

## GEOSCIENCES

<http://www.uvm.edu/~geology/>

### OVERVIEW

The Master of Science in Geosciences is a rigorous research program with grounding in related course work. Research programs include environmental geology; geomorphology; water resources; environmental (bio)geochemistry; mineralogy; sedimentary, igneous and metamorphic environments; geochronology and structural geology; tectonics; and the evolution of orogen. Examples of specific faculty interests include geologic history and recent sedimentation in the Lake Champlain Basin; processes and chronology of glaciation; water quality and pollutant transport; crystal chemistry and crystallography; molecular-scale environmental mineralogy; (bio)geochemical cycling in the critical zone; the tectonic evolution of continental margins and interiors; petrofabric and structural analysis of deformed rocks; partial melting and deep crustal processes; timing of deformation and rates of tectonic processes; and stratigraphy and sedimentary environments.

### DEGREES

Geosciences M.S.

### FACULTY

**Diehl, Rebecca;** Research Assistant Professor, Department of Geography and Geosciences; PHD, Utah State University

**Dupigny-Giroux, Lesley-Ann;** Professor, Department of Geography and Geosciences; PHD, McGill University

**Klepeis, Keith Andrew;** Professor, Department of Geography and Geosciences; PHD, University of Texas Austin

**Perdrial, Julia Nathalie;** Assistant Professor, Department of Geography and Geosciences; PHD, Université Louis-Pasteur, Strasbourg, France

**Perdrial, Nicolas;** Research Assistant Professor, Department of Geography and Geosciences; PHD, Université Louis-Pasteur, Strasbourg, France

**Rayback, Shelly A.;** Associate Professor, Department of Geography and Geosciences; PHD, University of British Columbia

**Schroth, Andrew W.;** Research Associate Professor, Department of Geography and Geosciences; PHD, Dartmouth College

**Webb, Laura E.;** Associate Professor, Department of Geography and Geosciences; PHD, Stanford University

**Wemple, Beverley;** Professor, Department of Geography and Geosciences; PHD, Oregon State University

### Courses

#### **GEOL 5405. Gr Geochem of Natural Waters. 3 Credits.**

Basic concepts of chemical equilibria applied to natural waters, including thermodynamics, pH, oxidation-reduction, weathering, and solution equilibria. Credit not awarded for both GEOL 5405 and GEOL 4405. Prerequisite: Graduate student.

#### **GEOL 5510. Gr Geomaterial Analysis. 3 Credits.**

Advanced knowledge and practical skills in the analysis and characterization of geological materials is a necessary first step in countless research projects. Geomaterial is all inorganic material that constitutes the Earth layers. As such, virtually every research project in geosciences, engineering, environmental science, physical geography, archeology, etc, starts with a thorough characterization of geomaterials. Prerequisite: Graduate student in Chemistry, Geology, Natural Resources, Physics, Plant & Soil Sciences, Civil & Environmental Engineering, or Material Sciences.

#### **GEOL 5990. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

#### **GEOL 6391. Master's Thesis Research. 1-18 Credits.**

Research for the Master's Thesis.

#### **GEOL 6400. Topics in Env't & Surface Geo. 1-3 Credits.**

Exploration of geologic constraints on environmental problems such as groundwater flow, contaminant transport, slope stability, climate change, sedimentation, deforestation, and earthquake hazards. Extensive readings and student-led discussions. May repeat for credit with different content. Topics vary by offering; periodic offering at intervals that may exceed four years. Prerequisite: Graduate student in science, natural resources, or engineering.

#### **GEOL 6990. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

#### **GEOL 6991. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

#### **GEOL 6993. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

#### **GEOL 6994. Teaching Assistantship. 1-3 Credits.**

Student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

#### **GEOL 6995. Graduate Independent Research. 1-18 Credits.**

Graduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.