

The University of Texas at El Paso
Department of Civil Engineering
Syllabus

COURSE INFORMATION

CE 6313 - Water Resources Management

CRN: 27208

Term: Spring 2024

Delivery Method: In-person

Meeting Day and Time: Mondays, 4:30 pm – 5:50 pm; 6:00 to 7:20

Location: Classroom Building C301

INSTRUCTOR INFORMATION

Alex Mayer, Professor of Civil Engineering

Written Communication: amayer2@utep.edu

Phone Number: (915) 747-8669

Office Location: Engineering Building, Room A221

Office Hours: By appointment only, in person or virtual through Zoom or Teams

COURSE DESCRIPTION

This course will introduce the planning, design, and operation of water resources systems using mathematical optimization methods and models. The student will learn to apply engineering economic and microeconomic analysis and operations research techniques and will apply them to various water resource problems. Topics will include:

- planning and management issues; institutional objectives and constraints; identifying and evaluating design and management alternatives; role of modeling and its advantages and limitations.
- economic analysis: application of engineering and microeconomic analysis in water resources infrastructure planning and management.
- optimization modeling: types of models, solution methods and applications to water resources infrastructure planning and management.
- political, social, cultural dimensions of water management; value of water beyond economics

The schedule of class topics, homeworks, and exams is on the class Blackboard site.

COURSE OBJECTIVES AND UNIVERSITY LEARNING OUTCOMES

At the end of this course, students will be able to:

- develop and solve various types of optimization models of water resources planning and management problems
- understand the advantages and limitations of various types of modeling methods and algorithms
- understand and appreciate how models have been and can be used in planning and management decision-making processes
- understand and critically evaluate literature in water resources systems engineering
- understand the social, economic, political, and cultural complexity of water resources systems

REQUIRED MATERIALS

- (1) Loucks, Daniel P.; van Beek, Eelco; Stedinger, Jerry R.; Dijkman, Jozef P.M.; Villars, Monique T. 2017. Water Resources Systems Planning and Management: An Introduction to Methods, Models and Applications, Deltares, UNESCO-IHE, Springer, Paris, 2005. Available free online: <https://ecommons.cornell.edu/handle/1813/48159>
- (2) McKinney, D.L., 2011, Chapter 2. Economic Analysis of Water Resources and Savitsky (Lecture Notes). Available on Blackboard.

ASSIGNMENTS AND GRADING

The basis of grading for this course will consist of the following components with the indicated weights:

Exam 1:	17%
Exam 2:	17%
Homework:	66%

Grade Ranges - Letter grades will be assigned as follows:

A	90 - 100%
B	80 - 89%
C	70 - 79%
D	60 - 69%
F	< 60%

Homework: Twelve homeworks, each worth 100 points, will be assigned. The assignments will be assigned by the instructor and due on the date for the assignment on Blackboard. The schedule of class topics, homeworks, and exams is on the class Blackboard site.

Most of the homework assignments will be individual assignments, as opposed to group assignments. The individual homework assignments that you turn in are intended to represent your own work. I encourage you to work together in terms of understanding problems and helping each other learn the material, but the actual work should be yours alone. In a few cases, you will work on assignments in small groups and will be graded as a group.

Late homework assignments will be penalized 20% per day late. Once a homework assignment has been graded and returned, no further homework will be accepted for that assignment. Most assignments will consist of mathematical problems and will be graded based on solution procedure, numerical results, and clarity. Other types of assignments will come with specific grading rubrics.

Homework assignments will be submitted for grading via Blackboard. **The submission should consist of a single file or document** (pdf, Word, etc.). I strongly suggest that you submit your work with plenty of time to spare if you have a technical issue with the course website, network, and/or your computer. If you are experiencing difficulties submitting your work through the course website, please contact the UTEP Help Desk. You can email me your documents as a last resort.

Exams: Two exams will be given during the term. There is no final exam. The exams will cover the material leading up to the exam day. Exams will be held during class periods. Exam dates are posted on the class schedule and will be announced in class. Students are responsible for informing the instructor ahead of time of any conflict with this schedule so that, if possible, alternative dates can be agreed upon by the class. Makeup exams will only be given in the case of a documented emergency.

TECHNOLOGY REQUIREMENTS

Most course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

You will need to have access to a computer/laptop that you can bring to class to work on problems. You will need to download or update the following software: Microsoft Office, Adobe Acrobat Reader, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course.

If you do not have word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP's Microsoft Office Portal. Click the following link for more information about [Microsoft Office 365](#) and follow the instructions.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP [Help Desk](#) as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

COURSE COMMUNICATION:

Office Hours: Please contact me if you want to discuss any aspect of the course, please email me with your availability and we can schedule an in-person meeting in my office or a virtual meeting. For virtual meetings, I will send you a Zoom or Teams link.

Email: UTEP e-mail is the best way to contact me (amayer2@utep.edu). I will make every attempt to respond to your e-mail within 24 hours of receipt. When e-mailing me, be sure to email from your UTEP student e-mail account and please put the course number in the subject line.

Announcements: Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

ATTENDANCE AND PARTICIPATION

Our class meetings are in-person Mondays, 4:30 pm – 5:50 pm; 6:00 to 7:20 in Classroom Building C301, beginning January 17 through May 1.

Attendance in the course is determined by participation in the learning activities of the course. Your participation in the course is important not only for your learning and success but also to create a community of learners. Participation is determined by the completion of the following activities:

- Reading/Viewing all course materials to ensure understanding of assignment requirements
- Participating in engaging discussions with your peers
- Working on problems in class with your peers
- Other activities as indicated in the weekly modules

Because these activities are designed to contribute to your learning each week, they cannot be made up after their due date has passed.

ILLNESS PRECAUTIONS

Please stay home if you have symptoms of a communicable illness. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations.

EXCUSED ABSENCES AND/OR COURSE DROP POLICY

According to UTEP Catalog, “At the discretion of the instructor, a student can be dropped from a course because of excessive absences or lack of effort. A grade of “W” will be assigned before the course drop deadline and a grade of “F” after the course drop deadline.” See Policies and Regulations in the UTEP Undergraduate Catalog for a list of excuse absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24 hours advance notice via email.

DEADLINES, LATE WORK, AND ABSENCE POLICY

Homework assignments will be assigned by the instructor and due on the date posted on Blackboard. Late homework assignments will be penalized 20% per day late. Once a homework assignment has been graded and returned, no further homework will be accepted for that assignment.

MAKE-UP WORK

Make-up work will be given *only* in the case of a *documented* emergency. Note that make-up work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss an assignment and the reason is not considered excusable, you will receive a zero. It is therefore important to reach out to me—in advance if at all possible—and explain with proper documentation why you missed a given course requirement. Once a deadline has been established for make-up work, no further extensions or exceptions will be granted.

ALTERNATIVE MEANS OF SUBMITTING WORK IN CASE OF TECHNICAL ISSUES

I strongly suggest that you submit your work with plenty of time to spare in the event that you have a technical issue with the course website, network, and/or your computer. I also suggest you save all your work (answers to discussion points, quizzes, exams, and essays) in a separate Word document as a backup. This way, you will have evidence that you completed the work and will not lose credit. If you are experiencing difficulties submitting your work through Blackboard, please contact the UTEP Help Desk. You can email me your backup document as a last resort.

INCOMPLETE GRADE POLICY

Incomplete grades may be requested only in exceptional circumstances after you have completed at least half of the course requirements. Talk to me immediately if you believe an

incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

ACCOMMODATIONS POLICY

The University is committed to providing reasonable accommodations to students with documented disabilities. Students who become pregnant may also request reasonable accommodations, in accordance with state and federal laws and regulations and University policy. Accommodations that constitute undue hardship are not reasonable. To make a request, please register with the UTEP Center for Accommodations and Support Services (CASS). Contact CASS at 915-747-5148, email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

SCHOLASTIC INTEGRITY

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

GUIDANCE ON ARTIFICIAL INTELLIGENCE

Use of AI technologies or automated tools, particularly generative AI such as [ChatGPT](#) or [DALL-E](#), is **only allowed with approval from the instructor BEFORE being used**. Without permission, you will be expected to think creatively and critically to complete assignments without assistance from these tools. Use of AI technologies or automated tools, particularly generative AI such as [ChatGPT](#) or [DALL-E](#), is **not allowed if not allowed with approval from the instructor** or assignments in this class. Each student is expected to use critical and creative thinking skills to complete tasks and not rely on computer-generated ideas. Any direct use of AI-generated materials submitted as your own work will be treated as plagiarism and reported to the Office of Student Conduct and Conflict Resolution (OSCCR).

If given permission to use any of these tools, students must properly cite and give full credit to the program used upon submission of every relevant assignment. For example, text generated using ChatGPT must be cited:

Chat-GPT(version). Date of query (year/month/day). "Text of your query."
Generated using OpenAI. <https://chat.openai.com/>

A short paragraph describing how the tool(s) was/were used for the assignment must also be included.

PLAGIARISM DETECTING SOFTWARE

Some of your course work and assessments may be submitted to SafeAssign, a plagiarism detecting software. SafeAssign is used to review assignment submissions for originality and will help you learn how to properly attribute sources rather than paraphrase.

COURSE RESOURCES: Where you can go for assistance

UTEP provides a variety of student services and support. Please refer to the QR code below for a listing of campus resources.

