

Cover Sheet: Request 14105

ENV 4041 Environmental Analysis

Info

Process	Course Modify Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Elliot Douglas elliott.douglas@essie.ufl.edu
Created	8/5/2019 2:38:23 PM
Updated	10/7/2019 3:52:14 PM
Description of request	Increase credits from 3 to 4. 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 Analysis 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 14105

Info

Request: ENV 4041 Environmental Analysis

Description of request: Increase credits from 3 to 4. This request is part of a major curriculum change, request number 14095.

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

Created: 10/7/2019 3:55:09 PM

Form version: 2

Responses

Current Prefix ENV

Course Level 4

Number 041

Lab Code C

Course Title Environmental Analysis

Effective Term Spring

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 3

Proposed Credit Hours 4

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 credits will allow inclusion of additional topics needed for environmental engineering. Specifically, the following topics have been added: microscopy techniques and molecular analyses. Due to the increased contact hours each week the material in the 3 credit version of the course can now be covered in weeks 1-10 and 15. The new material is being added to weeks 11-14.

University of Florida
 Department of Environmental Engineering Sciences
 ENV 4041C Environmental Analysis
 Spring 2018

Instructor	Teaching Assistants (TAs)	Location Lectures & Labs	Days/times of Lectures & Labs
Dr. Katherine Y. Deliz Quiñones Office: 208 A.P. Black Hall Tel: (352) 846-3913 Email: katherine.deliz@essie.ufl.edu Office hours: MTW – Period 6th (12:50 – 1:40 PM), or by E-mail appointment.	White, Elliot Email: eewhite@ufl.edu Office: Phelps Lab 115 Office hours: TBA Robey, Nicole Email: nicolemr@ufl.edu Office: NEB 331 Office hours: TBA	<ul style="list-style-type: none"> ▪ Lectures will be in BLK 315 ▪ Labs will be in BLK 203 or as announced in class prior to Lab 	Lectures: M and W, 5 th period Labs will be by section on: <ul style="list-style-type: none"> ▪ T Section 18E3 – 7 & 8th periods ▪ W Section 18C5 – 7 & 8th periods

Course description and objectives: Theory and laboratory techniques for the analysis of contaminants in aqueous, gaseous, and solid phases and links to basic concepts of ecosystems structure and function. This course will provide students with knowledge and skills necessary for accurate sampling, storage, handling and analysis of environmental samples. After completion of this course, students should be able to: (i) link different analytical techniques to the identification and quantitation of pollutants of environmental concern, (ii) critically analyze/discuss experimental data, and (iii) write lab reports and scientific papers.

Course Pre-requisites: CHM 2046 or CHM 2096 and STA2023 or equivalent

Professional Component (ABET): Fundamental concepts and principles emphasized in this course will provide students with necessary skills needed to qualitatively and quantitatively characterize environmental pollution in both natural and engineered systems. The hands-on component of this course (labs) is a tremendous asset for professional careers in environmental engineering as it exposes students to the analysis of experimental data, while helping develop scientific critical thinking and writing skills.

Relation to Program Outcomes (ABET): Students who successfully complete this course should be able to: (1) design and conduct laboratory experiments, and (2) critically analyze and interpret data relevant to environmental systems.

Required Textbook and Software:

- Textbook title: “Fundamentals of Environmental Sampling and Analysis”
- Author: Chunlong Zhang
- Publisher: John Wiley & Sons, 2007.
- Software: Laptop equipped with excel or a statistical analysis software

Grading: This is a lab course. Therefore, there will be emphasis on lab related activities for a total of 40% of the course’s final grade. In addition to lab reports, there will be two exams. Homework and Quizzes will also be assigned throughout the semester. The course final grade will be determined as follows:

Assignments	Total Points	Percent Lecture Grade	Percent Final Grade
Exam 1 (week 8)	100	40	
Exam 2 (week 16)	100	50	60
Assignments	-	10	
Laboratory Reports	100	-	40
Lab Quizzes	-	-	Bonus to reports

Grading Policy: 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>. The following grading scale will be used in this course:

Percent	Grade	Corresponding Grade Points
94 - 100	A	4.00
90 - 93	A-	3.67
86 - 89	B+	3.33
83 - 85	B	3.00
80 - 82	B-	2.67
76 - 79	C+	2.33
73 - 75	C	2.00
70 - 72	C-	1.67
66 - 69	D+	1.33
63 - 65	D	1.00
60 - 62	D-	0.67
0 - 59	E	0.00

Attendance Policy, Course Expectations, and Make-Up Policy

- **Lectures:** Students are encouraged to attend all classes. History indicates that students who do not attend class do poorly on examinations and suffer the consequence of low grades. Extensions on exams and assignments will be given only for excused absences. Excused absences must be consistent with university policies in the undergraduate catalog and require appropriate documentation. Additional information can be found here: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>. If possible, the student must contact the instructor (Katherine.deliz@essie.ufl.edu) beforehand, to state that he/she will not be able to submit the assignment by the due date, or attend the exam.
- **Labs and lab reports:** Unlike lectures, **lab sessions are mandatory and the TAs will record students' presence and participation on a weekly basis. Additionally, all students are required to attend a lab safety training which will be arranged by the instructor. Specific guidelines will be provided on how to write a Lab report, and submission after the deadline won't be accepted, except when justified by reasons similar to those described in the lecture section above.**

Canvas. Notes consisting of power point slides to be used in class, homework assignments and other information will be posted on UF-Canvas site. Online information regarding common tools on canvas is provided for students and available via the **Student Intro to ELS** link at <http://lss.at.ufl.edu>. Students needing assistance with the computer and technical requirements for using E-learning, should seek this assistance from the UF HelpDesk <http://helpdesk.ufl.edu/> 352-392-4357, helpdesk@ufl.edu). The HelpDesk can also assist students who are having trouble logging into E-learning.

Cell Phones Cell phones must be turned off or silenced at the beginning of class; use of cell phones for calls or messaging during class is prohibited.

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.

Campus Resources

UF has available resources on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- **Health and Wellness**
 - **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.
 - **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](https://www.dso.ufl.edu/documents/UF%20Complaints%20policy.pdf).
 - **On-Line Students Complaints:** <http://www.distance.ufl.edu/student-complaint-process>.

TENTATIVE LECTURE SCHEDULE

WEEKS	LECTURE TOPICS	CHAPTERS (TEXTBOOK)
1	<ul style="list-style-type: none"> ▪ Introduction to Environmental Analysis Course ▪ Global Cycles ▪ Environmental Data Acquisition ▪ Basic of Environmental Sampling Design 	1, 3
2	<ul style="list-style-type: none"> ▪ Sampling Techniques ▪ Techniques to Assure Analytical QA/QC ▪ Technical: Practice and Examples 	4, 5
3, 4	<ul style="list-style-type: none"> ▪ Basic Statistics in Environmental Analysis ▪ Descriptive Statistics ▪ Technical: Practice and Examples 	2
5, 6	<ul style="list-style-type: none"> ▪ Common Operations and Wet Chemicals Methods in Environmental Analysis ▪ Sample Preparation for Environmental Analysis Common Operations and Wet Chemicals Methods in Environmental Analysis 	6, 7
7, 8, 10	<ul style="list-style-type: none"> ▪ Molecular Spectroscopy 	8
9	Spring Break	
11, 12	<ul style="list-style-type: none"> ▪ Atomic Spectroscopy 	9
13, 14	<ul style="list-style-type: none"> ▪ Chromatographic Methods 	10
15, 16	<ul style="list-style-type: none"> ▪ Mass Spectrometric and other Methods 	11, 12

TENTATIVE LAB SCHEDULE: LABS ARE MANDATORY, PRESENCE WILL BE RECORDED

WEEKS	LAB TOPICS	TYPES OF ANALYSES
1	▪ No LAB	
2	▪ LAB 1: Lab Safety	Black Hall (Room 213)
3, 4	▪ LAB 2: Environmental Sampling Design ▪ LAB 3: Statistics of Environmental sampling and analysis	Field Lab Black Hall (Room 213)
5, 6	▪ LAB 4 & 5: Common Operations and Wet Chemicals Methods in Environmental Analysis	pH and Alkalinity – BLK 203 (Lab report-1)
7, 8, 10	▪ LAB 6, 7, & 8: Molecular Spectroscopy	Phosphate analysis – BLK 203 (Lab report-2)
9	Spring Break	
11, 12	▪ LAB 9 & 10: Atomic Spectroscopy	Metal analysis – BLK 203 (Lab report-3)
13, 14	▪ LAB 11 & 12: Chromatographic Methods	Greenhouse gases – BLK 203 (Lab report-4)
15, 16	▪ LAB 13 & 14: Mass Spec Methods	Air samples analysis – Field Lab (Lab report-5)

Environmental Analysis
ENV 4041C Sections TBD
Class Periods: TBD
Lab Periods: TBD
Location: TBD
Academic Term: Spring 2023

Instructor:

Dr. Katherine Y. Deliz Quiñones
katherine.deliz@essie.ufl.edu
(352) 846-3913
Office Hours: TBD

Teaching Assistant/Peer Mentor/Supervised Teaching Student:

Please contact through the Canvas website

- TBD

Course Description

Credits: 4. Theory and laboratory techniques for the analysis of air and water pollutants and basic concepts of ecosystems structure and analysis.

Course Pre-Requisites / Co-Requisites

Prereq: CHM 2046 or CHM 2096 and STA 3032 or STA 2023.

Course Objectives

This course will provide students with knowledge and skills necessary for accurate sampling, storage, handling and analysis of environmental samples. After completion of this course, students should be able to:

- (i) link different analytical techniques to the identification and quantitation of pollutants of environmental concern,
- (ii) critically analyze and discuss experimental data, and
- (iii) write technical lab reports using scientific paper format.

Materials and Supply Fees

\$50.00 lab fee

Professional Component (ABET):

This course provides 4 credits of engineering topics.

Relation to Program Outcomes (ABET):

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

*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

Course notes are developed by the instructor using the required textbook and scientific literature as a reference.

- Textbook
 - Title: "Fundamentals of Environmental Sampling and Analysis"
 - Author: Chunlong Zhang
 - Publisher: John Wiley & Sons, 2007
 - ISBN number: _____
- Software
 - Laptop equipped with excel or a statistical analysis software

Recommended Materials

- J. Zhanga and C. Zhang. 2012. Sampling and sampling strategies for environmental analysis. Intern. J. Environ. Anal. Chem. Vol. 92, No. 4, pp. 466-478
- IUPAC Technical Report. 2003. Minimum requirements for reporting analytical data for environmental samples. Pure Appl. Chem., Vol. 75, No. 8, pp. 1097-1106
- EPA. 2002. Guidance on Choosing a Sampling Design for Environmental Data Collection: for Use in Developing a Quality Assurance Project Plan. QA/G-5S

Course Schedule

Week	Topic	Lecturer	Chapters	HW/Quizzes/Exams
Week 1:	Introduction to Course Global Cycles Fundamentals of Chemical Analysis	Dr. Deliz		
Week 2:	QA/QC Basic Statistics Descriptive Statistics Sampling Design Sampling Techniques	Dr. Deliz	Chapters 1-5	
Week 3:	Sample Preparation Wet Chemical Methods	Dr. Deliz	Chapters 6-7	Quiz 1
Week 4:	Wet Chemical Methods	Dr. Deliz	Chapter 7	
Week 5:	Spectroscopic Methods	Dr. Deliz	Chapter 8	
Week 6:	Spectroscopic Methods	Dr. Deliz	Chapter 9	
Week 7:	Chromatographic Methods 1	Dr. Deliz	Chapter 10	HW 1
Week 8:	Chromatographic Methods 2	Dr. Deliz	Chapter 10	Exam1
Week 9:	Chromatography Detectors	Dr. Deliz	Chapter 10	
Week 10:	Mass Spectrometry	Dr. Deliz	Chapter 12	Quiz 2
Week 11:	Microscopy Techniques	Dr. Deliz		
Week 12:	Microscopy Techniques	Dr. Deliz		HW 2
Week 13:	Molecular Analyses	Dr. Deliz		
Week 14:	Molecular Analyses	Dr. Deliz		Exam 2
Week 15:	Novel Methods	Dr. Deliz		

Laboratory Schedule

Week	Topic	Quizzes	Reports
Week 1:	Introduction to Lab Practice and Expectations	Quiz 1	
Week 2:	Lab Safety	Quiz 2	
Week 3:	Environmental Sampling	Quiz 3	
Week 4:	UV-Vis Spectrometry Part 1	Quiz 4	
Week 5:	UV-Vis Spectrometry Part 2		
Week 5:	UV-Vis Spectrometry Part 2		
Week 6:	Atomic Spectrometry Part 1		Report 1
Week 7:	Atomic Spectrometry Part 2		
Week 8:	Chromatography Part 1	Quiz 5	
Week 9:	Chromatography Part 2		
Week 10:	Microscopy		Report 2
Week 11:	Molecular Analysis		
Week 12-15:	Team projects		Report 3

Attendance Policy, Class Expectations, and Make-Up Policy

State whether attendance is required and if so, how will it be monitored? What are the penalties for absence, tardiness, cell phone policy, laptop policy, etc. What are the arrangements for missed homework, missed quizzes, and missed exams? This statement is required: 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

Assignment	Total Points	Percentage of Final Grade
Homework Sets (2)	50/each	10%
Quizzes (2)	25/each	5%
Midterm Exam	100	15%
Final Exam	100	15%
Final Project	100	15%
		60%
Laboratory Quizzes (5)	10/each	10%
Laboratory Reports (3)	100/each	30%
		40%

Grading Policy

The following is given as an example only.

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	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.ua.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.ua.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](mailto:title-ix@ufl.edu), 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>.