

Cover Sheet: Request 14108

ENV 4601 Environmental Resources Management

Info

Process	Course Modify Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Elliot Douglas elliot.douglas@essie.ufl.edu
Created	8/5/2019 4:01:04 PM
Updated	10/7/2019 4:14:05 PM
Description of request	Change the number of credits from 2 to 3. This request is part of a major curriculum change, request number 14095.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Environmental Engineering Sciences 011910000	Chang-Yu Wu		8/5/2019
No document changes					
College	Approved	ENG - College of Engineering	Heidi Dublin	Approved by HWCOE Curriculum Committee and Faculty Council	9/23/2019
Env Resource Management syllabus.docx					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			9/23/2019
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|Modify for request 14108

Info

Request: ENV 4601 Environmental Resources Management

Description of request: Change the number of credits from 2 to 3. This request is part of a major curriculum change, request number 14095.

Submitter: Elliot Douglas elliott.douglas@essie.ufl.edu

Created: 10/7/2019 4:19:27 PM

Form version: 2

Responses

Current Prefix ENV

Course Level 4

Number 601

Lab Code None

Course Title Environmental Resources Management

Effective Term Fall

Effective Year 2023

Requested Action Other (selecting this option opens additional form fields below)

Change Course Prefix? No

Change Course Level? No

Change Course Number? No

Change Lab Code? No

Change Course Title? No

Change Transcript Title? No

Change Credit Hours? Yes

Current Credit Hours 2

Proposed Credit Hours 3

Change Variable Credit? No

Change S/U Only? No

Change Contact Type? No

Change Rotating Topic Designation? No

Change Repeatable Credit? No

Maximum Repeatable Credits 0

Change Course Description? No

Change Prerequisites? No

Change Co-requisites? No

Rationale Increasing the number of credits will allow incorporation of additional topics needed for environmental engineering. The following topics have been added: concepts in environmental quality and natural capital; policy analysis; economics of environmental policies. The increase in contact hours will allow the topics from the 2 credit version to be covered in weeks 4-10. In addition, several topics from the 2 credit version deemed less important for environmental engineering have been removed. These topics are: probability in project selection; taxes; and making economic decisions through present worth indices and payback period. These changes will make the course more relevant to the specific needs of environmental engineers. The old syllabus (2 credit version) has been uploaded for comparison.

Course Syllabus
ENV 4601 Environmental Resources Management
Fall 2018

1. Catalog Description - Theory and application of engineering economics and systems analysis to the design of environmental management systems; 2 credit hours.
2. Pre-requisites and Co-requisites – ENV 3040C, Computational Methods in Environmental Engineering (prereq)
3. Course Objectives -
 - Understand concepts associated with time value of money.
 - Be able to conduct an economic analysis of engineering projects.
 - Be able to make decisions about an engineering project based on an economic analysis, taking into account other relevant factors.
4. Contribution of course to meeting the professional component - This is a 2 credit course. It provides 2 credits towards engineering sciences.
5. Relationship of course to program outcomes - This course addresses the following EES Program outcomes (note: Numbers refer to the list of EES Program outcomes):
 1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
 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
 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. Instructor - Elliot P. Douglas
 - a. Office location: 204 Black Hall
 - b. Telephone: 352-846-2836
 - c. E-mail address: edouglas@ufl.edu
 - d. Web site: Canvas
 - e. Office hours: Monday 6th period, Tuesday 3rd period
7. Teaching Assistant – Gretchen Dietz
 - a. Office location: 206 Black Hall
 - b. E-mail address: gretchendietz@ufl.edu
 - c. Office hours: Monday, 2 PM – 3:30 PM, Friday 9 AM – 11 AM

8. Meeting Times – TR period 8

9. Class/laboratory schedule - Two hours of class each week.

10. Meeting Location – 310 Larsen

11. Material and Supply Fees – None

12. Textbooks and Software Required – Engineering Economy – Applying theory to Practice (3rd Edition), Ted G. Eschenbach. This text is available to free for students at <https://app.knovel.com/web/>. You must be logged into the UF network or using the UF VPN to access the book.

This course will utilize Canvas as an electronic course management system. The course website has a detailed course schedule and will list your grades on assignments as they become available. All students are required to access the course site regularly. The site can be accessed from <http://lss.at.ufl.edu/>.

All students should bring to class an electronic device that will enable them to access the Canvas site during class. At least one team member should have a laptop with Excel.

13. Recommended Reading – None.

14. Course Outline –

Week 1	Economic decisions
Week 2	Cash flows, equivalence
Week 3	Time value of money
Week 4	Present worth
Week 5	Equivalent annual worth
Week 6	Internal rate of return
Week 7	Interest, amortization
Week 8	Making economic decisions though cost-benefit analysis (CBA)
Week 9	Making economic decisions through present worth indices, payback period
Week 10	Mutually exclusive choices
Week 11	Considerations for public projects
Week 12	Including externalities in CBAs and decision-making
Week 13	Probability in project selection
Week 14	Taxes
Week 15	Environmental engineering case studies

15. Attendance and Expectations – This class will be conducted primarily in a flipped format. Each week is considered one module, with the following activities:

- Tuesday: Readiness Assurance Test on the week’s reading, followed by Team Application Questions.
- Thursday: Team Application Questions

The RAT is designed to ensure you understand the basic concepts from the reading. It may include simple calculations. It is closed book.

The Team Application Questions are problems you will work on together within your team. Often there is no clear, single correct answer for these questions, so you will need to justify your answer beyond just doing a calculation. After individual teams work on their answers there will be a class discussion. Team Application Questions are not graded, but are the primary means by which you will learn class concepts.

You will not receive credit for the RAT if you are not in class, so attendance will be taken to give credit appropriately. If you need to be absent on a Tuesday for a legitimate reason contact the instructor, preferably ahead of time. In addition, regular attendance in class will be key to successfully learning the material. Reading the text will not be sufficient. Deliberate practice using the concepts to solve problems is necessary to have a full understanding.

16. Grading – Readiness Assurance Tests (in class), homework, team project, final exam; each worth 25% towards final grade.

Readiness Assurance Tests: Every Tuesday there will be a test on the reading for that week. First you will take it online through Canvas, then you will take it as a group. Total grade for the RAT will be 50% individual and 50% team.

Homework: Homework consists of three components: 1) You will solve the assigned problems and turn in the solutions through Canvas; 2) The solution will be posted. You will grade your original solution, and redo the problems to correct any error you made. Then upload your self-assigned grade for part 1 and the new solutions for part 2 to Canvas. We will check your self-assigned grade to make sure it is reasonable; 3) You will write a reflection on each homework assignment that discusses what you did wrong on the first attempt, why you made those mistakes, and what you have learned from doing it again. Homework grade will be assigned as 40% self-assigned grade for part 1 (subject to change by the TA or instructor), 40% grade for part 2, 20% reflection.

Team Project: Each team will be responsible for a project in which they conduct an economic analysis. Grades will be based on a project report. Additional details will be provided early in the semester.

Final Exam: The final exam will be a 20 question multiple choice test that covers all topics from the semester. The only resource you may use is a calculator. The final exam will be December 4 in class.

17. Grading Scale – The grading scale is indicated below. Grades are not curved.

Percentage	≥92	≥88	≥84	≥80	≥76	≥72	≥68	≥65	≥62	≥59	≥56	<56
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Grade Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0

A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C-average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

18. Make-up Exam Policy - Make-up exams are given only for reasons of illness and in accordance with University of Florida regulations.

19. Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

Cheating is a very serious offense and will not be tolerated. All instances of cheating, no matter how minor it may seem to you, will be reported to the Dean of Students Office and prosecuted. The penalty for any instance of cheating is a grade of E for the semester. Actions that are considered cheating include, but are not limited to:

- Copying of homework solutions from another source or another student. Students are encouraged to work together to solve the homework, and thus it is expected that in some cases the homework solutions of two students will be the same. However, blatant copying can be identified and will be considered cheating.
- Copying from another student during an exam, or using disallowed resources (including programming information into a calculator) during an exam. Calculators will be spot-checked during exams.
- Plagiarism on written reports. Plagiarism is the practice of copying the text or ideas from other sources and presenting it as your own. A good explanation of plagiarism is available at <https://tomprof.stanford.edu/posting/1178>.
- Attempting to change answers or marked grades on homework assignments or exams after they have been graded and returned.
- Any other action which is an attempt to modify your grade for an assignment in a way that does not actually reflect your work or abilities.

20. Accommodation for Students with Disabilities – Students requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

21. UF Counseling Services – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
- University Counseling Center, 301 Peabody Hall, 392-1575, Personal and Career Counseling.
- SHCC mental Health, Student Health Care Center, 392-1171, Personal and Counseling.

- Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling.

- Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

22. 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.

Environmental Resources Management

ENV 4601 Section XXXX

Class Periods: TBD

Location: TBD

Academic Term: Spring 2024

Instructor:

David Kaplan

dkaplan@ufl.edu

352-392-8439

Office Hours: TBD, 102 Phelps Lab

Teaching Assistant/Peer Mentor/Supervised Teaching Student:

Please contact through the Canvas website

- Name, email address, office location, office hours (TBD)

Course Description

Theory and application of engineering economics and systems analysis to the design of environmental management systems; 3 credit hours.

Course Pre-Requisites / Co-Requisites

ENV 3040C, Computational Methods in Environmental Engineering (prerequisite)

Course Objectives

- To understand concepts associated with the time value of money.
- To be able to conduct an economic analysis of engineering projects.
- To understand concepts of natural capital and ecological economics.
- To identify and critically evaluate alternative environmental policy instruments.
- To be able to make decisions about an engineering project based on an economic analysis, taking into account other relevant social and environmental factors.
- To develop written and verbal skills in communicating environmental economic topics.

Materials and Supply Fees - None

Professional Component (ABET):

This course provides 3 credits towards engineering topics.

Relation to Program Outcomes (ABET):

The table below is an example. Please consult with your department's ABET coordinator when filling this out.

Outcome	Coverage*
1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.	Medium
2. An ability to apply both analysis and synthesis in the engineering design process, resulting in designs that meet desired needs.	High
3. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	
4. An ability to communicate effectively with a range of audiences	Medium
5. 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.	Medium

6. An ability to recognize the ongoing need for additional knowledge and locate, evaluate, integrate, and apply this knowledge appropriately.	Medium
7. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty	Medium

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Textbooks and Software

- Engineering Economy – Applying theory to Practice (3rd Edition), Ted G. Eschenbach. This text is available to free for students at <https://app.knovel.com/web/>. You must be logged into the UF network or using the UF VPN to access the book.
- Field, Barry C. and Martha K. Field Environmental Economics, 7th Edition (SF, CA: McGraw-Hill, 2017).

Additional readings will be assigned and made available as PDFs. This course will utilize Canvas as an electronic course management system. The course website has a detailed course schedule and will list your grades on assignments as they become available. All students are required to access the course site regularly. The site can be accessed from <http://lss.at.ufl.edu/>. All students should bring to class an electronic device that will enable them to access the Canvas site during class. At least one team member should have a laptop with Excel.

Recommended Materials

- Sustainable Entrepreneurship: Business Success through Sustainability, Weidinger, Fischler, & Schmidpeter, Springer 2014.

Course Schedule

Week 1	Comparing and contrasting “Engineering Economy” and “Environmental Economy”
Week 2	The economics of environmental quality
Week 3	Valuation of natural capital and ecosystem services
Week 4	Market efficiency, supply and demand, and externalities
Week 5	Financial fundamentals: time value of money, equivalence
Week 6	Financial fundamentals: present worth, equivalent annual worth
Week 7	Financial fundamentals: interest, rate of return, and amortization
Week 8	Making economic decisions through benefit-cost analysis (CBA)
Week 9	CBA: mutually exclusive choices, considerations for public projects
Week 10	Including externalities in CBAs and decision-making.
Week 11	Environmental and economic policy analysis: criteria and standards
Week 12	Policy analysis: decentralized vs. regulated
Week 13	Policy analysis: incentives-based
Week 14	The economics of US air and water pollution control policies
Week 15	State and local environmental economics

Attendance Policy, Class Expectations, and Make-Up Policy

- This class will be conducted primarily in a flipped format. Each week is considered one module, with the following activities:
 - Tuesday: Readiness Assurance Test (RAT) on the week’s reading, followed by Team Application Questions.
 - Thursday: Team Application Questions

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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.

Evaluation of Grades

Readiness Assurance Tests (in class), homework, team project, final exam; each worth 25% towards final grade.

Readiness Assurance Tests: Every Tuesday there will be a test on the reading for that week. First you will take it online through Canvas, then you will take it as a group. Total grade for the RAT will be 50% individual and 50% team.

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Final Exam: The final exam will be a 20-question multiple choice test that covers all topics from the semester. The only resource you may use is a calculator. The final exam will be December 4 in class.

Grading Policy

The grading scale is indicated below. Grades are not curved.

Percent	Grade	Grade Points
93 - 100	A	4.00
90 - 92	A-	3.67
88-90	B+	3.33
82-88	B	3.00
80-82	B-	2.67
78-80	C+	2.33
72-78	C	2.00
70-72	C-	1.67
68-70	D+	1.33
62-68	D	1.00
60-62	D-	0.67
<60	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>

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://care.dso.ufl.edu>.

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