



# TEXAS TECH UNIVERSITY

## Department of Geosciences™

**Geoscience** is a diverse field which focuses on the study of the Earth and other planets and how these systems evolve through time. Geoscientists apply principles of physics, chemistry, biology and mathematics to understand the evolution of earth history. Geoscientists are employed in energy, engineering and environmental companies, state and federal agencies and well as in education, law, finance, and business.

### Is Geosciences a good fit for my personality and skills?

Students who are comfortable with physical sciences and mathematics, are good at visualization and are comfortable working outside are well-suited for a career as a geoscientist. Geoscientists solve problems using multiple lines of reasoning to consider problems that may have multiple interpretations.

### Careers in Geosciences

Environmental Consulting (40% of workforce)-Environmental geoscientists are applied scientists who solve environmental problems. They manage geological and hydrological natural resources, mitigate environmental degradation and protect humans from natural hazards. Areas of study include air pollution, waste management, hydrogeology, and environmental remediation.

Petroleum Geoscientist (20% of workforce) - Petroleum geologists work to discovery and extract of oil and gas resources. These geologists study the origin of hydrocarbon reservoirs, how the oil migrates within rock units, and the most efficient means to extract the hydrocarbons. Petroleum geologists work for major energy companies, small to mid-size

companies as well as service companies or in government agencies. Students should plan to pursue a Master of Sciences degree in geology or geophysics for a career in oil and gas.

State & Federal Agencies (15% of workforce)-Careers in this sector range from hydrogeology/environmental geology to regulatory agencies and also includes work typical of a petroleum geologist. A few of agencies who hire geologist are: Texas Commission on Environmental Quality (TCEQ), Texas Railroad Commission, United States Geological Survey (USGS), Bureau of Ocean Energy Management (BOEM), and the Bureau of Land Management (BLM). Requirements for these types of jobs will depend on the position you are applying for.

Economic Geologists (5% of workforce) - Economic Geologists study how Earth's materials can be used for economic or industrial uses. This includes locating areas that are rich in precious metals, non-metallic materials, coal, rare earth elements and water. Economic Geologists are employed in the private sector as well as in governmental agencies.

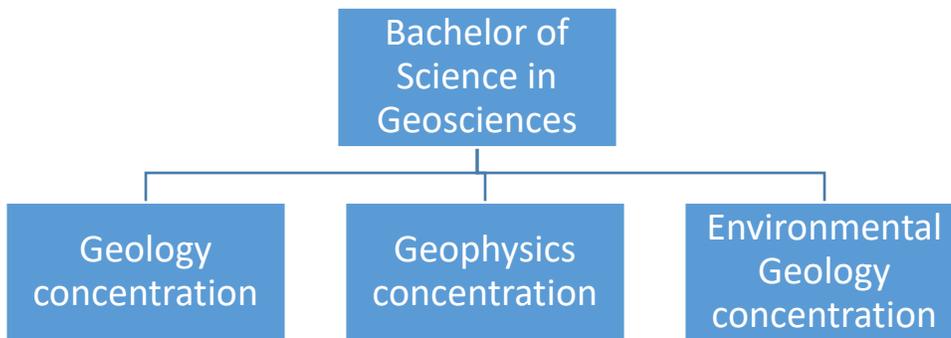
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### **Job Outlook and Compensation**

The Bureau of Labor Statistics projects 6% growth in the job outlook for Geoscientists from 2018-2028. The BLS describes the salaries of geoscientists ranging from a low of \$49,500 to a high of \$208,000. These figure span entry-level to senior scientists over a large range of employers. Texas is the largest employer of geoscientists in the nation with 54,266 currently employed geoscientists.

## PREPARING FOR COLLEGE WHILE IN HIGH SCHOOL

- Keep taking math and science courses (calculus if you can but certainly pre-calculus or college algebra, chemistry & physics, and a fourth year science class you are excited about)
- Consider taking a 3rd year of a foreign language so you can place into the sophomore level courses
- Consider retaking the SAT/ACT if you are very close to getting a Presidential Scholarship these offer 4 years of support.
- Learn and practice good study habits in high school. Recopy your notes, read your book before the material is covered in class and review your homework.



### What types of courses do all Geosciences students take?

Physical Geology	Historical Geology	Mineralogy
Structural Geology	Geochemistry	Petrology
Sedimentary Petrology	Geomorphology	Geophysics
Depositional Systems	Sophomore Seminar	Stratigraphy

### What kinds of specialized courses are available?

Geology of Texas	Environmental Geology	Oceanography
Petroleum Systems	Seismic Methods	Tectonics
Data Processing	Digital Imagery	Hydrogeology
Potential Field Methods	Planetary Geology	Paleontology
Undergraduate Research	Sedimentary Field Methods	Mineral Sciences
Igneous and Metamorphic Processes	Advanced Field Methods	Adv. Historical Geology

## TIPS FOR SUCCESS IN COLLEGE

- Practice good study habits from day 1.
- Get involved on campus! You get to meet people plus it looks great on a resume. Student societies and organizations are a fantastic way to do this.
- Take your labs seriously. This is where you put the lecture material into practice.
- Utilize office hours, all faculty are required to be available and often times the faculty don't get many students.
- Geosciences requires field trips and extensive fieldwork so be proactive about staying fit. Beat the freshman 15!
- Utilize campus resources like free tutoring, the career center, your personal librarian, and advisors.
- Ask upperclassmen and Teaching Assistants for tips.
- When choosing electives, take a course that is interesting to you and that will make you stand out when future employers look at your resume.
- Stay connected with faculty and staff.