

Engineering Economy
EIN 3354
Class Periods: ONLINE (AKA Canvas)
EXAMS are Online
Location: NA
Academic Term: Spring 2021

Instructors:

Dr. Katie Basinger, Ph.D. (Please contact through CANVAS!)

Email: katie.basinger@ise.ufl.edu (Please contact through CANVAS!)

Office Phone: (352) 294-7730 ... Not there!

Office Hours: TBD Will post by first day of class; or by appointment (Zoom link in Canvas menu)

Teaching Assistants:

The TA's are responsible for **grading ONLY**. TA's will hold one office a week to help you work out quiz or homework problems. TA office hours (OH) will be through the zoom conferences link in the Canvas menu).

- Yuliana Garcia Galvis
 - OH: TBD
- Aliyan Ali
 - OH: TBD
- Blake Bradford
 - OH: TBD

Course Description

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

This course is part of the Engineering Project Management Certificate offered by the HWCOE. The certificate requires you to make a B or higher in 2 required courses and one course from an elective list.

- Required: EGS 4625 Fundamentals of Engineering Project Management
- Required: EIN 3354 Engineering Economy
- Plus one course from a list of approved courses

More information can be found in the file titled *Project Management Certificate in course materials* or at <https://www.eng.ufl.edu/leadership/academic-programs/certificates/undergraduate/>.

Course Pre-Requisites

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

Course Co-Requisites

None

Course Objectives

- Evaluate alternatives from a variety of engineering disciplines based on economic equivalence
- Apply both manual and computerized methods for determining analytical justifications of decisions
- Define and identify terminology for reading and creating budgets for project planning

Materials and Supply Fees

Not applicable.

Professional Component (ABET):

Outcome	Coverage*
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	
3. An ability to communicate effectively with a range of audiences	
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	High
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	

- (1) The Engineering Economy course provides the student with the basic mathematical, modeling, and conceptual skills to compare competing design proposals from the point of view of economic efficiency as well as engineering efficiency. Technical proposals must ultimately be expressed and measured in terms of material and manufacturing costs to provide a given product and service and those costs then measured against the likely cash flows to be generated in the market, allowing the overall profitability and financial feasibility of such projects to be assessed.
- (4) The units on federal tax policy, depreciation, and inflation touch upon social and political considerations. Thus tax policy may implicitly favor and encourage corporations to make greater investments in R & D through an orchestrated series of directed tax credits and deductions. The project management portion touches on making informed ethical decisions in both the private and public sector. These topics give information to students to become active leaders in their profession and/or community.

Required Textbooks and Software

- Access to Microsoft Excel. You can use UF apps at apps.ufl.edu.

Recommended Materials

- G. Newnan, J.P. Lavelle and T.G. Eschenbach, Engineering Economic Analysis, Oxford University Press, 2013, 13th edition. ISBN: 0199339279
 - *****This is not required but STRONGLY recommended**
 - The 12th, 13th, or 14th edition works

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 in CANVAS.

- **All assignments for the week are due on Sunday nights at midnight.**
- EXAMS are online. There are 2 parts. Part I will use honor lock and you will have 1 hour to complete. You will need a web cam and quite space to take this part of the exam. Part II is take-home and will be posted at 8am the day of the exam and is due at 8pm.
- Exam Dates:
 - Exam 1: Friday 3/5
 - Exam 2: Saturday 4/24

Attendance Policy, Class Expectations, and Make-Up Policy

- **Attendance is required for exams online. See the calendar below. There are no make-ups provided since it is online. Getting the date wrong is not an excused absence.**
 - Excused absences must be consistent with university policies in the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation.
- Class Expectation: Stay a head of the game! There are few weeks which have a lot of material to cover. These weeks can be made easier if you start them the week before.
- Make-Up Policy: **NO LATE ASSIGNMENTS will be accepted.**
 - Solutions are posted at 8am the following day and therefore no late assignments are excepted.
 - For exams only University excused absences will be allowed make-ups. Note, internships, trips, and, interviews are NOT excused.

Evaluation of Grades

*Notice how much HW counts toward the final grade. HW will take some time, so give yourself time to do these assignments.

Assignment	Percentage of Final Grade
Homework* (5)	% 35
Quizzes	% 25
Midterm Exam	% 20
Final Exam	% 20

Course Schedule

** This is subject to change during the semester. If a change is necessary, I will send out an announcement on Canvas. Please read the announcements!

Week #	Dates	Notes	Module #	Topics	Assignments	Due Date
1	1/11 - 1/17	WELCOME! Drop/Add 1/15 (Friday)	1	Course Introduction/Making Economic Decisions	Syllabus Quiz & Quiz 1	Sun. 1/17
2	1/18 - 1/24	Mon. 1/18 MLK Day: No Class	2	Estimating Engineering Costs and Benefits	Quiz 2.1, 2.2	Sun. 1/24
3	1/24 - 1/31		3	Time Value of Money (PV and FV)	Quiz 3.1	Sun. 1/31
4	2/1 - 2/7		3	Time Value of Money (Annuity and Gradients)	Quiz 3.2 (Start HW1)	Sun. 2/7
5	2/8 - 2/14		3	Time Value of Money (Nominal and Comp. Int.)	Quiz 3.3 HW1	Sun. 2/14
6	2/15 - 2/21		4	Net Present Value	Quiz 4.1	Sun. 2/21
7	2/22 - 2/28	Thur. 2/25 Recharge Day: No Class	4	Equivalent Annual Worth	Quiz 4.2, HW2	Sun. 2/28
8	3/1 - 3/7	This begins Exam 2 Material	5	Rate of Return	Quiz 5.1	Sun. 3/7
		Exam 1	Exam 1	Exam 1: Friday 3/5 8am - 8pm	Exam 1	Fri. 3/5
9	3/8 - 3/14		5	Rate of Return	Quiz 5.2	Sun. 3/14
10	3/15 - 3/21		6	Depreciation	Quiz 6 HW3	Sun. 3/21
11	3/22 - 3/28	Wed. 3/24 Recharge Day: No Class	7	Income Taxes	Quiz 7.1	Sun. 3/28
12	3/29 - 4/4		7	Inflation	Quiz 7.2 HW 4	Sun. 4/4
13	4/5 - 4/11		8/9	Project Planning I & II	Start HW5	
14	4/12 - 4/18		9	Project Planning II	HW 5	Sun. 4/18
15	4/19 - 4/21	4/22 - 4/23 Reading Days	Study	Exam 2 Review		
17	4/24 - 4/30	Final Exam Week		Final Exam: SATURDAY 4/24	Exam 2	SAT. 4/24

Grading Policy

Percent	Grade	Grade Points
93 - 100	A	4.00
90.0 – 92.9	A-	3.67
86 - 89.9	B+	3.33
83 – 85.9	B	3.00
80.0 – 82.9	B-	2.67
76 - 79.9	C+	2.33
73 – 75.9	C	2.00
70.0 – 72.9	C-	1.67
66 - 69.9	D+	1.33
63 – 66.9	D	1.00
60.0 – 62.9	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:

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

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 professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-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://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-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.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

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: <https://registrar.ufl.edu/ferpa.html>

Our class sessions may be **audio visually recorded** for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class/office hours and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

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 Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the [Office of Title IX Compliance](#), located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

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>.