

CEE 424 – Applied Hydrology UHM, Spring 2017	
Course Description:	Study of hydrologic cycle, atmospheric composition, radiation processes, precipitation processes, unsaturated flow and infiltration, groundwater flow and well hydraulics, and runoff and streamflow.
Goals of the Course:	To obtain a thorough understanding of surface water and groundwater hydrology
Class Time:	MWF, 9:30-10:20 am, KUY 210
Instructor:	Dr. Sayed M. Bateni, 342 Holmes Hall smbateni@hawaii.edu
References:	1. Introduction to Hydrology, Steve Margulis, You can download the book via the following link: http://aqua.seas.ucla.edu/margulis_intro_to_hydro_textbook.html 2. Introduction to Hydrology, Warren Viessman and Garry Lewis 3. Applied Hydrology, Chow et al.
Grading:	Homework (Problem sets): 35% Midterm Exam: 30% Final Exam: 35%

Homework: Students are encouraged to share ideas and skills and to discuss freely the principles and applications of course materials. However, graded work must be the product of independent student effort (i.e., the work you turn in must be your own). Neatness and clarity are essential for conveying technical information.

Lecture Topics

Topics

- Introduction to the Hydrologic Cycle
- Atmospheric Composition and Thermodynamics
- Radiation Processes
- Atmospheric Circulation
- Precipitation Processes
- Unsaturated Flow and Infiltration
- Grounwater Flow and Well Hydraulics
- Runoff and Streamflow

Order and time spent on each subject may change as we progress through the semester

Class Attendance, Participation, and Expectations

Students are expected to be in class and be on time. Material on the exams will be taken from the notes, readings, and homework assignments, so it is expected that you are attending class and taking thorough notes. **If you miss a class, you should get notes from a classmate.** Class participation is welcomed. If you have any comments/questions about relevant topics you read in the newspaper or hear on radio/television, talk to us about it, as it may be useful or interesting for the class.

Homeworks

Weekly homework problems sets will be assigned as shown below and are due at the beginning of class. These assignments are designed to cement your basic understanding of the principles covered in class and provide practical experience in solving problems. The easiest way to learn the material and do well in this class is to do the homework assignments. Homework assignments are given a significant weight in the grading so that you will do them, which will in turn prepare you to do well on the exams, but most importantly prepare you to be a good hydrologist. It is important that you get an early start on the homework assignment so that you can take advantage of help provided during office hours.

Homework must be completed in a neat, clear, and professional manner. It is your responsibility to make it easy for the grader to follow your work. Putting the time into

your homework will pay off when you are studying for your exams and develop habits that will pay off during your career. Along these lines, some points to consider when creating your homework solutions:

- Start each homework problem on a new page and/or make sure the problem numbers are labeled clearly and ordered appropriately. It makes correcting it a lot easier.
- Problem Statement- Summarize the key variables/parameters that are given and what you are trying to find.
- Formula and Constants Used- Include source reference, e.g., notes, text, table, equation number, etc. as appropriate.
- Diagram – Where appropriate provide a simple diagram or schematic of the problem.
- Calculations – Present in a neat, clear fashion. If you are presenting a spreadsheet for the calculations, you should provide at least one hand calculation with your submittal. This provides a check on the spreadsheet and provides you with a record of what you did for the exams and future use.
- MATLAB code – Any code that you write for your solution should be handed in. Code that is provided to you (i.e., models) does not need to be handed in.
- Requested graphs and plots must be done with a professional software package (Excel, MATLAB, etc.). No freehand sketching or drawing of lines. Label all axes including units.
- Solution and Results – Underline them or “box” them so they can be easily found. Make sure the answer include appropriate units; make sure the answer is expressed with a precision consistent with the data and the problem assumptions.

Exams

The exams will be based on the material covered in lectures, readings, and homework assignment. One midterm exam and a final exam will be given during the semester. The midterm and final exams will test both your conceptual and understanding of the material as well as your problem solving skills (with problem similar to those in the homework assignments). ***For your midterm exam, you are allowed 2 equation sheets (i.e., 4 sides front/back). For the final exam, you are allowed 4 equations sheets (i.e.,***

8 sides front/back).

Course Grading

The grading basis (percentage used to compute the total grade) for this course is as follows: Homework: 35%, Midterm Exam: 30%, and Final Exam: 35%.

Questions

If you have questions about lecture material or any assignment you are strongly encouraged to seek me out for help. I want you to do well in the class and am happy to help. Beyond seeking basic clarification, email is generally inefficient for answering substantive questions about homework problems and therefore will not be used for addressing those types of questions. Instead, you should come see us during office hours. If our office hours do not fit into your schedule, feel free to set up an appointment.