Department of Civil Engineering
University of Texas at El Paso

CE 6313 - Water Resources Managementt (ONLINE)

CRN: 12345
Fall 2020
3.000 Credit hours
3.000 Lecture hours

Lecture Zoom link

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Office Hours: Virtually via Zoom, T, W, R 12-1pm

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 micro economic analysis are used 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 diemsnions of watr management; value of water beyond economics

COURSE OBJECTIVES
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

LEARNING MODULES
This course is designed on Blackboard using a modular format. Each week is packaged so that all the materials, lecture notes, homeworks, and project components are contained in one Blackboard module for a given week.

REQUIRED TEXT
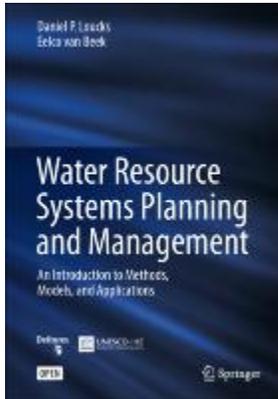
Loucks, Daniel P.; van Beek, Eelco; Stedinger, Jery R.; Dijkman, Jozef P.M.; Villars, Monique T. 2017. Water Resources Systems Planning and Management: An Introduction to Methods, Models and Applications, Deltares, UNESCO-IHE, Springer, Paris, 2005. Available free online: https://ecommons.cornell.edu/handle/1813/48159

COURSE 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:	32%
Project:	34%

Grade Ranges - Letter grades will be assigned as follows:

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

Homework: Eleven homeworks, each worth 100 points, will be assigned. The assignments will be assigned by the instructor and due on the date posted in the "assignments" page of the course website or as modified from time to time by the instructor. The homework assignments that you turn in are intended to represent just 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. 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. Assignments will be graded based on solution procedure, numerical results, clarity, and appearance of the report.

The instructor may assign a failing grade to any student not turning in 75% of the homework assignments for this course. Homework assignments will be submitted for grading via Blackboard. 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. If you are experiencing difficulties submitting your work through the course website, please contact the UTEP Help Desk. You can email me your documenst 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 review 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 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.

The midterm exams will make use of Respondus Lock Down Browser and Respondus Monitor inside of Blackboard to promote academic integrity. You are encouraged to learn more about how to use these programs prior to the first test.

Please review the following guidelines for the exams:
- The exams will be closed book and closed notes, except for one (1) printed (hard copy)8.5 x 11 in page, which you will be required to show at the beginning of the exam.
- Calculators may be used on the exam.
- Cell phones are not allowed to be used during the exam period.
- A reliable Internet connection is essential to completing the exam. If you must go to a location to take the exam (such as the library), be sure to follow their health and safety requirements.
- Respondus Lockdown Browser will require that all internet tabs are closed prior to the start of the test.
- Respondus Monitor requires a webcam and microphone.
- You will be required to show the webcam your student ID prior to the start of the test.
- Your face should be completely visible during the test. Blocking the camera will disable the test.
- Respondus Monitor requires you to take a video of your surrounding area (desk, chair, walls, etc.)
- You should not have conversations with other people and/or leave and return to the area during the test.

Project: During the semester each student will work on a project dealing with water resources planning and management. See the Project Guidelines document on the class Blackboard site for details.These projects will deal with some aspect of a real, complex water resources planning and analysis issue of current interest to the world, nation, or region. Students will work in teams. The projects typically are interdisciplinary and consider engineering, law; economics; hydrology, climatology, hydrogeology; environmental health; computer modeling; population growth; land use planning; regional development; or politics. Each team will make an oral presentation of their results to the class and submit a final report.

The purposes of the term project are to: (a) enable you to explore in-depth an aspect of the subject of water resources planning and management; (b) to provide experience in the formulation, execution and presentation of an engineering investigation in the area of water resources planning and management; and (c) communicate about a complex water resources problem, including produding presentations that are informative to your classmates and the instructor.

TECHNOLOGY REQUIREMENTS
Course content is delivered via the Internet through the Blackboard learning management system and Zoom for class lectures and office hours. Ensure that 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, scanner/phone camera, a webcam, and a microphone. You will need to download or update the following software: Microsoft Office and Adobe Acrobat Reader. Check that your computer hardware and software are up-to-date and

able to access all parts of the course. You can download Microsoft Office programs (including Word, 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.

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.

COURSE COMMUNICATION
- **Office Hours**: My office hours will be held T, W, R 12:00-1:00 on Zoom using this link.
- **Email**: UTEP e-mail is the best way to contact me. I will make every attempt to respond to your e-mail within 24-48 hours of receipt. When e-mailing me, be sure to email from your UTEP student account and please put the course number in the subject line. In the body of your e-mail, clearly state your question.
- **Announcements**: Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

ATTENDANCE AND PARTICIPATION
Your participation in the course lectures is important not only for your learning and success but also to create a community of learners. As we know, sometimes communication online can be challenging. It's possible to miscommunicate what we mean or to misunderstand what our classmates mean given the lack of body language and immediate feedback. Therefore, please keep these netiquette (network etiquette) guidelines in mind. Failure to observe them may result in disciplinary action.
- Always consider audience. All communication should reflect polite consideration of other's ideas.
- Respect and courtesy must be provided to classmates and to the instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, address the ideas, not the person. Post only what anyone would comfortably state in a face-to-face situation.
- Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and professor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space.

ACCOMMODATIONS POLICY
The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or 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.

CLASS RECORDINGS
The use of recordings will enable you to access to class lectures. Our use of such technology is governed by the Federal Educational Rights and Privacy Act (FERPA) and UTEP's acceptable-use policy. A recording of class sessions will be kept and stored by UTEP, in accordance with FERPA and UTEP policies. Your instructor will not share the recordings of your class activities outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. **You may not share recordings outside of this course.** Doing so may result in disciplinary action.

COPYRIGHT STATEMENT FOR COURSE MATERIALS
All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.

COVID-19 PRECAUTIONS
You must STAY AT HOME and REPORT if you (1) have been diagnosed with COVID-19, (2) are experiencing COVID-19 symptoms, or (3) have had recent contact with a person who has received a positive coronavirus test. Reports should be made at screening.utep.edu. If you know of anyone who should report any of these three criteria, you should encourage them to report. If the individual cannot report, you can report on their behalf by sending an email to COVIDaction@utep.edu.
For each day that you attend campus—for any reason—you must complete the questions on the UTEP screening website (screening.utep.edu) prior to arriving on campus. The website will verify if you are permitted to come to campus. Under no circumstances should anyone come to class when feeling ill or exhibiting any of the known COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, and alternative instruction will be provided. Students are advised to minimize the number of encounters with others to avoid infection. Wear face coverings when in common areas of campus or when others are present. You must wear a face covering over your nose and mouth at all times in this class. If you choose not to wear a face covering, you may not enter the classroom. If you remove your face covering, you will be asked to put it on or leave the classroom. Students who refuse to wear a face covering and follow preventive COVID-19 guidelines will be dismissed from the class and will be subject to disciplinary action according to Section 1.2.3 *Health and Safety* and Section 1.2.2.5 *Disruptions* in the UTEP Handbook of Operating Procedures.
(***classes with on-campus meetings***) Please note that if COVID-19 conditions deteriorate in the City of El Paso, all course and lab activities may be transitioned to remote delivery.

UNIVERSITY RESOURCES
UTEP provides a variety of student services and support:
Technology Resources

- **Help Desk:** Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.

Academic Resources
- **UTEP Library:** Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- **University Writing Center (UWC):** Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- **Math Tutoring Center (MaRCS):** Ask a tutor for help and explore other available math resources.
- **History Tutoring Center (HTC):** Receive assistance with writing history papers, get help from a tutor and explore other history resources.
- **RefWorks:** A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.

Individual Resources
- **Military Student Success Center:** Assists personnel in any branch of service to reach their educational goals.
- **Center for Accommodations and Support Services:** Assists students with ADA-related accommodations for coursework, housing, and internships.
- **Counseling and Psychological Services:** Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.