ENVE 4810 ENGINEERING HYDROLOGY
Fall 2017

University of Connecticut
Department of Civil & Environmental Engineering

Course Information

Instructor: Guiling Wang; guiling.wang@uconn.edu; CAST 315 (860 486 5648)
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Class Meeting Time: MWF 10:10 - 11:00am, CAST 201

Office Hours: Castleman Room 123: MWF (11am-12noon)
Castleman Room 315: T (9-10am), Th (11am-12 after Sept. 14)
Additional office hours by appointment

References books (recommended, but not required):

1) Applied Hydrology (some selected chapters will be posted in huskyCT)
   Ven Te Chow, David R Maidment, and Larry W. Mays
   McGraw Hill.
2) Intro to Hydrology (eBook by Steve Margulis; pdf file posted in HuskyCT)

Homework: Homework assignments should be turned in by the assigned due date. Discussion or collaboration is allowed and encouraged as that can help the learning process. However, any evidence of direct copying will result in a zero homework grade for all parties involved. Copying from solution manuals will also result in a zero homework grade. Homework will be graded based on effort.

Exams: There will be two mid-term exams and one final exam. Formulae sheet (up to 1 page for mid-term exams and 2 for final) is allowed.

Lab/Field Experiments: This consists three lab and/or field experiments in measurement and analysis of hydrologic processes. Students will conduct guided hydrologic experiments: 1) lab experiment on measurement of precipitation using rain gauges; 2) field infiltration experiment using simple infiltrometer, and 3) streamflow measurement techniques on USGS site in Willimantic river gauging station.

Class Contribution: Class participation is not merely showing up for class. On a regular basis, students will be called upon to help out (e.g., answering a question, reviewing a concept we already covered, …), which will earn them up to 5 bonus points. Details will be explained in class.

Grading:

Homework:	20%
Lab/Field experiments:	5%
Two midterm exams and one final:	25% each

Course Objective: To gain a broad understanding of the main scientific theories and principles governing processes in the hydrologic cycle (precipitation, infiltration, runoff, evapotranspiration etc.), and to be able to quantify major hydrologic components and apply key concepts to several practical areas of engineering hydrology and related design aspects.

Teamwork Matters! You participate in lab and field experiments as part of a team; some homework assignments will be made to teams; you will be called upon to contribute to class discussion as part of a team; there might be other aspects of the class for which you wish to participate in teams (do let me know please). Grading of these elements will be team-based. (**Join a team and name your team**!)

General Course Outline (tentative)

(Chapter and section numbers pertain to the Chow et al. book "Applied Hydrology")

Part I- Hydrologic Processes (Chapters 1, 3-6)

1. Introduction (Chapter 1)
2. Hydrologic Cycle (sec. 1.1)
3. Precipitation (sec. 3.3, 3.4, sec 6.2)
4. Evapotranspiration (sec. 3.5, sec 6.2)
5. Infiltration (sec. 4.2, sec 4.3, sec 6.2)
6. Streamflow (sec 5.1, 5.2, sec 6.2)

Part II- Hydrologic Statistics and Analysis (Chapters 1, 7, 11, 12)

1. Concept of probability in hydrology
2. Hydrologic frequency analysis
3. Rainfall – runoff analysis
4. Unit hydrographs (sec 7.3, 7.4, 7.5)

Part III- Hydrologic routing (Chapter 8, 9, 10)

1. Hydrologic and hydraulic routing
2. Hydrologic River Routing
3. Hydrologic Reservoir Routing
4. Computation of peak flow from precipitation

Part V- Hydrological Design (Chapter 13, 14 and 15)

1. Design storm
2. Design floods