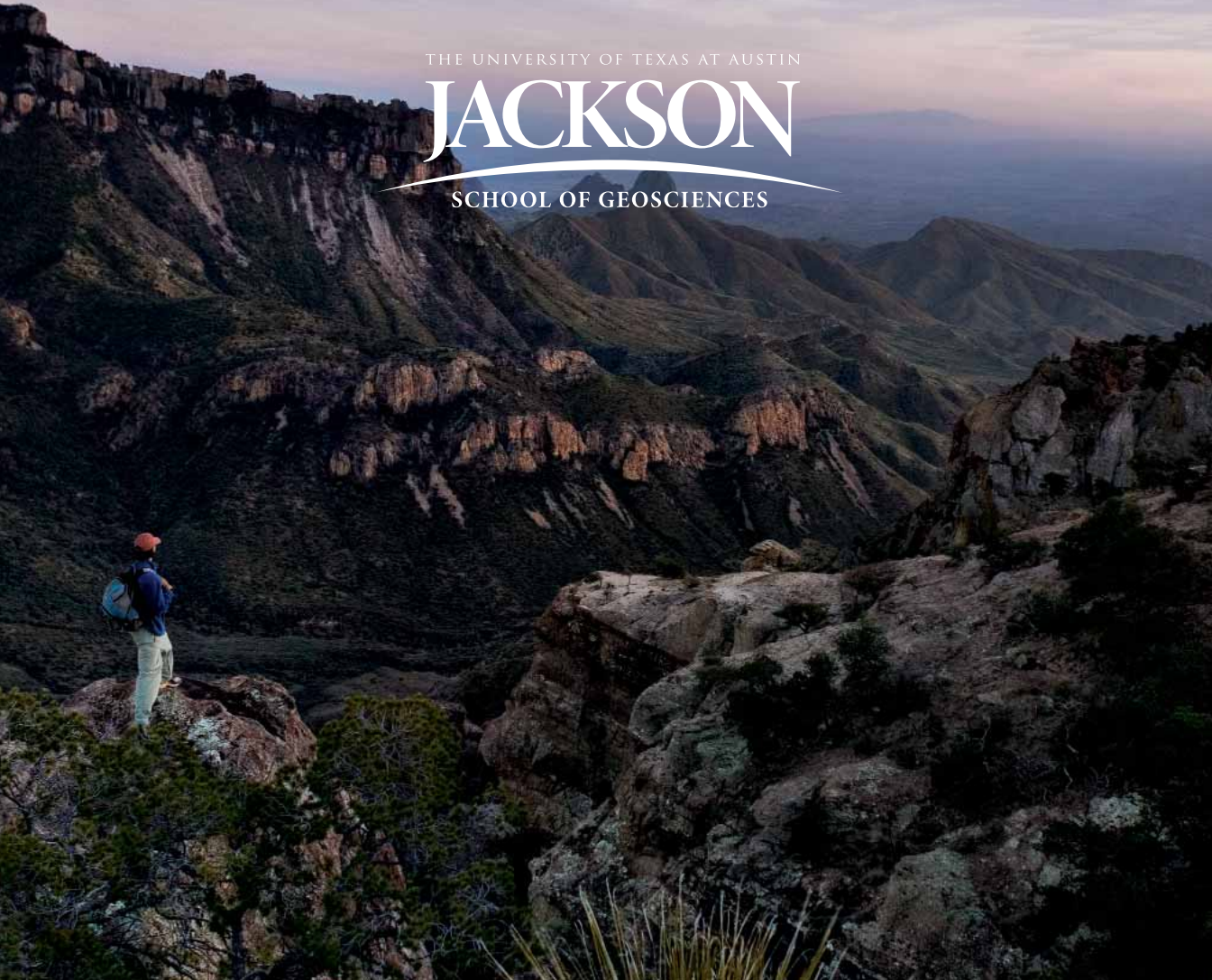


THE UNIVERSITY OF TEXAS AT AUSTIN

# JACKSON

SCHOOL OF GEOSCIENCES



EXPLORE THE EARTH. FIND YOUR FUTURE. MAKE A DIFFERENCE.



UNDERGRADUATE PROGRAMS  
DEPARTMENT OF GEOLOGICAL SCIENCES

## DEPARTMENT CHAIR'S WELCOME

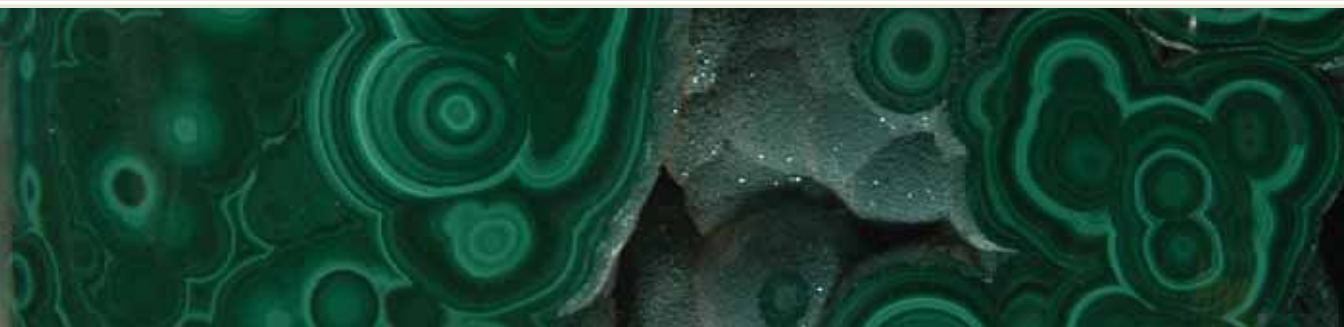


The mission of the Jackson School is to advance understanding of the Earth for the lasting benefit of humankind. If this appeals to you, and if you like the idea of a scientific career that allows you to explore the world, make a living, and make a difference, then the geosciences may be right for you.

The University of Texas at Austin has one of the oldest and most prestigious geoscience programs in the world. U.S. News & World Report ranks us in the top ten nationally—the only program in Texas with this distinction. And we are one of the country's largest geoscience programs, with leadership in all major areas, from the environment to energy.

Today is an especially exciting time to enter the geosciences, due to the high demand for our graduates and changes in the field that are making a dramatic impact on society. It's also an exciting time to join the Jackson School, which in 2002 received the largest gift ever made to a U.S. college or school on a per-student basis. We aspire to be the best. I am confident that those who join us will not be disappointed.

CLARK WILSON, CHAIRMAN  
*Department of Geological Sciences*  
**Jackson School of Geosciences**







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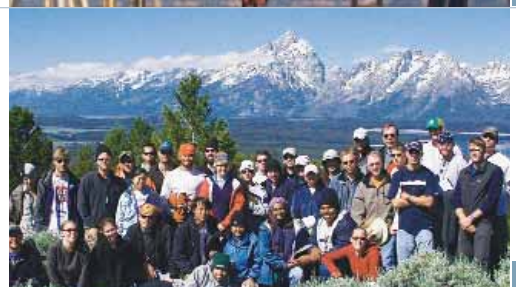
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## DISCOVERY

1.1 WHAT CAN YOU DO WITH  
A GEOSCIENCE DEGREE?

Kim Nguyen, B.S. '06, (left) and Professor Jack Sharp (right) stream gauging—field methods are an integral part of the hydrogeology option. Nguyen said her family initially questioned the practicality of a geology major. After she took Sharp's course in hydrology, Nguyen assisted one of his Ph.D. students on a research project in Northern Mexico. She ended up with several job offers, accepting a position at a major hydroenvironmental consulting firm. "It's kind of cool to be in demand," she told the Associated Press for a national news story on geoscience jobs, "when everyone had doubts."

**“Looking at the mysteries of the Earth through the rock record takes you everywhere in the world, even beneath the oceans if you like.”**

ROBBIE GRIES, M.S. '70, PRESIDENT, PRIORITY OIL & GAS LLC

## 1.1 WHAT CAN YOU DO WITH A GEOSCIENCE DEGREE?

**EXPLORE THE WORLD. MAKE A LIVING.**

**MAKE A DIFFERENCE.** Geologists work in the field, the lab, and with computers to seek a greater understanding of Earth. Geoscientists help protect the planet by studying it, learning from it, and predicting what the future will bring. They perform environmental assessments and study global environmental systems. They locate water, mineral, and energy resources. They predict geological disasters. And they offer advice on major development projects. As a geoscientist, you can make a huge impact on the world around you.

**WHERE DO GEOLOGISTS WORK?**

Geologists find career opportunities in many different fields, including:

- 
- Climate and global process modeling
  - Environmental remediation and engineering
  - Petroleum and mining exploration and extraction
  - Natural hazards assessment
  - Land-use planning
  - Ocean and space sciences
  - Paleontology
  - Education (K-12 and university)
- 

Equally diverse are the employers. Successful geology graduates from The University of Texas at Austin work for nonprofit organizations, multinational companies, government agencies, high schools, research institutes, and universities.





## 2

# LEARNING

- 2.1 FACULTY
- 2.2 DEGREES & COURSES
- 2.3 JACKSON SCHOOL
- 2.4 THE UNIVERSITY OF TEXAS AT AUSTIN

Wes Crawford, B.S. '04, (right) did his undergraduate honors thesis with Professor William Carlson (left). His research relied heavily on data from the electron microprobe, one many technically sophisticated instruments available to Jackson School students. Crawford is now completing graduate work at the school where he is a teaching assistant popular with undergraduates.



## 2.1 FACULTY

**WORLD-CLASS RESEARCHERS WHO CARE ABOUT TEACHING UNDERGRADUATES.** Many colleges and schools have a few outstanding researchers on the faculty. The Jackson School has many, and key faculty work directly with undergraduates.

Almost all major courses are taught by tenure-track faculty—not always the case at major research universities. At the Jackson School, nationally regarded scholars teach major undergraduate courses. Award-winning instructors teach the introductory-level courses that are the foundation of the major. And advanced undergraduates have the opportunity to work on career-enhancing research projects with leaders in all of the main fields—geophysics, hydrogeology, geochemistry, tectonics, structure, sedimentary geology, and paleontology.

The Department includes a number of dynamic young faculty bringing new perspectives into the classroom. And under new dean, Eric Barron, the school is about to plot a course to bolster even further its research and teaching capacity. It is a great time for students to join the Jackson School.



**“The professors and researchers genuinely care about and love what they do ... and about the development of their students. That type of passion attracts students.”**

—KIM NGUYEN, B.S. '06, HYDROGEOLOGY/ENVIRONMENTAL GEOLOGY



## 2.2 DEGREES & COURSES

### OPTIONS SUITED TO ALL INTERESTS AND CAREER PATHS.

Undergraduates at the Jackson School have six degree options, anchored by seven core courses taken by all majors during their first two to three years. Students enter as undeclared majors and, after completion of freshman requirements, can be admitted to one of the degree options. Faculty and academic advisors work with students to select the best option for them.



- ▶ B.A. Geosciences – 13%
- ▶ B.S. General – 45%
- ▶ B.S. Geophysics – 19%
- ▶ B.S. Hydro/Env. – 15%
- ▶ B.S. Teaching – 4%
- ▶ B.S. Geosystems – 4%

DISTRIBUTION OF UNDERGRADUATES BY MAJOR (2005-2006)

## DEGREE OPTIONS

### BACHELOR OF SCIENCE OPTION I: GENERAL GEOLOGY

Geological science is a synthetic subject, drawing from geological subjects and concepts of chemistry, physics, biology, and mathematics. This synthesis is reflected in the list of courses required for the B.S. General Geology degree, which emphasizes competency in the field. Like all of the B.S. options, the B.S. General is intended for professional geologists, teachers, and those planning graduate work. Firms in the energy sector dominate employment opportunities, but students find jobs in a range of areas and may end up working in government agencies, consulting firms, and with service companies aiding the energy and mineral industries.

### BACHELOR OF SCIENCE OPTION II: GEOPHYSICS

This option omits certain traditional subjects (such as paleobiology) and adds courses in math and physics. One branch of geophysics is seismic study of the deep Earth—a commercial application is seismic imaging of the Earth's uppermost few kilometers for hydrocarbon explorations. Many geophysics option students seek employment in searching for hydrocarbons.

### BACHELOR OF SCIENCE OPTION III: HYDROGEOLOGY/ENVIRONMENTAL GEOLOGY

This option is oriented toward solving problems of societal need, especially groundwater retention. It is an increasingly popular option, with students heading to environmental engineering companies, government agencies, consulting and related firms engaged in protecting the environment and remediating environmental problems.

### BACHELOR OF SCIENCE OPTION IV: TEACHING

This option is part of the innovative UTeach program at UT Austin, which prepares a graduate for science certification as a middle school or secondary school teacher in Texas. Option IV students are traditional majors in geological sciences but also take courses in biological science, pedagogy, and student teaching.

### BACHELOR OF SCIENCE IN GEOSYSTEMS ENGINEERING AND HYDROGEOLOGY

Offered jointly by the College of Engineering and the Jackson School, this quantitatively rigorous degree is concerned with the behavior of fluids, both within the Earth and upon its surface. The first two years are spent in the Department of Geological Sciences and the final two years in the Department of Petroleum and Geosystems Engineering. Graduates seek employment with environmental, water resource management, and energy companies in addition to many government agencies.

### BACHELOR OF ARTS IN GEOLOGICAL SCIENCES

This option requires a wide range of liberal arts courses and a reduced set of science and math courses. The B.A. is designed for students who have interests beyond geological sciences and may want to use geological knowledge in the pursuit of other endeavors, such as business, environmental law or management, humanities, or medicine.





## FUNDAMENTAL COURSES IN

**GEOLOGICAL SCIENCES.** All undergraduates in the Jackson School take a set of fundamental courses, establishing a common foundation shared by students in all of the degree options. These courses include at least one of the three major introductory courses, with variations depending on a student's degree track. Other fundamental courses cover earth materials, sedimentary rocks, the introduction to field & stratigraphic methods, and structural geology. Most undergraduates also take part in either the six-week summer field trip, Geology 660 (see pages 17-18), or a comparable field course.

In addition to their geological science courses, Jackson School undergraduates must fulfill course requirements outside the Department. These include courses essential to the mathematical and scientific skills needed to become a geoscientist, such as advanced calculus and chemistry, as well as general course requirements for the university in English, history, foreign language, and other areas.

## HONORS PROGRAM IN GEOLOGICAL SCIENCES

The Jackson School of Geosciences offers a departmental honors program to undergraduate majors. The honors program is closely tied to the pursuit of advanced research projects. Doing an undergraduate research project or thesis can significantly enhance a student's resumé and prospects for advancement to graduate school. Because successful research projects rely on a student's initiative, while deepening their knowledge, they often help students land key summer internships early in their undergraduate career.

Students must maintain high academic standing to apply for honors, which they do after completing 60 semester hours of coursework, including at least 12 hours of upper-division coursework in geological sciences.

## SAMPLE OF COURSES

### Geo 401

#### PHYSICAL GEOLOGY

Introduction to nature, properties, and distribution of crustal materials; surficial and internal processes; origin of continents, oceans, and ocean basins; mineral and fuel resources.

### Geo 468K

#### GEOPHYSICS FOR GEOLOGICAL SCIENCES MAJORS

Overview of wave motion principles and application to seismic exploration, magnetic, gravitational, and other geophysical methods.

### Geo 346C

#### ENVIRONMENTAL HYDROGEOLOGY

Basic concepts of fluid flow, surface and subsurface hydrology, aqueous geochemistry, and fluid-rock interaction, including isotope hydrogeology, evolution of seawater, and mineral-solution equilibrium.

**“I came to UT as a biology major, but after taking an intro course in geology, I decided it was what I wanted to pursue.”**

—BRIAN CORNETTE, UNDERGRADUATE, GENERAL GEOLOGY

### **Geo 416M**

#### **SEDIMENTARY ROCKS**

Description and interpretation of sedimentary rocks in hand specimen and thin section; characteristics of sedimentary rocks deposited in different environments.

### **Geo 420K**

#### **INTRODUCTION TO FIELD & STRATIGRAPHIC METHODS**

Get to know your Brunton compass: Six field trips covering geological processes and the mineralogy, petrology, stratigraphy, paleontology, and structural geology of central Texas.

### **Geo 428**

#### **STRUCTURAL GEOLOGY**

Description, classification, and origin of earth structures, focusing on solving problems with descriptive geometry, geologic maps, and contouring.

# SUGGESTED FOUR-YEAR DEGREE PLAN

## B.S. IN GEOLOGICAL SCIENCES, OPTION I: GENERAL GEOLOGY

1

### FIRST YEAR

#### FALL SEMESTER

Physical Geology  
Rhetoric & Composition\*  
Calculus I  
Chemistry I

#### SPRING SEMESTER

Paleontology  
General Culture Course\*  
Calculus II  
Chemistry II

2

### SECOND YEAR

#### FALL SEMESTER

Earth Materials  
Sedimentary Rocks  
Biology I  
Literature\*

#### SPRING SEMESTER

Igneous & Metamorphic Petrology  
Field & Stratigraphic Methods  
Biology II  
Physics I†

3

### THIRD YEAR

#### FALL SEMESTER

Paleobiology  
Structural Geology  
Physics II†  
American Government\*

#### SPRING SEMESTER

Environmental Hydrogeology  
Geophysics  
Supporting Technical Course  
Foreign Language\*

#### SUMMER

Summer Field Course

4

### FOURTH YEAR

#### FALL SEMESTER

Upper-Division Geoscience Elective  
Supporting Technical Course  
U.S. History I\*  
Foreign Language\*  
Social Science\*

#### SPRING SEMESTER

Upper-Division Geoscience Elective  
Supporting Technical Course  
U.S. History II\*  
Foreign Language\*  
American Government\*

\* Fulfills general University requirements. In some subjects, students have latitude on course choices.

† Including related lab course.

This is a general overview only. Students should consult the Undergraduate Academic Advisor to chart a specific degree plan.

## ADDITIONAL REQUIREMENTS FOR INDIVIDUAL DEGREE OPTIONS

### B.S. OPTION II: GEOPHYSICS

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MATH: 2 additional specified courses

COMPUTER SCIENCE: 1 additional course

PHYSICS: 1 additional specified course

BIOLOGY: No requirements

GEOSCIENCE: Courses in exploration geophysics, global geophysics, computational methods in geological sciences

### B.S. OPTION III: HYDROGEOLOGY/ENVIRONMENTAL GEOLOGY

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MATH: 1 additional specified course

BIOLOGY: Only 1 specified course required

GEOSCIENCE: Courses in environmental hydrogeology, groundwater hydrology, chemical hydrogeology, summer field course in groundwater hydrology

### B.S. OPTION IV: TEACHING

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For composite certification:\*

BIOLOGY: 1 additional specified course

PHYSICS: 2 additional specified courses

BIOLOGY, CHEMISTRY, OR PHYSICS: At least 12 hours in one secondary area

GEOSCIENCE: At least 28 semester hours

### B.S. IN GEOSYSTEMS ENGINEERING & HYDROGEOLOGY

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BIOLOGY: No courses required

FOREIGN LANGUAGE: No courses required

PETROLEUM & GEOSYSTEMS ENGINEERING: 13 specified courses

GEOSCIENCE: 10 specified courses, emphasis on hydrogeology, summer course in field methods in groundwater hydrology

### B.A. IN GEOLOGICAL SCIENCES

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MATH: Only 1 course required

CHEMISTRY: No lab course required

MINOR SUBJECT: 4 courses in one chosen area

ELECTIVES: 4 upper-division electives outside geosciences

GEOSCIENCE: 9 required courses versus 13 for the B.S., summer field camp not required

\* Additional requirements apply. For complete information, contact the Jackson School's Undergraduate Academic Advisor or visit the UTeach Web site at <http://www.uteach.utexas.edu/>.



## JACKSON SCHOOL

For her honors thesis, Liz Dunn (left), an undergraduate in general geology, worked with Ann Molineux (right), collections manager at the Nonvertebrate Paleontology Lab, a part of the University's Texas Natural Science Center. Dunn studied ancient coral reefs, which hold clues to climate history and the future of the world's oceans. She conducted field work on a Cretaceous patch reef and did reference work in the lab's collections, which hold about four million specimens representing most time periods of life on Earth.





## 2.3 JACKSON SCHOOL RESOURCES

### ONE OF THE BEST PLACES

**IN THE COUNTRY TO BE A GEOSCIENCE STUDENT.** Already ranked in the top ten nationally, the Jackson School has embarked on a major expansion that will benefit students for years to come. Highlights of the expansion relevant to undergraduates include:

- **NEW STRATEGIC PLAN** to enhance the research and teaching profile
- **EXISTING STRENGTHS** in geophysics, hydrogeology, paleontology, sedimentary geology, tectonics and structural geology
- **NEW STRENGTHS** in computational geosciences, environmental science and policy.
- **FINANCIAL AID** for undergraduates in the second year and beyond
- **OUTSTANDING FACILITIES** (see next page)





## FACILITIES

The Jackson School has outstanding facilities, from an array of technical and lab facilities on campus to the Walter Geology Library and the Geology Building itself, the home base for student activities.

### FACILITIES HIGHLIGHTS

#### ELECTRON PROBE LABORATORY

Characterizes the chemistry of minerals on the micrometer scale and to image compositional variations.

#### ICP MASS SPECTROMETRY FACILITY

Single-focusing, magnetic-sector mass spectrometer with great analytical flexibility to measure isotopic compositions and elemental concentrations in a wide variety of geologic (and other) materials.

#### GEOPHYSICS FACILITIES

Seismic workstations and software for processing and interpreting 3-Dimensional Seismic Data.

#### HIGH-RESOLUTION X-RAY COMPUTED TOMOGRAPHY FACILITY

An industrial CT scanner that is an adaptation of medical CAT scanners, for making high-resolution density maps of solid surfaces, and classroom for converting 3- Dimensional data sets into usable images.

#### ISOTOPE CLEAN LABORATORY

For applications of radiogenic isotope and trace element analysis as tracers and geochronometers in sedimentary and hydrogeologic systems.

#### PETROGRAPHIC IMAGING FACILITIES

Micro-scale imaging of rocks using visible light.

#### STABLE ISOTOPE LABORATORY

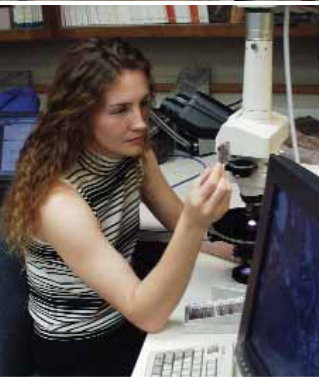
Analyses of natural abundance of isotopes of light elements (H,O,C,N) in a variety of samples representing a broad spectrum of the earth sciences.

#### WALTER GEOLOGY LIBRARY

Dedicated library for Jackson School students with more than 100,000 book and journal volumes and 46,000 geologic maps.

Also see online:

*Aqueous Geochemistry, Computational Facilities, Geomicrobiology Laboratories, Fission Track Thermochronology Laboratory, Scanning Electronic Microscope Laboratory, Thermal Ionization Mass Spectrometry (TIMS) Lab, U-PB Geochronology Laboratory, X-ray Diffraction Laboratory.*





## RESEARCH UNITS

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**THE INSTITUTE FOR GEOPHYSICS.** Scientists at the Institute focus on the geophysical processes that influence the Earth's structure and climate. They work across the globe in ocean basins, on continental margins, in Antarctica, and at a multitude of sites of natural seismic activity.

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**THE BUREAU OF ECONOMIC GEOLOGY.** Researchers at the Bureau focus on applied research for industry and government. They tend to work on projects with potential for major economic and societal impact, like enhanced oil recovery, water quality, and coastal erosion.

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Researchers from the Institute and Bureau guest lecture in courses, collaborate with faculty, hire students, and work directly with undergraduates. As the school expands, new centers are also coming on board, like the Center for International Energy and Environmental Policy, expanding opportunities for students.





## 2.4 THE UNIVERSITY OF TEXAS AT AUSTIN

### WHAT STARTS HERE

**CHANGES THE WORLD.** The University of Texas at Austin has strength across all major disciplines, in particular in areas of science, engineering, and business that are closely related to the geosciences. These overall strengths benefit Jackson School students and ensure a wide selection of electives in useful and engaging fields.

### U.S. NEWS & WORLD REPORT 2007 RANKINGS OF SELECT GRADUATE PROGRAMS\* AT UT AUSTIN

EARTH SCIENCES OVERALL <b>No. 9</b>	PETROLEUM & GEOSYSTEMS ENGINEERING <b>No. 1</b>
EARTH SCIENCE SPECIALTIES:	ECOLOGY/EVOLUTIONARY BIOLOGY <b>No. 8</b>
Geology <b>No. 5</b>	CHEMISTRY <b>No. 9</b>
Geophysics & Seismology <b>No. 8</b>	COMPUTER SCIENCE <b>No. 9</b>
Paleontology <b>No. 9</b>	PHYSICS <b>No. 11</b>
Sedimentology/Stratigraphy <b>No. 1†</b>	MATHEMATICS <b>No. 15</b>
Hydrogeology <b>No. 6†</b>	LAW <b>No. 13</b>
Tectonics/Structure <b>No. 6†</b>	BUSINESS <b>No. 18</b>

\*Many disciplines, including Earth Sciences, are only ranked at the graduate level.

†Most recent ranking available. U.S. News did not publish a specialty ranking for this area for 2006-07.

One of the **best performing arts centers** in the country, attracting many of the world's greatest performers and full-scale productions

**No. 1 NCAA Football Champions** (2006)

**No. 4 among "Schools That Rock,"**

—THE ROLLING STONE COLLEGE GUIDE BOOK (2005)

**No. 5 in U.S. for producing undergraduate degrees for minority groups**

—BLACK ISSUES IN HIGHER EDUCATION (2005)

**No. 1 NCAA Baseball Champions** (2005)

**One of America's Best Value Colleges**

—THE PRINCETON REVIEW (2006)

Among the **top 10 research libraries** in the nation

AUSTIN...

LIVE MUSIC CAPITAL OF THE WORLD

**No. 3**  
WiFi City, Intel (2005)

**No. 3**  
Best Place for Business and Careers, Forbes (2005)

**No. 1**  
Best City for Dating, Sperling's BestPlaces (2004)

**No. 1**  
City for Hispanics to Live In, Hispanic magazine (2005)

**No. 2**  
City for Movie Makers, MovieMaker magazine (2005)

**No. 2**  
Greenest City, Vegetarian Times (2005)

**One of the top 10 cities to be a dog**—DOG FANCY MAGAZINE

Students collect data from one of the streams flowing into Lago Fagnano in Tierra del Fuego (southern Argentina), prior to taking samples for chemical and isotopic analysis. Researchers from the Jackson School's Institute for Geophysics led the expedition.



## 3 FIELD WORK

3.1 FIELD TRIPS & HANDS-ON OPPORTUNITIES

3.2 GEO 660

3.3 RESEARCH OPPORTUNITIES



**“The analytical equipment here is awesome.”**

—JEFF LANDRUM, GRADUATE STUDENT



### 3.1 FIELD TRIPS & HANDS-ON OPPORTUNITIES

OUR STUDENTS LEARN BY DOING—  
OUTDOORS AND AT SOME OF THE WORLD’S  
BEST ACADEMIC GEOSCIENCE FACILITIES. Field trips, research projects, and opportunities to apply learning are hallmarks of the Jackson School experience. Field work is an integral part of the coursework from Introduction to Geology through advanced, upper-division classes and independent studies. Students benefit from ready access to the natural laboratory of Texas, which includes some of the most avidly studied geological sites in the world. But applied learning also takes place in the computer lab—which is the scene of much modern professional geoscience work—and in the world-class research facilities housed at the Jackson School and its two research units.

**“The amount of time spent in the field is amazing as a geophysicist; it’s not the desk work of engineering or the lab experience necessary for a physicist, but rather it’s a balance of all three. Even more importantly, I have spent time out with others studying, conversing, but moreover I have made connections both as friends and fellow geologists that will last throughout college and hopefully well into my career.”**

—JAMES CARMICHAEL, UNDERGRADUATE, GEOPHYSICS



## 3.2 GEO 66o

### SIX WEEKS OF TOTAL IMMERSION,

**A LIFETIME OF MEMORIES.** For many students, Geology 66o Field Methods, also known as Geo 66o or “Summer Field Camp,” is the defining experience of their academic career. The course is intensive. Students spend six continuous weeks in the field, traveling to locations in the Western United States. Showers and modern plumbing are usually available, except during the final three to five days in the field, when “there is always a stream nearby,” as the course Web site states reassuringly. Students apply learning in the field while working in teams on collaborative research and problem solving. Financial support is available to help some students cover the costs of the trip.

### LOCATIONS OF RECENT GEO 66o FIELD WORK:



ALAMOGORDO, NEW MEXICO	
ARCHES NATIONAL PARK, UTAH	
BANDELIER NATIONAL MONUMENT, NEW MEXICO	
BIG BELT MOUNTAINS, NEAR CANYON FERRY, MONTANA	
DILLON/McCARTNEY MOUNTAINS, MONTANA	
DURANGO, COLORADO	
GHOST RANCH, NEW MEXICO	
GREYBULL & SHEEP MOUNTAIN, WYOMING	
GUADALUPE MOUNTAINS, TEXAS AND NEW MEXICO	
LEWIS & CLARK CAVERNS STATE PARK/ BLACK SAGE PROJECT	
MOAB, UTAH	
PIONEER MOUNTAINS, NEAR HECLA, MONTANA	
SOUTHERN SAN JUAN BASIN, NEW MEXICO	
TAOS, NEW MEXICO - NORTHERN RIO GRANDE RIFT	
YELLOWSTONE AND GRAND TETON NATIONAL PARKS	







### 3.3 RESEARCH OPPORTUNITIES

#### GET A HEAD START ON YOUR CAREER

**WORKING WITH WORLD-CLASS RESEARCHERS.** The University offers opportunities for undergraduates to participate in professional-level research working with eminent scientists. Opportunities include:

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Enrollment in summer research projects off-campus for industry, government, or research institutes, gaining exposure to professional practices, earning academic credit, and sometimes getting paid.

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Pursuit of a departmental honors thesis under direction of a faculty thesis advisor.

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Participation (for hydrogeology majors) in the hydrogeology coop program working for credit and compensation with industry sponsors in the hydrogeologic and environmental sector.

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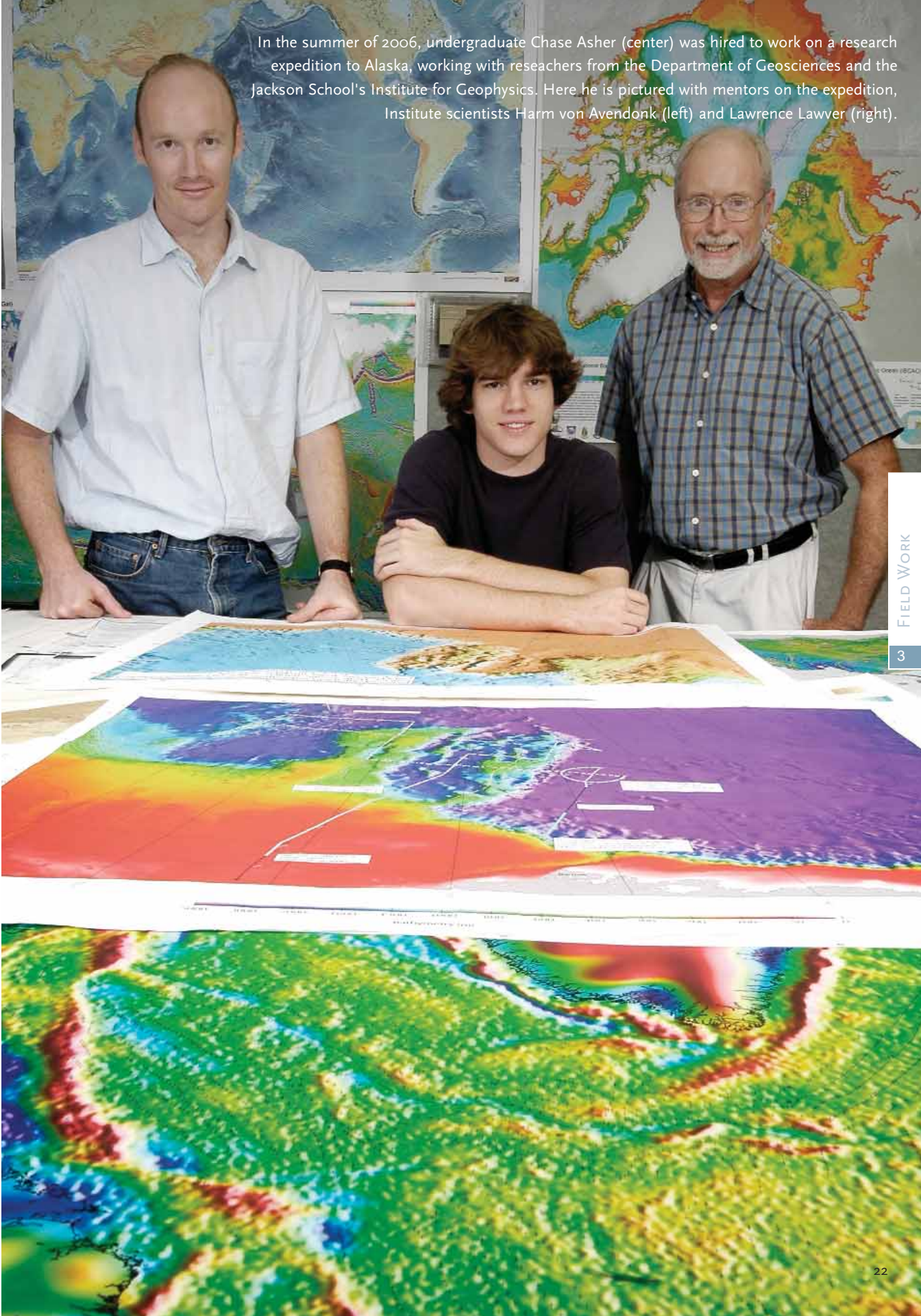
Attendance at professional meetings, where undergraduates may contribute to research presentations, network, and forge valuable contacts—travel funds are available for select students.

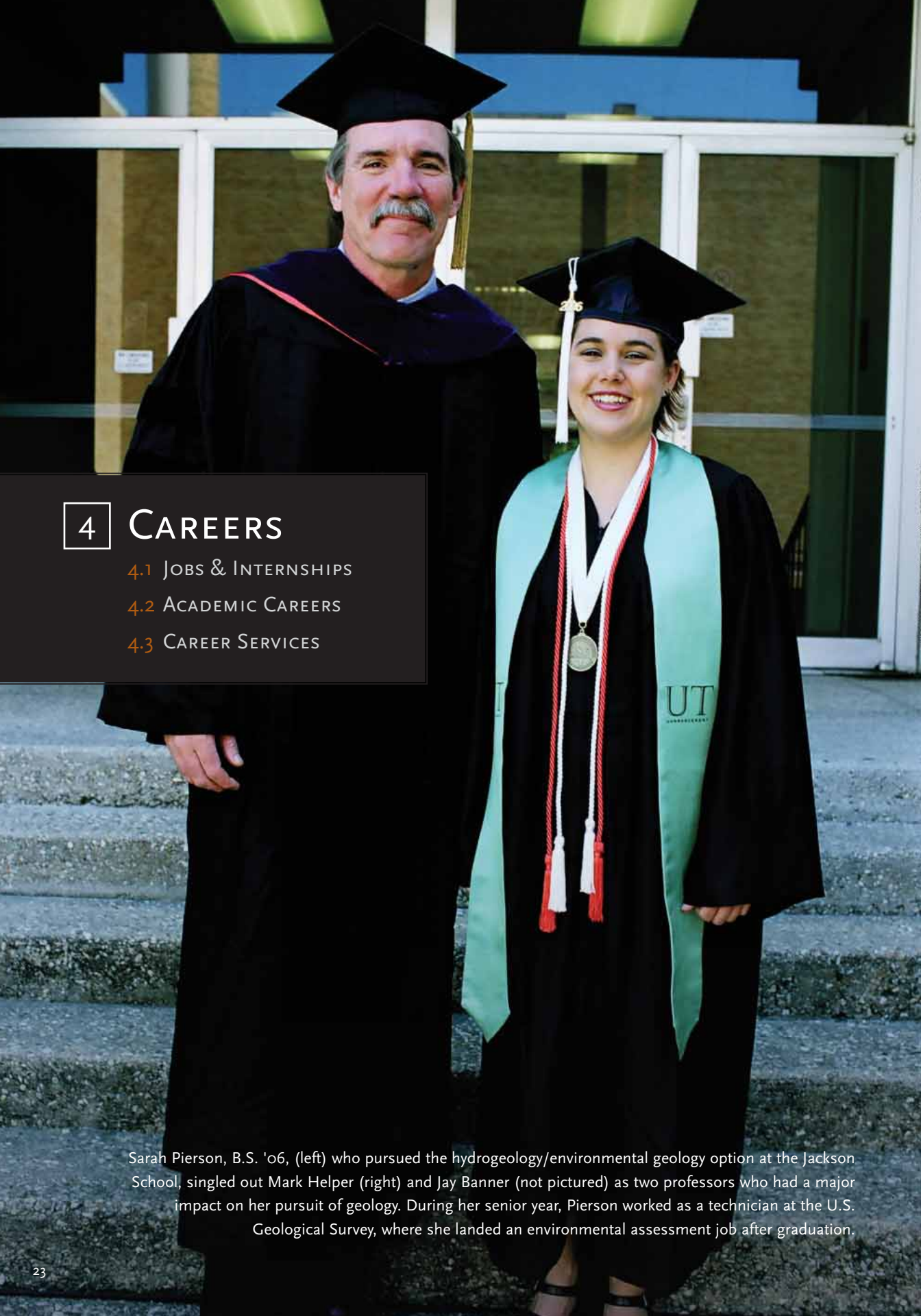
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Research projects offer an excellent way for students to explore their interests while establishing credentials that could help them land summer internships and eventually full-time jobs.



In the summer of 2006, undergraduate Chase Asher (center) was hired to work on a research expedition to Alaska, working with researchers from the Department of Geosciences and the Jackson School's Institute for Geophysics. Here he is pictured with mentors on the expedition, Institute scientists Harm von Avendonk (left) and Lawrence Lawver (right).





## 4 CAREERS

4.1 JOBS & INTERNSHIPS

4.2 ACADEMIC CAREERS

4.3 CAREER SERVICES

Sarah Pierson, B.S. '06, (left) who pursued the hydrogeology/environmental geology option at the Jackson School, singled out Mark Helper (right) and Jay Banner (not pictured) as two professors who had a major impact on her pursuit of geology. During her senior year, Pierson worked as a technician at the U.S. Geological Survey, where she landed an environmental assessment job after graduation.

## 4.1 JOBS & INTERNSHIPS

**GRADUATE DEGREES ARE THE TRADITIONAL PROFESSIONAL ROUTE IN GEOSCIENCES, BUT BACHELOR'S DEGREES LAUNCH THE CAREERS.** The Jackson School's combination of size, scope, and academic excellence attract the best geoscience recruiters in the world. If you want to succeed in the geosciences, you can not find a better place to launch your career than the Jackson School.

Earning a graduate degree has traditionally been the standard route to advanced positions, with the bachelor's degree sufficient for many entry-level industry positions. This remains true today, but due to workforce shortages, companies are becoming more flexible about hiring and training undergraduates. According to the American Geological Institute, the geoscience industry will need up to 30,000 more professionals over the next decade, but at current rates, U.S. universities will produce only half that many graduate degrees.

About 40 firms typically recruit at the Jackson School each year. Energy firms are most prevalent—in 2005, top undergraduates received offers of jobs or internships from Apache, Chevron, El Paso, Hunt Petroleum, Paradigm Geophysical, and Schlumberger, to name a few recruiters from the energy sector. Other students found work with environmental geology firms and the government, or continued to graduate school, either in pursuit of academic careers or more advanced professional positions.

### COMPANIES

Representative list of companies and organizations that commonly recruit at the Department of Geological Sciences.

Apache Corporation	El Paso Corporation	Hunt Petroleum	Sandia National Laboratories
Anadarko Petroleum Corporation	Dominion	Landmark	Schlumberger
BP	EneCana	Marathon Oil Company	Shell
Brigham Exploration Company	EOG Resources	Nexen Occidental Petroleum Corporation	Southwestern Energy
Cabot Oil & Gas Corporation	ERM		Texas Commission on Environmental Quality
Chevron Corporation	ExxonMobil	PGS Tensor	Total
ConocoPhillips	GX Technology	Pioneer Natural Resources	URS Corporation
Devon Energy	Hess Corporation	Quicksilver Resources	Veritas DGC

**Also see: What can you do with a geoscience degree?**

PAGES 1-2.

## 4.2 ACADEMIC CAREERS

As the country's largest academic geoscience community of students, professors, and researchers, the Jackson School is an outstanding place to launch an academic career.

The traditional academic career requires a doctoral degree, which students earn in four to six years of highly focused graduate education after completing their bachelor's degree. Qualified UT Austin undergraduates can apply to pursue a doctoral degree at the Jackson School, which has top-ranked programs across the range of geoscience specialties. Jackson School faculty can also help students select appropriate graduate programs at other institution, based on career goals and areas of study.

One of the strengths of the Jackson School, for students considering academic careers, is the high number of alumni from UT Austin who work in top geoscience departments around the country. Graduates of the Department of Geological Sciences work at nearly every top-ranked earth sciences program and institution in the U.S. This helps Jackson School students learn about peer institutions, since the JSG faculty have colleagues and often former students working at all of the top programs.

## 4.3 CAREER SERVICES

Our career services staff work with students from the start of their time on campus to help them set and realize meaningful career goals. We help students research jobs and internships, write resumés, and prepare for interviews. Contacts with professionals working in the field are often essential for securing internships, research opportunities, and eventually jobs, and we help students tap into the school's alumni network to explore opportunities.





While pursuing the undergraduate geophysics option, Eric Lyons, B.S. '02, (left) helped develop a seismic reference database for Professor Robert Tatham (right). He returned to the Jackson School to earn his master's degree in exploration geophysics, working again with Tatham, this time on the application of seismic data to predict subsurface properties. The 3-Dimensional visualization pictured yields a high-resolution image of the subsurface near a salt dome.



## 5 COMMUNITY

5.1 STUDENT COMMUNITY

5.2 ALUMNI NETWORK







“I love the Jackson School because you get to know all of your peers, TAs, and professors on a personal level. You can walk down the hall and see at least five people that you know, all in a matter of 30 seconds.”

—ELIZABETH (LIZ) DUNN, UNDERGRADUATE,  
GENERAL GEOLOGY

## 5.1 STUDENT COMMUNITY

**THE BENEFITS OF A SMALL COLLEGE WITHIN A MAJOR RESEARCH UNIVERSITY.** Through shared field work, core courses, close ties to professors, and a home base in the Geology Building, Jackson School students forge a strong community. The communal atmosphere of the school may look like a lot of fun to outsiders—and it is—but it’s also sound preparation for professional geoscience, where collaboration, networking, and mutual support for lifelong learning are keys to success.

In addition to informal community activities, undergraduates participate in student chapters of the American Association of Petroleum Geologists (AAPG), the Society of Exploration Geophysicists (SEG), and other professional organizations, with the chance to apply for funding to travel to national meetings. Participation in these organizations, along with the Undergraduate Geological Society, offers leadership opportunities and the chance to broaden scientific and professional contacts.

“It’s like being at a smaller school at a larger college .... It’s a group of friends that you see on a regular basis and also have an academic subject in common. The professors and faculty are very involved with the students and are at the top of their fields. You go into classes and see people who have written famous text books. Undergrads are coming in at a really great time now that the JSG has been established.”

—JOSH GARBER, UNDERGRADUATE, GENERAL GEOLOGY

## 5.2 ALUMNI NETWORK

### TEXAS EXES ARE LEADERS AT EVERY LEVEL

**OF THE GEOSCIENCES.** Graduates of the Jackson School join one of the largest and oldest networks of geoscience professionals. The network includes national and international leaders at all levels—presidents, CEOs, and chairpersons of major multinational energy, mining, and exploration companies; current and former presidents of the major geological societies; directors of exploration and production for major oil firms in just about every global region, with heavy representation in Latin America and Africa; young professionals who will lead the geoscience industry through the next generation; leaders in academia and government.

Jackson School students have the chance to tap into this network to explore career options, meet geoscientists at professional meetings, and learn about the field. Just as importantly, they will build the network moving forward, creating professional ties that can sustain their success.



The Geology Foundation Advisory Council, which supports the Jackson School, includes past, present, and future leaders in the geosciences. Advisory Council members and Jackson School alumni have provided unprecedented levels of financial support to the school. The tradition of support dates to the founding of the



Alumni pictured above (left-right): Francisco Nepomuceno, Executive Manager of Exploration and Production, Petrobras S.A., the national oil company of Brazil; Charles Groat, Former Director, United States Geological Survey, currently a professor, Jackson School, and Director, Center for International Energy and Environmental Policy; Robbie Gries, President, Priority Oil & Gas LLC; John Bookout, former president, Shell Oil; Thomas Barrow, former vice chairman, Standard Oil Company (Ohio), former chairman and CEO, Kennecott.



Department of Geology, in 1888, and culminated in 2002 with the bequest of the estate of alumnus and Advisory Council member John A. Jackson. Valued today at about \$300 million, the Jackson gift was the largest ever made to a U.S. public university.



## 6 ADMISSIONS

6.1 HOW TO APPLY

6.2 FINANCIAL AID

6.3 LOCATIONS

## 6.1 HOW TO APPLY

Students can apply to the Jackson School at any time during their undergraduate careers but are encouraged to pursue admission with their initial acceptance to The University of Texas at Austin. In the past, many students chose geological sciences as a major during their freshmen or sophomore years, after having been admitted to UT Austin. This option remains, and the school accepts a limited number of qualified transfers each year from other colleges at UT Austin, as well as from other institutions. Increasingly, however, students are selecting the major as freshmen, making admission for transfer places more competitive.

Students apply to the Jackson School following the standard procedures for The University of Texas at Austin, as outlined in the UT Austin Undergraduate Course Catalog. The catalog can be found online at the UT Austin catalogs Web site:

**<http://www.utexas.edu/student/registrar/catalogs/>**

Printed catalogs may be ordered using the form on the catalog Web site or by calling the University Registrar's Office at 512-475-7555, Monday through Friday, between 8:00 a.m. and 4:30 p.m. CST.

## 6.2 FINANCIAL AID

The University of Texas at Austin assists students with financial aid through the Office of Student Financial Services. The office's mission is to negate financial barriers that would discourage or prohibit qualified students from attending the University while enhancing recruitment and retention efforts that bring the most promising undergraduates and graduates of diverse social, ethnic, economic, and academic backgrounds. Information can be found online at **<http://finaid.utexas.edu/>** or by calling **512-475-6282**

In addition to the UT Austin resources, the Jackson School offers financial aid to undergraduates, primarily after the first year. A number of scholarship funds established by individuals, foundations, and industrial or research organizations are available to students in the school. Awards are made for reasons ranging from academic promise to financial need. Interested students should inquire at the Department of Geological Sciences.

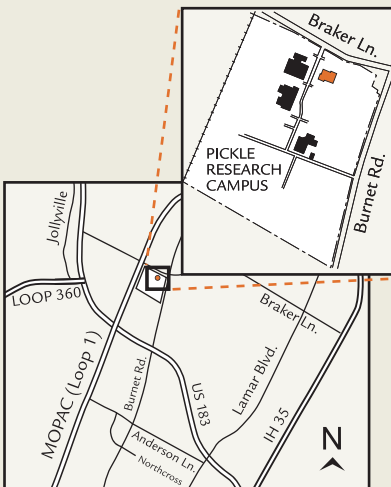
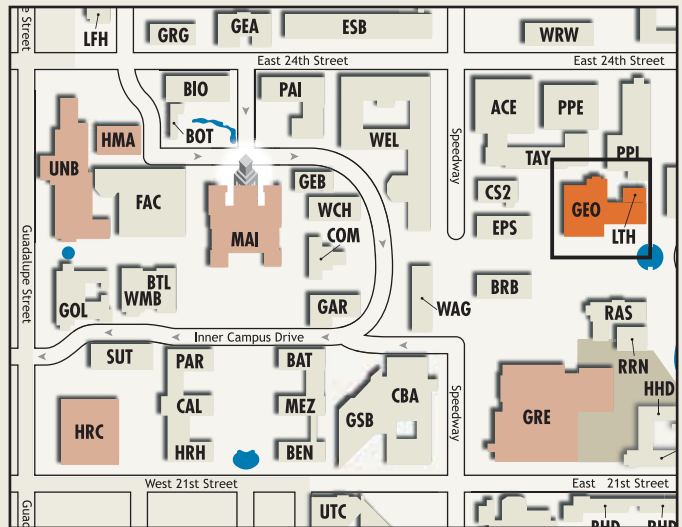
For general information on applications, enrollment, and financial aid, contact:  
Renee Waters, Undergraduate Academic Advisor  
512-471-4300 | [rwaters@mail.utexas.edu](mailto:rwaters@mail.utexas.edu)

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## 6.3 LOCATIONS

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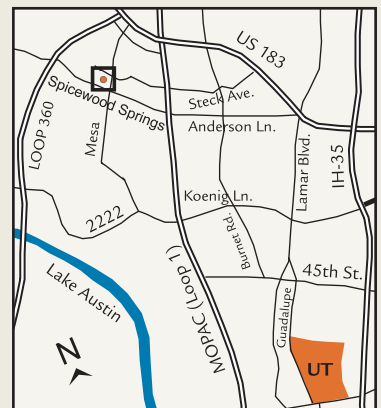
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