EAS 303: Hydrology
Course Syllabus, Fall 2010

	Course Protocol
Instructor:	Dr. Kyle Fredrick
Office:	Eberly Hall 267
Office Hours:	MT 12-1pm, W 8-9am, RF 10-11am
Phone:	(724) 938-4463
Email:	fredrick@calu.edu
Meeting Times:	TR 3:30-4:45pm
Location:	Eberly Hall 255
Prerequisites:	EAS 100, 131 or 150
Credits:	3

Objectives

Hydrology is a survey course relating to the existence of water on Earth. Topics include the occurrence and movement of water, physical and chemical characteristics of water, and climatologic and geologic considerations of surface and subsurface water.
At the conclusion of this course the student will be able to:

1. Describe the occurrence and distribution of water in the hydrosphere, atmosphere, lithosphere, and biosphere;
2. Interpret climographs, hydrographs, flow duration graphs, and flood frequency curves and other graphs used in hydrologic analysis;
3. Infer some physical constraints affecting the flow of water on the earth's surface and through the subsurface from landform, bedrock, climate, and surficial cover considerations;
4. Conduct chemical water quality tests, flow measurements, and streamside assessments of stream water.

Reading Materials

Ward, Andy D. and Trimble, Stanley W., *Environmental Hydrology* (Second Edition), Lewis Publishers, 2004.

Other Requirements

Desire2Learn (or D2L) will be a secondary tool of the course. Students should familiarize themselves with D2L and its utilities. Your CALU IT account information will allow you to access the software used for this class. Desire2Learn can be accessed online at http://www.calu.edu/, found under QuickLinks. If you cannot access Desire2Learn by the end of the first week, please let me know by the first Monday of the course (9/6).

You should also have access to a computer with Microsoft Excel. We will be using this program at times during the semester. Most (if not all) university computers have this program loaded.

Elements of the Course

The course content can be divided into three main components from which your grade will be compiled.

Lectures and reading will be used to present basic concepts, develop a foundation for homework, and provide you with an understanding of hydrological science. Your comprehension of this material will be reinforced with assignments and labs, and assessed during exams.

Homework, In-class assignments, and Problem sets will encompass additional work that is assigned for completion during and outside of class-time. I have expectations for the *presentation* of your work (clarity, legibility) as well as your demonstration of effort. Your grade on homework will include your ability to communicate clearly and neatly through written (or typed) work. ***In-class assignments*** will include calculations and hands-on applications of the principles we cover in lecture. You will have the opportunity to work with some of the tools and materials that hydrologists use every day. In-class assignments **cannot** be made up, so failure to attend will mean forfeiture of the points available from that experience. **Problem sets** will include problems and applications regarding the processing of hydrologic data. Everything you do will be graded, so it is to your advantage to attend every class. Missing class is not an excuse for missing assignments.

Labs will include hands-on applications of the principles we cover in lecture. You will have the opportunity to work with some of the tools and materials that hydrologists use every day. Attendance for class is IMPLICIT and considered **mandatory.** Labs, generally, cannot be made up. UNLESS you have made prior arrangements with the instructor regarding your missing of a lab day, failure to attend will mean forfeiture of the points available from that day's work.

We WILL be going outside for lab on a few occasions. On those days (you will be notified ahead of time), you are expected to wear appropriate clothing. You must wear close-toed, low-heeled, sturdy shoes. You must be prepared for inclement weather (rain, cold, wind, etc.). You should expect the possibility you may get dirty. Clipboards are commonly an effective tool in the field and you would be well-advised to purchase one for this class. On multiple occasions, we will be WALKING to a field site off-campus. Safety is my main concern. Be extremely cautious walking and working along roads and streams.

Accessibility

Students with special needs have a **right** to, and should **expect**, full access to this course. I will make any arrangements necessary to meet documented special needs. I must have sufficient advance notice to make these arrangements, however, so, when appropriate, please make me aware of circumstances as soon as possible.

- **Accommodations for Students with Disabilities**
  - Students with disabilities:
    - Reserve the right to decide when to self-identify and when to request accommodations.
    - Will register with the Office for Students with Disabilities (OSD) each semester to receive accommodations.
    - Will present OSD Accommodations Approval Notice to faculty when requesting accommodations.
    - Might be required to communicate with faculty for accommodations, which specifically involve the faculty.
  - Office for Students with Disabilities
    - Requests for approval for reasonable accommodations should be directed to OSD. Approved accommodations will be recorded on the OSD Accommodation Approval notice and provided to the student. Students are expected to adhere to OSD procedures for self-identifying, providing documentation, and requesting accommodations in a timely manner. The OSD is located in the Azorsky Building- Room 105 and the phone number is (724) 938-5781.
- **The Counseling Center** (Carter Hall, 724-938-4056) is also available to provide students with counseling or assistance during difficult times.
- California University of Pennsylvania encourages you to seek the academic collaboration available to you to demonstrate your best work. Students who would like to enhance their study skills, writing skills, or have any academic inquiries should find resources to assist them through one of the many offices on campus. To find a specific office or student service, refer to the office directory or go to http://www.cup.edu/current/index.jsp on the web and search under Academic Success Resources.

Disruptive Behavior

Cell phones, personal entertainment devices, and out of turn conversations are unacceptable in the classroom. I reserve the right to confiscate these devices and/or ask the offending student to leave. Additionally, disruptive behavior of any kind will not be tolerated. A breach of course policies may impact your grade.

If a student behaves in a disruptive or threatening manner, I will exercise my right to ask that individual to leave the classroom. If refused, I will notify the University Police.

The following are some important rules and responsibilities of the course:

1. **Cell phones and personal entertainment devices will not be tolerated if visible OR audible.** No headphones or cell phones on desks, and cell phones must be turned to Manner Mode (vibrate). A violation of this policy will result in ONE warning. Subsequent violations will incur a 3% deduction for your semester total. An offending student may or may not be identified during the class period; however, penalties will be updated to the Desire2Learn gradebook, under Course Infractions.

2. You are strongly encouraged to attend class regularly and arrive on time. In addition to any in-class assignments, you will be missing out on important content and logistical information that often cannot be made up. In the event that you arrive late to class, please be courteous to the instructor and your classmates. Enter quietly, find a seat quickly and as near as possible to the door.
3. Students using lap-top computers MUST sit in the front row center of the room during lecture periods.
4. Students may be asked to remove caps, hats, hoods, or sunglasses during class times.

Academic Misconduct

All students are expected to display honesty and integrity in completing course requirements and college academic regulations. Academic misconduct refers to plagiarism or cheating on examinations or assignments, and is inconsistent with the aims and goals of California University of Pennsylvania. Specifically, students may neither use the work of another individual without proper acknowledgment nor perform work for another individual. Other examples of inappropriate academic conduct include prior acquisition or possession of an examination or submission of false data. A low or failing grade for part or all of the coursework may be given to the student at the discretion of the instructor. No penalty for an alleged instance of academic misconduct may be imposed unless the student has been apprised of the allegation.

Expectations

- I expect that you will give a reasonable effort throughout the course. This relates to your pace of work and participation in class. I also expect that the presentation of your work and your preparation for exams reflects the **standards for university-level, upper-division course work**. This course is meant to be challenging and meaningful and your full engagement will help to make it more enjoyable. Please ask questions if a topic or assignment is unclear at the time of presentation.
- It is my assumption that you will check your campus email at least every other day. Failure to do so may cause you to miss important updates. Email correspondence MUST include a subject line, a salutation, reasonable grammar, punctuation, and spelling, and a signature. I will not respond to emails that do not satisfy this requirement.
- This course may present new challenges related to physical and mathematical concepts. It is imperative that you leave behind your fears or aversions to those subjects (read: MATH) in order to succeed.

Grading

Only work assigned and graded by the instructor of record, or his designee, will be used to determine your final grade. **Late work will NOT be accepted.** Failure of all three exams (a score below 63%) will result in the grade of F for the course. For purposes of grading, assignments will be weighted as follows:

Component	Percentage of Final Grade
Homework/Problem sets/Labs	52%
Exams	48%

Grades will be figured numerically and converted to a letter grade at the end of the semester using the scale below. You have until the end of the following semester to appeal a final grade.

A	>93.0	**B+**	87.0-89.9	**C+**	77.0-79.9	**D**	63.0-69.9
A-	90.0-92.9	**B**	83.0-86.9	**C**	73.0-76.9	**F**	<62.9
		B-	80.0-82.9	**C-**	70.0-72.9		

EAS 303 Course Schedule*

(*This schedule is subject to change; refer to Desire2Learn throughout the semester.)

Day	Date	Lecture Topic	Reading
Tues	8/30	Course Introduction, Syllabus review	
Thurs	9/2	Introduction to Hydrology and the Hydrologic Cycle	Ch. 1
Fri	9/3	**Last day to drop**	
Tues	9/7	Hydrologic Cycle, Systems and Balance	
Thurs	9/9	**No Class, Instructor Travel**	
Tues	9/14	Atmospheric Water and Precipitation	Ch. 2
Thurs	9/16	Weather, Storms and Climate	
Tues	9/21	Measurement of Precipitation and Snow	
Thurs	9/23	Evaporation and Evapotranspiration, Measuring ET	Ch. 4
Tues	9/28	Global Energy Balance, Coriolis Effect and Weather	
Thurs	9/30	**Exam 1**	
Tues	10/5	Infiltration	Ch. 3
Thurs	10/7	Soil Water and Vadose Zone processes	
Tues	10/12	Runoff and Surface Drainage	Ch. 5
Thurs	10/14	Hydrographs	
Tues	10/19	Hydrographs	
Thurs	10/21	Stream Flow	Ch. 6
Tues	10/26	Streams and Sediment, Soil Erosion and Denudation	Ch. 9
Thurs	10/28	Open Channel Flow	Ch. 7

Tues	11/2	Channel Modifications and Impacts	Ch. 8
Thurs	11/4	**Exam 2**	
Tues	11/9	Catchment Hydrology	Ch. 10
Thurs	11/11	Forests and Wetlands	
Tues	11/16	Watershed Modeling	Ch. 10
Thurs	11/18	Hydrogeology	Ch. 11
Tues	11/23	Hydrogeology and Groundwater Modeling	
Thurs	11/25	**Thanksgiving Recess – No Classes**	
Tues	11/30	Water Chemistry	
Thurs	12/2	Water Chemistry	
Tues	12/7	Humans and Impacts to the Hydrologic Systems	Ch. 12
Thurs	12/9	**Exam 3**	
Final Exam, 10:00-11:50am, Thursday, December 16			

It is my intention that we will have at least one outdoor experience during the semester. You will be given advance notice of these days, and you will be responsible for dressing appropriately in the case of rain, snow, wind, or muddy conditions.