mentored by our faculty thus span a range of basic and applied research and have been externally funded by a variety of sources including: NASA, NSF, Ohio SeaGrant, Ohio Department of Transportation, and the Ohio Department of Natural Resources.

Graduates of this program will be able to:

- Show in-depth comprehension of several areas including both basic and applied aspects of Geology/Earth Sciences.
- Formulate testable scientific hypotheses and carry out independent research using appropriate field, experimental, analytical, and/or computational methods.
- Describe, synthesize, and interpret the results of a scientific investigation and understand its broader applications.

### III. RESEARCH FOCI IN EARTH SCIENCES

Earth Sciences faculty have a global reach; most are involved in National/International collaborative research and many serve as leaders in Professional Societies with National/International membership. Earth Sciences Faculty publications and presentations typically are some of the highest in the College.

#### A. Environmental Research

##### **(Water, Surface and Subsurface Processes; Geohazards; and Natural Resources)**

The Department of Earth Sciences at Kent State University offers a strong program in Environmental Research (Water, Surface and Subsurface Processes; Geohazards; and Natural Resources) at the M.S. and Ph.D. levels. The program emphasizes environmental and engineering problems related to groundwater-surface water interactions, landscape evolution, urban development, mining, slope stability, and evaluating and managing hydrogeologic problems and environmentally related processes.

#### RESEARCH

The Earth's surface environment is the critical zone where life interacts with geologic processes in what are recognized as complex feedback systems. The importance of Environmental Research is directly tied to the pressures of global population growth, industrialization, and the desire for sustainable living standards. Examples of global scale earth processes that are undergoing human induced environmental transformations include sedimentation, water transport, geochemical cycles, landscape development, species and habitat distribution and surface subsidence. The recognition of "humans as geologic agents" and human-driven global change has focused basic research in areas that directly impact human welfare including environmental remediation and stewardship, energy exploration and extraction, and natural hazards characterization and mitigation. Water related research is a primary departmental focus given its societal importance and its dominant role in the biosphere, atmosphere, hydrosphere, and geosphere. Continued climate change, global population growth, and growing societal resource needs all ensure the vital continued need for research in water related science. As the only Applied Geology PhD program in Ohio, we have a sustained, applied, and integrative research program in water resources and its interactions with the natural and built environments.

#### FACULTY

- Timothy Gallagher (Assistant Professor, Kent Campus) – Biochemistry and Sedimentary Geology
- David Hacker (Professor, Trumbull Campus) – Geohazards, Landslides, Groundwater Contamination
- Anne Jefferson (Professor, Kent Campus) – Watershed and Urban Hydrology, Groundwater-Surface Water Interactions, Hydrogeomorphology (Watershed Hydrology Lab)
- Joseph Ortiz (Professor, Kent Campus) – Marine Processes, Water Quality (Paleoclimate and Water Quality Research)
- Kuldeep Singh (Assistant Professor, Kent Campus) – Hydrogeology, Water Resources and Climate Change, Digital Rock Physics, Pore-Scale Fluid Dynamics
- David Singer (Associate Professor, Kent Campus) – Environmental Mineralogy and Geochemistry Group, Acid Mine Drainage, Urban soils
- Alison Smith (Professor, Kent Campus) – Groundwater-Surface Water Interactions, Paleolimnology (Paleolimnology Research)

- Allyson Tessin (Assistant Professor, Kent Campus – Oceanography, Biogeochemistry, Sedimentary Geology)
- Neil Wells (Professor, Kent Campus) – Geomorphology, Surface Processes

## B. Evolution of Earth Systems Research

### **(Climate Change, Paleoecology and Evolution, Crustal Processes)**

The Evolution of Earth Systems Research (Climate Change, Paleoecology and Evolution, Crustal Processes) program is designed to provide M.S. and Ph.D. students with the technical knowledge required for the study of a wide range of geological, evolutionary, and climatological problems seen in the context of how these processes operate throughout deep time.

#### RESEARCH

The Department has a long and vibrant history of research in climate change, evolution, and crustal processes. How life has shaped Earth and Earth shaped life is one of the grand research questions. Over several decades the Department of Earth Sciences has established itself as an internationally known leader in paleoenvironments and evolution. Half the faculty in this research area are specialists in a variety of invertebrates, vertebrates, and protists that have characteristics especially useful in the determination of climatic, evolutionary, and ecological change over time. Both foraminifera (marine) and ostracode (non-marine) assemblages are particularly sensitive to environmental and climatic change. In the Department, the parallel use of marine and non-marine species as indicators of environmental stability and change over the last few million years has shed much light on the character of environmental change happening today. Additionally, faculty in this area have been instrumental in detailing the relationships between evolution, extinction, and radiation of the decapod crustaceans and are recognized as world leaders in the study of the evolution, biogeography, paleoecology, and functional morphology of decapod crustaceans. Another core of faculty also do research on crustal processes related to tectonics, continental growth, surface processes and landscape evolution.

#### FACULTY

- Timothy Gallagher (Assistant Professor, Kent Campus) – Biochemistry and Sedimentary Geology
- David Hacker (Professor, Trumbull Campus) – Volcanic Stratigraphy, Structural Geology, Field Mapping
- Rod Feldmann (Professor Emeritus, Kent Campus) – Invertebrate Paleontology, Biostratigraphy, Biogeography (Decapod Research)
- Daniel Holm (Professor, Kent Campus) – Structural Geology, Tectonics, Precambrian Geology
- Joseph Ortiz (Professor, Kent Campus) – Marine Processes, Water Quality (Paleoclimate and Water Quality Research)
- Chris Rowan (Associate Professor, Kent Campus) – Geophysics, Global Tectonics, Paleomagnetism
- Carrie Schweitzer (Professor, Stark Campus) – Paleobiogeography; Decapod Systematics and Evolution (Decapod Research)
- Alison Smith (Professor, Kent Campus) – Groundwater-Surface Water Interactions, Paleolimnology (Paleolimnology Research)

- Allyson Tessin (Assistant Professor, Kent Campus – Oceanography, Biogeochemistry, Sedimentary Geology)
- Neil Wells (Professor, Kent Campus) – Sedimentology, Vertebrate Taphonomy

#### GRAD FACULTY STATUS

Faculty serving as Advisors and Thesis/Dissertation Committee members must have the appropriate graduate faculty status. F4 Grad faculty can advise PhD/MS students and serve on thesis/dissertation committees. F3 Grad faculty can advise MS students and serve on thesis/dissertation committees. External (non-KSU) faculty with temporary grad faculty status can serve on thesis (A1) or dissertation committees (F3).

The following KSU faculty have F4 graduate faculty status: Rod Feldmann, Timothy Gallagher, David Hacker, Daniel Holm, Anne Jefferson, Joseph Ortiz, Christopher Rowan, Carrie Schweitzer, Abdul Shakoor, David Singer, Kuldeep Singh, Alison Smith, and Allyson Tessin.

The following KSU faculty have F2 graduate faculty status: Neil Wells

The following KSU faculty have F1 graduate faculty status: Eric Taylor

## IV. DOCTORAL DEGREE

### A. Degree Requirements

#### **Minimum Graduate GPA (must be maintained each semester): 3.00**

Graduate students are expected to maintain a 3.0 average GPA in all work attempted at Kent State. A student who fails to maintain a 3.0 average is subject to dismissal. In addition, in order to qualify for graduation, a 3.0 average must be maintained for all graduate coursework. Grades below C (2.0) are not counted toward completion of requirements for any advanced degree, but are counted in evaluating a student's grade point average. Only graduate course credits count toward a graduate degree. A graduate student who receives a combination of more than 8 credit hours of B- (2.7) or lower grades, or more than 4 credit hours of grades lower than C (2.0) is subject to dismissal.

Academic Performance and Progress is reviewed at the end of each semester. Reviews may result in one of four outcomes:

Dismissal: The student has failed to meet requirements.

Probation: The student's performance and/or progress is unsatisfactory.

Warning: The student's performance and/or progress falls slightly below expectations.

No action: The student's performance and progress are satisfactory.

See [KSU University Catalog](#) for further information on academic standing.

#### **Coursework**

All students will have a fundamental knowledge and understanding of Earth Materials by the end of the second year in the program. This will be fulfilled by (i) a lecture and lab course in Earth Materials, related to mineralogy and/or petrology. All graduate students are required to take the Earth Sciences Graduate Student Orientation Course (70084). All Doctoral students must participate in required seminars, orientation, and colloquia.

The courses taken by doctoral students are determined jointly with members of the Graduate Faculty. Coursework shall be arranged so that it embraces one major area of concentration in Applied Geology, and a minor area related to another aspect of geology (see list of minors). A major area of concentration typically includes at least 15 credits of graded course work. Nine (9) credits related to the minor area of study must be declared on the PhD Proposed Courses of Study form. Equivalent graduate courses taken elsewhere or for the MS degree at Kent State University can count.

Signed PhD Proposed Courses of Study and Proposed Program of Research forms must be filed with the Graduate Coordinator by the end of the first semester.

#### **Minimum number of Graduate credits: 90**

90 semester hours beyond the Bachelor's degree or 60 hours beyond the Master's degree. These hours may include formal coursework, Research (80098), and Dissertation I (80199)

#### **Number of Dissertation I hours needed (GEOL 80199): 30**

Dissertation I is taken in increments of 15 hours per semester for two consecutive semesters but may be taken only after completing the dissertation proposal defense. Subsequently, the student must enroll for Dissertation II (ESCI 80299) each semester, including one summer term, until graduation.



## CANDIDACY

To be admitted to candidacy for the doctoral degree, a student must pass comprehensive written and oral examinations prior to the start of the third year after matriculation to the doctoral program.

### **Preparation of the Preliminary Proposal**

Potential candidates for the Ph.D. degree must develop their research plan in conjunction with their potential advisor and committee members, noting the scope of the work in the form of a preliminary dissertation proposal. As preparation for their candidacy exams, the student prepares a preliminary research proposal (10-20 pages), a list of the major field and the minor field that the examinations will cover and the coursework that has prepared the student for the exam. The preliminary proposal should be given to the examining committee at least two weeks prior to the written candidacy examination. Following submission of the proposal, the committee will correspond by email to determine whether the proposal is of sufficient quality to proceed to the candidacy examinations. If there are significant concerns, the committee may ask for revisions prior to subsequent steps of the process.

### **Written Candidacy Examinations**

Examining Committee composition: The examining committee consists of the advisor and two committee members from the Department of Earth Sciences. The advisor must have F4 grad faculty status and no more than one other committee member may hold F3 graduate faculty status. The written exams are conducted in the student's major and minor area of study, plus general geology as noted on the Proposed Program of Study.

The written examinations normally are conducted in the spring of year two. Written examinations are taken within a one-week period and the examination in each area takes 3 to 4 hours. Following the written exams, the committee will correspond by email to determine whether all exams have been successfully completed (passing with the equivalent of an average "B" or better grade). If all exams are successful, the student proceeds to the oral dissertation proposal defense. If the student fails one or more exams the student will have the opportunity to attempt the exam(s) again after a period of further study of a length determined by the committee. If the student fails one or more exams a second time, the committee will meet in person to determine whether to allow further attempts at the failed exam(s), require additional coursework, or dismiss the student from graduate study.

### **Oral Dissertation Proposal Defense**

Proposal Defense Committee composition: The proposal defense committee consists of the members of the examining committee, plus the addition of an outside member with appropriate graduate standing, selected by the advisor and student. The advisor must have F4 grad faculty status and the committee must include three members with F4 grad faculty status.

During the oral proposal defense, the committee members question the student on topics related to the dissertation proposal and on topics related to the written comprehensive examination as needed. The oral examination should be taken two to three weeks after the written examinations and is generally scheduled for 2 to 3 hours duration. In circumstances where the oral dissertation proposal defense cannot be scheduled before the start of the third academic year, it may be scheduled during the first week of the semester to allow for late registration in Dissertation I credits. If the oral proposal dissertation defense is unsuccessful, it can be attempted a second time after a period of further study of a length to be determined by the committee and revision to the proposal. If the second attempt is unsuccessful, the examining committee may recommend dismissal from the program.

When the proposal has been successfully defended and approved by the committee, the student proceeds with the project under the supervision of the advisor and the committee. Following successful completion of the Dissertation Proposal Defense, the student or advisor must notify the Graduate Coordinator who will sign the appropriate forms and, when the time comes, arrange for the appointment of a graduate faculty representative by the College of Arts and Sciences in preparation for the final public oral dissertation defense.

Students who have passed the candidacy examinations and have completed their formal coursework requirements for their degree are recognized as candidates for the Ph.D.

Upon completion of the oral dissertation proposal defense, the Report of Candidacy Examination form must be filed with the Office of Graduate Affairs, College of Arts & Sciences and the Graduate Coordinator. At this time, the [Notification of Approved Dissertation Topic and Prospectus form](#), and an abstract of the dissertation proposal **must** also be filed with the Office of Graduate Affairs, College of Arts & Sciences and the Graduate Coordinator.

### **Annual Spring Semester Remote Review**

To ensure progress toward the degree, non-funded students are encouraged, and all departmental and grant-funded Ph.D. students are required to hold an annual committee meeting in the first 5 weeks of spring semester with a majority of their committee including the advisor in attendance to review their progress and methodologies, and discuss strategies to address problems that may have arisen.

Annual spring reviews will be held on a specified Friday early each spring semester. Kelly will be tasked with coordinating scheduling of 30-minute meeting blocks for as many students as possible. Students will give short presentations on their research progress and plans for completion, including a timeline. Advisors and departmental committee members will be expected to attend if at all possible. Priority will be given to current 2nd year MS students and 4th year PhD students, with other PhD students scheduled if timing permits. If 1st-3rd year PhD student spring reviews cannot be accommodated on this date, they will be scheduled later in the semester by the student and committee. Proposal defenses of first year MS students will not be affected. Following the review, graduate students must submit a completed and signed Annual Spring Research Progress and Plan form to the Graduate Coordinator.

### **Dissertation Format**

The dissertation must be written following the instructions in the [Style Guide and Instructions for Preparing Dissertations and Theses for Electronic Submission to OhioLINK](#) and approved by the Office of Graduate Affairs.

### **Public Oral Dissertation Defense**

When the advisor believes the candidate's dissertation is ready for preliminary approval, the advisor will convene an examining committee. The examining committee will consist of members of the dissertation committee and an appointed graduate faculty representative. The procedures for requesting the appointment of the graduate faculty representative are detailed [here](#).

With the approval of the advisor, the student presents the draft copy of the dissertation to the committee members, providing at least 10 days for the dissertation to be read and evaluated. By the end of the 10 days, every committee member will inform the advisor of one of the three following outcomes:

- (1) The document needs significantly more work done and is not ready for defense (triggers an in-person meeting of the entire committee if one member selects this outcome);

(2) The document needs some more work done and the committee member would like to see those changes before the defense (which triggers an in-person committee meeting if one member selects this); and

(3) The document is ready to defend and has minor changes that can be taken care of post-defense, and the defense can proceed if all committee members select this outcome.

Before the oral dissertation, each committee member must approve the final written dissertation to be defensible. Once a defensible copy is provided to the committee, a date is set for the public oral dissertation defense. The oral defense is open to the Kent State community and publicly announced at least 10 days in advance of the event.

All doctoral students are required to successfully pass an oral dissertation defense, which serves as a graded final examination (Pass/Fail). The grade given at the completion of the defense is final and cannot be changed without recourse to the academic appeals process (i.e., there are no second opportunities to defend the dissertation). In extraordinary cases, if the committee determines that the student is running into difficulty during the exam, the committee can vote to suspend the defense. This suspension will involve a significant time lapse during which appropriate revisions must be made. At a later date, the defense can be continued. Additional procedural details can be found in the [Guidelines for Dissertation Final Examination](#) (Including a discussion of the dissertation committee composition). If one or more defense participants (student, committee) cannot be present in the same room during the defense, the [University policy on Remote Participation in a Thesis or Dissertation Defense](#) must be followed.

At this stage, the [Report of Dissertation Final Examination](#) must be filed with the Office of Graduate Affairs, College of Arts & Sciences and the Graduate Coordinator.

Once revisions are complete and the final version is ready for electronic publication, gather signatures on the signature page (see example in the [Style Guide](#)) and submit to the College of Arts & Sciences Graduate Affairs Office.

Complete the [Department of Earth Sciences Graduate Student Check-out Form](#) and file with the Graduate Coordinator.

All students must apply for graduation. The process is entirely online and accessible through FlashLine. The online Application for Graduation (first time only) is available in your FlashLine account, Student Tools, Graduation Planning Tools, "Application for Graduation"

## B. Information About Enrollment

The Department of Earth Sciences requires all Department and University funded students to be enrolled full time (8 or more graduate credits) during the academic year. Students who are not funded by the department are recommended to be enrolled full time to ensure that they make continued progress toward their degree and to save on tuition and fees by shortening their time to degree.

PhD Students who have completed course work and are no longer funded by the department, and are finishing their research, must register for 15 credits of Diss. II (ESCI 6xx99) one term a year (fall, spring, or summer), and must be registered in the semester they graduate. Students not registered for at least one of three sequential terms will be dis-enrolled from the program.

For additional enrollment requirements consult the [University Graduate Catalog](#).

## C. Recommended Schedule for PhD Students Funded by the Department

### Fall I

- Course work underway (including GEOL 70084 Graduate Student Orientation)
- Select advisor and dissertation topic.
- Discuss selection of dissertation committee with advisor.
- Meet with advisor and committee to develop and submit the PhD Proposed Program of Study Form

### Spring I

- Coursework continues

### Summer I

- Research initiated.

### Fall II

- Coursework and research continues
- Write Dissertation Proposal
- Can take Candidacy exams and Diss. Proposal Defense (no further coursework required with passing)

### Spring II

- Coursework
- Take Candidacy Exams
- Do Oral Dissertation Proposal Defense
- File forms with grad college

### Summer II

- Research continues

### Fall III

- 15 hours of Dissertation I credits for Research

### Spring III

- 15 hours of Dissertation I credits for Research
- Spring Review with committee

### Summer III

- Research continues

### Fall IV

- 15 hours of Dissertation II for Research

### Spring IV

- 15 hours of Dissertation II for Research
- Public Oral Defense or Spring Review

## D. Approved Geology PhD Minors

A minimum of 9 credits is needed for a minor (taken prior to or at KSU). Approved Geology PhD minors are listed below, along with examples of classes associated with each minor. Special Topics classes and other graduate-level offerings may be counted as approved by the minor advisor. Equivalent graduate courses taken elsewhere or for the MS degree at Kent State University can count. The courses associated with the minor should be identified on the PhD Proposed Courses of Study form and approved by the minor advisor.

### *APPLIED METHODS IN EARTH SCIENCE*

- ESCI 51092 Summer Field Camp
- ESCI 52030/72030 Remote Sensing
- GEOG 59070/79070 Geographic Information Science

### *CRITICAL ZONE PROCESSES*

- ESCI 52065 Watershed Hydrology
- ESCI 52078 Engineering Geology
- ESCI 50344 Environmental Isotopes
- ESCI 50380 Biogeochemistry

### *CRUSTAL PROCESSES*

- ESCI 51080 Tectonics and Orogeny
- ESCI 53040 Principles of Geochemistry
- ESCI 51025 General Geophysics
- ESCI 54025 Geologic Hazards and Disasters

### *GEOCHEMICAL PROCESSES*

- ESCI 50344 Environmental Isotopes
- ESCI 53040 Principles of Geochemistry
- ESCI 50380 Biogeochemistry

### *HYDROGEOLOGIC PROCESSES*

- ESCI 52068 Contaminant Hydrology and Hydrogeology
- ESCI 52065 Watershed Hydrology
- ESCI 52066 Physical Hydrogeology

### *PALEONTOLOGY*

- ESCI 64030/74030 Systematic Invertebrate Paleontology I
- ESCI 64034/74034 Micropaleontology
- ESCI 54074 Paleooceanography

### *SEDIMENTARY GEOLOGY*

- ESCI 63063/73063 Sedimentary Petrology
- ESCI 63067/73067 Carbonate Rocks
- ESCI 54070 Sedimentology and Stratigraphy

## E. FAQ for the Doctoral Candidate

### **What specific course work must be taken to satisfy the Ph.D. requirements?**

Students must take at least 3 courses in their minor area (taken prior to or at KSU). Beyond this the only specific requirement that must be completed prior to graduation is 30 hours of Dissertation I (80199) and 60 hours past the M.S. or 90 hours past the B.S. degree. Specific coursework necessary to prepare the candidate for the dissertation work will be selected on a case-by-case basis in consultation with the faculty advisor and the members of the examination committee. Keep in mind that in addition to the formal courses offered in the department you have the following options available to help you develop the skills you need:

1. You can take courses at the University of Akron, Cleveland State University, and Youngstown State University through the Memorandum of Understanding, without transfer. This widens your choice of coursework substantially. The approval form must be completed well before you register for the desired course. Discuss this with the Graduate Coordinator and/or your Advisor.
2. You can take coursework in allied fields; such as GIS or Remote Sensing courses in Geography; the Wetlands, Limnology, and Ecology courses in Biological Sciences; the Environmental Chemistry courses in Chemistry; computer programming courses in Math & Computer Science; or relevant courses in Physics. See the Registrar's website for available courses by semester.

Note: Please consult primary advisor before enrolling in cross-discipline coursework.

### **How will the composition of my committee change as I progress toward my degree?**

The candidacy examination committee consists of three members of the earth sciences graduate faculty: the advisor, one minor advisor, and one general geology/earth sciences examiner. All members of the committee must have the appropriate graduate faculty rank as described in the departmental handbook. The dissertation committee, which evaluates the student's dissertation proposal, consists of the candidacy examination committee, plus an outside member who may be from another department on campus or another institution if approved by the Graduate College. All members of the committee must have the appropriate graduate faculty rank as described in the College of Arts and Sciences Rules Regarding the Final Examination.

Upon completion of the dissertation proposal defense, the dissertation final examination committee is formed which consists of the dissertation committee and a graduate representative appointed by the Office of Graduate Affairs of the College of Arts and Sciences. The graduate representative may also serve as the moderator for the defense, or another individual may be appointed. The guidelines regarding the graduate representative and/or moderator are found in the College of Arts and Sciences Rules regarding the Graduate Faculty Representative and Dissertation Defense Moderator.

Requests for an outside committee member from another institution should be made in writing by the advisor to the graduate coordinator and accompanied by a current CV for the prospective outside member. Such requests must be approved by the Associate Dean of the Graduate College.

### **Can I transfer geological coursework from another institution?**

Yes, you can transfer up to 12 hours of graduate credit, graded B or higher, from an accredited institution, as long as the work was not used for a previously awarded degree and was done within 10 years of the completion date of your Ph.D. in Geology. Refer to the [university catalog](#) for more information.

**Where can I go to get the Dissertation style guide and the necessary forms I will need as I progress through the program?**

[KSU College of Arts & Sciences Style Guide and Instructions for Preparing Dissertations and Theses](#) (updated in Fall 2019) is available online or in the main Earth Sciences office. Libraries and Media Services also provides guidelines for preparing your thesis or dissertation. [Libraries and Media Services also provides guidelines for preparing your thesis or dissertation](#) to help you complete the process.

**How much time do I have to complete my degree?**

See the University policy for degree completion:

*It is expected that the doctoral degree students entering Kent State with a baccalaureate will complete the degree in no more than 10 years. Normally, doctoral degree students entering with a master's degree will complete the degree in no more than nine years. Students proceeding from the baccalaureate will normally pass the candidacy examination within five years, and students already possessing a master's degree will pass the candidacy examination within four calendar years of the first graduate registration at Kent State University. A doctoral candidate is expected to satisfactorily complete the dissertation and pass the final oral examination within five calendar years after having passed the candidacy examination. Individual disciplines may have shorter time limits, and students should consult with their specific program's department. \**

*When an extension of any of these time limits seems to be necessary and proper, the student and advisor will petition the student's department for an extension. The extension may be denied, in which case the student will be dismissed, or it may be granted with qualification. The student, advisor and college dean must be informed of the decision in writing. If the extension exceeds one year, the approval of the college dean is required. Requests for time extensions exceeding one year must be submitted to the college dean with evidence that the degree candidate is current in his/her field of study.*

*Students who must be away from their studies for one or more semesters for personal, family, financial or other compelling reasons may apply for a leave of absence. More information can be found in the Leave of Absence policy in this Catalog.*

*Upon receiving their graduate degree, students are inactivated and are no longer eligible to register for courses at Kent State University. If students wish to continue their studies at Kent State, they will need to reapply to the appropriate academic unit and be accepted for another graduate degree program or as a non-degree student.*



## V. MASTER OF SCIENCE DEGREE

### A. Degree Requirements

#### **Minimum Graduate GPA that must be maintained: 3.00**

Graduate students are expected to maintain a 3.0 average GPA in all work attempted at Kent State. A student who fails to maintain a 3.0 average is subject to dismissal. In addition, in order to qualify for graduation, a 3.0 average must be maintained for all graduate coursework. Grades below C (2.0) are not counted toward completion of requirements for any advanced degree but are counted in evaluating a student's grade point average. Only graduate course credits count toward a graduate degree. A graduate student who receives a combination of more than 8 credit hours of B- (2.7) or lower grades, or more than 4 credit hours of grades lower than C (2.0) is subject to dismissal.

Academic Performance and Progress is reviewed at the end of each semester. Reviews may result in one of four outcomes:

Dismissal: The student has failed to meet requirements.

Probation: The student's performance and/or progress is unsatisfactory.

Warning: The student's performance and/or progress falls slightly below expectations.

No action: The student's performance and progress are satisfactory.

See the [KSU University Catalog](#) for further information on academic standing.

#### **Coursework**

All students will have a fundamental knowledge and understanding of Earth Materials and a field experience by the end of the second year in the program. This will be fulfilled by (i) a lecture and lab course in Earth Materials, related to mineralogy and/or petrology, and (ii) a three-to-five week field camp or field experience, as determined by the Graduate Coordinator. The courses taken by Masters students are determined jointly with the members of the Graduate Faculty. All Masters students must participate in required orientation and colloquia.

#### **Minimum number of Graduate Credit Hours needed: 32**

#### **Number of Thesis I hours needed (ESCI 60199): 6**

ESCI 60199 (Thesis I) hours are taken after successful completion of the thesis proposal and usually in the second year of study. Subsequently, the student must enroll for 2 hours of ESCI 60299 (Thesis II) each semester, including one summer term, until graduation.

#### **Minimum number of credit hours beyond the 6 required Thesis I Hours: 26**

#### **Minimum number of 60,000 or higher level credit hours of Formal course work needed: 10**

This requirement is satisfied by taking any combination of 60,000-level or greater formal courses including ESCI 60084 (Earth Sciences Graduate Student Orientation); but excluding thesis hours. Note, 50,000 level coursework in allied disciplines, including Biological Sciences, Physics, Chemistry, Geography, or Math & Computer Sciences, or in Civil Engineering (at U. Akron) will apply toward the 10 hours required at the 60,000 or greater level.

Signed [MS Proposed Courses of Study](#) and [Proposed Program of Research](#) forms must be filed with the Graduate Coordinator by the end of the first semester.

## **Thesis Committee**

A Masters thesis committee consists of at least 3 members of the graduate faculty. The majority of the committee must be from Earth Sciences. The advisor must be a member of the faculty approved to direct theses (A2, F3, F4). Additional details can be found in the Thesis for the Master's Degree policy in the Catalog.

## **Successful Thesis Proposal Defense**

All Masters students are required to successfully complete an oral thesis proposal defense evaluated by their proposed thesis advisor and committee. Committee members should be allowed a week to read the proposal prior to the defense. The primary goal of the meeting is to refine the student's thinking and approach to the research and the method of carrying it out, and to facilitate input on these same matters from the Thesis Committee members. At the conclusion of the meeting, the Thesis Committee votes regarding approval or disapproval of the proposal. For full-time Master's students, the entire procedure should be completed prior to the end of the second semester of study. For part time Master's students, the procedure must be completed prior to the end of the semester in which the student completes 16 hours of credit toward the degree.

File the [Notification of Approved Thesis Topic](#) with the Earth Sciences Graduate Coordinator, who will convey it to the Office of Graduate Affairs, and the College of Arts & Sciences.

## **Annual Spring Semester Remote Review**

To ensure progress toward the degree, non-funded students are encouraged and all departmental and grant-funded M.S. students are required to hold an annual committee meeting in the first 5 weeks of spring semester with a majority of their committee including the advisor in attendance to review their progress and methodologies, and discuss strategies to address problems that may have arisen.

Annual spring reviews will be held on a specified Friday early each spring semester. Kelly will be tasked with coordinating scheduling of 30-minute meeting blocks for as many students as possible. Students will give short presentations on their research progress and plans for completion, including a timeline. Advisors and departmental committee members will be expected to attend if at all possible. Priority will be given to current 2nd year MS students and 4th year PhD students, with other PhD students scheduled if timing permits. If 1st-3rd year PhD student spring reviews cannot be accommodated on this date, they will be scheduled later in the semester by the student and committee. Proposal defenses of first year MS students will not be affected. Following the review, graduate students must submit a completed and signed Annual Spring Research Progress and Plan form to the Graduate Coordinator.

## **Public Oral Thesis Defense**

With the approval of the advisor, the student presents the draft copy of the thesis to the committee members, providing at least 10 days for the thesis to be read and evaluated. Before the end of the 10 days, every committee member must let the advisor know one of the following three outcomes:

- (1) The document needs significantly more work done and is not ready for defense (triggers an in-person meeting of the entire committee if one member selects this outcome);
- (2) The document needs some more work done and the committee member would like to see those changes before the defense (which triggers an in-person committee meeting if one member selects this); and

(3) The document is ready to defend and has minor changes that can be taken care of post-defense, and the defense can proceed if all committee members select this outcome.

Once the committee unanimously agrees that the written thesis is defensible, the advisor will designate the time and place of the oral defense with the approval of the committee. The oral defense is open to the Kent State community and publicly announced in advance of the event. The Department must be provided with information on the defense time and place, as well as a copy of the abstract, so that the defense can be advertised.

All Masters students are required to successfully pass an oral thesis defense, which serves as a graded final examination (Pass/Fail). The grade given at the completion of the defense is final and cannot be changed without recourse to the academic appeals process (i.e., there are no second opportunities to defend the thesis). In extraordinary cases, if the committee determines that the student is running into difficulty during the exam, the committee can vote to suspend the defense. This suspension will involve a significant time lapse during which appropriate revisions must be made. At a later date, the defense can be continued. Additional procedural details can be found in the [Masters Thesis Defense Guidelines](#). If one or more defense participants (student, committee) cannot be present in the same room during the defense, the [University policy on Remote Participation in a Thesis or Dissertation Defense](#) must be followed. Complete the Application for Graduation workflow in Flashline, and file the completed [Report of Thesis Final Examination form](#) in College of A&S, Office of Graduate Affairs, with a copy to the Graduate Coordinator, upon completion of this requirement.

### **Electronic Submission of Thesis**

The master's candidates submit their thesis in electronic form. Information on the process may be found on the University Libraries electronic thesis or dissertation (ETD) website. Theses are submitted electronically through the [OhioLINK ETD Center](#), where they are made publicly available. It is the responsibility of the master's student to fulfill this requirement.

Follow the [College of Arts & Sciences Style Guide](#) when writing the thesis. Once your revisions are complete and you have the final version of your thesis ready for electronic publication, gather signatures on your signature page and submit to the College of Arts & Sciences Graduate Affairs Office.

Complete the [Department of Earth Sciences Graduate Student Check-Out Form](#) and file with the Graduate Coordinator.

The online Application for Graduation (first time only) is available in your FlashLine account, Student Tools, Graduation Planning Tools, "Application for Graduation".

## B. Information About Enrollment

The Department of Earth Sciences requires all Department and University funded students to be enrolled full time (8 or more graduate credits) during the academic year. Students who are not funded by the department are recommended to be enrolled full time to ensure that they make continued progress toward their degree and to save on tuition and fees by shortening their time to degree.

Each student writing a thesis is required to register continuously for Thesis I (6xx99) for a total of 6 credit hours. No more than 6 credit hours of Thesis I credit may be counted toward completion of degree requirements. Students who have completed course work (including 6 hours of Thesis I) and are no longer funded by the department, and are finishing their research, must register for 2 credits of Thesis II (60299) one term a year (fall, spring, or summer), and must be registered in the semester they graduate. Students not registered for at least one of three sequential terms will be dis-enrolled from the program.

For additional enrollment requirements consult the [University Graduate Catalog](#).

## C. Recommended Schedule for M.S. Students Funded by the Department

### Semester I

- Course work underway.
- Select thesis topic and initiate research.
- Discuss selection of thesis committee with advisor.
- Meet with advisor and committee to develop and submit: (1) M.S. in Geology Proposed Program of Research Form; and (2) the M.S. Proposed Courses of Study Form for the course Graduate Student Orientation

### Semester II

- Committee meeting and proposal submitted by mid-semester break (required to be in good standing for department summer funding).
- Notification of Approved Thesis Topic form completed and submitted to the Office of Graduate Affairs, College of Arts & Sciences with a copy to the Graduate Coordinator.

### Summer I

- Continue research.

### Semester III

- Coursework and research continues
- Start writing thesis draft and preparing tables and figures.

### Semester IV

- Finish coursework requirements for the degree.
- Continue and finish writing thesis following the Style Guide and Libraries and Media Services Guidelines for electronic preparation of your thesis or dissertation.
- Meet with your committee and complete your Annual Spring Review and Plan form no later than week 5.
- Finish writing thesis. Defend thesis following the Master's Thesis Defense Guidelines before end of semester or early summer.
- Report of Thesis Final Examination form completed directly following the defense and submitted to the Office of Graduate Affairs, College of Arts & Sciences with a copy to the Graduate Coordinator.

### Summer II

- Continue working on thesis if not defended.
- Once your revisions are complete and you have the final version of your thesis ready for electronic publication, prepare the signature page (see Signature Page instructions and examples below) and Thesis Preparation Approval Form, gather signatures, and submit both to the College of Arts & Sciences Graduate Affairs Office.
- Submit an Application for Graduation form.
- Complete the Department of Earth Sciences Graduate Student Check-Out Form.
- Graduate in August.

## C. FAQ for the Master of Sciences Candidate

### **What options do I have when selecting formal coursework to fit my course of study?**

The department requires 20 hours of formal coursework, including GEOL 60084 (1 credit). Keep in mind that in addition to the formal courses offered in the department you have the following options available to help you develop the skills you need:

1. You can take courses at the University of Akron, Cleveland State University, and Youngstown State University through the Memorandum of Understanding, without transfer. This widens your choice of coursework substantially. Fill out and submit this form well before you need to register for the desired course. Discuss this with the Graduate Coordinator and/or your Advisor.
2. You can take courses in allied fields; such as GIS or Remote Sensing courses in Geography; the Wetlands, Limnology, and Ecology courses in Biological Sciences; the Environmental Chemistry courses in Chemistry; computer programming courses in Computer Science; or relevant courses in Physics. See the Registrar's website for available courses by semester. Note: Please consult primary advisor before enrolling in cross-discipline coursework.

### **Can I transfer geological coursework from another institution?**

Yes, you can transfer up to 12 hours of graduate credit, graded B or higher, from an accredited institution, as long as the work was done within six years of the completion date of your M.S. in Geology.

### **Can I pursue two Masters degrees simultaneously or sequentially at KSU?**

Yes, you can! You can share 12 hours of coursework between the 2 Masters programs.

### **Where can I go to get the thesis style guide and the necessary forms I will need as I progress through the program?**

[The KSU College of Arts & Sciences Style Guide and Instructions for Preparing Dissertations and Theses](#) (updated in Fall 2015) is available online and in the main Earth Sciences office. [Libraries and Media Services also provides guidelines for preparing your thesis or dissertation](#) to help you complete the process.

### **How much time do I have to complete my degree?**

*Master's degree students will normally complete work within six calendar years after the students' first graduate registration at Kent State University. Any credit being transferred for meeting degree requirements should also have been earned within the six-year period. Departments with time limits that vary from these norms will notify their students in writing.*

*When an extension of any of these time limits seems to be necessary and proper, the student and advisor will petition the student's department for an extension. The extension may be denied, in which case the student will be dismissed, or it may be granted with qualification. The student, advisor and college dean must be informed of the decision in writing. If the extension exceeds one year, the approval of the college dean is required. Requests for time extensions exceeding one year must be submitted to the college dean with evidence that the degree candidate is current in his/her field of study.*

*Students who must be away from their studies for one or more semesters for personal, family, financial or other compelling reasons may apply for a leave of absence. More information can be found in the Leave of Absence policy in the University Catalog.*

*Upon receiving their graduate degree, students are inactivated and are no longer eligible to register for courses at Kent State University. If students wish to continue their studies at Kent State, they will need to reapply to the appropriate academic unit and be accepted for another graduate degree program or as a non-degree student.*

Complete the [Application for extension of time limits](#) if you will miss a graduation date.

## VI. CODE OF STUDENT CONDUCT

As a student of Kent State University, it is essential that you understand the [Code of Student Conduct](#), available online. Explore its contents to find out the rules you must follow while attending KSU – and the student discipline procedures.

**The Code of Student Conduct serves as the document by which the procedures for adjudicating student conduct cases designated through the Office of Student Conduct are upheld.**

### **Romantic, Sexual, and Financial Relationships**

You as members of the Department of Earth Sciences at Kent State University must not exploit persons over whom you have direct or indirect supervisory, evaluative, or other authority such as students, employees, or research participants. Specifically, members of the department should not directly or indirectly supervise or exercise evaluative authority over any student with whom they have romantic, sexual, or non-KSU employment relationships. Members of the department should recognize that external financial, romantic, or sexual relationships with individuals vulnerable to manipulation, such as current students in their programs or employees under their supervision, may create the appearance of, or opportunities for, favoritism and/or exploitation, and thus such relationships should be avoided.

#### *Responsibility*

In the event that a member of the Department enters into a potentially exploitative relationship that is covered by the above policy it is that member's responsibility to remove themselves from having any supervisory, instructional, or evaluative authority in that relationship and to disclose the relationship to the Department Chair.

#### *Sanctions*

Failure to comply with this policy may result in discipline or dismissal according to the institutional rules and policies appropriate to the individuals involved.

### **Student-advisor relationship**

A student's likelihood of success in his/her pursuit of a graduate degree is much higher in cases where a good working relationship with their advisor is established. The student and advisor should jointly define a regular time for meetings. In these meetings, the advisor should work with the student to lay out a timetable for the completion of all degree requirements, identify potential research areas, provide a prompt turnaround on all written work and take an active role in professional mentoring of the student. The student and his/her advisor each have specific expectations. A student should be open to suggestions and critiques from his/her advisor and make a good faith effort to see these through in a timely manner. An advisor should always keep the academic progress of the student uppermost in their considerations. Advisors should not assign additional work to a student that is not directly tied to the student's own research or a specific, paid project appointment. If a student has any concerns about expectations, they should first consult with the advisor, and then the graduate coordinator if the issue is still unresolved.



## VII. POLICY ON TEACHING ASSISTANT PERFORMANCE

Graduate Teaching assistants are appointed each academic year. Future appointments are awarded based on satisfactory performance in the academic program and in the assigned responsibilities as well as departmental needs and continued availability of funds.

All graduate students supported by Teaching Assistantships are expected to perform all of the duties of their job in a professional manner (including, but not limited to, attending all required meetings, following the instructions of the instructors and the Graduate Preceptor, being responsive to email and phone inquiries – either from students or the instructors/preceptor, and starting laboratory sections or classes on time), with a focus on providing excellent education to undergraduate students. Teaching Assistants are required to notify the Chair, Graduate Preceptor or their course instructor of any absences and to complete an authorization of absence form as needed.

However, in the rare cases where there is evidence of unsatisfactory teaching performance, the response will proceed according to the following sequence:

1. The TA will receive a Verbal Warning from the Graduate Preceptor, course instructor, or Chair. This warning will be followed up with an email from the Graduate Preceptor, course instructor, or Chair that outlines the nature of the warning, and the Graduate Coordinator will be copied on this email.
2. The TA will receive a Written Warning from the Graduate Coordinator. This letter will be placed into the student's file.
3. The TA will receive a 2nd Written Warning, the Graduate Studies Committee will evaluate the TA, and there will be a possible loss of funding. The student will be notified of the performance evaluation and may provide a rebuttal letter that will be considered in the evaluation. The letters will be placed into the student's file and the student notified of the decision of the program.
4. Students can appeal to the Chair within 10 days of a decision of the Graduate Studies Committee to terminate funding.

### **FERPA and Title IX training**

The university requires all funded graduate students to take FERPA training (Family Educational Rights and Privacy Act) as well as Title IX training (Title IX of the Education Amendments Act of 1972 is a federal law that states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance"). Unfunded graduate students may also take the training, but it is not required.

Students will receive an email from the KSU Compliance Officer regarding the details of the training and the date by which it must be completed.

## VIII. FIELD AND LAB RESEARCH SAFETY

Field and Lab Research Safety is a top priority in the Department of Earth Sciences.

Forms: All research participants are required to sign [Hold Harmless](#) forms and complete OSHA lab safety training and additional lab specific training as needed. The forms provide information that may be needed in an emergency, assure participant acknowledgement of safety, agree to various releases, assumptions of risk and indemnities. Compliant submission of the required forms is mandatory.

Lab and Instrument Usage: When collecting data, all students must log in to the lab room and instrument being used. Lab room presence must be documented (name, day, time, and purpose).

First aid: An appropriate first aid kit must be taken on all research and class related field trips/events, regardless of the duration of the trip/event. On group trips, leaders need to be aware of the location of the nearest medical facility while on the trip.

Second-in-command: A field trip leader should always have another leader who is designated second-in-command in the event of accident or injury to the trip leader. One trip leader should not be the only person who knows the itinerary, emergency contact information, and location of cell phone(s) and first aid supplies.

Avoiding missing persons: When in the field, each time a leader departs from any location, s/he should do a head count to make sure that all participants are present and safe.

Field Safety: Go into the field prepared with clothing appropriate for the weather and field work to be done (plus a change of clothes) safety glasses; reflecting vests; hard hats; sturdy shoes/boots; sun protection; insect repellent; needed medication; food and plenty of water. If you will be in a boat, you must wear a personal flotation device. Check the weather before you go in the field and adjust your plans based on severe weather watches or warnings. Leave the field if there is lightning in the area.

For research field excursions students must observe the following safety procedures in addition to observing all other Kent State University safety protocols.

- A. Do not go in the field alone.
- B. Someone else not going in the field with you (your "buddy") must know where you are going and what time you will be back to check in. Check in with your buddy when you leave the field or if your plans change.
- C. If you are someone's buddy and they do not check in, first try to reach them directly. If you cannot reach them, contact someone in charge.

## IX. IMPORTANT DATES

There are several deadlines that must be met in order to graduate in a timely fashion:

- Applying for graduation
- Completing the thesis/dissertation defense
- Presentation of thesis/dissertation to the Office of Graduate Affairs, College of Arts & Sciences

If the student applies for graduation in one term and is delayed in finishing the work, it is necessary to file a re-application in the Office of Graduate Affairs, in the term in which graduation is anticipated. The re-application must be in the Office of Graduate Affairs by the deadline for application for graduation. Although reminders from the Graduate Coordinator and the Office of Graduate Affairs will be sent out, the Graduate Catalogue clearly stipulates that **it is the responsibility of the student to meet the deadlines.**

It is expected that the doctoral degree students entering Kent State with a master's degree will complete the degree in no more than nine years. Students possessing a master's degree will pass the candidacy examination within four calendar years of the first graduate registration at Kent State University. A doctoral candidate is expected to satisfactorily complete the dissertation and pass the final oral examination within five calendar years after having passed the candidacy examination.

Students must be continuously enrolled, including one summer term each year, prior to the completion of their degree. Please consult the Graduate Catalog for your enrollment term or the Department office for more information.

**Departmental Scholarship Applications** - Due by April 15

**Application to Graduate** - Due by 4:00 pm Friday of the first week of classes for the semester in which you wish to graduate

**Dissertation/Thesis Defense Deadline** - Typically about 5 weeks before commencement (look for the posted deadlines each semester)

**Dissertation/Thesis Submission Deadline** - Typically about 3 weeks before commencement (look for the posted deadlines each semester)

## X. GRADUATE COURSE DESCRIPTIONS

5/60095 SELECTED TOPICS IN EARTH SCIENCES (1-3) Selected topics presented by visiting professors or one-time offerings presented by regular faculty.

\*see descriptions of recent offerings at the end of this list.

### 51025 GENERAL GEOPHYSICS (3)

Physics of Earth. Seismology, geomagnetism; heat flow, radioactivity, geochronology, gravity and isostasy, geotectonic models.

### 51080 TECTONICS AND OROGENY (3)

Introduces advanced concepts of plate tectonics and mountain building with emphasis on Western United States and Appalachians. Required field trip.

### 51092 SUMMER FIELD CAMP (6)

Five weeks devoted to geologic mapping and solving structural and stratigraphic problems in Black Hills, S.D. Special fee on actual cost basis.

### 52065 WATERSHED HYDROLOGY (3)

Study of water movement, storage, and transformation across landscapes. Prerequisite: Graduate standing.

### 52067 PHYSICAL HYDROGEOLOGY (3)

Occurrence of ground water in geologic materials; emphasizing utilization, conservation and management of ground water resources.

### 52068 CONTAMINANT HYDROLOGY AND HYDROGEOLOGY (3)

An introduction to the basic principles of chemical and physical behavior of contaminants introduced by humans into the environment. Students are expected to understand concepts and work practical quantitative problems.

### 53040 PRINCIPLES OF GEOCHEMISTRY (3)

Introduction to chemical thermodynamics and its applications in solving geochemical problems. Distributions of elements and isotopes in the Earth and laws governing these distributions.

### 5/73042 ENVIRONMENTAL GEOCHEMISTRY (3)

Explores chemical processes that influence the natural environment including anthropogenic impacts. Topics include atmospheric chemistry and air pollution, energy and climate change, toxic organic compounds, water chemistry and water pollution, metals, soils, sediments and waste disposal. Environmental problem solving using steady state and non-steady state box models, thermodynamics and energy transfer, and chemical reactions and equilibria is emphasized. Required half-day field trip.

### 5/73044 ENVIRONMENTAL ISOTOPES (3)

Deals with the fundamentals of isotope geochemistry and the application of primarily light stable isotopes (H, O, C, N) to earth system processes (involving the hydrosphere, biosphere, and upper geosphere).

### 54025 GEOLOGIC HAZARDS AND DISASTERS (3)

Explores the geological processes that drive a broad range of different natural hazards (including earthquakes, volcanoes, landslides and floods), and how they interact with human behavior to produce geological risks and disasters. Through discussion of historical and topical events, students focus on the dual challenges of combining uncertain and incomplete information from various geological and

historical sources into realistic assessments of future risks; and the communication of accurate, relevant, actionable information about these risks to the public and authorities.

54070 SEDIMENTOLOGY AND STRATIGRAPHY (4)

Students are introduced to the principles regarding the systematics of sedimentary rocks and the relationships between geologic formations at various spatial and temporal scales. Lectures are integrated with readings from the open literature and required labs and field trips.

54072 MARINE PROCESSES (3)

This course is an exploration of the mechanisms (geological, physical, chemical, and biological) through which the ocean operates, and how it influences climate on seasonal, inter-annual, glacial-interglacial and over deep time. Emphasis will be placed on understanding the relative importance of these processes and how they have varied through time, and the potential outcomes of human-induced changes to these processes.

54074 PALEOCEANOGRAPHY (3)

A broad spectrum of geological approaches, including paleontology, geochemistry and stratigraphy is employed to interpret the history of Earth's oceans.

6/70084 GRADUATE STUDENT ORIENTATION (1)

Faculty research presentations; thesis/dissertation proposal preparation; discussion of professional organizations, preparation of manuscripts and oral presentation of papers.

6/70091 SEMINAR (1-2)

Specialized topics in earth sciences. Precise title to be inserted in schedule of classes.

60098 RESEARCH (1-15)

Research for master's level students. Credits earned may be applied toward degree if department approves. Repeated registration permitted.

60199 THESIS I (2-6)

Thesis students must register for a total of 6 hours, 2 to 6 hours in a single semester distributed over several semesters if desired.

60299 THESIS II (2)

Thesis students must continue registration each semester (including summer term) until all degree requirements are met. Prerequisite: ESCI 60199.

6/72068 ADVANCED HYDROGEOLOGY (3)

Quantitative approach to occurrence of ground water; methods of investigation, evaluation and development of ground water resources emphasizing optimization and maximal exploitation without environmental changes.

6/73063 SEDIMENTARY PETROLOGY (3)

Classification, texture, composition, provenance and diagenesis of sandstones and carbonates, following review of optical mineralogy. Petrographic microscopy and other laboratory techniques are emphasized.

6/74028 PALEOECOLOGY (3)

Relationships between ancient organisms and their environments, as interpreted from fossils, enclosing rock strata and recent analogs. Field and laboratory studies. Saturday field trips.

6/74065 SEDIMENTOLOGY (3)

Fluid dynamics, grain transport, sedimentary structures, granulometry, bedform and facies sequences, and facies architecture. Interpretation of continental and marine clastic depositional environments and processes.

80091 SEMINAR IN APPLIED GEOLOGY (1-2)

Specialized topics in applied geology. Precise title to be inserted in schedule of classes. Prerequisite: Doctoral standing.

80095 ADVANCED TOPICS IN EARTH SCIENCES (3)

Advanced topics presented by visiting professors or one-time offerings presented by regular faculty. Prerequisite: Special approval and doctoral standing.

80098 RESEARCH (1-15)

Research for doctoral students. Credits earned may be applied toward degree if department approves. Repeated registration permitted. Prerequisite: Doctoral standing.

80199 DISSERTATION I (15)

Doctoral dissertation, for which registration in at least two semesters is required first of which will be semester in which dissertation work is begun and continuing until the completion of 30 hours. Prerequisite: Admission to candidacy for doctoral degree and doctoral standing.

80299 DISSERTATION II (15)

Continuing registration required of doctoral students who have completed the initial 30 hours of dissertation, continuing until all degree requirements are met. Prerequisite: ESCI 80199 and doctoral standing.

## **RECENTLY OFFERED SPECIAL TOPIC COURSES (5/60095)**

### **ST: Fluvial Processes**

Fluvial Processes is an investigation of how water and sediment move in rivers, how they interact to shape form and function of rivers, and how rivers adjust in response to their environmental controls. In this class, students use field techniques and data analysis to describe and quantify fluvial form and process in pursuit of answering original research questions. Students also read and interpret the scientific literature on fluvial geomorphology. Instructor: A. Jefferson

### **ST: Urban Hydrology**

In this course we will investigate the science and management of water in cities and built environments, through case studies and problem-based learning. We will investigate current issues with municipal water supplies, wastewater treatment, stormwater management, green infrastructure, and urban streams. The course will include readings, discussions, data analysis, and one or more field trips. Students from Earth Sciences and other departments are welcome to contribute to the interdisciplinary experience. For more information, contact: Dr. Anne Jefferson.

### **ST: Environmental Soil Science**

Soil is a critical natural resource that sustains human life. In this course, students will explore the geochemical composition of soils and the physical, biological, and chemical processes involved in rock weathering, soil formation, and the environmental transport of nutrients and toxic elements. Instructor: T. Gallagher.

### **ST: Advanced Sedimentology**

Fluid dynamics, grain transport, sedimentary structures, granulometry, bedform and facies sequences, and facies architecture. Interpretation of continental and marine classic depositional environments and processes. Instructor: N. Wells.

### **ST: Advanced Topics in Hydrology**

This course is designed to give students flexibility to select hydrology topics relevant to them from a list of specialized online hydrology course modules. Modules are offered by leading faculty in these specialized research areas from across the country. Students are expected to enroll in the Urban Hydrology module taught by Dr. Jefferson and then select two other modules from a choice of seven topics. Each module, which is equivalent to one-third of a semester course, is designed to facilitate interaction among the instructor and students and contain some evaluation elements (problem sets, projects, presentations, exams etc.). Students should have completed at least one hydrology or hydrogeology course and should discuss the availability and scheduling of modules with Dr. Jefferson before enrolling.

### **ST: Writing in the Earth Sciences**

This 1 credit course will focus on the strategies for achieving regular and productive academic writing and the craft of writing for the scientific literature. The course will require commitment to weekly writing progress and will provide weekly opportunities for peer review and peer support. The course is designed for students who have a major writing project that will take most or all of the semester, such as a dissertation proposal (2nd year PhD students) or a thesis (2nd year MS students, senior Honors undergraduates). Special Approval required. Instructor: A. Jefferson

## XI. DEPARTMENTAL AND STUDENT SOCIETY AWARDS AND SCHOLARSHIPS

For information about external awards see the [Kent State University Student Financial Aid](#) website.

A number of scholarships are available to Kent State University Earth Sciences graduate students through the Department of Earth Sciences. Note that Masters students must have an approved research proposal, while Ph.D. students must have completed their comprehensive exam and have an approved research proposal to be eligible for these awards.

### **Amoco Alumni Scholarship**

A monetary award presented to Earth Sciences graduate students based upon their research support needs, academic standing, and the quality of their thesis/dissertation project.

### **Katherine L. Moulton Memorial Scholarship**

A monetary award presented annually to a Earth Sciences graduate student based on excellence in research.

### **Kent State Association of Engineering Geologists Research Award**

A monetary award presented to Earth Sciences graduate students based upon their research support needs and academic standing.

### **Sigma Gamma Epsilon Glenn Frank Field Camp Scholarship**

A monetary award presented to Earth Sciences graduate students registered for that semester's Summer Field Camp Course, and are a current member of SGE.

### **Sigma Gamma Epsilon Geology Graduate Student Research Scholarship**

A monetary award presented to Earth Sciences graduate students who need funding for a research project, and are a current member of SGE.

### **School of Hard Rocks Scholarship**

A monetary award presented to Earth Sciences graduate students based upon their research support needs, academic standing, and the quality of their thesis/dissertation project.

### **Yoram Eckstein Scholarship**

A \$1,000.00 scholarship available on a competitive basis to graduate students working on water research related to groundwater flow and/or contaminant transport for their MS or Ph.D.

## **EXTERNAL GRANTS, FELLOWSHIPS AND SCHOLARSHIPS**

In an effort to encourage advanced education in STEM (Science, Technology, Engineering, or Mathematics) the [Ohio Space Grant Consortium \(OSGC\)](#) offers financial support through competitively awarded fellowship opportunities.

[US EPA STAR and GRO Fellowships](#)

[Ford Foundation](#)



[Association of Women Geoscientists](#)

[Fulbright Scholarships](#) for US students

[Association of Engineering and Environmental Geologists \(AEG\)](#)

[National Oceanic and Atmospheric Administration Research Fellowships](#) The NERRS Graduate Research Fellowship Program is one of the largest graduate programs supported by NOAA. Fellows conduct their research within a National Estuarine Research Reserve and gain hands-on experience by engaging with reserve staff and participating in their host reserve's research, education, stewardship and training programs.

## **STUDENT ORGANIZATIONS**

Earth Sciences Grad students have the opportunity to participate in one or more of three student organizations affiliated with the Department. These groups conduct activities that enrich the learning environment, provide leadership experience, assist students with financial aid for field camp and just plain have fun!

- Sigma Gamma Epsilon, Gamma Zeta Chapter (National Geological Honor Society) (Facebook)
- American Association of Petroleum Geologists, Kent State Chapter

## **SIGMA GAMMA EPSILON, GAMMA ZETA CHAPTER**

2018 will mark the 50th anniversary of the Gamma Zeta Chapter of Sigma Gamma Epsilon (SGE) at Kent State University. In fact, SGE has been a vital part of the department since its founding in 1968. Eligible students can be elected to the Kent State Chapter of Sigma Gamma Epsilon, a national geological honorary society active in a variety of service, professional, and social areas, and dedicated to professionalism and advancement of earth sciences.

SGE at Kent State promotes professionalism through encouragement of graduate student presentation of papers at national and regional meetings. Each year, SGE awards between \$1000 and \$2000 in scholarships to reduce the burden of field camp expenses. In addition to these activities, the chapter has sponsored entire issues of The Compass on five occasions in: 1969, 1971, 1980, 1990, and 2004. This is possibly a record number nationally!

Kent State's chapter of SGE organizes the Spring Banquet and Fall Icebreaker which promotes intermingling of returning and newly-arriving undergraduate majors and graduate students in a local setting where food and beverages are provided. SGE also hosts the Holiday Party at the end of Fall semester where, again, food and beverages are provided.

SGE operates a major fund-raising project, the long-standing production of grain-size folders. These handy folders contain actual grains to provide a pocket-size guide to sizes, shapes, roundness, and angularity.

## XII. GRANT AND FELLOWSHIP OPPORTUNITIES

NSF-GRFP fellowships- only American citizens (sorry!) with less than two years of grad school under their belts can apply. This fellowship funds YOUR stipend. The deadline is in late October (<https://www.nsfgrfp.org/>) There are similar NASA funding programs that may be relevant for some of you.

Schlanger Fellowships- for IODP related research (anything that uses drill cores!) The new award period has not opened, so keep an eye out for the new deadline (<https://usoceandiscovery.org/fellowships/>)

GSA grants- This is a grant for research funds. The deadline will likely be early February. (<https://www.geosociety.org/GSA/grants/gradgrants.aspx>)

AAPG- This is a grant for research funds. The deadline is mid-January (<https://foundation.aapg.org/grants-in-aid-requirements-guidelines>)

Lewis and Clark- This is a grant for field research. The deadline is mid-November!! (<https://www.amphilsoc.org/grants/lewis-and-clark-fund-exploration-and-field-research>)

National Geographic- This is a grant for field research. There is not an active deadline but they will likely restart in the next year or so (<https://www.nationalgeographic.org/funding-opportunities/grants/>).

Mineralogical Society of America- This is a grant for research. The deadline is usually March ([http://www.minsocam.org/MSA/Awards/Min\\_Pet\\_Award.html](http://www.minsocam.org/MSA/Awards/Min_Pet_Award.html))

## XIII. STUDENT RESOURCES

### ON CAMPUS RESOURCES

Career Services Center, Schwartz Center: [career@kent.edu](mailto:career@kent.edu), 330-672-2360 (includes on and off campus jobs and career counseling)

Office of Global Education (International student and scholar services): [iss@kent.edu](mailto:iss@kent.edu), 330-672-4025

Women's Center, Williamson House: [wc@kent.edu](mailto:wc@kent.edu), 330-672-9230

Student Multicultural Center, Kent Student Center: 330-672-8581

Student Accessibility Services, Deweese Health Center: [sas@kent.edu](mailto:sas@kent.edu), 330-672-3391

Student Ombuds (resource for complaint or grievance resolution): [ombuds@kent.edu](mailto:ombuds@kent.edu), 330-672-9494

Student Legal Services, 164, E Main St #203, [studentls@kent.edu](mailto:studentls@kent.edu), 330-672-9550,

Office of Student Conduct (includes code of conduct), [studentconduct@kent.edu](mailto:studentconduct@kent.edu), 330-672-4054

University Health Services, DeWeese Health Center, 330-672-2322, 24 hour nurse line 330-672-2326

University Psychological Services, DeWeese Health Center, 330-672-2487, (confidential online screening through Psychological Services)

Counseling and Human Development Center, 325 White Hall, 330-672-2208

Kent State Police Department, Emergency: 911, Non-emergency phone: 330-672-3070, Threat Line: 330-672-7233

LGBTQ Student Center, 330-672-8008, Program coordinator: Roxie Patton, 330-672-8580

Kent State Office of Sexual and Relationship Violence Support Services, 330-672-8016

Well-being: Kent State of Well-being is the university-wide effort to promote wellness, focusing on eight key areas.

Meditation (Well-being): Kent State of Well-being is offering Meditation Across Campus, an opportunity to join in with other members of the Kent State community for free, virtual, facilitated meditation sessions with weekly drop-in times available

Mental Health Support Resources: This list compiles all the on-campus mental health services and select off-campus county, Ohio and national resources for students.

Counseling and Psychological Services: This link is to Counseling and Psychological Services, which provides services to all KSU students.

Additional resources: Another list with additional resources supporting their financial, food, housing, and mental well-being basic needs.

Professional development: <https://www.kent.edu/graduatestudies/student>

Scheduled tutoring (for select classes)

[Dissertation Boot Camp](#) – Each academic year the Division of Graduate Studies offers several Dissertation Boot Camp Weekend Retreats at the University Library. This program provides students with a distraction-free weekend to allow focused writing time, networking with other colleagues, resource materials related to research and writing, computer lab and conference room spaces in which to work. Typically, three sessions are offered each semester at a cost of approximately \$40 for Kent State students.

## **OFF CAMPUS RESOURCES**

Kent Free Library, 330-673-4414

Kent Natural Foods Co-op, 151 East Main St.

[PARTA Bus system](#)

Ohio State Parks

Last Exit Books (used books), 124 East Main St. #1, 330-677-4499

[Townhall 2](#) (Rape Crisis Center), 330-678-3006

[Safer Futures](#) (Domestic Violence Shelter), 330-673-2500, 330-296-2100

Rape, Abuse & Incest National Network, 1-800-656-4673

GLBT National Help Center, 1-888-843-4564

Supplemental Nutrition Assistance Program (SNAP)

Summit and Medina County Battered Women's Shelter, 888-395-4357

Ohio Suicide Hotline (open 24hrs/7 days per week), 330-678-HELP (4357)

## XIV. FORMS

Included and available for downloading at the [Earth Sciences Department website](#)

- PhD
  - [Proposed Program of Research](#)
  - [Proposed Courses of Study](#)
  - [Report of Candidacy Examination](#)
  - [Notification of Approved Dissertation Topic and Prospectus](#)
  - [Annual Spring Review and Plan](#)
  - [Report of Dissertation Final Examination](#)
- M.S.
  - [Proposed Program of Research](#)
  - [Proposed Courses of Study](#)
  - [Notification of Approved Thesis Topic](#)
  - [Annual Spring Review and Plan](#)
  - [Report of Thesis Final Examination](#)
- [Signature Page Instructions and Examples](#)
- [Graduate Student Check Out Form](#)
- [Application of Extension of Time Limits](#)
- [Approval for Acceptance of Graduate Coursework at Northeast Ohio Public Universities](#)