

IE 5304 Section 005: Advanced Engineering Economy
Course Syllabus: Fall 2018

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Office Hours: By appointment

Section Information: This syllabus applies to IE 5304 Section 005
Time and Place of Class Meetings: Tuesday & Thursday, 8:00-9:20am, NH 110

Graduate Teaching Assistant Support: GTA hours will be listed on Blackboard once available.

Description of Course Content: This class provides students with the basic decision making tools required to analyze engineering project alternatives in terms of their worth and cost, an essential element of engineering practice. Students are introduced to the concept of the time value of money and the methodology of basic engineering economy techniques. The class also provides students with the background to enable them to pass the Engineering Economy portion of the Fundamentals of Engineering exam. The class has many applications in personal life.

Student Learning Outcomes:

- **Critical Thinking Skills:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- **Communication Skills:** to include effective development, interpretation and expression of ideas through written, oral and visual communication.
- **Empirical and Quantitative Skills:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- **Social Responsibility:** to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national and global communities.

Required Textbooks and Other Course Materials: Engineering Economic Analysis, Thirteenth Edition, Donald G. Newnan, Ted G. Eschenbach, and Jerome P. Lavelle, ISBN: 978-0-19-029690-2.

Descriptions of Major Assignments and Examinations:

- **Exams:** There are three non-cumulative exams and one cumulative exam. Although the first three exams are not cumulative, concepts from earlier chapters are important in learning later materials. All exams are closed book and closed notes. You will be provided with a formula sheet for the exams. Students must work alone on exams. If you miss an exam, you must have an approved excuse (i.e. from a medical doctor with contact information indicating you were too ill to sit for an exam or have gotten permission from the instructor at least two class days in advance of the exam). Additional information to verify the validity of your excuse may be requested. The student will receive a grade of zero for the exam without an approved excuse from the instructor.

Exam Policies:

- **Before an exam:** Students must bring their UTA ID card to all exams as the ID will be checked and matched to an exam. There will be assigned seats for the exams. The instructor will provide a roster with seat locations and a seating chart. You must arrive by the time the class is scheduled to start. It is recommended that students be at the class 10 minutes before the exam starts to provide sufficient time to find your assigned seat and get settled. Each exam will be scheduled for the time identified by the instructor. You will not be given additional time if you are late to an exam.
- **During an exam:** All exams are closed book and closed notes unless noted otherwise by the instructor. Students are only allowed to use their pens, pencils, erasers, and any documentation provided by the

instructor. Any attempt to use items on the exam not allowed by the instructor (e.g., cheating) will result in following the university ethics policy. Cellphones, computers, and other communication devices must be turned off and removed from the desk or table. All items not allowed for the exam should be placed on the floor. Students must work alone on exams. No sharing of any materials or communication with other students may occur during exams including writing instruments, etc. Please use the restroom prior to the exam. Any suspicious behavior during the exam will be noted by the proctor. In certain circumstances, students may be confronted by the proctor. Any problematic circumstances may require following the university ethics policy. Exams are to be opened, started, and stopped at the times announced by the proctor. Anyone attempting to view an exam early or stopping an exam late will be deducted a minimum of 10 points. Put down your writing instruments promptly when told that the time for the exam is at an end. If the exam proctor leaves the class without a student's exam at the end of the exam, the student will receive a grade of zero on the exam.

- **After an exam:** Once graded, the exams will be handed out and reviewed in class. The exams must be turned in when requested. If the exam is not provided back to the instructor and the instructor leaves the room without the exam, the student will receive a grade of zero for the exam. Students who wish to see their graded exams, after the review in class, must visit the instructor during office hours. Copies of the exams are not allowed or provided. The instructor highly encourages students who perform poorly on exams to come and discuss results with the instructor during office hours.

Attendance: At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this class, I will not take regular attendance. You are responsible for the material presented in class when you are absent. It is important that you attend class on a regular basis. This will save you a lot of preparation time for class exercises and exams. Attendance is not a direct part of your course grade.

However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

Class Courtesy: The instructor insists on a quiet classroom and asks that noise be minimized to ensure a quality and positive classroom experience for all students. This includes silencing cell phones/other audible devices before class. Please go outside the class if you need to talk with others during the lecture. Students who come to class late and once class has already started should try to enter the classroom as discreetly as possible. Due to noise in the hallway and to reduce distractions from those entering late, the door may be shut 5 minutes after class begins. Students who do not come to class within the first 5 minutes of the start of class may not be able to attend class if the door is locked. Please be courteous to the instructor and your fellow classmates.

Grading: Grades will be based on the four exams (3 regular, 1 cumulative). Each of the four exams will count for 25% of the grade.

Assignment Component	Percentage
Exams (4)	100
Total	100

Course grade:

A >= 90%; B >= 80%; C >=70%; D >= 60%; F < 60%.

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels; see “Student Support Services” for additional assistance.

Make-up Exams: Makeup exams will be administered only under extenuating circumstances with official documents, if I am notified in advance.

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/>).

Disability Accommodations: UT 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)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. 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 disability. Students are responsible for providing the instructor with official notification in the form of a **letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** <http://www.uta.edu/disability/> or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Counseling and Psychological Services (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy: The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.

Title IX Policy: The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Michelle Willbanks, Title IX Coordinator at (817) 272-4585 or titleix@uta.edu*

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 in their courses by 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. Additional information is available at <https://www.uta.edu/conduct/>. Faculty are encouraged to discuss plagiarism and share the following library tutorials <http://libguides.uta.edu/copyright/plagiarism> and <http://library.uta.edu/plagiarism/>.

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>.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are 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 via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: for semester-long courses, 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 immediately next to the classroom door. 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. If you have a physical/sensory disability, please discuss your needs for assistance in the event of emergency evacuation with the instructor in private within the first two weeks of the semester.

Students are encouraged to subscribe to the MavAlert system that will send information in case of an emergency to their cell phones or email accounts. Anyone can subscribe at <https://mavalert.uta.edu/> or <https://mavalert.uta.edu/register.php>.

Active Threat: Information on options for an active threat are provided at the end of this syllabus.

Student Support Services: 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 <http://www.uta.edu/studentsuccess/success-programs/programs/resource-hotline.php>.

The IDEAS Center (2nd Floor of Central Library) offers **FREE** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. Students can drop in, or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

The English Writing Center (411LIBR): [Optional.] The Writing Center offers **FREE** tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at <https://uta.mywconline.com>. Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see www.uta.edu/owl for detailed information on all our programs and services. The Library's 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation. <http://library.uta.edu/academic-plaza>.

Inclement Weather Policy: If the University is closed, this class will not meet. Any scheduled lecture materials or examinations will be rescheduled to the next class period that the class meets. You can get information about closures by checking the main website at www.uta.edu.

<p>Emergency Phone Numbers: 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. Non-emergency number 817-272-3381.</p>
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Students are prohibited from copying, transferring ownership or selling any of the materials obtained and any notes taken during this course to any person or organization without the express written permission of the instructor developing this course. Students may print downloaded lecture materials for their own use only. Students are prohibited from being paid to take notes during this course for any person or organization.

Course Schedule: *Note: As the instructor for this course, I reserve the right to adjust this schedule when required and in any way that serves the educational needs of the students enrolled in this course. Changes to the syllabus and associated schedule will be discussed in class and an updated syllabus will be posted in Blackboard. Students must comply with any changes to the syllabus once notified by the instructor.*

Week of	Topics	Readings and Self Study Problems
8/23	Ch 1: Making Economic Decisions	Reading: pp. 15-24 Problems: 54, 58, 60
8/28	Ch 2: Estimating Engineering Costs and Benefits	Reading: pp.36-60 Problems: 4, 8, 12, 18, 34, 44, 46, 52, 56
9/4	Ch 3: Interest and Equivalence	9/3 Labor Day Holiday Reading: pp. 80-103 Problems: 4, 7, 12, 14, 34, 36, 38, 40, 48,
9/11	Ch 4: Equivalence for Repeated Cash Flows	Reading: pp. 110-125, 127-138, 141-143 Problems: 2, 6, 14, 32, 54, 56, 74, 80, 88, 118
9/18	Review, Exam	Review for Exam 1, 9/20 Exam 1 (Ch 1-4)
9/25	Ch 5: Present Worth Analysis	Reading: pp. 158-183 Problems: 4, 7, 24, 30, 36, 40, 52, 64, 74, 92
10/2	Ch 6: Annual Cash Flow Analysis	Reading: pp. 198-218 Problems: 3, 4, 16, 30, 32, 37, 46, 50
10/9	Ch 7: Rate of Return Analysis	Reading: pp. 230- 242, 250-254 Problems: 2, 12, 16, 62, 68, 74
10/16	Ch 10: Uncertainty in Future Events, Review, Exam	Reading: pp. 350-374 Problems: 2, 4, 6, 10, 16, 30, 34, 36, 40, 42 Review for Exam 2, 10/17 Exam 2 (Ch 5-7)
10/23	Ch 10: continued	
10/30	Ch 13: Replacement Analysis	Reading: pp. 480-504 Problems: 6, 8, 14, 16, 26, 32, 38
11/6	Ch 13: continued, Review, Exam	Review for Exam 3, 11/7 Exam 3 (Ch 10-13)
11/13	Ch 16: Economic Analysis in the Public Sector	Reading: pp. 580- 601 Problems: 12, 14, 18, 22, 24, 28, 30, 44
11/20	Ch 16: continued	11/21-23 Thanksgiving Holiday
11/27	Ch 16: continued	
12/4	Final Exam Review	
12/6 8:00-10:30am	Final Exam	Final Exam (Cumulative), Note that the final exam time is different than the normal class time.

Stop. Think. Protect Yourself. You Have Choices.

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. This graphic provides each member of the UTA community with information and options for responding to an active threat. These options are not chronological, but are designed to address dynamic situations. Assess the situation (your location, the location of the threat, type of threat, etc.), identify and weigh your options, develop a plan of action and commit to it.

YOUR OPTIONS TO AN ACTIVE THREAT	
You Have Choices!	
A V O I D	<ul style="list-style-type: none"> • AVOID the situation. <u>Stay away</u> from the area and campus. • If you can safely leave the area, RUN. • Get others to leave the area, if possible. • Prevent others from entering the area. • Know your exit and escape options. • If in a parking lot, get to your car and leave. • If in an unaffected area, stay where you are. • When you are safe, call UTA PD at 817.272.3003 or 911 with information you have.
D E N Y	<p>If you can't leave the area safely, DENY or slow entry to the intruder:</p> <ul style="list-style-type: none"> • Lock/barricade doors with heavy items. • Turn off lights/projectors/equipment. • Close blinds and block windows. • Stay away from doors and windows. • Silence phones and remain quiet. <u>Don't let your phone give you away.</u> • HIDE and take cover to protect yourself. • Be prepared to run or defend yourself.
D E F E N D	<p>If you can't AVOID or DENY entry to the intruder, DEFEND your location:</p> <ul style="list-style-type: none"> • As a last resort, <u>FIGHT for your life.</u> • Use physical force and any weapons available - fire extinguishers, books, chairs, belts, umbrellas, pens/scissors, hot coffee/drinks, trash cans, etc. • Use the element of surprise. • Work together as a team. Develop a plan. Commit to your actions. Your life depends on it. • Be aggressive, loud, and determined in your actions.
<p align="center">Follow ALL instructions.</p> <p align="center">For more information, go to: police.uta.edu/activeshooter</p> <div>  <div> <p>Emergency: 817.272.3003</p> <p>Non-Emergency: 817.272.3381</p> <p>police.uta.edu</p> </div> </div> <p align="center">THE UNIVERSITY OF TEXAS AT ARLINGTON</p>	

Additional information for active threat and other emergency situations can be found through the links below:
police.uta.edu/activeshooter
police.uta.edu/em