Tarleton State University



Department of Chemistry, Geosciences, & Physics

Graduate Student Handbook

For

Environmental Science & Geosciences Master’s Degrees

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# Introduction to the Department

Established in 1899, Tarleton State University is a growing university grounded in tradition. Our home campus in Stephenville, Texas, houses over 100 of our major programs, and our satellite locations in Midlothian, Fort Worth, and Waco provide additional support for majors.

As a founding member of the Texas A&M System, Tarleton has been dedicated to student development and education in central Texas, and serves as the focus of Higher education within the region. This includes a commitment to the sciences, and our Environmental Science and Geosciences master’s degree programs are central to this mission.

## Geoscience Master’s Program

Strategically located between the East Texas coastal clastics and refineries, and the West Texas Oil Fields, near the contact of the on-lapping Cretaceous marine deposits and the underlying Paleozoic deltas, Geosciences at Tarleton is ideally suited to develop the geoscientists of tomorrow. Our undergraduate program includes concentrations in petroleum geology, geology, hydrogeology, environmental science, earth science, and earth science with teacher certification. Each concentration is tailored to the needs of the individual disciplines and students’ goals, making this a highly versatile and desirable path. Our dedication to practice in the field provides students with hands-on experience, unrivaled within the State of Texas. Our graduate program mirrors the successes of our undergraduate, and uses one-on-one work with or geoscience faculty to guide students to become professional geologists. Additionally, our accelerated bachelor’s-to-master’s program allows our high achieving undergraduates to transition directly into our master’s program.

## Environmental Science Master’s Program

With University affiliations with the Center for Environmental Studies (CES), the Texas Institute for Applied Environmental Research (TIAER), Agrilife, the Center for Agribusiness Excellence (CAE), and others, the interdisciplinary environmental science master’s program at Tarleton State University is well established and focused on addressing issues both locally and globally. With affiliated faculty spanning from engineering to policy, natural resources, biology, and paleoecology, to name a few, this diverse program with concentrations in natural science and policy is customizable and flexible to meet the needs of professionals and students alike. On-hand experience in both the field and laboratory is emphasized in this program, our students are driven to seek answers to the problems of today’s ever-diversifying society.

# Program Contact Information

The Environmental Science and Geoscience Programs are governed by the College of Graduate Studies (COGS), and housed within the department of Chemistry, Geosciences, & Physics (CHGP), under the purview of the College of Science and Technology (COST). Students within the programs should initially consult with their faculty advisers, then the department, and use these other contacts as needed.

## Immediate Contacts

* Department Head, Chemistry, Geosciences, & Physics
  + Dr Ryan Morgan

Office: Science, Room 117C

Email: [rmorgan@tarleton.edu](mailto:rmorgan@tarleton.edu)

Phone: 254-968-9894

* Administrative Associate, IV, Chemistry, Geosciences, & Physics
  + Mrs Eva Moody

Office: Science, Room 117

Email: [emoody@tarleton.edu](mailto:emoody@tarleton.edu)

Phone: 254-968-9143

* College of Science and Technology Dean’s Office
  + Dr James Pierce, Dean

Office: Science, Room 119

Phone: 254-968-9781

* Director, Center for Environmental Studies
  + Dr Anne Egelston

Office: Grant, Room 355

Email: [egelston@tarleton.edu](mailto:egelston@tarleton.edu)

* College of Graduate Studies
  + Dr Barry Lambert, Dean

Office: Administration Annex II, Room 100

Phone: 254-968-9104

## Affiliated Departments

* Biological Sciences

Office: Science, Room 203

Phone: 254-968-9159

* Government, Legal Studies, and Philosophy

Office: Grant, Room 355

Phone: 254-968-9021

* Wildlife, Sustainability, and Ecosystem Science
  + Office: Agriculture, Room 201
  + Phone: 254-968-9221

# Faculty Advisers

Faculty advisers for the environmental science and geosciences program should be chosen based on their expertise in a student’s chosen path of study and their ability and willingness to take on a graduate student. The department will help students in finding advisers, but ultimately, the choice of who advises them is their choice, with the department’s approval. All faculty advisers must be members of the [COGS graduate faculty](https://www.tarleton.edu/graduate/documents/graduate-faculty-list.pdf). Student advising committees must be made of up at least three (3) faculty, with the principle adviser from within the program. Students may elect to change advisers during the course of their degree- this is allowed with the approval of the new adviser, department head, and COGS approval.

## Environmental Science

The interdepartmental nature of this program makes maintaining a list of qualified faculty advisers a challenge; however, students should initially consult the faculty [members list](https://www.tarleton.edu/environmentalstudies/faculty.html) from CES and speak with interested faculty.

## Geoscience

Students entering the geoscience master’s program should have at least two members of their committee made up of geoscience faculty. These faculty are:

* Dr Ryan Morgan, Department Head
  + Focus: Paleontology, Ichnology, Paleoecology
* Dr Stephen Field
  + Focus: Crystallography and Igneous Petrology
* Dr Catherine Ronck
  + Focus: Sedimentary and Petroleum Geology
* Dr Christopher Saxon
  + Focus: Structural and Petroleum Geology

# Student Resources

There are many helpful pages on the Tarleton website for student information. Some of these are included below.

## Offices

* Admissions
  + <https://www.tarleton.edu/admissions/index.html>
* International Admissions
  + <https://www.tarleton.edu/international/future/graduate.html>
* Financial Aid
  + <https://www.tarleton.edu/finaid/>
* Registrar
  + <https://www.tarleton.edu/registrar/index.html>

## Departments

* Department of Chemistry, Geosciences, & Physics
  + <https://www.tarleton.edu/costweb/chgp/index.html>
* Department of Biological Sciences
  + <https://www.tarleton.edu/biology/>
* Department of Wildlife, Sustainability, and Ecosystem Science
  + <https://www.tarleton.edu/ecosciences/index.html>
* Department of Government, Legal Studies, and Philosophy
  + <https://www.tarleton.edu/socialsciences/index.html>

## Colleges

* College of Graduate Studies
  + <https://www.tarleton.edu/graduate/index.html>
* College of Science and Technology
  + <https://www.tarleton.edu/cost/>
* College of Agriculture and Environmental Science
  + <https://www.tarleton.edu/coaes/index.html>

## Affiliated Centers

* Center for Environmental Studies
  + <https://www.tarleton.edu/environmentalstudies/index.html>
* Texas Institute for Applied Environmental Research (TIAER)
  + <http://tiaer.tarleton.edu/>
* Agrilife
  + <https://stephenville.tamu.edu/>
* Center for Agribusiness Excellence (CAE)
  + <https://www.tarleton.edu/cae/index.html>

# Program Information

Listed within this section you will find the approved university degree plans for the environmental science and geoscience master’s degrees. While these are general guides, keep in mind that changes to any individual degree plan must be approved by the student’s faculty adviser, the Department Head of Chemistry, Geosciences, & Physics, and the Dean of the College of Graduate Studies.

## Masters of Science in Environmental Science

The Masters of Science in Environmental Science degree is designed to be versatile depending on the individual student’s level, ability, and degree focus. Consultation should be taken with the Faculty Adviser to guarantee the best courses for a student to take, and which degree track to follow. Note that both the Environmental Sciences and Environmental Social-Policy Tracks have the option to pursue a thesis or non-thesis path.

### General Requirements- For all tracks

|  |  |
| --- | --- |
| **Category** | **Thesis**  **SCH** |
| Required Courses (of all students)   * ENVS 5185: Graduate SeminarRequired Every Long Semester in Residence * ENVS 5460: Applied Remote Sensing   Select One of the Following   * BIOL 5398: Research Design and Analysis * WSES 5360: Research Methods for Agricultural and Natural Resource Scientists * WSES 5380: Research Writing for Agricultural and Environmental Science   **Total** | 4  4  3  **11** |

### Environmental Sciences Tracks

#### Thesis

|  |  |
| --- | --- |
| **Category** | **Thesis**  **SCH** |
| Required Courses (of all students)   * ENVS 5331: Advanced Meteorology * ENVS 5342: Advanced Oceanography | 3  3 |
| Prescribed Elective  Take 9 credits of qualifying graduate electives as approved by advisor and department (BIOL, CHEM, GEOL, WSES) | 9 |
| Thesis/Dissertation   * ENVS 5088: Thesis (x6) | 6 |
| **TOTAL SCH REQUIREMENTS** | 32 |

#### Non-Thesis

|  |  |
| --- | --- |
| **Category** | **Thesis**  **SCH** |
| Required Courses (of all students)   * ENVS 5331: Advanced Meteorology * ENVS 5342: Advanced Oceanography   Select one of the following:   * ENVS 5310: Environmental Geology * CHEM 5310: Environmental Chemistry * BIOL 5320: Environmental and Restoration Biology | 3  3  3 |
| Prescribed Elective  Take 16 credits of qualifying graduate electives as approved by advisor and department (BIOL, CHEM, GEOL, ENVS, POLI, SOCI, WSES) | 16 |
| **TOTAL SCH REQUIREMENTS** | 36 |

### Environmental Social-Policy Tracks

#### Thesis

|  |  |
| --- | --- |
| **Category** | **Thesis**  **SCH** |
| Required Courses (of all students)  Select Two:   * POLS 5310: International Environmental Issues * POLS 5311: Environmental Law * POLS 5362: Environmental Policy * SOCI 5312: Environmental Sociology * SOCI 5306: Water Policy | 6 |
| Prescribed Elective  Take 9 credits of qualifying graduate electives as approved by advisor and department ((BIOL, CHEM, GEOL, ENVS, POLI, SOCI, WSES) | 9 |
| Thesis/Dissertation   * ENVS 5088: Thesis (x6) | 6 |
| **TOTAL SCH REQUIREMENTS** | 32 |

#### Non-Thesis

|  |  |
| --- | --- |
| **Category** | **Thesis**  **SCH** |
| Required Courses (of all students)  Select Two:   * POLS 5310: International Environmental Issues * POLS 5311: Environmental Law * POLS 5362: Environmental Policy * SOCI 5312: Environmental Sociology * SOCI 5306: Water Policy | 6 |
| Prescribed Elective  Take 13 credits of qualifying graduate electives as approved by advisor and department (BIOL, CHEM, GEOL, WSES) | 13 |
| **TOTAL SCH REQUIREMENTS** | 36 |

## Masters of Science in Geosciences

The Masters of Science in Geoscience is focused on developing competent geoscientists under the tutelage of expert faculty advisers. Within this program, students have the opportunity to develop a thesis on subjects which interest them and add to the total geologic knowledge of Texas and beyond. With the diversity of topics available and requisite knowledge needed for those topics, this degree is largely dependent on the availability of applicable courses and the recommendations of the faculty advisers. For the accelerated bachelors-to-masters, note that the student applies to the master’s program in their junior year. If they are not accepted into the master’s program, they will have the opportunity to change their bachelors to one of the geoscience undergraduate concentrations.

### Accelerated Bachelors-to-Masters

#### *Bachelor’s Degree*

|  |  |
| --- | --- |
| **Category** | **Semester Credit Hours** |
| General Education Core Curriculum   * CHEM 1411 [shared] College Chemistry I * CHEM 1412 [shared] College Chemistry II | 42 |
| Required Courses   * GEOL 1100 Transitioning to University Studies in Geosciences * Select one of the following:   + PHYS 1401 & PHYS 1402 College Physics I & College Physics II   + PHYS 2425 & PHYS 2426 University Physics I & University Physics II * GEOL 1403 Physical Geology * GEOL 1404 Historical Geology * GEOL 3400 Crystallography and Mineralogy * GEOL 3405 Paleontology * GEOL 3406 Igneous and Metamorphic Petrology * GEOL 3412 Structural Geology * GEOL 3413 Stratigraphy and Sedimentology * GEOL 4305 Field Geology * EASC 2451 Geographic Information Systems for the Sciences * EASC 4313 Environmental Techniques * *Select three of the following:*    + GEOL 3310 Geomorphology   + GEOL 3314 Geochemistry   + GEOL 3320 Hydrogeology   + GEOL 4311 Economic Geology   + GEOL 4312 Petroleum and Subsurface Geology   + GEOL 4315 Sedimentary Petrology   + GEOL 4316 Well Log Analysis   + GEOL 4317 Seismic Interpretation   + GEOL 4320 Paleoecology * MATH 2413 Calculus I * MATH 2414 Calculus II * GEOL 4600 Field Camp   **Total Required Accelerated BS-to-MS Undergraduate Hours** | 1  8  4  4  4  4  4  4  4  3  4  3  9  4  4  6  **70** |
| Prescribed Electives  Undergraduate:   * Electives (8 Hours Advanced) | 8 |
| **TOTAL SCH Requirement**  **Undergraduate** | **120** |

#### Master’s Degree

|  |  |
| --- | --- |
| Graduate Hours (after acceptance to the program)   * GEOL 5100 Seminar (x 4) * GEOL 5400 History of Geology * GEOL 5088 Thesis (x 6)   **Total Required Accelerated BS-to-MS Graduate Hours** | 4  4  6  **14** |
| Prescribed Electives  Graduate   * GEOL 4XXX or 5XXX electives | 12 |
| Free Electives  Graduate:   * 5XXX electives | 6 |
| **TOTAL SCH Requirement**  **Graduate** | **32** |

### Master’s Degree

#### Thesis

|  |  |
| --- | --- |
| **Category** | **Thesis**  **SCH** |
| a. Required Courses (of all students)   * GEOL 5100: Seminar (x4) * GEOL 5400: History of Geology | 4  4 |
| b. Prescribed Elective   * 10-12 Hours of GEOL Electives (4XXX or 5XXX) | 12 |
| c. Elective Courses   * 6-8 Hours of 4XXX or 5XXX Electives | 6 |
| d. Thesis/Dissertation   * GEOL 5088: Thesis (x6) | 6 |
| **TOTAL SCH REQUIREMENTS** | 32 |

# Degree Timelines and Policies

Both the environmental science and geoscience degrees are guided by the calendar created by the college of graduate studies, and it is the duty of the graduate student to adhere to these schedules for timely degree completion.

## General Degree Timeline

### Fall Prior to Admission

Contact potential advisers and [apply](https://www.applytexas.org/adappc/gen/c_start.WBX) to the graduate program. If in accelerated track, this takes place fall of Junior year.

### Spring Prior to Degree Commencement

Notification of admission to the program is delivered. Notify the department if you are interested in a graduate teaching assistantship, and what subject areas you might be able to teach, as assistantships are limited.

### Summer Prior to Degree Commencement

Search for and move into housing. Attend Graduate Student Training on campus so you are prepared to start working. Visit with the department to fill out paperwork and get key and office materials (if applicable). Arrange first meeting with a graduate adviser and select initial coursework. Determine whether level coursework is required.

### First Fall Semester

Settle into lab and coursework routine. Visit with Faculty to decide on Faculty adviser and committee members for degree, and file this with the College of Graduate Studies. File coursework plan with Department.

### First Spring Semester

Work with faculty to develop Thesis topic and write thesis proposal (if thesis track). Proposal is required before student can take and thesis credits. Apply for graduate student grants and begin working on research.

### Summer

Continue working on thesis research and taking courses.

### Second Fall Semester

Finish working on research. Apply to attend conferences to present research. If thesis track, conclude regular coursework. Begin construction of thesis manuscript.

### Second Spring Semester

Apply to graduate. Complete thesis manuscript and send to committee. Set date with department and notify graduate school of thesis defense date. If non-thesis, set up date for comprehensive examinations. Defend thesis/take comprehensive exams. Graduate!

## Departmental Policies

### Professional Standards

The Department of Chemistry, Geosciences, & Physics expects that all students will conduct themselves in a professional manner in congruence with University guidelines. This includes conduct toward faculty, staff, students, and colleagues on and off campus. Failure to display professional conduct may result in disciplinary action, including placing a student on departmental or university probationary status or dismissal from the graduate program.

### Graduate Student Residence during the Academic Year

Graduate students enrolled for the academic year in courses and/or receiving Graduate Teaching Assistantship (GTA) or Research Assistantship (RA) funding are expected to be in residence for the academic year (from middle August – middle May). It is expected that students may need to be off campus during the academic year for professional activities, such as conferences, fieldwork, and workshops. However, students’ absences for these activities should not interfere with their GTA or RA responsibilities. Absences should be discussed and approved in advance, preferably in writing, with the student’s advisor, the lab coordinator, and Department Chair, as appropriate. Students are expected to continue their research during the summer months to ensure timely completion of their degree. Students engaged in summer research and/or fieldwork may leave campus after their spring final examinations are completed.

### Prior to Enrollment

Prior to enrollment at Tarleton State University, the Department will appoint an Advisory Committee for each incoming student. The Advisory Committee will consist of three members from the Department of Chemistry, Geosciences, & Physics, or in the case of Environmental Science, graduate faculty that are selected from areas of specialization complimentary to the focus that the student intends to pursue. Most student’s come into the graduate program with their advisor already identified. In that case, the Thesis Advisor will be one of the members of the Advisory Committee. Before Graduate Student Orientation, the department will schedule a meeting for each incoming student and their Advisory Committee. **This meeting is required for all incoming students**. Students will be unable to register for classes if this meeting has not been completed.

The result of this meeting will be a filed course plan agreed upon by the committee, and will serve as an initial contract between the student and the department of planned courses to complete. Deviation from this plan must be approved by the student’s adviser and the department head.

### Thesis Requirements

The Department requires that its MS students conduct masters-level scientific research that is new and original. The thesis can either be written as a traditional thesis document or as a manuscript for submission to a journal. If written as a traditional thesis, geosciences students should follow the “Suggestions to authors of the reports of the United States Geological Survey” (<https://pubs.er.usgs.gov/publication/7000088>), while environmental science students should follow formats recommended by their committee. If written for submission to a journal, the paper can be co-authored, but the student must be first author of the paper.

At least two weeks prior to the thesis defense, the student is required to submit their entire thesis to their Thesis Committee and GPD. After the thesis has been successfully defended, the thesis will be formatted into a satisfactory document in accordance with Graduate School specifications (<https://www.tarleton.edu/graduate/documents/thesis/manual.pdf>; <https://www.tarleton.edu/graduate/documents/thesis/4-checklist.pdf>).

### Thesis Defense

The thesis defense is an approximately 15-30 minute formal oral presentation of the thesis research results that is open to the public. At minimum, all members of the Thesis Committee must attend the Thesis Defense. At least 10 days before the defense, the student is required to submit the Announcement of Oral Examination (<https://www.tarleton.edu/graduate/documents/thesis/2-defense.pdf>) to the Department Administrative Associate so that it can be submitted to the Graduate School and be advertised publicly by the Department.

After the presentation, the student will answer questions from the general audience about the thesis research presented, and about other matters deemed appropriate by members of the program faculty in attendance.

After the public presentation and question and answer session, the student will be examined by the Thesis Committee, and any other interested Program Faculty, in closed proceedings. **Any Program Faculty may attend the examination to ask questions and to provide input and perspectives on the student’s thesis and Thesis Defense**.

However, only the Thesis Committee will grade the Thesis Defense presentation and the oral examination. When there are no more questions, the student and any non-committee faculty will be excused and the faculty members that comprise the Thesis Committee will evaluate the Thesis Defense in a closed session.

The Thesis Committee will evaluate the presentation and provide a Pass/Fail grade (<https://www.tarleton.edu/graduate/documents/thesis/form-3-thesis-dissertation-defense-and-final-assess.pdf>). A student will have successfully defended the dissertation if a simple majority of the Thesis Committee vote to pass the candidate.

If the examining faculty determine that the student has “failed” their thesis defense, the student will be given an opportunity for another thesis defense to be presented within a specific time limit determined by the Thesis committee.

Students should bring a print copy of their thesis to their graduate defense along with signature pages for all copies. Completion of the thesis (See prior section) and successfully passing the thesis defense are both necessary to qualify to receive the MS degree.

### Comprehensive Exams

Non-thesis students in the Environmental Science program are required to complete a comprehensive examination in lieu of a thesis manuscript. This examination will take place during the student’s last semester in residence, and topics will be chosen by a committee of the program’s faculty, preferably those who have interacted with the candidate during their residence.

Prior to the examination, the student must complete a schedule for comprehensive examination form, and the time and date should be agreed upon by the student and their committee. This must be turned in to the department at least 10 days prior to the planned examination date.

On the planned examination date, the student must appear on time and prepared for all exams. The student will be given ample time and space to complete the examinations required of them. After completion, the student’s committee will grade the examinations and assign a Pass/Fail grade based on simple majority rule. They will then complete and submit to the department the Comprehensive exam form (<https://www.tarleton.edu/graduate/documents/thesis/form-3-thesis-dissertation-defense-and-final-assess.pdf>).

If performance on the comprehensive assessment is unsatisfactory, another attempt is allowed at the next regular administration, or, at the discretion of the advisory committee and head of the department involved, at an earlier date. If the comprehensive assessment is not successfully completed after three attempts, you will be dropped from the graduate program, as per COGS policy.

# Funding

## Graduate Teaching Assistantships

While graduate teaching assistantships are available, individual applicants must understand that these are competitive, and are limited to the needs of the individual departments. Interested students should appeal to their respective departments about the availability of graduate teaching assistantship positions. Assistantships are not guaranteed, and may vary by semester. Students are encouraged to complete their Free Application for Federal Student Aid ([FAFSA](https://fafsa.ed.gov/)) to increase their chances of being awarded an assistantship.

## Research Assistantships

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 via the Tarleton website. Considerations in judging applicants may include grade point average in upper division undergraduate courses, strength of background in supporting sciences, Graduate Record Examination Scores in the verbal and quantitative tests, and previous university record(s).

# Guidelines for Graduate Researchers and Teaching Assistants

## Teaching Assistant Expectations

All graduate students supported on a TA are expected to fulfill the time-commitment specified on their contract via direct teaching of students, evaluation/grading of student work, or preparation for student instruction as directed by the TA coordinator and/or course instructor.

In addition, all TAs will have to achieve competency with the material they are teaching/grading. This may be demonstrated by methods such as passing a competency exam, attending relevant course lectures or solving assigned problems as directed by the TA coordinator and/or course instructor.

Satisfactory performance of TA duties is expected and will be monitored by the TA coordinator and/or course instructor. Any TA with a less than satisfactory performance will be reported to the supervising department head. Unsatisfactory performance is grounds for termination from a graduate assistantship, under the discretion of the department.

## Research Expectations

All students on a thesis track are expected to make progress toward the completion of their degrees. In addition, student researchers are expect to adhere to the following:

* to learn the research methods and historical knowledge bases of the discipline;
* to communicate regularly with faculty mentors and the master’s committees, especially in matters relating to research and progress within the degree program;
* to discover and pursue a unique topic of research in order to participate in the construction of new knowledge in the chosen field and application of that knowledge to new problems/issues; and
* to exercise the highest integrity in all aspects of their work, especially in the tasks of collecting, analyzing, and presenting research data.

# Expectations of Graduate Faculty

Graduate faculty are expected to, upon agreeance to serve as such, adhere to the following guidelines. All graduate faculty should act in a professional manner and remain response to their departments and students. Those faculty who fail to adhere to these following guidelines may face administrative reprimands, removal of graduate students from their purview, and the denial of graduate students. [Source](https://gradschool.duke.edu/academics/academic-policies-and-forms/standards-conduct/best-practices-and-core-expectations).

## 1. Research

* to provide intellectual guidance and rigor in students’ educational programs and on specific research projects;
* to provide students with knowledge of the current frontiers and opportunities in disciplinary and inter-or cross-disciplinary research;
* to provide appropriate guidelines, including expected timetables, for completion of research projects; and
* to respect students’ research interests/goals and to assist students in pursuing/achieving them.

## 2. Teaching/Training

* to encourage and assist students in developing teaching and presentation skills, including course development, lecture preparation, classroom communication, examining, and grading;
* to provide sound intellectual guidance on disciplinary research methods and the historical knowledge bases of the discipline or the profession;
* to evaluate student progress and performance in a timely, regular, and constructive fashion; and to serve, when requested, as an informed academic advisor and a nurturing professional mentor to graduate students in training and, where appropriate and desirable, in students’ careers.

## 3. Professional Development/Program Progress

* to encourage student participation in scholarly activities, including conference presentations, publications, professional networking, grant writing, and applying for copyrights and patents;
* to prepare students to enter the job market with requisite professional skills, with an appropriate range of professional contacts, and with a realistic view of the current state of that market, both within and outside academy;
* to assist students, where appropriate, in joining collaborative projects in accordance with the accepted norms of the discipline;
* to provide TAs and RAs with meaningful professional experiences; and
* to avoid assignment of any duty or activity that is outside the graduate student’s academic responsibility or harmful to his or her timely completion of the degree.

## 4. Community

* to be fair, impartial, and professional in all dealings with graduate students in accordance with university policies governing nondiscrimination, harassment of all sorts, and normative standards of confidentiality;
* to create, in the classroom or the laboratory, an ethos of collegiality so that learning takes place within a community of scholars;
* to create an environment that openly discusses laboratory or departmental authorship policies and that prizes and acknowledges the individual contributions of all members of a research team in the publication or presentation of its research; and
* to avoid all situations that could put them or their students in positions of any conflicts of interest.

# Supporting Materials and Websites

The materials used to construct this handbook come from a variety of sources, both from with Tarleton State University and the review of best practices from other research institutions. Some of these materials are linked below.

Baylor University, Department of Geology graduate Student Handbook: <https://www.baylor.edu/geology/doc.php/286730.pdf>

Duke University Graduate School: <https://gradschool.duke.edu/academics/academic-policies-and-forms/standards-conduct/best-practices-and-core-expectations>

Michigan State University, Department of Earth and Environmental Sciences Student Handbook: <https://ees.natsci.msu.edu/sites/_ees/assets/File/2018-2019-GradGuidebook-VERSION-2018-08-21.pdf>

Ohio University, College of Arts and Sciences: <https://www.ohio.edu/cas/chemistry/grad/requirements/ta-expectations.cfm>

Tarleton State University, College of Graduate Studies: <https://www.tarleton.edu/graduate/index.html>

The University of Rhode Island Graduate School

<https://web.uri.edu/assessment/files/Thesis-dissertation_defense_evaluation_2013C.doc>

# Graduate Student Thesis/Dissertation

Defense Evaluation

The attached evaluation tool (rubric) is designed to assist in the evaluation of students’ ability to successfully prepare and defend their graduate research. The rubric includes seven evaluation criteria, and allows for the addition of criteria important to individual committees. Evaluation of a thesis and its defense is an integral part of graduate student learning outcomes assessment conducted by our graduate program. This evaluation tool will:

* provide students, prior to their defense, with a clear understanding of the elements of their written thesis/dissertation and its defense deemed most important to the defense committee
* provide multiple perspectives on students’ ability to successfully prepare and defend their research and engage in cogent discourse about their chosen field of study
* encourage conversations among departmental colleagues about improving graduate student learning outcomes and assessment
* serve as a potential source of program-level data on the accomplishment of the program’s learning outcome objectives, for submission as part of an assessment report

Defense committee members and students should review and become familiar with the criteria in the evaluation tool prior to the defense. The rubric should be scored at the conclusion of the defense, or shortly thereafter, by every member of the defense committee. This cover page (page 1) can then be completed (providing a *summary of the scored ratings* below for each of the criteria in the rubric), returned to the department office, and maintained in a confidential departmental file following the defense (one cover page per evaluator) for use as a valuable tool in graduate student learning outcomes assessment. The remaining rubric pages (2 - 4) can be shared with the student or destroyed.

**Student ID:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Student name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Program:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Date of Defens**e: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Evaluator role:**

\_\_\_ Major Advisor \_\_\_ Internal Core Committee member

\_\_\_ External Core Committee member \_\_\_ Internal Defense Committee member

\_\_\_ External Defense Committee member and Defense Chair

Other (explain) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Defense Score Summary by Criterion:**

**Assessment Scores:** 1: \_\_\_\_\_\_\_\_\_\_ 4: \_\_\_\_\_\_\_\_\_\_ 7: \_\_\_\_\_\_\_\_

2: \_\_\_\_\_\_\_\_\_\_ 5: \_\_\_\_\_\_\_\_\_\_ 8. \_\_\_\_\_\_\_\_

3: \_\_\_\_\_\_\_\_\_\_ 6: \_\_\_\_\_\_\_\_\_\_ 9. \_\_\_\_\_\_\_\_

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| **Assessment Criteria** | **4=Exceptional** | | **3=Strong** | | **2=Marginal** | | **1=Unacceptable** | **N/A** | | **Score** | | |
| **PART I: Written Defense Draft** | | | | | | | | | | | | |
| 1. Mastery of fundamental knowledge in the field | Consistently applies fundamental and advanced concepts to topics in subject area. | | Frequently applies fundamental and some advanced concepts to topics in subject area. | | Somewhat applies fundamental concepts to topics in subject area. | | Does not apply fundamental concepts to topics in subject area. |  | |  | | |
| 2. Ability to access and integrate information into a cohesive overview of current knowledge; ability to critically evaluate the meaning, value, and contribution of published literature in the field | Command and understanding of the current research literature in the field. | | Relates and understands the current research literature in the field. | | Aware of the research literature in the field. | | Knowledge is unrelated to the current research literature in the field. |  | |  | | |
| 3. Imagination and originality of thought | Problem/purpose of study very creative or original with new and innovative ideas;  Explored original topic and discovered new outcomes. | | Problem/purpose of study original  or creative; Design/approach  appropriate or innovative. | | Problem/purpose of study moderately  original or creative; Design/ approach moderately appropriate  or innovative. | | Problem/purpose of study lacked  creativity or not new; Duplication of previous  work. |  | |  | | |
| 4. Ability to design and implement an appropriate collection and analysis of data or ability to articulate a critical response to dramatic or artistic theory, literature, design and performance in one's own work or that of another artist | | Data interpretation is appropriate and creatively uses correct methodology; identifies weaknesses in interpretation; Demon-strates a an advanced ability to articulate a critical response to dramatic or artistic theory, literature, design and performance in one's own work or that of another artist | | Data interpretation is appropriate and uses many correct methodology; identifies some weaknesses in interpretation  Demonstrates a an ability to articulate a critical response to dramatic or artistic theory, literature, design and performance in one's own work or that of another artist | | Data interpretation is appropriate and uses limited number of correct methodology; identifies no weaknesses in interpretation  Demonstrates a an limited ability to articulate a critical response to dramatic or artistic theory, literature, design and performance in one's own work or that of another artist | Data interpretation is inappropriate and/or uses incorrect methodology; identifies no weaknesses in interpretation  Demonstrates a lack of ability to articulate a critical response to dramatic or artistic theory, literature, design and performance in one's own work or that of another artist | |  | |  |

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| **Assessment Criteria** | | **4=Exceptional** | | **3=Strong** | | **2=Marginal** | | **1=Unacceptable** | | **N/A** | | **Score** | |
| 5. Ability to draw reasoned conclusions from a body of knowledge | | Discussion was superior, accurate, and engaging; Conclusions/summaries and recommendations appropriate and clearly based on outcomes. | | Discussion sufficient and with few errors; Greater foundation needed from past work in area; Conclusions/summary based on outcomes and appropriate, included some recommendations. | | Major topics or concepts inaccurately described; Considerable relevant discussion missing; Conclusions/summary not entirely supported by findings/outcomes. | | Little discussion of project findings/outcomes; Displayed poor grasp of material; Conclusion/ summary not supported by findings/outcomes. | |  | |  | |
| 6. Impact of research on the field | | Thesis or dissertation is very relevant or  has significant importance/  authenticity to field and  will make an important  contribution to field. | | Thesis or dissertation has fair relevance or  significance/authenticity to field and will make a good contribution to field. | | Thesis or dissertation only moderate relevance  or significance/authenticity to field and will make a nominal contribution to field. | | Thesis or dissertation has little relevance  or significance/authenticity  to field and will make little contribution to field. | |  | |  | |
| **PART II: Oral Defense** | | | | | | | | | | | | | |
| 7. Oral presentation and defense of thesis/dissertation | | Masterfully defends  research by providing  clear and insightful  answers to questions;  Uses presentation resources as  a guide, gives detailed  explanations, is easily  understandable, and keeps appropriate eye contact with the  audience. | | Competently defends research  by providing very  helpful answers  to questions; may  occasionally manifest  need for further  reflection on minor  points; Uses presentation resources as a guide, is easily understandable, and keeps eye contact with the audience with the audience. | | Adequately defends  research; answers  questions, but often  with little insight;  frequently shows a need for deeper reflection on minor points; Relies too much on  presentation and has difficulty speaking freely to the audience, and is somewhat  comfortable with the  topic. | | Does not adequately  defend research;  does not answer key questions; frequently  shows a need for deeper reflection on vital points;  Reads the  material from  presentation to make the report and is clearly not comfortable with the topic. | |  | |  | |

**COMMENTS:**

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| **Assessment Criteria** | **4=Exceptional** | **3=Strong** | **2=Marginal** | **1=Unacceptable** | **N/A** | **Score** |
| 8. Additional Assessment Criterion: |  |  |  |  |  |  |
| 9. Additional Assessment Criterion: |  |  |  |  |  |  |

**ADDITIONAL COIMMENTS:**