SYLLABUS
CE/HAS 423/523 HYDROLOGY

Spring 2019

Lectures: TR 6:30-7:45 pm CE 201

Description of Course

This course is designed to enable the student to learn the fundamental laws of surface water hydrology and how to apply these laws in hydrologic design and analysis. The class will consist on discussion and analysis of major topics of the hydrologic cycle and their interrelationships, such as rainfall, infiltration, evaporation, and runoff. Statistical and probabilistic methods in water supply and flood hydrology will also be taught.

Course Prerequisites

CE 218 – Fluid Mechanics

Instructor and Contact Information

Instructor: Evan Canfield
Email hecanfield@email.arizona.edu

Office Hours: MW 4:00-5:30 PM

Adjunct Office next to Civil Engineering Offices

Course Format and Teaching Methods

Lecture, in-class discussion, homework, projects, web-delivered content, group problem solving sessions.

Course Objectives and Expected Learning Outcomes

1.) Students will be able to apply the most common hydrologic engineering methods in surface water hydrology, including those most commonly used in event-based hydrologic models in Arizona.

2.) Students will be able to quantify the components of a hydrologic budget, especially as they are used in continuous simulation models.

3.) Students will be capable of answering hydrologic engineering questions on the *Fundamentals of Engineering* and *Professional Engineering* Exams.

Makeup Policy for Students Who Register Late

Students who register late will be required to do the assigned reading and homework within a timeframe agreed upon with the instructor.

Course Communications

Communication will occur via the class website:

https://d2l.arizona.edu (follow instructions to the CE423/523 site)

Expectations for Class Conduct Consistent with University of Arizona Policy And Applicable to CE 423 are included in the Attachment

Main References:

Mays, L. ***Ground and Surface Water Hydrology***, 1st ed., J. Wiley, 2012

Additional References:

Ponce, V.M. ***Engineering Hydrology – Principals and Practices***, 1989
Haan, C.J. Barfield, B.J. and Hayes, J.C. ***Design Hydrology and Sedimentology for Small Catchments***, Academic Press, 1994
Maidment, D.R. (editor) ***Handbook of Hydrology***, McGraw Hill, 1993

Other references to be posted on D2L.

Required or Special Materials

Students will require access to a spreadsheet program and a flash drive.

Grading Scale and Policies

Standard Grading Scale Will Apply. The Instructor may choose to apply a curve on tests.

A – 90%
B – 80%
C – 70%
D – 60%
< 60%

423

Tests (2)	25% each
Projects (3)	10% each
Homework	20% (~10 assignments)

523

Tests (2)	20% each
Projects (2)	20% each (first two as CE 423)
Homework	20% (~10 assignments)
Graduate Hydrologic Design Project	20%

Graduate-level requirements include a project paper for the Graduate Hydrologic Design Project with a concept agreed with the instructor by February 1

Homework assignments will be posted at D2L site most Thursdays and will be due on the following Thursday **at the start of class**. Late assignments will be accepted at 50% credit up to the test that covers the assigned material.

Projects are due at midnight of the specified date, and will be accepted at 50% credit if late.

Tests will be open book. Students may work with others on homework, but not projects.

Final Test: Currently May 7 from 8:30 to 10:30, may occur April 30 if class progresses adequately.

Final Project: Due May 7, 2019 at midnight.

Tentative Schedule

1. ***Introduction: Hydrology, Climate Change and Sustainability (Chapter 1)***
    - Jan 10 to Jan 17 (3 classes)
2. ***Hydrologic Processes (Chapter 7)***
    - January 22 to February 5 (4 classes)
        - Introduce precipitation project (due mid-Feb)
3. ***Surface Runoff (Chapter 8)***
    - February 7 to February 22 (5 classes)
        - Introduce runoff project (due after Spring break)

Test Chapters 1-3
Review February 26
Test February 28

Spring Break March 2 to 10

4. ***Reservoir and Surface Routing (Chapter 9)***
    - March 12 to 21 (4 classes)
5. ***Probability, Risk and Uncertainty Analysis (Chapter 10)***
    - March 26 to April 4 (4 classes)
6. ***Hydrologic Design (Chapter 11)***
    - April 4 to April 25 (6 classes)
        - Introduce Hydrologic Design Project (due May 7)

Test Chapters 9-11
Review April 30
Test (May 7 final - Could be moved to April 30 if class progresses quicker)

Attachment –
Expectations for Class Conduct Consistent with University of Arizona Policy
And Applicable to CE 423

Absence and Class Participation Policy

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at: http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, http://policy.arizona.edu/human-resources/religious-accommodation-policy.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: https://deanofstudents.arizona.edu/absences

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is required at all lectures and discussion section meetings. Students who miss class due to illness or emergency are required to bring documentation from their health-care provider or other relevant, professional third parties. Failure to submit third-party documentation will result in unexcused absences.

Classroom Behavior Policy

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Threatening Behavior Policy

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students.

Accessibility and Accommodations

At the University of Arizona we strive to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, you are welcome to let me know so that we can discuss options. You are also encouraged to contact Disability Resources (520-621-3268) to explore reasonable accommodation.

If our class meets at a campus location: Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

Code of Academic Integrity

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity.

UA Nondiscrimination and Anti-harassment Policy

The University is committed to creating and maintaining an environment free of discrimination; see http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

Additional Resources for Students

UA Academic policies and procedures are available at http://catalog.arizona.edu/policies

Student Assistance and Advocacy information is available at http://deanofstudents.arizona.edu/student-assistance/students/student-assistance

Final Examination Regulations

https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information

Confidentiality of Student Records

http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete and http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal respectively.

Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.