Graduate Student Handbook

Department of Geology and Geophysics

Louisiana State University

2025-2026 Edition

Disclaimer: This "Handbook" does not overrule, substitute or amend in any way the requirements of the Graduate School. The Department of Geology and Geophysics will accept no responsibility for over-looking or inadvertently omitting any Graduate School requirements. Therefore, obtain and read the 2025-2026 General Catalog and the 2025-2026 Graduate Bulletin.

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Introduction

This Handbook is to be used together with the "General Catalog: The Graduate School". The information contained in the following pages is intended to assist incoming and continuing graduate students in fulfilling their degree requirements. It is plainly stated in the "General Catalog" that all graduate students must keep current of any changes in the requirements that the Graduate School may implement after their admissions and be certain to adhere to any new policies which may result. As for Departmental regulations, the Department of Geology and Geophysics allows the student to choose to follow either the old requirements, under which they were admitted, or the new requirements that the Department may implement after they had been admitted to the program.

Academic rules and University policies are described in the "Code of Student Conduct". If during your studies, additional questions arise concerning such topics as Graduate Assistantships, courses not being offered, or financial aid, do not hesitate to approach the appropriate staff or faculty member. In particular, consult with the Graduate Advisor and Graduate Coordinator as soon as possible over any doubts in requirements you may have.

Good luck with your studies. It is hoped that the information included in this Handbook will make your path towards an advanced degree clearer.

Corrections or updates of any information contained in the Handbook should be given to both the Graduate Advisor and Graduate Student Representative.

Graduate Minor in Geology

For graduate students in other Departments, The Department of Geology & Geophysics provides a graduate minor in Geology and Geophysics. The minor consists of nine (9) hours of graded course work in Geology (GEOL) at the graduate level with at least three (3) hours at the 7000-level in graded course work in Geology (GEOL).

Applied Depositional Geosystems Graduate Certificate

The student must satisfy both the requirements of the Graduate School as stated in the "General Catalog " and those of the Department of Geology and Geophysics before Louisiana State University will grant a degree. Furthermore, it is the student's responsibility to keep current of any changes in the requirements that the Graduate School or the Department of Geology and Geophysics or both may impose during the course of studies.

The Graduate Certificate in Applied Depositional Geosystems (ADG GC) trains both traditional (those with BS degrees in geosciences) and non- traditional students (those with Bachelors degrees in other science and engineering fields) for career opportunities in the energy and resource exploration sectors whether that be industry or in government agencies.

The Graduate Certificate in Applied Depositional Geosystems will be awarded to students successfully completing the five courses (15 hours) as specified in Requirements (see below). No transfer credit is permitted. If any of following courses were taken for *undergraduate student credit* those courses will not qualify for credit for the ADG GC.

Please be advised that to earn the ADG GC, you will need to include it on their application for degree and submit a certificate audit form. Please let the Graduate Student Coordinator or the Graduate Advisor know if you have any questions about completing these.

Learning Outcomes

Knowledge Base
ADG GC students will complete three thematically related courses to develop the skills and knowledge needed to be successful in the energy and resource exploration fields.

Presentation skills
The ADG GC students will be able to effectively communicate geologic information.

Requirements (15 credit hours)

You must complete
GEOL 7200 Scientific Communication and Visualization
AND
GEOL7281 Analytical Methods of Geosciences OR GEOL7051 Data Analysis for Geosciences

You must also complete three thematically related graduate-level (7000-level preferred) courses in GEOL. The courses are selected with the advice and approval of your advisory committee, if you are concurrently seeking either an MS or PhD degree in G&G, or by the

Department's Graduate Advisor, if you are seeking only the ADG GC.

Master of Science

Overview of MS degree

The student must satisfy both the requirements of the Graduate School as stated in the "General Catalog " and those of the Department of Geology and Geophysics before Louisiana State University will grant a degree. Furthermore, it is the student's responsibility to keep current of any changes in the requirements that the Graduate School or the Department of Geology and Geophysics or both may impose during the course of studies.

There are two options leading to the master's degree in geology. The departmental-level academic course plan for each student is developed in consultation with, and approved by, the student's graduate advisory committee.

Thesis option requires 30 credit hours at the graduate level and is offered face-to-face only. The expectation is that the thesis forms the central portion of a peer-reviewed manuscript (note – submission of such a manuscript is not required prior to defense of the thesis). The specific requirements for the MS thesis option are:

- 24 credit hours of graduate level coursework including completion of the department's core curriculum,
- 6 hours of thesis credit (GEOL8000),
- Completion of a thesis that demonstrates the student's capacity for independent research, critical thinking, organizing and interpreting materials, and communicating results,
- A public defense of a proposal is required once the thesis (advisory) committee has approved the written proposal, and
- A public defense of the thesis once the thesis (advisory) committee has approved the written thesis (this also serves as the Graduate School's required Comprehensive Final Defense).

Project option requires 37 credit hours at the graduate level. The project option is considered to result in a terminal degree and is appropriate for practicing and/or employed geoscientists who wish to acquire advanced background and knowledge in the geological sciences without the requirement of completing a rigorous thesis. Students should register for and take either the Geoscientist-in-Training or the Professional Geoscientist licensure examination (see lbopg.org for fees, details, examination dates, and registration process).

The specific requirements for the MS project option are:

- 36 credit hours of graduate level coursework including completion of the department's core curriculum (see departmental website and graduate student handbook)
- 1 credit of GEOL7990 that includes completion of a project that demonstrates the student's capacity to manage a project (pose a question, gather appropriate data, interpret data, and organize results), to think critically, and to communicate the results
- At least half of the 36 hours must be at the 7000level
- At least half of the 36 hours must be in courses with the GEOL
- No credit will be given for GEOL8000

Ideally, students would declare their intent to join the MS project option before beginning their

departmental-level academic course plan. If the student is in the project option, they will not be eligible for any financial aid from the department. GEOL8000 does not count degree requirements for the project-based Masters.

Regardless of thesis or project option, all MS students must complete the Department's Core Curriculum

	Fall	*Spring*
Required courses for all graduate students	*Methods Course (ideally, GEOL7051 Computer Programming and Data Analysis in Earth Sciences OR GEOL7281 Analytical Methods; 3 credit hours)*	*Communication course (ideally, GEOL7200 Scientific Communications; 3 credit hours)*
	GEOL7921 Department Seminar (1 credit hour)	*GEOL7921[1] Department Seminar (1 credit hour)*
	New course GEOL7003 Proposal Writing (1 credit hour)	

Learning Outcomes

Depth and breadth: MS students will demonstrate that they have depth and breadth of knowledge about concepts in geology and geophysics.

Ability to conduct original research: MS students will able to formulate and test hypotheses, to synthesize information from background literature and to attain the appropriate analytical or theoretical skills that address the research problem.

Effective communications: M.S. student will be able to effectively communicate geologic knowledge.

Requirements for the Master's degree – Project Option

Academic Good Standing

A minimum semester and a minimum cumulative GPA of 3.0 or better must be maintained during the student's residency. A student with a cumulative and/or semester GPA below 3.0 is not in academic good standing. Failure to attain a GPA of 3.0 or better while on probation will result in dismissal from the program. If the semester and/or cumulative GPA is 2.75 or less, the student may be dismissed from the program without probation. Students who are not in good academic standing may not take any graduate milestone exams.

Courses

Coursework requirements are tied primarily to learning outcome 1.

- 36 credit hours of graduate level coursework including completion of the department's core curriculum (see above)

- 1 credit of GEOL7990 that includes completion of a project that demonstrates the student's capacity to manage a project (pose a question, gather appropriate data, interpret data, and organize results), to think critically, and to communicate the results
- At least half of the 36 hours must be at the 7000 level
- At least half of the 36 hours must be in courses with the GEOL
- No credit will be given for GEOL8000

The Department expects students completing the Master's degree – Project option will register for either the Geologists-in-training or the Professional Geologist examination.

Requirements for the Master's degree – Thesis Option

Academic Good Standing

A minimum semester and a minimum cumulative GPA of 3.0 or better must be maintained during the student's residency. A student with a cumulative and/or semester GPA below 3.0 is not in academic good standing. A grade of "U" in research results in a student not being on good academic standing. Failure to attain a GPA of 3.0 or better while on probation will result in dismissal from the program. If the semester and/or cumulative GPA is 2.75 or less, the student may be dismissed from the program without probation. Students who are not in good academic standing may not take any graduate milestone exams: Master's Thesis Defense, and the Master's Non-Thesis Defense.

Courses

Coursework requirements are tied primarily to learning outcome 1.

- Successful completion of at least 30 semester hours, 6 semester hours of which must be in thesis research (GEOL 8000), and 24 semester hours in graded graduate-level course work. Of the 24 semester hours in graded graduate-level course work, a minimum of 13 semester hours must be in 7000-level courses. 7909 courses of independent research can be used towards the 7000 level courses counted for credit. (GEOL 7909 may be taken for a max. of 6 credit hours (at all levels) when topics vary). The 13 hours of 7000 level courses must include at least 3 semester hours in graduate seminars. **Students must register for at least 1 credit of thesis research (GEOL 8000) starting in the first semester of residence of their degree, and for every semester.**

See the General Catalog: Graduate School for the regulation regarding transfer of credit.

The Research Component

The Research component of the MS degree is tied primarily to Learning outcomes 2 and 3 and consists of the forming of an advisory committee, the writing, presentation, and defense of a proposal, and the writing, presentation, and defense of a thesis.

The Advisory (thesis) committee consists of the Advisor (Major Professor) and at least two other faculty members. The choice of Advisor is made by the student with the consent of that faculty member. The Graduate Council and the Graduate School have defined the minimum qualifications needed to serve on and to be counted toward the minimum committee membership (three members). Typically, the advisory committee remains intact throughout a student's career. There are rare situations (for instance, when a faculty member leaves LSU) in which a replacement must be made.

Thesis proposal - A copy of the thesis proposal, signed and approved by the thesis committee, must be on file in the Graduate Coordinator's office by the end of the second semester in residence. ~~**Students should register for at least one (1) credit hour of GEOL8000 during their second semester in the program**~~

Thesis - Completion of a thesis must demonstrate the candidate's capacity for research, originality of thought, and facility in organizing materials.

The Thesis Proposal

The thesis proposal defense is a defense by the student of their intended project, including preliminary analyses or items that show that the project will be feasible is highly advantageous. During their second semester, students should defend their proposal and should be registered for at least one (1) credit hour of GEOL8000. The objectives of this defense are to show whether a student can develop a workable research plan, carry out preliminary research, and work towards program deadlines. This defense should be completed by the end of the **student's second semester in residence**. Failure to complete the proposal by the end of the third semester may shows lack of adequate progress toward degree and may result in loss of Departmental funding, may result in the student not being considered for Departmental funding in subsequent semesters, and may result in expulsion from the graduate program.

The proposal defense is based on a written research proposal, an oral presentation, and a subsequent question and answer period. Proposals are essentially the Introduction, Background and Methods sections of the thesis. The scientific objective of the proposed research project must be explicitly stated in the Introduction section. The source of research funding should be explicitly stated.

The written proposal must be submitted to each member of the advisory committee at least 10 working days before the oral presentation. The proposal should normally be *no more than 10 single-spaced pages in length* (exclusive of title page, bibliography, figures and tables, and appendices). Appendices should include a budget, a timetable, and the candidate's vita. The proposal should be organized as follows:

a) Title Page:
Name of candidate, proposal title, area of specialty, committee members

b) Abstract of Proposed Research (250 word maximum)

c) Introduction:
- containing the problem to be solved, the hypothesis to be tested, what new knowledge is anticipated, and significance of the new research

d) Background
- previous work on the topic, additional information necessary to understand the research topic, objective and its relevance

e) Methods:
- used to test the hypothesis; a description of data to be collected, instruments/techniques used to collect the data, conducted, samples proposed

to be analyzed

f) Expected Results

- how these data will solve the problem being proposed and/or hypothesis to be tested.
- Expected outcomes and significance

g) Bibliography – references cites

h) Appendices

Budget and Budget Justification, including funding
Timetable
Vita (with publications)

The presentation of the proposal consists of a 20–30-minute presentation of the proposed work. The oral presentation should be organized similarly to the written proposal. The student should be sufficiently prepared to justify the hypothesis, the planned research project and the expected outcomes. The presentation will be followed by questions from the committee and answers from the student. The presentation is open to any departmental member.

The student will be considered to have passed if there is no more than one dissenting vote from the advisory committee members. Passing the proposal defense is linked to earning a grade of "S" in GEOL8000. Failing the proposal defense is linked to earning a grade of "U" in GEOL8000. A grade of "U" in research results in a student not being on good academic standing and such a student is not allowed to hold a graduate assistantship without the department developing a mentoring plan and without petitioning the Graduate School. Pass or fail decisions will be made at the completion of the proposal exam. Any student failing this exam by more than one dissenting vote must retake the exam by the end of the following semester. Students must register for at least one-credit hour of GEOL8000. A second failure will result in a second "U" grade in GEOL8000 and dismissal from the MS. program.

The Thesis Defense

Completion of a thesis must demonstrate the candidate's capacity for research, originality of thought, and facility in organizing materials. It must be acceptable in subject matter and exhibit creditable literary workmanship to the satisfaction of the thesis committee and meet with the approval of the Graduate School.

In the semester that the student plans to defend their thesis, the student must register for at least one credit hour of GEOL8000.

Timing Considerations

It is important for students to allow sufficient time for the advisor to provide an in-depth review (possibly multiple reviews) to bring the thesis to a suitable level for committee review before the student even considers scheduling their defense.

An advisor-approved full draft of the thesis must be submitted to the committee and the Graduate Coordinator at least ten working days prior to the defense. This should include a report from IThenicate (or similar package) that documents the originality of material. If the student will be graduating, then there are additional Graduate School requirements.

The Defense

Consists of a short presentation (approximately 20-30 minutes) on the thesis work accomplished by the student, after which questions may be asked from members of the public. This is followed by a closed session in which only the thesis committee and the student are present. Each member of the committee will ask questions that must be answered to the satisfaction of the committee.

A public defense of the thesis is required. Public notice - A two week (ten working days) public notice prior to the defense is required. For any questions, please see the Graduate Coordinator.

The Pass/Fail decision

A pass is granted if not more than one dissenting vote is given by the members of the thesis committee. A pass will earn a grade of "S' in GEOL8000. A fail is granted if more than one dissenting vote is given. A fail will earn a grade of "U" in GEOL8000. A second failure of the defense will result in another "U" in GEOL8000 and dismissal from the degree program.

The Final Copy of Thesis

The thesis must fulfill the format requirements of the Graduate School before final approval.

The final form of the thesis to be submitted to the Graduate School must be in accordance with the Graduate School regulations. The Graduate School currently requires electronic submission of theses and dissertations.

The student must also supply an electronic copy of the thesis to the Department, Major Professor, and to each of the other members of the thesis Committee.

Other

An annual progress report on the student's scholarly activities during the previous calendar year must be submitted each year by February 15, using the "Graduate Student Annual Report".

Some research groups expect that the thesis will result in a peer-reviewed publication(s). Make sure you speak with your advisor about this expectation, including order of authorship, handling of reviewers' comments, and timing of publication.

There is no foreign language requirement.

Doctor of Philosophy Degree

Overview

The Doctor of Philosophy (PhD) is the highest earned degree offered by universities. It is conferred only for work of distinction in which the student displays decided powers of original scholarship and only in recognition of marked ability and achievement. Nothing in the following summary of minimum standards should be construed to imply that the degree will be granted merely in recognition of faithful performance of prescribed work.

The basic requirements are: (1) students must exhibit unmistakable evidence of mastery of a broad major field (such evidence is ordinarily provided by passing a General Defense) and (2) students must prove ability to complete a significant program of original research by preparing a dissertation embodying creative scholarship and by passing a rigorous Proposal Defense and Final Defense. The dissertation must add to the sum of existing knowledge and give evidence of considerable writing skill.

The student must consult the General Catalog for a comprehensive listing of the requirements. Any exception to the Department requirements requires a written waiver on file in the Graduate Coordinator's office signed by the student's dissertation committee, the Graduate Advisor, and the Department Chair.

Learning Outcomes

Depth and Breadth
PhD candidates will demonstrate that they have depth and breadth of knowledge about concepts in geology and geophysics.

Ability to conduct original research
PhD candidates will able to formulate and test hypotheses, to synthesize information from background literature and to attain the appropriate analytical or theoretical skills that address the research problem.

Communications
The PhD student will be able to effectively communicate geologic knowledge in spoken and written communications. **As such, students should organize their Dissertation committee no later than the second semester in residence. They should also arrange to meet in person with their whole committee to begin communicate the goals of their research no later than the second semester of residence.**

Requirements for the Doctoral Degree

Academic Good Standing

A minimum semester and a cumulative GPA of 3.0 or better must be maintained. A student with a cumulative and/or semester GPA below 3.0 will be placed on probation. Failure to attain a GPA of 3.0 or better while on probation will result in dismissal from the program. If the semester and/or cumulative GPA is 2.75 or less, the student may be dismissed from the

program without probation.

Courses

Successful completion of at least 60 semester hours beyond the bachelor's degree in graduate-level. Coursework is primarily related to Learning outcome 1. The Doctoral student must

- Complete at least of 25 hours of graded graduate-level course work and seminars beyond the B.S.
- Complete the Departmental Core Curriculum (see table below)
- Of the 25 hours, at least 12 hours at the 7000 level, the remainder may be the 4000-level or the 7000level.
- At least 4 credit hours of seminar.
- At least 9 hours of GEOL 9000, Dissertation Research**. Starting in the first semester of residence in the Ph.D. program, students must register for at least one credit hour of GEOL 9000 Dissertation Research every semester**
- The remaining 26 semesters hours can be any combination of course work and 9000-level graduate credits that meet with the approval of the Major Professor and Dissertation Committee.

	Fall	*Spring*
Required courses for all graduate students	*Methods Course (ideally, GEOL7051 Computer Programming and Data Analysis in Earth Sciences OR GEOL7281 Analytical Methods; 3 credit hours)*	*Communication course (ideally, GEOL7200 Scientific Communications; 3 credit hours)*
	GEOL7921 Department Seminar (1 credit hour)	*GEOL7921[1] Department Seminar (1 credit hour)*
	New course GEOL7003 Proposal Writing (1 credit hour)	

The Research Component

A student's dissertation must show originality and scholarly mastery of the subject matter. The research component is primarily linked to the second and third learning outcomes. The student's research is guided by an advisory committee comprised of the major professor (research advisor) and at least two other faculty members. The composition of the full advisory committee is governed by regulations in the Graduate Catalog.

Dissertation proposal (Graduate School's General Defense)

Students must register for at least one hour of GEOL9000 during the semester they defend their dissertation proposal. The PhD proposal defense should be the defense of the student PhD project proposal and preliminary analyses or items that show that the project will be feasible. The objective is to show whether a student can develop a workable research plan, carry out preliminary research, and work towards program deadlines. This exam must be completed by the end of the student's **third** semester in residence. Failure to complete the proposal by the end of the **fourth** semester may result in loss of funding, in loss of consideration for funding in subsequent semesters, and possibly expulsion from the graduate program. The exam is based on a short, written research proposal, an oral presentation, and a

subsequent question and answer period. The research proposal is based on the dissertation research topic.

The proposal must be submitted to each committee member at least 10 working days before the oral presentation. The proposal should be no more than 10 single-spaced pages in length (exclusive of title page, table of contents, bibliography, figures and tables, and appendices). The proposal should be organized as follows:

1) Title Page (with the following information): Name of candidate, proposal title, area of specialty, committee members
    a) Table of Contents
    b) Abstract of Proposed Research (250 word maximum)
    c) Significance/impact of Research (150 word maximum)
2) Introduction (a summary of the state of knowledge pertinent to research to be conducted, what new knowledge will be sought by the research, i.e., the scientific objective and/or hypothesis, and significance of the new research)
3) Background (any additional information necessary to understand the research topic, objective and its relevance)
4) Methods (a detailed description of experiment to be conducted, sites/sections proposed to be analyzed, and potential outcome and impact)
5) Bibliography
6) Appendices
    a) Budget and Budget Justification
    b) Timetable
    c) Vita (with publications)

The oral component of the exam consists of a short presentation (no more than 20-30 minutes) on the proposed work, followed by questions from the committee. The candidate will be considered to have passed the proposal defense if there is no more than one dissenting vote from the committee members. Passing the dissertation proposal defense results in earning a grade of "S" in GEOL9000. Failing the defense results in the "U" in GEOL9000 and any student failing this exam must retake the exam by the end of the following semester. A second failure will result in dismissal from the Ph.D. program and a second "U: in GEOL9000. Pass or fail decisions will be made at the completion of the proposal exam.

As this PhD Proposal Defense is used as the Graduate School's General Defense, the rules and regulations governing the General Defense apply. This is the most severe test in the entire doctoral program. The General Examination follows the completion of all graded coursework (not including GEOL9000) and the successful defense of a dissertation proposal. The General Examination consists of two parts, a written exam followed by an oral exam. In both portions of the General Examination, the student will be expected to demonstrate expert competence over broad segments of their major field and a high degree of familiarity with the content of and current progress in related fields, an ability to clearly state an original and testable hypothesis (hypotheses), a clear understanding of the data needed to test the hypothesis, and an in depth knowledge of all methods that will be used

The examining committee consists of the student's Advisory Committee and a member of the Graduate Faculty chosen by the Dean of the Graduate School. The student should meet

with each member of the Examining Committee several months prior to scheduling the General Examination to establish committee expectations for the exam and to receive possible reading lists. The student must be registered for at least one credit hour of GEOL9000. As there will be inherent cross-connections with the student's research topic.

Schedule
The examination should be taken during or immediately following the semester in which all coursework is completed and no later than the third year in the program.

Pass-Fail
A pass is granted when there is no more than one dissenting vote and is related to earning an "S" in GEOL9000. A student failing the General Examination must retake it the following semester. Failing results in a grade of "U" in GEOL9000. A second failure results in a another grade of "U" in GEOl9000 and in dismissal from the Ph.D. program.

Peer-reviewed publication requirement

The Ph.D. student must provide documentation to the Graduate Coordinator that they have at least one **accepted** first-author manuscript (that has been approved by the major advisor) to a recognized peer-reviewed journal prior to requesting a Dissertation Defense (Graduate School's Final Defense). Ideally, the documentation of the accepted peer-reviewed publication is provided during the student's third year in the program and no later than the student's fourth year in the program.

Final Examination (Dissertation Defense)

Completion of a dissertation must demonstrate the candidate's ability to conduct original and independent research, to show a mastery of research methods and techniques, , and skill in formulating and communicating conclusions that in some way enlarge upon or modify accepted ideas to the satisfaction of the dissertation committee and meet with the approval of the Graduate School.

Timing Issues
It is important for students to allow sufficient time for the advisor to provide an in-depth review (possibly multiple reviews) to bring the dissertation to a suitable level for committee review.

An advisor-approved full draft of the dissertation must be submitted to the committee and Graduate Coordinator at least ten working days prior to the oral defense. See additional Graduate School requirements if graduating.

Ideally, the written dissertation should be approved by the advisor and by the members of the committee prior to the scheduling of the public oral defense of the dissertation.

A public defense of the dissertation is required. Public notice - A two-week public notice prior to the defense is required (See the Graduate Coordinator).

Oral Defense
This consists of a short presentation (approximately 20-30 minutes) on the dissertation after which questions may be asked by members of the public. This is followed by a closed session in which only the dissertation committee and the student are present. Each member of the committee will ask questions which must be answered to the satisfaction of the committee.

Pass-Fail
A pass is granted if no more than one dissenting vote is given by the members of the dissertation committee and a grade of "S" is earned in GEOL9000.If the student fails, then a grade of "U" is earned in GEOL9000. A second failure of the defense will result in an additional "U' in GEOL9000 and dismissal from the Ph.D. program.

Final Copy of Dissertation
The dissertation must fulfill the format requirements of the Graduate School before final approval. The final form of the dissertation to be submitted to the Graduate School must be in accordance with the Graduate School. The Graduate School currently requires electronic submission of theses and dissertations and also includes a check for plagiarism.

The student, however, must submit a digital copy of the dissertation to the Department. The student must also supply a electronic copy of the dissertation to the Major Professor and to each of the other members of the thesis Committee. If requested, the student must provide any member of the dissertation Committee with a paper copy.

Timely Submission of Approved Dissertation
Approved dissertations, including Graduate School corrections, must be submitted to the Graduate School not later than the deadline for submission of approved dissertations in the regular semester following the final examination in order to graduate. This includes all corrections made by the Graduate School. A final examination may be voided by the dean of the Graduate School for failure to submit the approved dissertation in a timely manner as described. "Regular semester" refers to Fall and Spring semesters. The decision to void an examination will not be taken lightly. A student and his/her major professor will be given an opportunity to petition regarding unforeseen delays in the submission of the final document to the Graduate School.

Other

There is no foreign language requirement.

Annual progress report - A progress report on the student's scholarly activities during the

previous calendar year must be submitted each year by February 15

Graduate Assistantships (GA)

Policy Statement 21 is governing document. Students who have accepted, but no longer want, a GA must request a formal release from the commitment. See the Graduate Advisor as soon as possible.

Requirements

All ½ time GA's involved in 20 hours of work per week. 1/4 time (10 hours per week) GA's are sometimes available but are uncommon.

GA's must be registered as full-time students (9 semester hours in the Fall and Spring Semester with 6 hours at or above 4000 level, and 6 semester hours during the Summer semester with 3 hours at or above 4000 level if paid during the Summer).

Attendance at Graduate Assistants' Meetings is a necessary and mandatory duty for all Graduate Assistants. These meetings relate to teaching, proctoring, grading and research duties. They also provide a forum to air problems that may be encountered in the course of your work. A graduate student can hold a GA while on probation for 1 semester with special permission from the Graduate School.

GA Eligibility

All Students

Graduate students should be in good academic standing (i.e., not on probation) to be GA's.

Non-Native English Speaking Students

Non-native English speaking students are all students whose citizenship is not that of: Australia, Canada, Ireland, New Zealand, the United Kingdom, the United States of America, and the following Caribbean Islands: Antigua, Bahamas, Barbados, Bermuda, British Virgin Islands, Cayman Islands, Grenada, Guyana, Jamaica, St. Christopher, St. Kitts, and St. Vincent. The following requirements apply to them:

The State of Louisiana requires that all non-native English-speaking students who hold a graduate teaching assistantship and who will have student facing duties (GTA2 and GTA3) take a speech placement interview prior to registering at LSU and register during their first semester for a course in "Current Spoken American English" (ENGL 1051).

Non-native English speakers are strongly encouraged to fulfill all the requirements stipulated for being a TA.

Types of GA's

Teaching Assistantship (TA)

TA's are expected to teach both Fall and Spring semesters. Individuals may have just one TA assignment, or they may be assigned two different TA responsibilities as defined below.

- Serving as a lecture assistant. The duties may include assisting in preparation of visual aids, handouts, examinations, homework assignments, proctoring examinations, and in grading.
- Teaching a laboratory section. This may involve preparing laboratory exercises for students, giving short lectures in laboratory on procedures and principles, answering questions, making up and grading laboratory quizzes and tests, holding office hours, and maintaining safe and proper lab conditions.

Service Assistantships (SA)

SAs are expected to serve in both Fall and Spring semesters. Individuals may have just one type of SA, or they may be assigned two different SA responsibilities as defined below.

- Maintain one or more of the Department's collections by ensuring that the catalog is kept up-to-date, the collection(s) are clean and in good order, and access to the collection(s) is properly controlled.
- Assist the professor in charge of the Wilbert Lecture series by coordinating arrangements with the Department staff, preparing and posting announcements of the lectures, assisting with receptions on the day of the lecture, and providing any other assistance as deemed necessary by the professor.
- Assist the professor in charge of laboratory facilities by maintaining instruments and providing assistance to the users.

Research Assistantships (RA, sometimes called Curator's Assistantships)

RAs are not awarded by the Department of Geology and Geophysics, but rather by individual professors out of their research grants. The responsibilities of an RA vary but may include one or more of the following: laboratory assistant, computer assistant, and field assistant.

If the student has any TA or SA commitment, he/she must get a release from the Graduate Advisor before he/she can accept a RA. All rules and regulations applicable to GA's still apply. However, appointments may be based on 12 months rather than 9 months.

GA Stipends and Tuition

Stipends and tuition listed below are subject to change without notice. Stipends of RA's may be different from those listed below.

Fall and Spring (9-month academic year) stipends for G&G TAs:

	Current
MS	$19,381
PhD student	$23,000

Students holding a 20-hour per week GA receive an in-state tuition exemption and out-of-state fee waiver. Students holding a 10-hour per week GA receive an out-of-state fee waiver

but must pay in-state tuition. All GA's must pay all required fees. Summer registration is only required if graduate student is receiving an assistantship for that semester.

	Tuition to be paid	Fees	Credit hour Registration Rqmts.
20-hour GA (1/2)	Exempted	Must Pay	9 (Fall & Spring) 6 (Summer)
10-hour GA (1/4)	In-state	Must Pay	9 (Fall & Spring) 6 (Summer)

Summer:

Students who have been TA's for at least two semesters may be eligible for summer employment teaching lab sections on campus, although the number of positions available are limited. Alternatively, one or more TA's may work at the Department Field Camp in Colorado (see the Director of the camp as early as possible). A few RA's are also available and should be sought aggressively as early as possible; stipends vary.

Period

The payment period for all a GA usually begins at least one week prior to the start of classes. For this reason all students being paid by the university should be available in-person on campus the week prior to the start of classes. An RA is responsible for scheduling their arrival on campus at the start of each semester with their academic advisor. A TA should coordinate with the instructor of record before the start of each semester.

Getting Started and Finishing Up:

The student should ensure that the Graduate Advisor has their class schedule as soon as possible after registration. Teaching assignments are posted and revised often starting at the end of the prior semester and during the first weeks of the current semester.

All TA's should be prepared to attend a meeting organized by the professor in charge of the class during registration week.

GA's must turn in any textbooks, lab manuals to the faculty member who is teaching the course at the end of the semester. GA's must also turn in keys to labs/classrooms to Facility Services at the end of the semester. GA's must be registered for the next semester

Just in Case

A TA who has a problem and feels they need help is encouraged to talk to the professor teaching the course, the Graduate Advisor, or the Graduate Student Representative. For any grievances, e.g., unfair amount of time required for a TA duty, refer to PS21.

Department Grievances and Procedures

Students are strongly recommended to air any grievances first through the Department procedures; if these fail, use the University procedures.

Within the Department

The recommended approach for the airing of student complaints is:

1. First consult with faculty member involved.
2. Consult with your Advisor.
3. Consult with the MS or PhD Graduate Student Representatives.
4. Consult with the Graduate Advisor.
5. Consult with the Department Chair.

If you are not able to resolve the issue or complaint using the above approach, then please submit a LSU Student Grievance Report Form

University Policies and Procedures

University Policies on student conduct are listed in the "Student Handbook and Code of Student Conduct". Copies are available from the Office of the Chancellor and on the LSU website, http://appl003.lsu.edu/slas/dos.nsf/index

Grade appeals for courses are outlined in the "General Catalog" and in Policy Statement 48.

University policy on Graduate Assistants is outlined in Policy Statement 21. A copy is available from the LSU website, http://sites01.lsu.edu/wp/policiesprocedures/policies-procedures/21/

PM73 s specific to LSU and outlines procedures for addressing power-based violence, including sex- and gender-based harassment, discrimination, and sexual misconduct. These procedures are required by Title IX, Act 472 of the 2021 Louisiana Legislature, and the Board of Regents Uniform Policy on Power-Based Violence. LSU's Title IX Coordinator is responsible for administering this policy at all University locations. Both informal and formal grievance procedures are outlined in PS-73. *Equal Opportunity Policy*

University policy and procedures are outlined in PS-1 "Equal Opportunity ". The following excerpt comes from PS-1: " The purpose of this policy statement is to assert Louisiana State University's (LSU) commitment to provide equal opportunity for all qualified persons in admission to, participation in, or employment in the programs and activities which the University operates without regard to race, creed, color, marital status, sexual orientation, gender identity, gender expression, religion, sex, national origin, age, mental or physical disability, or veteran's status, as well as to implement a procedure to address complaints for those who believe they have been subjected to discrimination and/or harassment in violation of this policy." Anyone having questions or grievances regarding equal opportunity at LSU should contact the Equal Opportunity Programs Office.

Useful Things to Know

Transit

The Campus Transit service provides door-to-door service 7 days a week, 5:00 pm – 12:00 am to and from any location on campus. Anyone wanting a ride simply needs to call (225) 578-5555, provide the information requested and a van or minibus will be dispatched. Students who return late to their residence halls may stop by the Public Safety Building on South Stadium Road and request Campus. Transit follow them to a legal parking space where they will be picked up and taken to their residence hall.

Supplies

Teaching supplies are available in the department office.

Keys

Keys to offices and labs are to be requested through Facility Services. That process is started by filling out a Key Request Form available on the FS website.

Graduate Student Representative:

Two graduate students (one for M.S. and one for Ph.D. students) are elected annually to serve as a liaison between the graduate students and the faculty, primarily through their attendance at faculty meetings.

Department Seminar Series:

Approximately every week the Department invites a guest speaker, usually from other colleges, universities or professional organizations to present a lecture. Students are strongly encouraged to attend these lectures and meet the speakers. The lecture usually takes place on Friday afternoons.

AAPG Student Chapter:

The AAPG (American Association of Petroleum Geologists) has a student chapter in the Department, which sponsors field trips, social activities, intramural sports, and some funding for travel to official meetings. Officers (President, Vice-President, Treasurer, Secretary, and Public Relations) are elected annually.

Association for Women in Science-Baton Rouge Chapter (AWIS-BR):

AWIS-BR is a local chapter of the 25-year old national group based in Washington, DC. It is committed to the achievement of equity and full participation of women in all areas of science and technology. The Baton Rouge chapter has lunches twice a month, speakers, social events. AWIS is open to both men and women. AWIS-national offers grants to graduate students and also publishes a pamphlet on grants available to graduate students.

SEG Student Chapter:

The SEG (Society for Exploration Geophysicists) has a chapter in the Department that provides opportunities for leadership, achievement and cultivation of ideas. Members have the opportunity to apply for Scholarships, Technical Program grants, Near Surface Research Awards and Student Chapter Outreach Grants. Officers (President, Vice-President, Secretary and Treasurer) are elected annually.

Sigma Gamma Epsilon (Delta Iota):

A National Honorary society for the Earth Sciences has a University chapter, Delta Iota. The Chapter sponsors tutoring for introductory geology courses and refurbishing of departmental displays. Officers (President, Vice-President, Treasurer, and Secretary) are elected annually.

Website/Social Media:
The Geology website/Social media accounts should be checked periodically for events and activities within the Department as well as around campus.

Graduate Student Association:
A campus wide organization of graduate students which serves to voice and work collectively towards improving the quality of graduate student life at LSU. http://gradlsu.gs.lsu.edu

Keys:
Per PS-49, the Building Coordinator is responsible for building security. All key requests are to be requested through Facility Services. For questions, please see the Building Coordinator for details.

Owing to the large inventory of sophisticated equipment, security is a matter of great concern. Please ensure that all office and laboratory doors are locked when not in use, and that the outside doors are securely locked on entering and leaving outside of normal building hours. Do not leave valuables unattended in offices or labs, and especially in the library or in plain sight in a car.

Safety:
The city of Baton Rouge, like many American cities, has a high incidence of violent crimes.. Any person on campus who needs a ride at night can call Campus Transit at 578-
5555. The service is free but is limited to the LSU campus only.

TA's teaching evening classes are encouraged to make students aware of the potential dangers and recommend to students that they arrange to be escorted to their car by another student.

CAMPUS POLICE: **578-3231**
OFF/ ON CAMPUS POLICE/EMERGENCY: **911**
CAMPUS POLICE - INTERACTIVE WEBSITE where you can report problems, crimes, etc. The address is **http://www.lsu.edu/police**

Building Problems:
During office hours, all building maintenance problems (lights out, power off, keys not working, etc.) should be reported to Facility Services (578-3186) or email (workcon@lsu.edu)--24 hours.

Mailboxes:
Mailboxes are located in the Department office, divided in alphabetical order of surnames. Mail arrives once a day around 12:00/12:30 p.m.

Photocopies:
A photocopier for everyone's use is available in the small room (E235 A) across from the mailboxes in the main office. It is to be used only for **small amounts of class-related items, personal copies may be made at The Library.** If you are in a great hurry you can do the copying yourself, but charge it to your major professor, at The Library photocopy center. See the Assistant to the Chair for further information. Access codes for the Xerox machine may be obtained from the Assistant to the Chair. Copies for research purposes must be cleared with your faculty advisor, as all copies are charged to their account.

Recycling:
The University recycles all paper. You may put all paper including glossy and newspaper in your recycling box in your office. See the Academic & Building Coordinator for a recycling box. Recycling is collected by the Janitorial staff. For more information, call the LSU Recycling Hotline at 578-5325. The

city of Baton Rouge has curb-side recycling; for more information call 927-1600.

Travel:
FOR FULL DETAILS ON TRAVEL, PLEASE REFER TO UNIVERSITY TRAVEL REGULATIONS ON THE ACCOUNTS PAYABLE & TRAVEL WEBPAGE:
(http://www.lsu.edu/administration/ofa/oas/acctpay/travel.php)

Purchasing Policy
If you need to make a purchase on University funds, please contact the Assistant to the Chair for instructions at either (225) 578-2517 or TBA .

Health Center:
The Health center is staffed and equipped for treating minor illnesses and minor accidents.

E-mail Access:
The Office of Computing Services provides e-mail accounts to all faculty, staff and graduate students.

Financial Assistance

A list of potential granting agencies is given below. The information listed is subject to change without notice.

Financial aid

A student receives from an external source, if not directly deposited in his/her personal account, must be made payable to the LSU Foundation and **not to** the University. Furthermore, such payments must never be referred to as "invoices" in any correspondence. For an explanation or further details on form of payments, see the Student Financial Aid Office.

Fellowships

Some fellowships may require US citizenship; check with the Assistant to the Chair.

LSU Graduate School Fellowships

The Graduate School has Fellowships available, including the Dissertation Year Fellowship, please refer to the Graduate School's website for details, eligibility, and nomination and application deadlines.

Research Grants and Scholarships

LSU Office of Sponsored Programs (OSP) has grant and scholarship information on file.. OSP will also do regular grant-searches for you and send this information to your e-mail address. Call OSP for more information, 8-2760. Check with the Graduate Advisor for other grants and scholarships available and for current applications.

Funding for Travel to Meetings:

AAPG-LSU Student Chapter

The Department student Chapter provides funding for travel to Society or Professional meetings in a calendar year. You must submit an abstract of the paper or poster you are presenting. For deadlines, contact the current AAPG President. The 2021-2022 President was Allison Barbato. Her contact email is abarb15@lsu.edu.

Society/Professional Meetings

Most organizations provide some funding for students presenting papers, or poster sessions at their meetings. Information on the availability of such funding must be obtained directly from the society/organization.

GSA Southeastern Section

Program to support cost of student travel to GSA meetings. Applies to both the annual meeting and Southeastern Section meeting. See GSA Bulletin for details.

STAFF & RESPONSIBILITIES

Throughout your graduate studies in the Department of Geology and Geophysics, the following people will be instrumental in the completion of your degree. Their respective responsibilities are listed.

Office Personnel

- **Amy L. Randall -_HR/Business Coordinator** – 225-578-5940. Primary Dept. contact for Human Resources related matters including student payroll, timekeeping, offer letters, leave requests, and Field Camp liaison.

  Graduate Coordinator – Graduate student admissions, scholarships and awards, maintains graduate records, course scheduling and student registration.

- **LaTosha Mullins** – lmullins1@lsu.edu 225-578-1376

  Travel/Purchasing Coordinator – travel arrangements and spend authorizations, procurement and LaCarte management, contact for Geology recruiting and community outreach events, department website and social media account management.

- Charlotte R Moore --**Assistant to the Chair** 578-2517 / cmoore1@lsu.edu
- Accounting, purchasing, financial reporting. data entry of all accounting transactions, reconciliation of departmental accounts, faculty allocation reports. Other duties: property inventory, copy codes, AV equipment. Assists with proposal routing. Office supervisor.

Technical Personnel

- **Wanda LeBlanc-Scientific Research Technologist 2** - wleblan@lsu.edu (8-2420 Rm E208B)
  - Geochemistry Laboratories.
  - Use of the XRD and geochemistry laboratories
  - EHS laboratory safety.
- **Andrew Webb-Research Associate/Building Coordinator** - awebb6@lsu.edu (8-2946 Rm E240).
  - Building Coordinator (key requests, facilities maintenance, shipping/receiving)
  - Rock Prep Lab (saws, crushers, polishing, thin sections, grain mounts, mineral separation, storage of samples)
  - Fleet Custodian (vehicle rental and maintenance)
- **– Technical Services Provider**– @lsu.edu (8-4787 Rm E233)
  - IT support for department

COMPUTER/ANALYTICAL/REFERENCE COLLECTIONS

Computer Labs

Fishbowl Computer Lab – Howe Russell E232

- General access computer lab used for both student work and teaching. The computer lab has 11 computers running Windows 7, a projector connected to the teaching computer, and one printer.
- WE DO NOT GUARANTEE DATA RETENTION FOR THESE COMPUTERS. PLEASE STORE YOUR WORK ON AN EXTERNAL HARD DRIVE OR FLASH DRIVE.
- Standard Software Includes:
    - 7-Zip, AdBlockPlus, Adobe cs4 suite, ArcGIS Desktop, Biomac (usgs), Crystal Maker, Crystal Diffract, Cygwin, Dutrow's course set, Filezilla Client, Firefox, Geochemist Workbench, Geographix, GIMP, Google Earth, Imgburn, Inkscape, Kingdom Suite, Mathematica, Matlab + wavelet toolbox, Melts, Microsoft office, Notepad++, Papercut Client, Petrel, Putty, Python, Symantec antivirus, Sysinternals, Theriak domino, Topodrive & Particle flow (usgs), Turning Point, Virtual Clone Drive, VLC Player, Windirstat, XLStat, Xming

Subsurface Computer Lab – Howe Russell E217

- Special use computer lab. Speak to Jeffrey Springer for key code access to this lab. The computer lab is used for subsurface modeling and mapping. The computers run Linux (4 computers are configured for dual boot with windows). There are 4 Dell Precision workstations and 7 Sun workstations. Processing is done via ssh connection to a departmental server.
- Standard Software Includes:
- Gimp, Inkscape, LibreOffice, Melts, R studio, Xmgrace

Department Printers

- Students can connect to department-controlled printers through the Print server \\Geol- Print.lsu.edu
- Each semester students are provided a $100 printing credit. Printing in black and white costs $0.10 per page and color printing costs $1.00 per page. Large format printing is available upon request in the front office.
- Main Office Color Laserjet 4525, Laserjet M602, and Xerox Copier
- e232-"Fishbowl" Laserjet M401
- e238 Laserjet 4000m HP DesignJet Z9dr 44in – prints up to 44" wide but we only carry 42"wide paper

Additional Resources

- There is a large format scanner available in E239
- Xerox copy machine in E235
- Large Format cutter and trimming board in E239

For questions or assistance please contact Jeffrey Springer **at GeolSupport@lsu.edu**

University Computing facilities
Through HPC@LSU, University faculty, staff and students can access LSU's supercomputers, SuperMike-II and SuperMIC, and other high-performance computing systems on campus.

HPC@LSU also provides system administration and consultation support for the Louisiana Optical Network Infrastructure (LONI) supercomputers.

DEPARTMENT LABORATORIES

Safety Training

- Everyone working in Geology and Geophysics labs must take the online safety training. All laboratory personnel (faculty, staff and students) are required to take the general safety training. If you work in an area that has biologicals, chemicals, or physical processes, then you are laboratory worker and must take the general training. If you have the potential to work with hazardous chemicals, you need to take the additional chemical safety training.
- The link to the site is below. The training required are also listed below. https://www.lsu.edu/ehs/training/online-lab-safety.php
- Do not click on the links below. You must sign in under your name to access these links. I am showing which online training courses you are required to take as a Geology & Geophysics personnel.
-

General Laboratory Safety	
- BASIC LABORATORY SAFETY	Required
- CYLINDER SAFETY	Required for Handling Gas Cylinders
- EMERGENCY RESPONSE	Required
- HAZARD COMMUNICATION	Required
- HAZARDOUS WASTE TRAINING	Required

- Also recommended is the chemical safety course. Please take the Liquid nitrogen handling if you are using liquid nitrogen.

CHEMICAL SAFETY	
- CHEMICAL SAFETY	
- LIQUID NITROGEN HANDLING	Required for Handling of Liquid Nitrogen

- For any questions on Laboratory Safety Training contact Wanda S Leblanc (wleblan@lsu.edu)

Palynological Facilities

- A Palynologic Research Library consisting of more than 20,000 reprints and books dealing with pre-Quaternary palynology and an additional 3,000 reprints treating Holocene and Quaternary palynologic studies. A modern pollen reference collection of ~ 8,000 species is available for research, as are some 60,000 palynologic slides from oil wells, primarily from the Gulf of Mexico.
- Processing facilities for extracting palynomorphs and siliceous microfossils from sediments and rocks.

- A new microscopic facility for graduate students with three Olympus scope BX41 equipped with mounted digital camera and new IMac for convenient image and data handling.
- Rooms 144, 152, 160, 164, and 168 in Old Geology Building (West)

Contact: Dr. Sophie Warny (swarny@lsu.edu)

- **Chevron Geomaterials Characterization Laboratory**

- The Chevron Geomaterials Characterization Laboratory (CGCL) was established in 2014 with a generous donation from Chevron to the Department of Geology & Geophysics to enhance undergraduate and graduate learning by acquiring instrumentation. The instrumentation in the CGCL can generally be grouped into three categories:

- Light Microscopy and Imaging
    - Research-grade petrographic microscopes
    - Keyence VHX-7000 automated digital microscope with LIBS elemental analyzer
    - Optical Cathodoluminescence microscope
- X-ray Analysis
    - Bruker S2-PUMA energy-dispersive X-ray Fluorescence Spectrometer for chemical characterization of bulk samples.
    - Bruker D2-PHASER benchtop X-ray Diffractometer for characterization/determination of mineral phases in bulk samples.
- Electron Microbeam Analysis
    - JEOL JSM-6610 LV Environmental Scanning Electron Microscope with secondary electron and backscattered electron detectors for imaging.
    - JEOL 8230 Electron microprobe with 5 wavelength dispersive spectrometers and an energy dispersive spectrometer for X-ray analysis. Imaging capabilities include secondary and backscattered electron detectors and a panchromatic cathodoluminescence detector. This instrument is also a part of LSU's shared instrumentation facility (SIF).

- For enquiries or more information about the lab and its capabilities, contact Dr. Matthew Loocke (mloock1@lsu.edu).

The Stable Isotope and Organic Geochemistry Lab (SIOGL) is managed by Dr. Zhuang (gzhuang@lsu.edu) and has following facilities and equipment.

- Thermo Trace 1310 Gas Chromatography with Flame Ionization Detector (GC-FID) and Programmable Temperature Vaporizing (PTV) Injector.
- Thermo Scientific Delta Q Isotope Ratio Mass Spectrometer (IRMS) coupled with GC Isolink II, ConFlo IV, Gas Bench, and Trace GC 1310.
- Los Gatos Liquid Water Isotope Analyzer (LWIA).
- Elemental analyzer isotope ratio mass spectrometry (Isoprime MS and EA)

- In SIOGL, we can perform compound-specific isotope analysis (CSIA, $\delta^{13}C$ and $\delta^{2}H$) on leaf wax *n*-alkanes, stable carbon and oxygen ($\delta^{13}C$ and $\delta^{18}O$) on sediment or sedimentary rock bulk sample and fossils (e.g., forams), total organic carbon (TOC) analysis, total organic nitrogen (TON) analysis, bulk sample organic matter $\delta^{13}C$ and $\delta^{15}N$ analyses, and $\delta^{18}O$ and $\delta^{2}H$ analyses on liquid water samples.

- **Subsurface Laboratory.** For information, see computer facilities (above).

- **Mineral Separation and Rock Preparation Laboratory**
- Equipped for rock cutting, crushing, and pulverizing, density, magnetic, and grain size sorting, thin-section and grain-mount production, as well as bulk sample storage. Contact: Andrew Webb: awebb6@lsu.edu

- **X-Ray Diffraction Laboratory**
- X-ray powder diffractometers located in Shared Instrument Facility in Chemistry and Materials Building Contact: Wanda Leblanc (wleblan@lsu.edu)

Geophysics Laboratory (E122)

SYSTEMS

- 240-channel Sercel Eagle SN388 radio-telemetry seismic acquisition system Mobile Seismic Laboratory ('SEISMEAUXBILE')
- Two 24-channel seismographs for 0-1 km studies 20 borehole vertical component 1-Hz geophones
- 48 high-frequency piezo-sensor (20-20 kHz) acquisition system. Biaxial hydraulic press (0-2000 psi) with high-pressure (0-10 kpsi) low-flow pump and controller, and viscometer
- 24-channel ultra-high frequency (0.1-2 MHz) acquisition system
- 48-channel IRIS Syscal system for Electrical Resistivity Tomographic Imaging Sensors and Software GPR with 100 Mhz and 200 MHz antennae and GPS Lacoste-Romberg Gravity Meter (0.005 mGal precision)
- Physical seismic modeling sand tank (6'x6'x2') with 3-D robotic gantry for automated positioning of seismic sources in scaled 3D surveys.
- Digital Theodolite
- 4-wheel and 6-wheel field vehicles
- Electronic and mechanical repair and testing equipment

SENSORS

- 100 Hz, 40 Hz, 14 Hz, 2 Hz vertical-component geophones and
- 4.5 Hz horizontal- and vertical-component geophones
- Downhole 3D seismometer for shallow borehole studies (< 30 m) 72-channel towable land streamer

SOURCES

- Downhole Betsy seismic source (P-Sv)
- Electro-mechanical impulsive shear-wave seismic source ATV-mounted accelerated weight-drop seismic source Shear plates for S_H and P-S_V sources
- Shallow (1 m) and deeper (5 m) shothole drilling machines
- 2 x Magnetostrictive, high-frequency mechanical vibrators (< 10 kHz)
- 2 x Piezo-ceramic high-frequency sources (1-5 kHz), controllers and software. Voice-coil high-frequency S_H source (< 1 kHz) and shot controller.

- Contact: Dr. Juan Lorenzo (gllore@lsu.edu)

- ***GEOLOGIC AND PALEONTOLOGIC UNIVERSITY COLLECTIONS***
- Vertebrate Paleontology Collection, Museum of Natural Science, Rm 443, Old Geology. Contact:
- Invertebrate Paleontology Collection, Museum of Natural Science, Rm 443, Old Geology. Contact: Lorene Smith
- Howe Microfossil Collection, Museum of Natural Science, Rm 363, Old Geology Contact Lorene Smith
- Cenex Modern Pollen Reference Collection, Museum of Natural History of Louisiana, Rm 144, Old Geology Contact: Dr. Sophie Warny
- Mineralogy Collection, Museum of Natural Science, Rm E202, 208 and display cabinets in Howe-Russell Contact: Dr. Barb Dutrow
- Petrology Collection, Museum of Natural Science,Rm E206, Howe-Russell Contact: Dr. Darrell Henry