Department of Earth & Environmental Studies

Master of Science in Earth and Environmental Science

Graduate Program Coordinator: Dr. Sandra Passchier, ph. 973-655-3185, passchiers@mail.montclair.edu
www.montclair.edu/csam/earth-environment-studies/

PROGRAM GOALS
The M.S. in Earth and Environmental Science provides a rigorous educational experience, training in state-of-the-art field, laboratory, and quantitative methods, and the opportunity to participate in the discovery of new knowledge. Our program capitalizes on the diverse strengths of faculty members with expertise in four broad areas: 1) Earth Surface Processes and Hydrology, 2) Environmental Geochemistry, 3) Geology and Geophysics, and 4) GIS and Remote Sensing.

Montclair State University Master of Earth and Environmental Science students include:
• Recent baccalaureate graduates seeking more in-depth research experience and specialization.
• Teachers seeking an earth science certification or a Master of Science degree.
• Working environmental professionals wishing to add advanced geoscience expertise to their academic credentials.

Most of our graduate courses are offered after 5 pm to accommodate the working student. Our department facilities are open until 11 pm most weeknights and during the day on weekends, giving students ample access to computer labs, research labs, and study materials. The Master of Science in Earth and Environmental Science is applied in nature. Some of our courses require fieldwork and/or the use of analytical instrumentation scheduled outside of normal class time.

PROGRAM REQUIREMENTS
The Masters of Earth and Environmental Science degree program consists of 32 credits, allocated in four categories:

I. Core courses: 6 credits
   Environmental Geoscience and Earth System Science. These provide a solid foundation in our program.

II. Required electives: at least 9-12 credits
   Students may choose electives from a list of earth and environmental science graduate level courses at the 500 level or above, within the four areas of specialization.

III. Free electives: up to 10 credits
   Up to 10 credits may be taken within other programs in earth and environmental studies, biology, mathematics, chemistry, physics, or computer science, as appropriate to the student’s interests and career goals.

IV. Required research experience: 4-7 credits, one of two options:
   A. Thesis option – Research literature + Thesis (7 credits)
   B. Non-thesis option – Research literature + Research Seminar (4 credits) + Written Comprehensive Exam (0 credits – Pass/Fail)

Pre-requisites in math, chemistry, physics, or geoscience may be required for students with undergraduate degrees outside of earth and environmental science. In that case, the degree program may exceed the 32 credits.

EARTH SCIENCE TEACHING CERTIFICATION
Earth Science Teaching Certification is available in conjunction with the College of Education and Human Services. The requirements for certification and the Master of Arts in Teaching differ from those for the Masters of Science in Earth and Environmental Science. For more information contact Dr. Matthew Gorring (gorringm@mail.montclair.edu) and see here http://www.montclair.edu/graduate/programs-of-study/teacher-certification/content-area/earth-science-certification/.
CAREER OPPORTUNITIES
Recent graduates from the Master of Science in Earth and Environmental Science program are employed with the U.S. Environmental Protection Agency, the Liberty Science Center, the Federal Bureau of Land Management, geo-engineering and environmental consulting firms, local and state planning agencies, public and private K12 schools and area colleges. Our graduates were admitted to Ph.D. programs at institutions such as Columbia University and Oregon State University.

ADMISSIONS
Students applying to the program must submit an application and all required credentials to the Graduate School using the online application at http://www.montclair.edu/graduate/prospective/app.php. All applicants must submit their Graduate Record Exam (GRE) scores and all undergraduate and graduate transcripts to the addresses listed in the application form. Transcripts from institutions outside of the United States must be evaluated by a foreign credential evaluation service affiliated with the National Association of Credential Evaluation Services (NACES). NACE members are listed at http://www.naces.org/members.htm. Students may begin in the Fall or Spring semester. Students may take up to 6 credits (two courses) while seeking full matriculation. Students applying to the Master of Science in Earth and Environmental Science should have an undergraduate major in the natural sciences or a strong background in geo-environmental science.

FINANCES AND GRADUATE ASSISTANTSHIPS
Tuition and required fees for the 2017-2018 academic year are approximately $693 per credit for NJ residents, and $1000 per credit for non-NJ resident students. Books and supplies average $100 per class. The most current information on tuition and fees is published at http://www.montclair.edu/student-accounts/tuition-and-fees/graduate-costs/. Montclair State University offers financial aid, scholarships, and graduate assistantships. Please see http://www.montclair.edu/graduate/current-students/grad-assistantships/ for information on the graduate assistantship application process, and Office of Financial Aid for information on grants, loans, and work opportunities (http://www.montclair.edu/FinancialAid/). All graduate assistantships are merit-based and designed to support full-time students pursuing thesis research. Teaching assistantships are awarded on the basis of academic record, demonstrated mastery of earth and environmental science laboratory and field concepts, personal responsibility, work ethic, and potential to work effectively with undergraduate students. In addition, full-time or part-time research assistantships are awarded on the basis of academic record, student research interests, and proficiency in the knowledge and skill set required by the advisor’s research program and its funding source. All full-time assistantships carry a stipend and tuition waiver and require 20 hours per week of teaching or research activities.

OUR FACILITIES
The Department of Earth and Environmental Studies houses a nationally and internationally recognized faculty, working in modern research and teaching laboratories in the Center for Environmental and Life Sciences. The department maintains laboratories in Earth Systems and Climate Change, Geodynamics, Environmental Quality and Remediation, Environmental Forensics, and computational laboratories for Environmental Modeling, GIS, and Remote Sensing. Analytical laboratories feature inductively coupled plasma optical emission and mass spectrometers (ICP-OES, ICP-MS), a gas chromatograph/mass spectrometer, x-ray diffractometer, gamma ray detector, ion chromatography system and CHNS elemental analyzer, laser particle sizer, vibrating sample magnetometer, spinner magnetometer, and facilities for optical and electron microscopy. A computer laboratory with the most current PC and Sun workstations feature MatLab, ArcGIS, ERDAS Imagine, and Idrisi, statistics, and geohydrological and geophysical visualization software. A full range of field equipment is available for hydrology, soil science, and geospatial data gathering including electrical resistivity and ground penetrating radar profilers and a cesium magnetometer. Montclair State University hosts the 250-acre School of Conservation field campus in Stokes National Forest, northwest New Jersey, for field-based studies.

DEPARTMENT FACULTY

Clement Alo: atmospheric science, hydroclimatology
Stefanie Brachfeld: marine geology, rock magnetism
Mark Chopping: remote sensing, GIS
Yang Deng: environmental chemistry and remediation
Huan Feng: marine and environmental geochemistry
Joshua Galster: surface hydrology
Matthew Gorrin: petrology, geochemistry, tectonics
Michael Kruse: organic geochemistry, env. forensics
Pankaj Lal: natural resource management, economics
Jessica Miller: human-environment, sustainability

Duke Ophori: hydrogeology
Sandra Passchier: sediments, marine/glacial geology
Gregory Pope: geomorphology, soils, geoarcheology
Harbans Singh: environmental law, resource managem.
Robert Taylor: urban planning, environmental policy
Jorge Lorenzo Trueba: coastal geomorphology
Danlin Yu: geographic information science, GIS

http://www.montclair.edu/csam/earth-environment-studies/faculty-staff/ (contact details faculty advisors)