

# The University of Tennessee at Martin

## Department of Geology, Geography, and Physics

**Dr. Jefferson S. Rogers, Interim Chair**  
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### **Geology Faculty:**

Aley K. El-Shazly, Michael A. Gibson, Gloria Mansfield, Robert P. Self

### **Geography Faculty:**

Jefferson S. Rogers, Robert M. Simpson, Helmut C. Wenz

### **Physics Faculty:**

Tahira Arshed, Lionel J. Crews, Cahit Erkal, Richard S. Taylor

### **Mission:**

The mission of the Department of Geology, Geography, and Physics is as follows:

1. to provide students with a basic understanding and appreciation of the physical, natural, and cultural sciences
2. to train competent geoscientists
3. to train students in research methods to become lead geoscientists and engineers
4. to provide pre-Health Science students with the strong Physics background necessary for their degrees
5. to advance Geosciences and Physics through research
6. to serve the University and community in the fields of Geoscience and Physics.

### **Expected Outcomes:**

Students are expected to meet the requirements for their prospective Geoscience degree as specified on the following pages.

The Department of Geology, Geography, and Physics is a multi-disciplinary unit that offers a Geoscience major within the Bachelor of Science degree. The major provides concentrations in Geology, Geography, or Travel and Tourism. Minors are available in physics as well as geology, geography, and travel/tourism. Students can study with highly qualified faculty who provide individualized educational opportunities to achieve the greatest personal potential.

### **Facilities:**

Instructional facilities of the department include: three fully equipped geology laboratories; computer-based physics laboratories; a fully-functioning 15 seat Geographical Information Systems/Remote Sensing, Cartographic and Geology computer lab with a 36"x48" digitizer, a large-form printer plotter and a flatbed scanner; a remote weather station and a study room. The Physics research facility includes a magnetics lab. Research is available in theoretical and experimental physics. The department is a repository for U.S. Geological Survey maps and maintains a large collection of topographic maps, aerial photographs, rocks, minerals, fossils, and visual aids. The department is included in the Tennessee Earthquake Network. Field trips to areas of geological and geographical interest form an integral part of the programs.

### **Departmental Awards/Scholarships:**

The Geography Award - A cash award of up to \$300 to an outstanding geography or travel/tourism student. Eligible students must have sophomore standing, be a declared geoscience major with a concentration in geography or travel/tourism. Eligible students must submit an application consisting of transcripts of all college work, a letter of intent, and an essay explaining why the applicant has chosen geography or travel/tourism as a career. Funding for this award comes from faculty and alumni donations. The geography faculty selects the recipient.

The William T. McCutchen Geology Award - A cash award of \$300 to an outstanding geology student. Eligible students must have sophomore standing, be a declared geoscience major with a concentration in geology and submit an application consisting of transcripts of all college work, a letter of intent, and an essay explaining why the applicant has chosen geology as a career. Funding for this award comes from faculty and alumni donations. The geology faculty selects the recipient, which is named in honor of Professor William T. McCutchen, the first geology faculty member at the university.

The David S. Loebbaka Award - A cash award of \$150 to an outstanding astronomy or physics student. The award recognizes Dr. Loebbaka's many contributions to the department and the university. To be eligible a student must have been enrolled in a physics or astronomy course during the fall semester of the year in which the award is presented. The physics faculty selects the recipient based on academic achievement.

The Robert V. Ellis Memorial Scholarship - A scholarship of \$500 (to be paid toward fees for the Fall Semester) to an outstanding travel tourism student. Eligible students must have junior standing, be a declared geoscience major with a concentration in travel/tourism. Eligible students must submit an application consisting of transcripts of all college work, a letter of intent, and an essay explaining why the applicant has chosen travel tourism as a career. Funding for this award comes from faculty and family donations. The Geography faculty selects the recipient.

### **Student Organizations:**

The GeoClub consists of geoscience majors and any students interested in geology, geography and travel and tourism. The club sponsors fieldtrips, activities for National Earth Science Week, and participates annually in GeoConclave, which is a regional geoscience competition among university programs. The primary goal of the GeoClub is to provide opportunities for students to learn about the earth, environment, and human impact through travel and field experiences. GeoClub endeavors to accomplish this goal through entertaining and enlightening activities involving student participation. Additionally the GeoClub provides service to the university and community through its outreach programs. For more information contact the GeoClub president (geoclub@mars.utm.edu).

Eta Alpha is the UT Martin chapter of Sigma Gamma Epsilon, the Earth Sciences National Honor Society. The chapter seeks students who excel in their academics and show an appreciation for the various earth-related sciences of geology, natural resource management, soils science, physical geography, and national parks, among others. The objective of SGE is to provide an opportunity for the scholastic and professional

development of its members while promoting comradery and cooperation among college and university programs devoted to earth sciences. The chapter provides educational programs for area schools and conducts research for publication through the society's journal The Compass. Any interested student who meets the requirements of 12 or more semester hours in earth-related sciences with an overall minimum of 3.0 GPA in those courses and minimum 2.67 GPA in all course work need only contact a member of the chapter or faculty advisor Michael Gibson (mgibson@utm.edu) for consideration of membership.

### **Geoscience Major (6811, 6812, 6813):**

B.S. (6810) Curriculum. In addition to the general education requirements for a B.S. degree, a geoscience major must satisfy the requirements of one of the following concentrations. A minor is required for the concentrations in geography and in travel and tourism; a minor is optional for the geology concentration. The choice of a minor should be made in consultation with an advisor in the concentration.

Geography Concentration (6811) - The geography concentration is designed to provide students with a comprehensive training in geographic regions, processes, and techniques. In addition to the basic characteristics of the world's regions, students learn about the dynamic processes shaping the earth's natural and cultural environments. Geography majors develop basic skills in research, cartography, remote sensing, and Geographic Information Systems (GIS). Potential career fields include: economic development, industrial site selection, transportation systems management and design, land management, publishing, education, cartography, service in state and local government, foreign service, and many other professional areas reflecting the increasing uses for geographic analysis throughout the society. Students interested in attending graduate school will also be well-prepared for continued study and research. Geography 151 and 152 are prerequisites to the concentration which consists of 30 hours: Geography 201; 202; 351 or 352; 380, 381, or 393; 461, 462, or 472; 360 or 471; and 12 additional hours of upper-division geography courses. A minor is required.

Geology Concentration (6812) - Geology is the study of the materials and processes which shape the earth's past, present and future. There are many subfields such as oil and gas exploration, environmental geology, paleontology, hydrogeology, geochemistry, and geophysics. Geology assumes an increasingly important role in our quest for energy and mineral resources and in our growing concern for the environment. Geologists are typically employed by:

1. private industry such as energy, mining and construction companies
2. federal government in such agencies as the U.S. Geological Survey, Bureau of Land Management, Bureau of Mines, NASA, and the Environmental Protection Agency
3. state and local governments in state geological surveys, regulatory bodies and regional planning commissions
4. private consulting firms
5. academia

Geology 111 and Geology 113 are prerequisites to the concentration which consists of: Geology 200, 318, 331, 337, 351, 371, 411, 412, and 462 and a minimum of nine additional elective hours of upper-division geology courses. A minor is optional.

Travel and Tourism Concentration (6813) - Travel and Tourism is one of the world's largest and fastest growing industries and is the third largest retail business in the United States. Familiarity with the discipline equips one to pursue a career in a number of related fields. Potential employment venues include the U.S. State Department, U.S. government travel service offices, state and local tourism and economic development

commissions, travel information counseling firms, airlines, private and group travel agencies, group travel guide services, and hotel/resort marketing firms. Geography 151 and 152 are prerequisites to the concentration which consists of 30 hours: Geography 201, 202, 351, 352, 451, 452, 471, and nine additional upper-division hours from current geography courses. A minor is required.

### **Minors:**

Geography (M-6811). Geography 151 and 152 are prerequisites to a geography minor which consists of the following: Geography 201 or 202, and nine credit hours of upper-division geography courses. Geography 351, 352, and 451 cannot be used toward a geography minor. Travel and Tourism majors cannot minor in geography.

Geology (M-6812). Geology 111 and 113 are prerequisites to a geology minor which consists of 15 hours of upper- division geology.

Physics (M-6820). The minor in physics provides a strong support program for degrees in biology, chemistry, computer science, engineering, geography, geology, and mathematics and for the pre-professional curricula in the health sciences.

Physics 220-221 are prerequisites to a physics minor, which consists of the following 12 hours of upper division courses: Physics 322, 323, 343, and 491.

Travel and Tourism (M-6813). Geography 151 and 152 are prerequisites to a Travel and Tourism minor which consists of the following 12 hours of upper-division courses: Geography 351, 352, 451, and 452. A geoscience-geography major cannot minor in travel and tourism.

### **Courses Offered by Department of Geology, Geography and Physics:**

Astronomy 201 Astronomy (F)

Astronomy 202 Astronomy (Sp)

Geography 151 Introduction to Regional Geography: North America, Europe and Russia (F, Sp)

Geography 152 Introduction to Regional Geography: Asia, Africa and Latin America (F, Sp)

Geography 180 Topics in Geography (as needed)

Geography 201 Introduction to Physical Geography (F)

Geography 202 Introduction to Cultural Geography (Sp)

Geography 205 Introduction to Meteorology (Sp--odd)

Geography 280 Introduction to Geographic Information Systems (F)

Geography 351 Domestic Tourism (Fa--odd)

Geography 352 International Tourism (Sp--even)

Geography 360 (560) Geographic Information Systems: Development and Applications (Sp)

Geography 364 (564) Introduction to Remote Sensing (F--even)

Geography 380 (580) Geography of North America (as needed)

Geography 381 (581) Geography of Europe (as needed)

Geography 393 Geography of Tennessee (as needed)

Geography 441-442 (641-642) Travel Study (as needed)

Geography 444 Geography/Travel-Tourism Internship (as needed)

Geography 451 Concepts and Regulations of Tourism (F--even)

Geography 452 Geography of Travel and Tourism (Sp--odd)

Geography 461 (661) Economic Geography (as needed)

Geography 462 (662) Political Geography (as needed)

Geography 471 (671) Cartography (F)

Geography 472 (672) Climatology (Sp)

Geography 481 Research Practicum F, Sp)  
Geography 491-492 (691-692) Special Topics in Geography (as needed)  
Geology 111 Physical Geology (F, Sp)  
Geology 113 History of the Earth (F, Sp)  
Geology 121 Engineering Geology (Sp--even)  
Geology 180 Topics in Geology [Title] (as needed)  
Geology 200 Career Exploration and Development in Geology (Sp)  
Geology 310 Introduction to Oceanography (F--odd)  
Geology 318 (518) Mineralogy (F--even)  
Geology 331 (531) Igneous and Metamorphic Petrology (Sp--even)  
Geology 335 (535) Geologic Evolution of North America (Sp--odd)  
Geology 337 (537) Structural Geology (F--even)  
Geology 341 (541) Environmental Geology (F--even)  
Geology 351 (551) Principles of Paleontology (F--even)  
Geology 371 (571) Geodynamics (Sp--even)  
Geology 411 (611) Sedimentology (F--even)  
Geology 412 (612) Principles of Stratigraphy (Sp--odd)  
Geology 440 Geohydrology (F--even)  
Geology 451 (651) Principles of Geomorphology (F--odd)  
Geology 462 Methods in Field Geology (F)  
Geology 481 (681) Special Topics in Geology: (Title) (as needed)  
Geology 490 Senior Research Project (as needed)  
Physics 111 Concepts and Problem Solving in Physics (as needed)  
Physics 150 Concepts and Demonstrations in Physics (F, Sp)  
Physics 211-212 College Physics (F, Sp)  
Physics 220-221 University Physics (F, Sp)  
Physics 322 University Physics (F)  
Physics 323 University Physics (Sp)  
Physics 331-332 (531-532) Mechanics (as needed)  
Physics 343 Methods in Physics Research (as needed)  
Physics 441-442 (641-642) Electricity and Magnetism (as needed)  
Physics 471-472 (671-672) Modern Physics (as needed)  
Physics 491-492 (691-692) Special Projects in Physics (as needed)

**Complete course descriptions can be found in the Course Description section of the catalog.**