Undergraduate TA opportunities – Fall 2022 and Winter 2023
Department of Geological Sciences and Geological Engineering

Please note that to TA a course, you must have completed the course (or equivalent) and obtained a B grade or higher.

Introductory Courses

APSC 151 - Earth Systems Engineering

Role: TA

An introduction to the complex Earth System (the solid earth, hydrosphere, atmosphere, and biosphere) and our interactions with it. The science behind our exploration and understanding of our planet and its ongoing evolution is explored in combination with the engineering geology of geo-materials, geo-resources, geo-dynamics and geo-risk. The connection between the Earth System and human activity is explored in depth, including local and global-scale impacts of engineering works, geopolitics, and resource issues. Examples of the terrestrial sources of geo-materials used in engineering activities are highlighted along with the technical, social, economic and environmental challenges associated with their life cycle including sustainability, contamination, biodiversity loss, social impact and climate change.

GEOL 104 - The Dynamic Earth

Role: TA

Introduction to the internal structure of the Earth and the processes that have shaped its surface. Global tectonics and continental movement, rock genesis, mountain building, glaciations and geological time. Laboratories include rock and mineral identification, and problem solving in historical geology, earthquakes, groundwater flow and coastal erosion.

GEOL 106 - Environmental Geology and Natural Hazards

Role: Marker

The relationship between humankind and our ever-changing planet, with a focus on natural geologic hazards (volcanic eruptions, earthquakes, landslides, tsunamis, mass movement, floods, extraterrestrial impacts, etc.), and environmental impacts which result from population and land-use expansion and our increased use of water, energy and mineral resources. A study of the sources and impact of pollution and global climate change, and of public perception of and response to geological risk.

GEOL 107 / GEOE 207 - History of Life

Roles: TA, Marker

The history of life, from its inception four billion years ago to the present day, focusing on the inter-relationship between organic evolution and global change. Coevolution of early life and the atmosphere; development of marine animals and their ecosystems; invasion of the land; dinosaurs and their world; mass extinctions; the Age of Mammals; and hominid evolution. Lectures plus three three-hour laboratories.

Specialized Courses

GEOL/E 221 - Geological Field Methods

Role: TA

The field study of surficial deposits, rock types, and geological processes, based on the geology of the Kingston area. Descriptions, samples and measurements acquired on several field trips will be analyzed, and the results recorded in maps, sections, and reports throughout the course.

GEOL/E 232 - Mineralogy

Role: TA

Characterization of rock- and soil-forming silicate and non-silicate minerals (their crystallography, optical and physical behaviour, and crystal chemistry). The structural, chemical and genetic aspects of the crystalline state as displayed by minerals are considered. Implications of mineral properties for the engineering behaviour of soils and rocks, and for human needs, are discussed.

GEOL/E 333 - **Terrain Evaluation**

An introduction to the principles of geomorphology relevant to Geological Sciences and Geological Engineering. Identification and evaluation of terrain features using analog and digital imagery via traditional and digital (GIS) methods. Digital terrain model acquisition and analysis. Introduction to digital terrain analysis.

GEOL/E 337 - Paleontology

Role: TA

Review of the major groups of invertebrate fossils, emphasizing functional morphology, paleoecology, evolution, and geological significance.