

CE 4171 – Engineering Problems – Spring 2020

The University of Texas at El Paso
 Department of Civil Engineering
 Independent Study (no scheduled class meetings)
 Lecture CRN: 20510
 Corequisite: CE 3342

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NOTICE: Degree Plan Change

In previous semesters, CE 3342 was only lecture, and the CE 3153 laboratory was a separate course. However, in the new B.S. C.E. degree plan, this course is now an integrated lecture and laboratory. Thus, students taking this course this semester need to be aware of several directives:

- If you are on an old degree plan that requires both CE 3342 (lecture only) and CE 3153 (lab), then:
 - If you have not already taken CE 3342 (lecture only), then you will need to register for both the CE 3342 (now both lecture (28312) and a Mon (28323), Wed (28324), or Fri (28325) lab) and CE 4171 Engineering Problems (20510), so that you can satisfy the four credit-hour requirement for your degree plan. When you apply for graduation, the combination of the new CE 3342 combined with CE 4171 will count together for credit for CE 3342 and CE 3153.
 - If you already passed CE 3342 (lecture only) in a previous semester but not CE 3153 (lab only), then you only need to register for CE 3153 lab only, either Mon (25824), Wed (25825), or Fri (25826).
 - If you already passed CE 3153 (lab only) in a previous semester but not CE 3342, then you need to register for CE 3342 (28312), and you need to complete the same assignments as the students enrolled in CE 4171 to earn the full three hours of credit this semester.
- If you are on the new degree plan which does not require CE 3153 (lab), then you will need to register for only the CE 3342 (lecture and lab).

Philosophy

I believe that *teaching* and *learning* are interdependent; you cannot have one without the other. You and I are partners and colleagues, working together to help you become a knowledgeable, curious, intrinsically motivated, and confident engineer. I want to help you become a critical thinker with sharpened skills of analysis, evaluation, and synthesis. I have assigned a classic book to read in this course to help you prepare for professional practice and to help you develop as a more robust and intrinsically-motivated engineer. I have also realized that it is important to incorporate weekly responses (through an online forum called Packback), which helps students keep up with understanding and applying concepts.

Required Reading:

- Option 1:** Marc Reisner (2017) Cadillac Desert: The American West and Its Disappearing Water, Revised Edition Penguin Books (9780140178241)
- Option 2:** Scott Harrison (2018) Thirst: A Story of Redemption, Compassion, and a Mission to Bring Clean Water to the World, Currency (9781524762841)

Description and Objectives

This course is a supplement to CE 3342 (as described in the Degree Plan Change section above), and the required reading options for this course are either (1) a classic text in the field of water resources engineering in the arid and semi-arid southwestern United States or (2) a recent autobiographic text on the life and work

of Founder & CEO of Charity: Water. Cadillac Desert (566 pages) explains the origins of much of the large water storage reservoirs and conveyance infrastructure, as well as the modern challenges of overallocation and long-term sustainability. Thirst (314 pages) describes the background, maturation, and professional development of author Scott Harrison as his career evolved and he created a non-profit to help provide people around the world with safe drinking water.

Expectations

Participation: More than simply attending class, you are invited to *think*, and *participate* in the lectures and discussions. I encourage you to be curious and inquisitive during class discussions and online forums.

Packback Forum

Packback Questions is an online curiosity community where you can be fearlessly curious and ask big questions about how what we're studying relates to life and the real world. Packback will be assisting you with developing writing skills while enhancing your ability to critically analyze the discussions of this course to draw real-world conclusions. For a brief introduction to Packback Questions and why we are using it in class, watch this video: <https://vimeo.com/163888277>. I believe that your life-long learning is more affected by seeking to know WHY than WHAT. In this course, I want you to empower yourself through deep connections between the course materials and your why. Your time in my course will be brief, but your potential to make the most of your life is great. I hope that through this forum you are able to be inspired by your peers to make the most of your learning.

Before you start posting, be sure to read the Community Guidelines found in the tutorial on Packback. If your post doesn't follow the Packback Community Guidelines, there is a chance it will be removed and you won't receive points for that post. **There will be a weekly deadline of Friday at 11:59pm Mountain Time for submitting posts.** Note: it takes 24 hours for the Packback team to moderate a post and send a coaching email. If by any reason your post is moderated because it does not meet the Community Guidelines, you will need to edit and re-publish your post to receive credit for the week. It is important that you complete your Packback questions and responses several days in advance of the deadline in case your post is moderated.

How to Register on Packback: You will receive a welcome email from holla@packback.co prompting you to finish registration and payment (\$25). Packback has already created an account for you with your UTEP email address, so all you need to do is reset your password. This email may be directed to spam or filtered out, so make sure you do a thorough scan of your inbox if you can't find the email. If you have ANY questions or concerns regarding Packback throughout the semester, please contact the customer support team at holla@packback.co!

Since this involves weekly professional writing, I encourage you to use this opportunity this semester to improve your technical and professional writing skills. I strongly encourage you to use a grammar check (e.g., <http://www.grammarly.com>) and proofread your questions and responses before posting. Unfortunately, popular culture is to make opinionated statements on social media, but in this platform, we want to postulate questions and make statements based on factual information.

Your participation on Packback will count towards 100% of your overall course grade. Your Packback grade is based on weekly participation: post one Question and two Answers per week, relevant to the assigned chapter that week. By the end of the semester, you should have posted 14 Questions and 28 Responses to other students' Questions (*i.e.*, a total of 42 posts). Part of your Packback grade will be based on your average Curiosity score; an average Curiosity score of 70 will constitute full-credit for the Curiosity score component, and an average Curiosity score of 20 or less will receive no-credit. Your Packback Participation Score (*PPS*) will be calculated according to the following equation:

$$PPS = \left(\frac{N_Q}{14}\right) \left(\frac{N_R}{28}\right) \left(\frac{\max(ACS - 20, 0)}{50}\right)$$

Where N_Q is the number of questions posted, N_R is the number of responses posted, and ACS is the Average Curiosity Score of all of your posts for the semester.

Course Grade

Assessment of your performance in this course will be determined by Packback participation. The course average will be computed by the following grading scheme:

Evaluation	Fraction (%)
Packback Participation Score (PPS)	100
<i>Total</i>	<i>100</i>

The final course grade will be determined according to the following:

Course Average (%)	Grade
≥ 90	A
80-89	B
70-79	C
60-69	D
< 60	F

I reserve the right to modify or augment this grading scheme for the sake of improving the educational effectiveness of this course.

Special Accommodations

The University of Texas at El Paso provides, upon request, appropriate academic accommodation for students with disabilities. For more information, contact the Center for Accommodations and Support Services (<https://www.utep.edu/student-affairs/cass/>).

Course Schedule: Option 1

Reading Assignment	Description	Deadline	Packback Assignment
Introduction	A Semidesert with a Desert Heart	Fri	1
Chapter 1	A Country of Illusion	Fri	2
Chapter 2	The Red Queen	Fri	3
Chapter 3	First Causes	Fri	4
Chapter 4	An American Nile (I)	Fri	5
Chapter 5	The Go-Go Years	Fri	6
Chapter 6	Rivals in Crime	Fri	7
Chapter 7	Dominy	Fri	8
Chapter 8	An American Nile (II)	Fri	9
Chapter 9	The Peanut Farmer and the Pork Barrel	Fri	10
Chapter 10	Chinatown	Fri	11
Chapter 11	Those Who Refuse to Learn ...	Fri	12
Chapter 12	Things Fall Apart	Fri	13
-	<i>Thanksgiving Holiday - University Closed</i>	<i>Fri</i>	-
Epilogue	A Civilization, If You Can Keep It	Fri	14

Course Schedule: Option 2

Reading Assignment	Description	Deadline	Packback Assignment
Ch. 1-3	Numb, Poison, Family	Fri	1
Ch. 4-6	Getting Pure, Slide, "Wishy-Washy ..."	Fri	2
Ch. 7-9	Lord Scott Harrison, Pursuit, Captured	Fri	3
Ch. 10-12	Escape, Mercy, A New Day	Fri	4
Ch. 13-15	Patient No. 1, Ship Time, Homesick	Fri	5
Ch. 16-18	"Actions, ...", "They Drink This?", mercy. Better to Beg, Africa Time, No Strings	Fri	6
Ch. 19-21	Attached	Fri	7
Ch. 22-24	Nonprofits for Dummies, charity: water, Three Pillars	Fri	8
Ch. 25-27	True Believers, Vik, Born in September	Fri	9
Ch. 28-30	Oblivious, Running on Empty, Radical Transparency	Fri	10
Ch. 31-33	Do Something, Totally Undisciplined, Do Better	Fri	11
Ch. 34-36	Rachel's Gift, Dirty Brown Laundry, With No One Looking Over Your Shoulder	Fri	12
Ch. 37-39	Just Keep Going, All the Sound Bites ..., Chief Water Boy	Fri	13
-		<i>Fri</i>	-
Ch. 40-41	The Spring, Someone Like You, You Are Invited	Fri	14