

Engineering Economy
EIN 4354 Sections 2605
Academic Term: Spring 2018

Instructor:

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Course Description

3 credits. Basic principles and applications of economic decision-making between alternatives encountered in engineering systems projects. Analysis includes methodologies of economics and finance in addition to engineering fundamentals.

Course Pre-Requisites / Co-Requisites

Pre-Requisites: MAC 2312 (Analytic Geometry and Calculus II), with a minimum grade of C.

Course Objectives Upon completion, students should be able to do the following:

1. Understand the meaning of the “time value of money”, inflation, deflation, exchange rates, and interest and their application to economic analysis
2. Understand and apply the steps of the economic decision-making process, including defining a problem, generating solution alternatives, estimating cash flows, analysis, selection, implementation and post-implementation analysis,
3. Be able to financially describe investment alternatives with cash flows and cash flow diagrams
4. Be able to estimate before tax cash flows and convert them into after-tax cash flows under the assumption of current U.S. tax law
5. Understand the concept of economic equivalence for the basis of comparing mutually exclusive alternatives

Materials and Supply Fees

N/A

Professional Component (ABET)

1. Can become successful professionals in industrial and systems engineering or other disciplines.
2. Can acquire advanced knowledge through continuing education or advanced degree programs.

Relation to Program Outcomes (ABET):

Outcome	Coverage
a. Apply knowledge	Medium
b. Conduct experiments	
c. Design	
d. Function on teams	
e. Solve problems	High
f. Professional and ethical responsibility	Medium
g. Communicate	Low
h. Economic impact	High
i. Lifelong learning	
j. Contemporary issues	
k. Techniques, skills, and tools for degree program	High

Required Textbooks

- Course Notes are available for free downloading at Canvas site: M. Zabarankin and S. Uryasev, Course Notes: Engineering Economy, 2015.
- G. Newnan, J.P. Lavelle and T.G. Eschenbach, Engineering Economic Analysis, Oxford University Press, 2013, 12th edition. ISBN: 0199339279 (or G. Newnan, J.P. Lavelle and T.G. Eschenbach, Engineering Economic Analysis, Oxford University Press, 2017, 13th edition. ISBN: 978-0190296902).

Course Format

This is an online delivery course. Lecture notes, assignments, practice exercises, and extra information are all going to be available to you on the class website at CANVAS. The assignment submission system can be reached at the tab Assignments.

Course Schedule

The course Schedule is offered as a guide. This means that it is subject to change, depending on the pace of the class. The instructor might choose to cover parts of the curriculum more extensively, or give extensions to deadlines. The dates of the exams might be subject to change depending on the progress of the class.

Week	Modules	Quiz/Exam
1	General introduction	Q0, Q1
2	Estimating costs and benefits	Q2.1, Q2.2
3	Interest and equivalence	Q3.1, Q3.2, Q3.3, HW1
4	Net present value analysis	
5	Net present value analysis (Cont'd)	Q4.1, Q4.2
6	Internal rate of return analysis	
7	Internal rate of return analysis (Cont'd)	Q5, HW2
8	Annual percentage rate	
9	Annual percentage rate (Cont'd)	Q6, Midterm Exam
10	Depreciation	
11	Depreciation (Cont'd)	Q7, HW3
12	Income taxes	
13	Income taxes (Cont'd)	Income taxes
14	Inflation and price change	Q9
15	Inflation and price change (Cont'd)	HW4
16		Final Exam

Attendance Policy

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Attendance is **not mandatory**. However, it is your responsibility to keep up with the class updates (material to be taught, quizzes, exams, etc.).

Exam Policy

Under no circumstances students should expect an arrangement that will not require their physical presence to exams. Students needing a makeup exam, or special accommodation have to inform the instructor at least one week before the date of the exam. **Please do not ask for a makeup exam to attend a job interview or other non-emergency issues. Exceptions will be made for medical emergencies or other extraordinary occasions.**

Homework Assignments & Quizzes

All homework assignments & quizzes must be submitted via the Course's website in the specified system unless specified otherwise. Submission of links to outside or cloud files does not constitute submission.

Assignment & quiz deadlines are rigid. If you submit during 24 hours after the deadline, you will receive 50% of the grade for this assignment. Submissions after 24 hours will not be considered. Lowest grades of two online quizzes will be dropped. Make-up of online quizzes will not be allowed. Lowest grade of one homework will be dropped. Any delays in taking the midterm and the final exam must be arranged with the instructor prior to the absence.

Evaluation of Grades

Assignment	Percentage of Final Grade
Four homeworks (the lowest one will be dropped)	30% (equal weight)
In-class midterm exam	25%
Fourteen online quizzes (the lowest two will be dropped)	20% (equal weight)
Final in-class exam	25%
Total	100%

Grading Policy

Grade	Percent
A	≥ 93
A-	[90, 93)
B+	[87, 90)
B	[83, 87)
B-	[80, 83)
C+	[77, 80)
C	[73, 77)
C-	[70, 73)
D+	[67, 70)
D	[63, 67)
D-	[60, 63)
E (F)	< 60

In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). This scale is tentative and will be adapted to the class performance. However, grade limits will not increase. For example, a 91% score at the end of the semester may transform either into scale corresponding A- grade, or to a higher (A) grade.

Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy graduation requirement. For more information on grades and grading policies, please visit:

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html> and
<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Re-grading Policy

Any grade issues should be brought to the attention of the instructor within 10 days after posting the grades.

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. **Various** ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.