Cover Sheet: Request 14106

EES 4XXX Environmental Chemistry

Info

Process	Course|New|Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Elliot Douglas elliot.douglas@essie.ufl.edu
Created	8/5/2019 2:49:16 PM
Updated	9/23/2019 10:09:39 AM
Description of request	Creation of a new course as 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 Chem syllabus.docx					9/5/2019
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					

Original file: Cover sheet.pdf

Course|New for request 14106

Info

Request: EES 4XXX Environmental Chemistry
Description of request: Creation of a new course as part of a major curriculum change, request number 14095
Submitter: Elliot Douglas elliot.douglas@essie.ufl.edu
Created: 10/7/2019 9:36:26 AM
Form version: 3

Responses

Recommended Prefix EES
Course Level 4
Number XXX
Category of Instruction Advanced
Lab Code None
Course Title Environmental Chemistry
Transcript Title Env Chem
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No

Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 4

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 4
Course Description This course is designed to provide students with fundamental knowledge needed to solve pollution problems specific to environmental systems. The course focuses primarily on thermodynamic equilibrium and kinetic principles associated with both natural and engineered systems.
Prerequisites (CHM 2046 or CHM 2096) & MAC 2311
Co-requisites None
Rationale and Placement in Curriculum This course provides a foundation for later courses in the curriculum. It provides students fundamental knowledge on chemical principles as applied to environmental systems which are utilized in later courses. This course combines topics from two existing courses that it is replacing: EES4201, Water Chemistry and ENV4101, Elements of Atmospheric Pollution. It is a new course that is part of a curriculum change submitted as request number 14095.
Course Objectives Students will quantitatively solve thermodynamic equilibrium and kinetic problems and develop an understanding of chemical concepts/principles which are the basis for design experiences in both academic programs and professions in environmental engineering.
Course Textbook(s) and/or Other Assigned Reading Environmental Chemistry: A global perspective 4th Edition by Gary W. vanLoon and Stephen J. Duffy
Weekly Schedule of Topics TIME LECTURE TOPICS ASSIGNMENTS

1. INTRODUCTION

Week-1
- The Earth's System
- Connectedness of the Earth's surface layers
- Anthropogenic Effects & Environmental Implications

2. THE ATMOSPHERE: ELEMENTS OF ATMOSPHERIC CHEMISTRY

Week-2 • The Earth's atmosphere

• Stratospheric Chemistry Quiz-1

Week-3 • Tropospheric chemistry HW-1

Week-4 • Emission from combustion engine Quiz-2

Week-5 • Atmospheric aerosol

• Urban and Indoor HW-2

Week-6 • Monitoring of air pollutants Exam-1

3. THE HYDROSPHERE: ELEMENTS OF WATER CHEMISTRY

Week-7 • The hydrosphere: Basic of aquatic chemistry

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Distribution of Species in aquatic systems

- Gases in water
- Organic matter in water
- Metals in the hydrosphere
- Environmental chemistry of colloids and surfaces
- Microbiological processes
- Water Pollution and Wastewater Treatment Chemistry

Week-8 Quiz-3

Week-9 HW-3

Week-10

Week-11 Quiz-4

4. THE PEDOSPHERE: ELEMENTS OF SOIL CHEMISTRY

Week-12 • The terrestrial environment

- Soil Properties
- The Chemistry of Solid Wastes
- Organic biocides
- Soil Pollution and Remediation HW-4

Week-13

Week-14 Exam-2

5. INTEGRATION – CLOSING THE LOOP

Week-15 • Technosphere

- Phase distribution of pollutants (air-soil-water)
- Biosphere and toxicological risks

Grading Scheme There will be a total of three tests and several homework assigned throughout the semester. Solutions to the homework and exams will be posted on Canvas.

Final grades in this course will be determined on the following basis:
Assignments……Total points……Percent final grade

- Quizzes 100 20%
- Homework 100 20%
- Exam-1 100 30%
- Exam-2 100 30%

Instructor(s) Myoseon Jang
Jean-Claude Bonzongo
Attendance & Make-up Yes
Accomodations Yes
UF Grading Policies for assigning Grade Points Yes
Course Evaluation Policy Yes

Environmental Chemistry
EES4XXX Section XXXX
***Class Periods*:** To be determined (TBD)
Location: **TBA**
Academic Term: TBA

Instructors	Teaching Assistants
Dr. Myoseon Jang Office: 410 Black Hall Email: mjang@ufl.edu Office hours: TBA Tel: (352) 846-1744 **Dr. Jean-Claude Bonzongo** Office: 308 Black Hall Email: bonzongo@ufl.edu Office hours: TBA Tel: (352) 392-7604	**XXXXXXXXXXXXX** Office: Room#, Building Email: xxxxxx@ufl.edu Office hours: TBA **XXXXXXXXXXXXX** Office: Room #; Building Email:xxxxxxxxx@ufl.edu Office hours: TBA

Course description.

This course is designed to provide students with fundamental knowledge needed to solve pollution problems specific to environmental systems. The course focuses primarily on thermodynamic equilibrium and kinetic principles associated with both natural and engineered systems. (4 credits)

Course Pre-requisites.

CHM 2046 and/or CHM 2096 - and - MAC 2311 and/or MAC 2233.

Course Objectives.

Students will quantitatively solve thermodynamic equilibrium and kinetic problems and develop an understanding of chemical concepts/principles which are the basis for design experiences in both academic programs and professions in environmental engineering.

Professional Component (ABET).

This course provides 4 credits towards engineering topics.

Relation to Program Outcomes (ABET).

Students who successfully complete this course should be able to (i) identify, formulate, and solve engineering problems related to air, soil, and water pollution, (ii) apply knowledge of mathematics, chemistry, and engineering; and (iii) acquire knowledge on fate and environmental impacts of pollutants. Relevant relations to program outcomes are tabulated below.

Outcomes	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	Medium
3. An ability to communicate effectively with a range of audiences	Medium
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	Medium

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	Low
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Low
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	High

Required Textbooks and Software.

Environmental Chemistry: A global perspective 4th Edition by Gary W. vanLoon and Stephen J. Duffy

Additional readings

- Selected journal articles provided by the instructors

Course Schedule

TIME	LECTURE TOPICS	ASSIGNMENTS
	1. INTRODUCTION	
Week-1	• The Earth's System • Connectedness of the Earth's surface layers • Anthropogenic Effects & Environmental Implications	
	2. THE ATMOSPHERE: ELEMENTS OF ATMOSPHERIC CHEMISTRY	
Week-2	• The Earth's atmosphere • Stratospheric Chemistry	**Quiz-1**
Week-3	• Tropospheric chemistry	**HW-1**
Week-4	• Emission from combustion engine	**Quiz-2**
Week-5	• Atmospheric aerosol • Urban and Indoor	**HW-2**
Week-6	• Monitoring of air pollutants	**Exam-1**
	3. THE HYDROSPHERE: ELEMENTS OF WATER CHEMISTRY	
Week-7	• The hydrosphere: Basic of aquatic chemistry	
Week-8	• Distribution of Species in aquatic systems	**Quiz-3**
Week-9	• Gases in water • Organic matter in water	**HW-3**
Week-10	• Metals in the hydrosphere	
Week-11	• Environmental chemistry of colloids and surfaces • Microbiological processes • Water Pollution and Wastewater Treatment Chemistry	**Quiz-4**

	4. THE PEDOSPHERE: ELEMENTS OF SOIL CHEMISTRY	
Week-12	• The terrestrial environment • Soil Properties • The Chemistry of Solid Wastes • Organic biocides • Soil Pollution and Remediation	**HW-4**
Week-13		
Week-14		**Exam-2**
	5. INTEGRATION – CLOSING THE LOOP	
Week-15	• Technosphere • Phase distribution of pollutants (air-soil-water) • Biosphere and toxicological risks	
		Quiz-5

Evaluation of Grades.

There will be a total of three tests and several homework assigned throughout the semester. Solutions to the homework and exams will be posted on Canvas.

Final grades in this course will be determined on the following basis:

Assignments	**Total points**	**Percent final grade**
• Quizzes	100	20%
• Homework	100	20%
• Exam-1	100	30%
• Exam-2	100	30%

Grading Policy.

Grading will follow UF's guidelines as tabulated below.

Letter Grades	Lower score	Upper score	**Letter grades**	Lower score	Upper score
A	90	100	**C**	70	73
A-	87	89	**C-**	67	69
B+	84	86	**D+**	64	66
B	80	83	**D**	60	63
B-	77	79	**D-**	57	59
C+	74	76	**E**	0	56

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 suppor*t*, 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.