

GEOG 432/632 Environmental Hydrology Syllabus for Fall Semester 2016

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Fall 2016
Tue/Thu 5:00-6:15 pm
Room 318 Alison Hall

Texts & Resources

Ward, A.O., S. W. Trimble, S. R. Buchard, and J. C. Lyon, 2015. Environmental Hydrology. 615 pp.

Catalog Description

This course reviews the fundamentals and practices of environmental hydrology within the Geography, Environmental Studies/Science, and Water Science and Policy curriculum at the University of Delaware. Students will explore theoretical and applied hydrology processes in the hydrologic cycle including precipitation, infiltration, soil moisture, runoff, and stream processes. This course in environmental hydrology is designed to prepare students for careers in the environmental field in the public, private, and nonprofit sectors. 3 cr.

Course Objectives

This course will enable students to understand design of water systems utilizing principles of the hydrologic cycle.

1. Review fundamentals of the hydrologic cycle including precipitation, runoff, infiltration, and evapotranspiration.
2. Perform open channel flow equations related to stream processes and hydraulic control structures.
3. Understand watershed processes such as sediment budgets, hydrogeology, wetlands, and riparian corridors.
4. Utilize geographic information systems (GIS) for environmental hydrology applications.

Grading

Final grades are based on: (1) participation/homework, (2) mid-term exam, (3) final exam, (4) field project. Quizzes may be given and weekly homework assignments will be given with work due the following Tuesday.

Class Schedule

Aug 30 and Sep 1, 2016 - The hydrologic cycle and watershed management principles

Sep 6 and Sep 8 - Precipitation

Sep 13 and Sep 15 - Infiltration and Soil Water Processes

Sep 20 and Sep 22 - Soil Moisture and Evapotranspiration

Sep 27 and Sep 29 - Runoff and Drainage

Oct 4 and Oct 6 - Stream Processes

Oct 11 and Oct 13 - Open Channel Flow

Oct 18 and Oct 20 - Hydraulic Control Structures (Midterm Exam)

Oct 25 and Oct 27 - Soil Conservation and Sediment Budgets

Nov 1 and Nov 3 - Hydrology of Forests and Wetlands

Nov 8 and Nov 10 - Hydrogeology

Nov 15 and 17 - Human Impacts on Water Resources

Nov 22 and Nov 24 - Thanksgiving Break

Nov 29 and Dec 1 - Geographic Information Systems

Dec 6 and Dec 8 - Case Studies in Environmental Hydrology

Dec 16 - Final Exam (in class) 3:30 - 5:30

Class Format

Learning about is an active process where students participate in class discussions and hands-on exercises. You are encouraged to ask questions regarding any topic. Class participation/attendance for quizzes is recommended and counts for your grade. The course work is rigorous but will prepare you for a career in the environment. The field project will assemble teams of 4-5 students. These groups will function independently during class. For the field project, each group will select an environmental hydrology project and prepare a 10-page design report.