

Course Number

GEO-210-01

Course Description

Groundwater accounts for 97% of the available freshwater on earth and is a vital source of water for household, industrial, and agricultural uses worldwide. The well-being and prosperity of human civilization requires the sound stewardship and sustainable use of our groundwater supplies. In addition to serving as an essential resource for humanity, groundwater plays a central role in many environmental and geologic processes, including the maintenance of river flows between rainfall events, the occurrence of earthquakes, and the genesis of certain types of ore deposits and landforms. Groundwater is also a key consideration in many engineering operations such as the construction of dams and tunnels and the assessment of landslide and land subsidence risk. Groundwater hydrology is a highly interdisciplinary field that brings together the geologic and environmental sciences with engineering. This course will begin by exploring the physical properties of groundwater and the geologic media through which it flows, the physical laws that govern groundwater flow and transport, and techniques for modeling groundwater flow patterns. The mid-part of the course will focus on the engineering aspects of groundwater, covering topics such as the hydraulics of pumping wells, the transport of contaminants within aquifers, the remediation of contaminated aquifers, and well-drilling technology. Later we will cover the role groundwater plays in geologic processes and the role of geology in determining groundwater chemistry and quality. We will also discuss the connections between groundwater and human health and the importance of groundwater in the global food supply. Students will leave this course with the fundamental knowledge needed to begin answering scientific and engineering questions in the fascinating world of groundwater hydrology. They will also gain an understanding of how human activities have influenced the natural groundwater environment and how groundwater has shaped human civilization.

Academic Term

21/FA

Instructor

Stahl, Mason

Location & Meeting Time

Olin Building-306+ M/W/F 09:15AM-10:20AM LEC

Petition

Y

Credits

1.00

Capacity

16

Total Students

16

Additional Information

<http://www.union.edu/Geology>

Common Curriculum

SCLB Science w/Lab

Interdisciplinary Programs

Environmental Science & Policy

Academic Department

Geosciences

Field Of Study

Geosciences (GEO)