

MAJOR IN GEOSCIENCES, HYDROGEOLOGY CONCENTRATION

The Hydrogeology concentration within the Geosciences major provides students with the applied skills and scientific knowledge related to managing groundwater as a resource to meet societal and environmental needs. This concentration combines a strong foundation in geosciences with additional depth in hydrogeology and its application to providing a safe, reliable, and sustainable groundwater supply; protecting and remediating aquifers; understanding the role of groundwater in maintaining ecosystem functions; and modeling groundwater flow and contaminant transport.

Learning Objectives

Upon successful completion of this program, students will be able to:

1. Demonstrate foundational skills and knowledge in all sub-disciplines of geology (physical and historical geology, earth materials, sedimentology and stratigraphy, structural geology)
2. Exhibit valuable skills in scientific reasoning, quantitative data analysis and reasoning; field, analytical, and remote sensing skills; spatial thinking and map use enabling them to contribute effectively to professional work and engage in original research.
3. Use visualization tools, theory, computation, and simulations to explain field observations and experimental results, make interpretations and test hypotheses.
4. Obtain, organize, and critically evaluate geologic information, and effectively present it through oral and written discourse with specialists and non-specialists.
5. Ethically and responsibly engage their knowledge of geology to address current global and scientific challenges.
6. Apply sustainability principles that incorporate complex environmental, economic, and social factors.
7. Describe the origins, behavior and sustainable uses of groundwater.
8. Exhibit valuable professional skills in procedures of assessment, evaluation and monitoring of groundwater resources.