

CE 549 COMPUTATIONAL WATERSHED HYDROLOGY (Fall 2009)

Class Meetings: Tue 11:30 – 1:20 PM in BRNG B275
Fri 9:30 – 10:20 AM in CIVL 2107

Instructor: Venkatesh Merwade

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Office Hours: open door policy (email correspondence is preferred)

Course Objectives

The course is designed to present: (a) hydrologic data and modeling resources in public domain, (b) hydrologic data management and analysis using GIS, (c) hydrologic and hydraulic modeling using GIS

After taking this class, students will be able to learn how to: (i) obtain, process and analyze hydrologic data; (ii) develop commonly used hydrologic and hydraulic models (HEC-HMS and HEC-RAS) for simulating natural processes, flood modeling and inundation mapping; (iii) understand different options available with computer programs and their implications in simulating natural processes; (iv) present and communicate results effectively using ArcGIS visualization tools

Text Book: None. All reading material will be provided by the instructor.

Course Credit

Classroom participation	20%
Homework	20%
Term Project	40%
Exam	20%

Note: Any problems, personal or otherwise, affecting your grade should be brought to the instructor's attention.

Homework Policy

- Homework assignments are due by 5:00 PM on the day assigned. Late homework will be penalized by 50% before the solution is discussed in the class. No credit is given after the solution is discussed.
- Homework must be legible and done on a clean sheet of paper with necessary calculations. Untidy homework submissions will be penalized.

Term Project

There will be one major class project which will be assessed based on students' creativity and skills in using GIS for hydrologic modeling.

Tentative Course Outline

Week	Class	Lab
1	Hydrology Review	Internet sources and downloading of geospatial and temporal data
2		
3	Hydrologic Data	Introduction to ArcGIS; Mapping and analysis of geospatial and temporal data in ArcGIS
4		
5	Hydrologic Modeling	Building a ArcHydro Data Model
6		
7	Term Project Discussion	Terrain processing using ArcHydro
8	Hydrologic Processes and Modeling	Introduction to HEC-GeoHMS; Hydrologic model development using HEC-GeoHMS; Hydrologic simulation using HEC-HMS
9		
10	Hydraulic Modeling	Introduction to HEC-GeoRAS; Hydraulic model development using HEC-GeoRAS; Hydraulic simulation using HEC-RAS
11		
12	Term Project Discussion	Excel and Matlab applications
13	Uncertainty Analysis	
14	Hydrologic Information System	Web Services
15	Project Presentations	Final Exam
16	Project Presentations	

Additional Important Information

Campus Emergency: In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. To get information about changes in this course, you may use any of the following resources: Blackboard Vista web page, my email address (vmerwade_at_purdue.edu) and my office phone: 494-2176.

Students with special needs: are encouraged to visit the staff at the Adaptive Programs division of the Office of the Dean of Students as soon as possible to make necessary arrangements.

More university policies and services for students are available at the Dean of Students website (<http://www.purdue.edu/ODOS/>).

Computer Storage

All the data saved on computers in ITaP labs is deleted after the user logs off. This class requires a minimum storage of 2 GB for class exercise. If you do not have sufficient disk space on your network drive, it is recommended that you buy a flash disk to store and access data needed to complete all computer labs.