**Sustainability Education at University of Missouri-Kansas City**

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**Introduction**:

The Department of Geosciences at the University of Missouri-Kansas City (UMKC)

started a bachelor’s degree in environmental science/studies (ES) in 1998. Within a few years the program began to attract a large number of students, surpassing our geography and geology majors: In spring 2012, we had 92 majors in ES as compared to 23 in geography and 14 in geology. Envisioning the future interest in sustainability, we introduced a minor in this area in fall 2009. As of spring 2012 we have 11 students, five from departments other than Geosciences.

**Design and Strength of the Program**:

UMKC’s sustainability minor aims at preparing students for “green-collar” careers, and offers a variety of courses with an interdisciplinary approach to sustainability. The program is designed to meet pressing needs of trained workforce in the environmental sector, particularly in an urban setting. The core of the program consists of a unique blend of required courses supplemented by key electives to suit the particular interests and needs of students. Required courses span the fields of biological, physical, social sciences, and the humanities.

Our Sustainability program takes advantage of the enormous resources that are available in an urban area like Kansas City. Location of several federal government regional offices—including EPA Region 7—in the Kansas City metro area, along with a host of consulting engineering and environmental firms, and private environmental businesses, has given us tremendous benefits and provided internship and career opportunities to our students.

Sustainability minor requires students to take two capstone courses: (1) EnvSci 332 CZ, Environmental Sustainability (concept of sustainability and review of how sustainability might work at the individual, neighborhood, state, national, and global scales. Students participate in some form of community engagement on sustainability as well as reflect upon how their own practices impact the environment), and (2) EnvSci 496: Environmental Internship that allows students to gain practical experience working for local firms or governmental agencies.

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One of the strong points of our program is the comprehensive course offerings in the area of waste management: We offer four courses including one titled *Field Experience in Waste Management*. This field-intensive course involves visit to various waste management facilities, and alternative energy plants to acquire firsthand knowledge of waste management practices, and energy issues. We also offer the 40-hour Hazardous Waste Operations Management course that is a pre-requisite for a job involving hazardous waste. This gives our students a distinct advantage over others and many students receive job offer because of having completed this 40-hr. OSHA mandated training.

Our students find internship and career opportunities at: US EPA, Region 7, State environmental and natural resources offices, Student Conservation Association, numerous consulting engineering and environmental firms, and private environmental businesses. Despite rough economy our students’ employment record has been above-average.

Finally, UMKC’s commitment to embrace sustainability on the campus has been a strong motivation for establishing the sustainability minor option. Our campus is one of the “greenest” in nation, and has adopted a number of innovative sustainability measures. This year (April 2012) we were placed 13th (top 3%) among 605 colleges and universities that participated in the national “Recycling Mania.”

**Challenges**:

Our biggest challenge is shortage of faculty and staff. One full-time faculty member serves as program director, besides teaching courses and directing graduate research. Our request to add at least one additional tenure track faculty has not met with success—we are still under a hiring freeze. One single AA deals with all administrative and fiscal tasks of the Geosciences Department. Our nine GTAs run labs for all required geology, geography, and ES courses; and with about 150 students enrolled in our introductory ES labs each semester, we are hard pressed to meet the demand.

**Students’ Career Path**:

A diverse course work that builds strong foundation in geosciences (including GIS), biology, social sciences, and humanities, including senior projects and internship, prepares our students for the workforce. In addition, guest lecturers from the govt; industry, and business, provide a unique but valuable opportunity for our students to network with potential employers. The same can be said for the student chapter of the Association of Environmental and Engineering Geologists (AEG) that works closely with its Kansas City-Omaha (KC-O) section that holds quarterly meetings at UMKC campus which are free to our students, many of whom find internship and job because of participation at these meetings. We also work in close collaboration with the geotechnical division of the American Society of Civil Engineers, Kansas City Division, and our decade-long partnership has resulted in establishment of two scholarships, one in geosciences and the other in civil engineering.