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**UNIVERSITY OF TEXAS AT ARLINGTON**

**COLLEGE OF ENGINEERING**

**DEPARTMENT OF CIVIL ENGINEERING**

Arlington, Texas 76019

**CE 3342: Water Resources Engineering**

Spring 2018

**Instructor:** Yu Zhang, Associate Professor

**Office Location:** Room 427, Engineering Research Building

**Office Telephone Number:** 817-272-1874

**Email Address:** yu.zhang@uta.edu

**Faculty Profile: https://mentis-test.uta.edu/profile/export/export/id/6123?format=print**

**Office Hours:** 11:00 am – 12:00 am, Mon and Wed, 3-4pm, Tuesday, and by appointment

Students are encouraged to utilize the scheduled office for Q&A. Other time slots are available by appointment.

**TA:** Amin Daghighi

**TA Office Hours/Location:**

**Section Information:** 001, 101 (Combined into 001 on Blackboard)

**Time and Place of Class Meetings:** 10:00-10:50 am, Mon, Wed, Fri; NH 106

**Description of Course Content:** CE3342 - Water Resource Engineering (3 - 0)Hydrologic cycle, water balance analysis, rainfall estimation, design storm, infiltration and runoff, unit hydrograph, groundwater flow, reservoir routing, hydrologic modeling, floodplain and frequency analysis. The class will be a combination of lectures, problem solution sessions, and guest lectures.

**Prerequisite:** CE 3309, or permission from instructor

**Student Learning Outcomes:** Upon completion of this course, students should be able to understand:

* Water resources engineering: application areas and
* Key elements of hydrologic cycle
* Rainfall-runoff processes and modeling tools
* Basic groundwater hydrology
* Reservoir and river routing
* Flood frequency and relevance to design
* Floodplain definition and basic management strategy

**Textbook and Course Materials:**

**Water Resources Engineering, Larry W. Mays, 2nd Ed., John Wiley & Sons, Inc. ISBN : 978-0-470-46064-1**

Other references will be added as necessary.

**Descriptions of major assignments and examinations with due dates:** There will be two mid-term exams and the final exam. Students will be required to complete a term project.

**Attendance:** Attendance for all class sessions is expected but will not be taken.

**Grading**:

90-100% A

80-90% B

70-80% C

60-70% D

<60% F

Course grading structure

Homework 30%

1st Mid-Term Exam 20%

2nd Mid-Term Exam 20%

Final Exam 30%

The instructor reserves the right to adjust the grade distribution, policy and structure. Any concerns about scores on individual assignments, tests or projects must be brought to the attention of the instructor within 5 days from the day that the score was returned to the student. After 5 days, scores are closed to discussion.

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/>).

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Title IX:** The University of Texas at Arlington is committed to upholding U.S. Federal Law “Title IX” such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit [www.uta.edu/titleIX](http://www.uta.edu/titleIX).

**Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located toward either end of the hallway. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

**Student Support Services**: [Required for all undergraduate courses] UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at [www.uta.edu/resources](http://www.uta.edu/resources).

**Course Schedule**

**(tentative)**

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| --- | --- | --- | --- | --- |
| Week | Dates | Lecture Topic | Reading | Problem Session |
| 1 | Jan 17, 19 | Introduction, water system and sustainability | Ch 1 and 2 |  |
| 2 | Jan 22,24,26 | Hydrologic cycle, Review of basic fluid concept | Ch 3 | 1 |
| 3 | Jan 29, 31. Feb 2 | Groundwater Flow | Ch 6 |  |
| 4 | Feb 5,7, and 9 | Groundwater Flow | Ch 6 | 2 |
| 5 | Feb 12, 14, 16 | Hydrologic processes, precip and ET  **Mid-term 1** | Ch 7 |  |
| 6 | Feb 19,21,23 | Precip and ET | Ch 7 | 3 |
| 7 | Feb 26, 28, Mar 2 | Rainfall-runoff modeling | Ch 8 |  |
| 8 | Mar 5,7, 9 | Rainfall-runoff modeling | Ch 8 | 4 |
| 9 |  | Spring Break |  |  |
| 10 | Mar 19, 21 and 23 | Reservoir and river routing  **Mid-term 2** | Ch 9 |  |
| 11 | Mar 26, 28 and 30 | Reservoir and river routing | Ch 9 | 5 |
| 12 | Apr 2, 4 and 6 | Probability and risk | Ch 10 |  |
| 13 | Apr 9, 11, and 13 | Frequency analysis | Ch 10 | 6 |
| 14 | Apr 16, 18, 20 | Floodplain analysis | Ch 14 |  |
| 15 | Apr 23,25, 27 | Floodplain analysis | Ch 14 | 7 |
| 16 | Apr 30, May 1 | Review |  |  |
| 17 | May 9 | **Final Exam** |  |  |

**Emergency Phone Numbers**: [Optional but strongly recommended] In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911.