

VILLANOVA UNIVERSITY
WATER RESOURCES AND
ENVIRONMENTAL ENGINEERING
GRADUATE PROGRAM

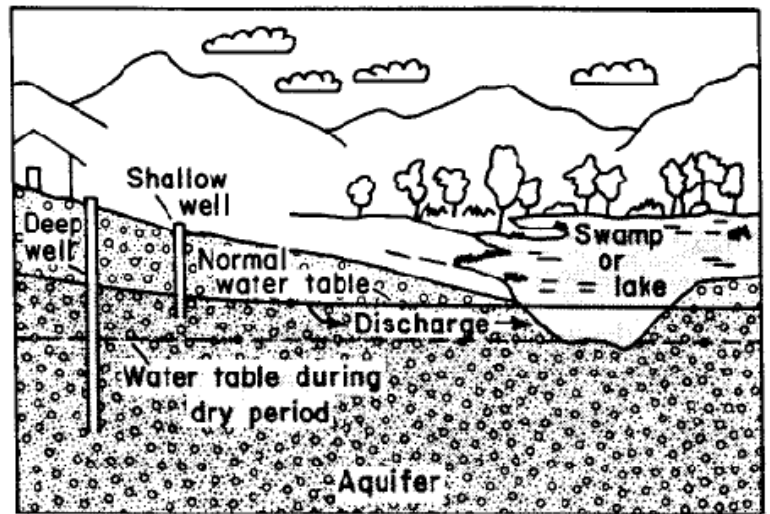
Evening Course in

Contemporary Hydrogeology

CEE 8506

Offered – Odd Years – Spring*

Offered both in class and through Real
Time Distance Learning



DESCRIPTION

Fundamentals of the occurrence and movement of water in the subsurface portion of the hydrologic cycle will be presented. Fluid mechanics, geology, and mathematics will be applied to obtain model equations to simulate ground water flow and exchanges with surface water. Topics include aquifer characterization, Darcy's Law, and the derivation of flow equations for surficial aquifers, confined aquifers, and the unsaturated zone. Methods to analyze the results of pump tests designed to determine conductivity and storage will be developed. Problems associated with ground water resource development such as seawater intrusion, sustainable yields, land subsidence, streamflow depletion, and ground water contamination will be discussed. Simulation with the USGS code MODFLOW will be introduced.

PREREQUISITE: **CEE 7111** - *Introduction to Hydraulic Engineering and Hydrology*, or its equivalent, or permission of the instructor.

INSTRUCTOR: Dr. Arthur L. Baehr abae@usgs.gov
USGS Water Resources Division - New Jersey District

Prospective students may contact the instructor or the Department of Civil and Environmental Engineering 610-519-4960.

Further information on all of the Department's graduate programs is available at:

<http://www.engineering.villanova.edu/ce>

*Instructor/Course Offerings are subject to change.