ARE323K PROJECT MANAGEMENT AND ECONOMICS
SPRING 2017

INSTRUCTOR: Dr. Kasey Faust
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MEETINGS: T-TH 9:30-11:00

OFFICE HOURS: Tuesdays and Thursdays 3:00pm-4:00pm (subject to change, in which you will be notified be email or canvas) or by appointment

If you are unable to come to office hours, please make an appointment to come to me for any questions, concerns or clarification on course content (or any other issues). Feel free to email me, as this is the best method to reach me outside of office hours. Please allow 48-hours for a response on business days.

TA: Office hours: TBD

WEBPAGE:
Course content may be found online on Canvas at http://canvas.utexas.edu/

COURSE CATALOG DESCRIPTION:
Solving economic problems related to construction and engineering; construction project management techniques; characteristics of construction organizations, equipment, and methods.

PREREQUISITES: Mathematics 408D or 408M, Civil Engineering 333T

COURSE OBJECTIVES:
This class is an introduction to project management and economics, which in real life are closely related topics. It is hard to be a good project manager without a working knowledge of finance and cash flow. And while some people get really good at economic calculations, applying the results usually takes some project management skill, whatever the domain. As such, my two main learning objectives for the course are simple but profound:

1. Learn the basics of how a project comes together (time line, main components, participating organizations, etc.) Applications will be construction focused, but many of the ideas are generalizable.
2. Learn to be smart about money on projects (investment, budgeting, risk and decision making).

By taking this class you will be able to:

1. Define and describe the main elements in the project time and as well as the major sub-elements
2. Apply net present value and related concepts to the analysis of cash flows, including selection of alternatives and life-cycle costing (this is the big one for this class)
3. Develop elementary project schedules and perform basic scheduling calculations
4. Estimate construction costs based on square footage and quantities
5. Identify risks in each phase and apply sensitivity analysis to quantify risks in cost and time where possible/practicable.

TEXTBOOK AND READINGS:
NOTE: All assigned readings are required to be completed BEFORE class. As I expect you to be familiar with them, I have every right to ask you questions about the reading during class time.

There are two required textbooks for the course. The first is available at the bookstore:

- Newnan, Lavelle, and Eschenbach. (2014). *Engineering-Economic Analysis*. 12th Edition. Oxford University Press, New York/Oxford. (Note: 9th,10th, and 11th editions are ok as substitutes).

The second textbook is available free online! We will use it as a general reference.

- Hendrickson and Au. (2000/3). *Project Management for Construction*. Available at http://www.ce.cmu.edu/pmbook/

Other reading material will be distributed on Canvas or in class.

GRADING:

Grade components will be weighted as follows:

Exam 1	25%
Exam 2	25%
Exam 3 or Project	25%
Homework/Discussions	20%
Pop quizzes	5%
	100%

Letter grades will be determined as follows:

A:	grade ≥ 93%
A-:	90% ≤ grade ≤ 92.99%
B+:	87% ≤ grade ≤ 89.99%
B:	83% ≤ grade ≤ 86.99%
B-:	80% ≤ grade ≤ 82.99%
C+:	77% ≤ grade ≤ 79.99%
C:	73% ≤ grade ≤ 76.99%
C-:	70% ≤ grade ≤ 72.99%
D+:	67% ≤ grade ≤ 69.99%
D:	63% ≤ grade ≤ 66.99%
D-:	60% ≤ grade ≤ 62.99%
F:	grade < 60%

As the plus/minus system allows much fairer grading (in my opinion), assigned grades will strictly follow calculated scores.

Exams:

Exams are closed book, closed note. I *may* adjust scores upward if the class mean is low. Calculators are allowed provided you haven't programmed them with notes. Exams may be cumulative or cover part of the class material (subjects will be announced in class) and motivate you to review the material to date. Exams will include problems, definition/matching, multiple choice, and short answer questions as appropriate to the material covered. This class has both quantitative and qualitative elements and both will be tested.

Exams will not be returned to the student. The quizzes and exams solutions will be reviewed in class. You can view your quizzes and exams during office hours.

If you have an excused absence, I will work with you to take a makeup exam as close as possible to the date of the exam. If you have an excused absence that you know about ahead of time, let me know as early as possible – my preference is for you to take the exam before others. In special cases, I will work with the student on alternate accommodations.

Optional Project:

An optional project can replace Exam 3. You may choose to take Exam 3 and turn in the project, receiving the higher of the two grades (as this is a question I frequently receive). The project guidelines will be available on Canvas early in the semester. The project is cumulative, requiring you to apply the concepts you have learned throughout the semester.

Homework:

Homework consists of traditional problem sets as well as short written questions relating to the course materials and reading. All homework should be completed using the format guidelines discussed on the first day of class (example format will be uploaded on canvas for your reference). 10% will be deducted from the homework score automatically for not adhering to the format. The format is for your benefit. If the grader cannot understand your work or thought process, it can be very difficult to grade accurately. Furthermore, if only an answer is provided, with no calculations (unless appropriate to do so, such as multiple choice), the problem receives 0 credit.

Homework assignments should be completed individually, but I encourage study groups for discussion. Length of homework assignments will vary, and weighting of homework grades will vary with length and difficulty. Homework is due ten minutes after class begins, (i.e., 9:40 or 11:10, dependent on your section). Late homework will not be accepted unless there is an excused absence or it has been prearranged with me.

Discussion write-ups are short one page or so written homework done in small groups. (Preferably these will be natural study groups.) There will be a write-up about every few weeks based on a short reading or response to a video. The intent is to get you thinking about broader issues related to class materials. Write-ups will be due at the beginning of class and serve as the basis of discussion. I will randomly call on a group to start discussion by giving their answers to the write-up questions.

Pop Quizzes:

At the beginning of each class, a dice will be rolled to determine if there is a pop quiz that day. Pop quizzes will be based on the previous lecture's material and conducted at the beginning of class. Each quiz will be worth 1 point – either correct (1) or incorrect (0) answers with no partial credit.

GRADE DISPUTES:

You may dispute a grade within 3 business days. Grade disputes should be submitted to me, in writing, and I will determine if the request will be granted. Do not submit re-grade requests to the grader.

When submitting grade dispute, you must put in writing (word document) what the nature of the dispute is, along with the homework/quiz to be reviewed. When requesting a re-grade, the full homework or quiz will be re-graded, and not just the problem in question. Thus, your total grade may stay the same, increase or decrease.

If you have a grade dispute on an exam, please see me during office hours (or make an appointment) within 3 business days from when the graded exams were reviewed in class.

If you do not understand why you received a grade or what mistakes were made, please seek clarification. Come to office hours so we can sit down and discuss the material to ensure you understand the concepts can be as successful as possible in this course.

ATTENDANCE:

Class attendance via pop quizzes is 5% of your grade in this course. Attendance in this class is strongly encouraged. There is a lot of learning that goes on in the classroom, so I want students to attend and participate. As such, I will take attendance by a one question pop quiz many days.

Please contact me ahead of the class if you need an excused absence that the possible pop quiz will not count against you. (E.g., travel for job interview, student activity, etc. Family fun is NOT an excused

absence). If you miss a class due to illness (or death other than your own) and were not able to contact me before class, please see me as soon as possible with evidence of your illness.

Note: extended absences without excuse are grounds for a failing grade in the course (per university policy).

If you have a long-term problem or family emergency, please talk with me about it as soon as possible so we can make mutually agreeable accommodations. It is difficult for me and generally unfair to other students if you approach me after the fact.

Accommodation for religious holidays*:* By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence or to complete the assignment beforehand as agreed with the instructor.

EXPECTATIONS OF STUDENTS:

This is an upper division undergraduate course. At this point, I expect you to be able to learn and assimilate materials on your own. Students are also expected to comport themselves in a professional manner. Specific expectations for students include:

1. Students should review course material on their own outside of class.
2. Students should be on time to class. It can be very disruptive to other's learning to have someone come in late. The attendance sheet will be passed around at the start of class. If you are not present to sign, you may not sign in at the end of class, unless you have already made accommodations with me *before* the class.
3. Students should participate actively in course discussions. If you need to miss class, please inform the instructor ahead of time.
4. In class, students are expected to be courteous and respectful of the views and needs of other students and instructors. Disruptive students will be asked to leave.
5. Students will not be engaged with their cell phones (or similarly technology) in class, and cell phones will be placed on silent in a bad, or turned off. If you are on your cell phone during class, you will receive not participation credit for that class. This is YOUR time in class and I would like you to get the most out of every class.
6. Students should work on in-class assignments as if they were job assignments. At any time, the instructor may call upon students to present their work to the class.
7. Students should turn in their work on-time. In the construction industry, bids for projects are not accepted posted the deadline. Similarly, in this class, homework will not be accepted after the beginning of class (11:00 am) on the due date.
8. If you have a family emergency or extended problem with attending class or doing homework, please contact me as soon as possible so we can accommodate your needs. It is hard to do this after the fact!

GENERAL ADMINISTRATIVE RULES AND ANNOUNCEMENTS

Course Instructor Survey:

An evaluation of the course and instructor will be conducted at the end of the semester using the approved UT Course/Instructor evaluation forms. Feedback from students will be requested throughout the semester.

Scholastic dishonesty policy:

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will

be strictly enforced. For further information, visit the Student Judicial Services web site http://deanofstudents.utexas.edu/sjs/.

Students with disabilities:

The University of Texas at Austin provides, upon request, appropriate academic accommodations for qualified students with disabilities. For more information, contact the Division of Diversity and Community Engagement, Services for Students with Disabilities, 512-471-6259 (Videophone: 512-410-6644) or http://diversity.utexas.edu/disability/.

Office of Campus and Security:

- Contact and further information may be found at 512-471-5767 or www.utexas.edu/safety
- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.
- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.
- Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.
- In the event of an evacuation, follow the instruction of faculty or class instructors.
- Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
- Behavior Concerns Advice Line (BCAL) 512-232-5050.
- Link to information regarding emergency evacuation routes and emergency procedures can be found at: www.utexas.edu/emergency

Counseling:

The University of Texas at Austin maintains extensive counseling facilities for students. Resources are available at http://www.utexas.edu/student/cmhc/. The instructor recommends that you visit this web-site to become acquainted with the range of services available.

Drop policy for long sessions:

- Undergraduate Students - From the 1st through the 12th class day, an undergraduate student can drop a course via the web and receive a refund, if eligible. From the 13th through the university's academic drop deadline, a student may Q drop a course with approval from the Dean, and departmental advisor.
- Graduate Students - From the 1st through the 4th class day, graduate students can drop a course via the web and receive a refund. During the 5th through 12th class day, graduate students must initiate drops in the department that offers the course and receive a refund. After the 12th class day, no refund is given. No class can be added after the 12th class day. From the 13th through the 20th class day, an automatic Q is assigned with approval from the Graduate Advisor and the Graduate Dean. From the 21st class day through the last class day, graduate students can drop a class with permission from the instructor, Graduate Advisor, and the Graduate Dean. Students with 20-hr/week GRA/TA appointment or a fellowship may not drop below 9 hours.

Class websites, use, and student privacy:

This class will use Canvas for posting course announcements, changes to the syllabus, schedule, grades, additional reading materials, assignments, etc. I will also send messages via e-mail over the course e-mail list, which I inherit from the registrar/CLIPS. IT IS YOUR RESPONSIBILTY to make sure that address is up-to-date and an address you read frequently – and one that has space to receive messages. E-mails bounced back to me are not my responsibility. As to privacy, let me know as soon as possible if you do not want your name on class lists, etc. The University has this policy: Web-based, password-protected class sites will be associated with all academic courses taught at the University. Syllabi, handouts, assignments

and other resources are types of information that may be available within these sites. Site activities could include exchanging e-mail, engaging in class discussions and chats, and exchanging files. In addition, electronic class rosters will be a component of the sites. Students who do not want their names included in these electronic class rosters must restrict their directory information in the Office of the Registrar, Main Building, Room 1. For information on restricting directory information, see the Undergraduate Catalog.

All other university policies not explicitly included on this syllabus can be found on the General Information Catalog: http://catalog.utexas.edu/general-information/.

SCHEDULE OF CLASS LECTURES, READINGS, AND ASSIGNMENTS

Date	Lecture Topic	Reading (Completed before class on the given date)	Assignments (Subject refers to lecture topics for the week)
1/22	Course introduction		*HW#1 assigned—due 1/24*
1/24	Learning styles/project lifecycle	Hendrickson chap 1	**HW#1 due**
1/29	Project organizations	Hendrickson chap 2	*HW#2 assigned—due 2/5*
1/31	Owners' perspectives / project selection & feasibility	Newnan chap 1&2 (skim); Hendrickson chap 7	
2/5	Skyscraper Video: Rock and Paper		**HW #2 due** *Discussion #1 assigned—due 2/12*
2/7	Discounting/NPV formulations	Newnan chaps 3&4, chap 5 pp. 152-153	*HW #3 assigned— due 2/19*
2/12	Discount/PV examples		**Discussion #1 due**
2/14	Internal Rate of Return, Incremental Analysis	Newnan –chaps 7-8 (ignore appendices)	*HW #4 assigned— due 2/26*
2/19	IRR, Incremental Analysis		**HW #3 due**
2/21	Assessing RISK I	Newnan chaps 9 & 10	*HW #5 assigned— due 3/5*
2/26	Assessing RISK II		**HW #4 due**
2/28	Depreciation	Newnan chap 11	*HW #6 assigned— due 3/26*
3/5	Depreciation and Taxes	Newnan chap 12	**HW #5 due**
3/7	Taxes	Newnan chap 14	
3/12	Knowledge Deep Dive—Practice Problem Session		
3/14	**Exam 1 (cumulative through RISK)**		
3/19	**Spring Break- No class**		Mid semester feedback due 3/19-online survey (1% extra credit added onto final score)
3/21			
3/26	Skyscraper Video: Time and Money Interlude: inflation and the time value of money		**HW #6 due** *Discussion #2 assigned—due 4/2*
3/28	Life Cycle Costing I	Additional materials	*HW #7 assigned— due 4/9*
4/2	LCC II		**Discussion #2 due**
4/4	LCC cont.		
4/9	Estimating I	Hendrickson Chap 5	**HW#7 due**
4/11	Estimating II.	RS Means	*HW #8 assigned— due 5/2*
4/16	Knowledge Deep Dive—Practice Problem Session		
4/18	**Exam 2 (Depreciation through LCC)**		
4/23	Project scheduling	Hendrickson Chap 10	
4/25	Project Scheduling		
4/30	Cost loading/control; schedule of values	Hendrickson Chap 12	
5/2	Earned value		**HW #8 due**
5/7	Knowledge Deep Dive—Practice Problem Session		
5/9	**Exam 3 (Estimating through Earned Value) or Project Due**		

This is a tentative schedule→it will change. Check the course website on Canvas for updates.

Good luck this semester!