

EARTH AND ENVIRONMENTAL SCIENCE

Earth and Environmental Science
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Professors:

Tina M. Niemi; Jejung Lee (Associate Director, Division of Natural and Built Environment; Director, Center for Applied Environmental Research).

Associate Professors:

Caroline P. Davies, Alison Graettinger, Fengpeng Sun (Ph.D. Program Coordinator and MS Graduate Coordinator).

Professors Emeriti:

Jimmy O. Adegoke, Raymond M. Coveney, Jr., Steven L. Driever, Syed E. Hasan, Daniel P. Hopkins, Wei Ji, James B. Murowchick

Description

Earth and Environmental Sciences offers programs of study leading to a bachelor of science degree in Earth and Environmental Sciences with emphases in Environmental Science, Physical Geography, and Geology and a bachelor of arts degree in Environmental Studies. The program offers a master of science degree in Environmental and Urban Geosciences and participates in the Natural Sciences Ph.D. program as a discipline in Geosciences. The program also offers an undergraduate and graduate certificate in Geographic Information Systems (GIS). Students who designate Geosciences on their application for admission to the doctoral program must meet admission and other requirements available from the program. See the School of Graduate Studies section in the Graduate Catalog for more information about doctoral programs. Courses offered can be used to fulfill the requirements of the Missouri Department of Education for earth science, science-math, and social science teaching specialties.

Students majoring in Earth and Environmental Sciences obtain a broad liberal arts education during their undergraduate career and at the same time receive sound fundamental training in the geosciences. Departmental faculty members are committed to educating non-majors about the earth and environmental sciences as well as those students who plan to pursue careers in the geosciences.

All undergraduate majors in Earth and Environmental Sciences must maintain a minimum grade point average above 2.0 in all courses taken to fulfill departmental degree requirements. This minimum GPA also applies to all credit hours transferred from other institutions.

Students in the Earth and Environmental Sciences address earth-related questions and problems facing society today. Environmental studies focuses on environmental processes and policy. Physical geography deals with place and the relationships between people and the environment. Geology explores the materials and processes of the earth and its evolution and history.

We offer unique university experiences such as field courses and excursions. The Earth and Environmental Sciences' faculty and students have conducted research in many countries such as Jordan, Mexico, Chad, China, Korea, Cameroon, the Bahamas, Denmark, Spain, India and Turkey.

Special Resources and Services

Geosciences Museum

The Geosciences Museum, founded by Richard L. Sutton, M.D., contains relief models and interactive displays, along with a full range of 2,500 spectacular mineral and fossil specimens from all over the world.

Center for Applied Environmental Research (CAER)

The Center for Applied Environmental Research is administered by Earth and Environmental Sciences and directed by Professor Jejung Lee. The center is a resource for governmental agencies, private firms, and the general public in matters of the environment. Its programs address such matters as environmental geophysics, hydrogeology, climate change, environmental sustainability, GIS and remote sensing, geochemistry, geologic hazards, environmental justice, natural resource assessment, and land-use planning.

Undergraduate Admission Requirements

Prospective students desiring to major in the Earth and Environmental Sciences programs should enroll in as much work as possible in mathematics, English composition and sciences during their high school years.

Students transferring from other colleges or universities should have taken required non-departmental 100- and 200-level courses listed under degree programs in this catalog prior to arriving at UMKC. In addition, it would be desirable for B.S. majors to have completed a semester of calculus. To assure that students transferring from other institutions of higher education can continue in an uninterrupted plan of study in the fields of geology,

geography, environmental science or environmental studies, it is advisable that they acquaint themselves with the program degree requirements listed in this catalog as well as the two-year timetable of course offerings available from the university degree advisors, prior to registration.

Careers for Geography, Geology and Environmental Studies/Science Graduates

Environmental Science / Studies

Environmental issues such as climate variation, atmospheric pollutants and non-point-source water pollution are complex issues. The general public is ill-equipped to evaluate these issues and must rely on experts. The need for environmental education and professionals in the field of the environment has never been greater. Given these needs, employment opportunities are unlimited and are likely to remain so for decades. Specific careers available to those who hold an environmental studies degree lie with companies and agencies that deal with engineering, environmental geology, environmental law, environmental health and safety, emergency response, environmental training, environmental chemistry, politics and social issues.

Geography

Students of geography at UMKC are offered a well-rounded education leading to promising career prospects; the market for geographers is global. Geography is centrally concerned with the whole range of interrelations between human beings and the natural and built environments. Geography graduates find work in commerce; government and public administration; city and regional planning; natural resource management and environmental conservation; historic preservation; landscape design; pollution control; weather-forecasting; climatological and agricultural analysis; statistical analysis; government and commercial map-making; transportation; the travel and tourism industry; market analysis and development; diplomacy; and national and international economic development programs. Experience with geographic information science (GIS) and remote sensing technologies is a great advantage in all these fields. Well-educated geographers are often involved in the crafting of policy and legislation, in the practice of law, in consulting, in publishing and in education.

Geology

Geology graduates have numerous employment opportunities, especially in areas relating to the environment, to engineering and to applied geology. Training in urban and environmental geology will prepare graduates to develop and evaluate environmental impacts, deal with waste management issues; model groundwater flow; handle laboratory and field instrumentation; and assess natural hazards. Geologic studies of soils, energy, mineral and water resources, and the environment are essential for private industry, as well as for governmental agencies. Graduates may also join state and federal geological surveys. The petroleum industry was for many years the principal employer of geologists. However, currently the best employment opportunities are in the area of the environment.

Activities

Practicums and Internships

The nature of the fields of environmental science or studies, geology, and physical geography necessitates practical in-class and laboratory exercises; field trips and fieldwork; working seminars and independent projects of a practical nature. More explanation of specific courses can be found in the individual course descriptions. Internships are available with local organizations, businesses, and government agencies.

Financial Aid and Transportation Costs

A variety of scholarships and student financial aid alternatives are available to students accepted for regular enrollment. (See the Financial Aid website <http://www.umkc.edu/finaid> (<http://www.umkc.edu/finaid/>) for more information.) Scholarships available solely to Earth and Environmental Sciences students include the ASCE-AEG Scholarship Fund, Association of Earth Sciences Clubs Fund, Richard J. Gentile Scholarship, The Geosciences Scholarship, the Truman Stauffer Memorial Scholarship, and the Denis Ward Scholarship. Please note that certain field courses and field trips necessitate that some travel costs are at the expense of the individual student.

Faculty

Caroline P. Davies^{2,3}; Associate Professor ; B.A. (College of William-Smith); M.S. (University of Maine); Ph.D. (Arizona State University).

Alison Graettinger^{2,3}; Associate Professor ; B.S. (University of Puget Sound); M.S. (University of Waikato); PhD (University of Pittsburgh).

Jejung Lee^{2,3}; Professor ; B.S., M.S. (Seoul National University); Ph.D. (Northwestern University).

Tina M. Niemi^{2,3}; Professor ; B.A. (College of Wooster); M.S., Ph.D. (Stanford University).

Fengpeng Sun^{2,3}; Associate Professor ; B.S. (Nanjing University); M.S., Ph.D. (University of California-Irvine).

Professors Emeriti

Jimmy O. Adegoke; Professor Emeritus; B.S. (Ahmadu Bello University); M.S. (University of Ibadan); Ph.D. (Pennsylvania State University).

Raymond M. Coveney, Jr.; Professor Emeritus ; B.S. (Tufts University); M.S., Ph.D. (University of Michigan).

Steven L. Driever; Professor Emeritus ; B.A. (University of Virginia); M.S. (Northwestern University); Ph.D. (University of Georgia).

Syed E. Hasan; Professor Emeritus ; B.S. (Patna University); M.S. (Indian Institute of Technology, formerly Roorkee University); Ph.D. (Purdue University).

Daniel P. Hopkins Professor Emeritus ; B.A. (Tulane University); Ph.D. (Louisiana State University).

Wei Ji; Professor Emeritus; B.S. (diploma), M.S. (Peking University); Ph.D. (University of Connecticut).

Jim Murowchick Professor Emeritus ; B.S (University of Illinois at Urbana-Champaign); M.S, Ph.D. (Pennsylvania State University).

¹Associate or Adjunct Graduate Faculty

²Members of UMKC Graduate Faculty

³Members of UMKC Doctoral Faculty

Undergraduate Undergraduate Programs:

Bachelor of Arts: Environmental Studies (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/bachelor-of-arts/>)

Bachelor of Science: Earth and Environmental Science-Environmental Science Emphasis (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/bachelor-of-science-environmental-science/>)

Bachelor of Science: Earth and Environmental Science-Physical Geography Emphasis (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/bachelor-of-science-geography/>)

Bachelor of Science: Earth and Environmental Science-Geology Emphasis (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/bachelor-of-science-geology/>)

Minor: Environmental Communications (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/minor-environmental-communications/>)
(Joint program with the Department of Journalism and Communication)

Minor: Environmental Studies (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/minor-environmental-studies/>)

Minor: Environmental Sustainability (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/minor-environmental-sustainability/>)

Minor: Geospatial Science (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/geospatial-science/>)

Minor: Geology (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/minor-geology/>)

Undergraduate Certificate: Geographic Information Systems (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/undergraduate-certificate-program-gis/>) (GIS)

Graduate Graduate Programs:

Master of Science: Environmental and Urban Geosciences (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/master-of-science-environmental-urban-geosciences/>)

Graduate Certificate: Geographic Information Systems (GIS) (<https://catalog.umkc.edu/colleges-schools/science-engineering/ees/graduate-certificate-program-gis/>)