PROPOSAL FOR AN AREA OF EMPHASIS

Date: September 17, 2024

School/College: Franklin College of Arts and Sciences

Department/Division: Geology

Program (Major and Degree): Geology (M.S.)

Area of Emphasis Title: Environmental Geology

Which campus(es) will offer this program? Online

CIP: 40.060100

Proposed Effective Date: Fall 2025

1. **Area of Emphasis Description:**

   Environmental geology is an interdisciplinary field that explores the interactions between Earth's processes, landscape, and human activities, primarily focusing on addressing environmental geology challenges and promoting sustainability. The Area of Emphasis in Environmental Geology under the Master of Science (M.S.) in Geology is designed for those passionate about understanding and addressing the complex interplay between geological processes and environmental challenges. This program is tailored for aspiring professionals seeking to positively impact our planet through advanced knowledge and practical skills in environmental geology. The Area of Emphasis will provide students with valuable skills and knowledge to engage with the pressing environmental issues of our time. Environmental challenges such as natural resource management, water remediation, alternative energy storage, natural hazard mitigation, and environmental management and stewardship require a strong foundation in geology, cutting-edge tools and data analysis, and its applications. The program will encourage students to integrate geological principles with other disciplines, fostering a holistic understanding of environmental issues. It will also serve to meet student demand and prepare future leaders in environmental consultancy, regulatory agencies, research institutions, and non-profit organizations.

2. **Major Requirements:**

   STEM Core (18 hours)
   CRSS(GEOL) 8710E, Watershed-Scale Modeling (3 hours)
   GEOL 6130E, Aqueous Environmental Geochemistry (3 hours)
   GEOL 6220E, Hydrogeology (3 hours)
   GEOL 6530E, Principles and Environmental Applications of GIS (3 hours)
   GEOL 8370E, Data Analysis in the Geosciences (3 hours)
   GEOL 8770E, Hazardous Waste Site Remediation (3 hours)

   Interdisciplinary Core (3 hours)
   ENVM 6800E, Water Resource Economics and Management (3 hours)

Scientific Communication and Research Experience (9 hours)
GEOL 6930E, Science Communications (3 hours) – **NEW**
GEOL 8780E, Research Experience in Environmental Geology (6 hours) – **NEW**

Total Program Hours: 30

E-suffix versions of the above courses will be proposed in CAPA prior to implementation of the Area of Emphasis in Environmental Geology.

Environmental Geology

STEM Core (18 hours)

GEOL6220E Hydrogeology, 3 hours
GEOL6130E Aqueous Environmental Geochemistry, 3 hours
GEOL8770E Hazardous Waste Remediation, 3 hours
GEOL8710E Watershed-scale Modeling, 3 hours
GEOL8370E Data Analysis in the Geosciences , 3 hours
GEOL6530E Principles and Environmental Applications of GIS, 3 hours

+

Interdisciplinary Core (3 hours)

ENVM6800E Water Resource Economics and Management, 3 hours

+

Scientific Communication & Research Experience (9 hours)

GEOL6930E Science Communication, 3 hours (NEW)
GEOL8780E Research Experience in Environmental Geology, 6 hours (NEW)

Program of Study

Fall Semester Year 1:

GEOL6220E Hydrogeology, 3 hours

GEOL6130E Aqueous Environmental Geochemistry, 3 hours

Spring Semester Year 1:

GEOL8370E Data Analysis in the Geosciences, 3 hours

GEOL6530E Principles and Environmental Applications of GIS, 3 hours

Summer Semester:

ENVM6800E Water Resources Economics and Management, 3 hours

GEOL6930E Science Communication, 3 hours (NEW)

Fall Semester Year 2:

GEOL8770E Hazardous Waste Remediation, 3 hours

GEOL8710E Watershed-scale Modeling, 3 hours

Spring Semester Year 2:

GEOL8780E Research Experience in Environmental Geology, 6 hours (NEW)