

 FLORIDA ATLANTIC UNIVERSITY	COURSE CHANGE REQUEST Undergraduate Programs		UUPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department CEGE College CoE&CS		
Current Course Prefix and Number ENV4112		Current Course Title Air Pollution and Control Systems	
<i>Syllabus must be attached for ANY changes to current course details. See Checklist. Please consult and list departments that may be affected by the changes; attach documentation.</i>			
Change title to: Change prefix From: _____ To: _____ Change course number From: _____ To: _____ Change credits* From: _____ To: _____ Change grading From: _____ To: _____ Change WAC/Gordon Rule status** Add <input type="checkbox"/> Remove <input type="checkbox"/> Change General Education Requirements*** Add <input type="checkbox"/> Remove <input type="checkbox"/> <small>*Review Provost Memorandum</small> <small>**WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See WAC Guidelines.</small> <small>***General Education criteria must be indicated in syllabus and approval attached to this form. See GE Guidelines.</small>		Change description to: Change prerequisites/minimum grades to: Add CWR3201C with minimum grade of "C" to current list Change corequisites to: No change Change registration controls to: Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).	
Effective Term/Year for Changes: Spring 2021		Terminate course? Effective Term/Year for Termination:	
Faculty Contact/Email/Phone Masoud Lashaki/mjahandarlashaki@fau.edu/954-924-7223			
Approved by Department Chair <u>DM for Yan Yong</u> College Curriculum Chair <u>Daniel E. Meeroff</u> College Dean <u>Fred Bloetscher (via email confirmation)</u> UUPC Chair <u>Jerry Haky (via email confirmation)</u> Undergraduate Studies Dean <u>Edward Pratt (via email confirmation)</u> UFS President _____ Provost _____		Date _____ 3-25-20 _____ 3-27-20 _____ 3-27-20 _____ 3-30-20 _____ 3-31-20 _____ _____	

Email this form and syllabus to mjenning@fau.edu seven business days before the UUPC meeting.

**Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
Course Syllabus**

1. Course title/number, number of credit hours	
Air Pollution and Control Systems (ENV 4112)	3 credit hours
2. Course prerequisites, corequisites, and where the course fits in the program of study	
<i>Prerequisites:</i> ENV 3001C and CWR3201C with minimum grade of "C"; permission of department <i>Corequisite:</i> ENV 4112L Required senior level course for BSEV majors	
3. Course logistics	
<i>Term:</i> Spring 2020 This is a classroom lecture course <i>Class location and time:</i> Boca Raton Campus, FL 404, Wednesday 7:10 pm – 10:00 pm	
4. Instructor contact information	
<i>Instructor's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i>	Dr. Masoud Jahandar Lashaki, Assistant Professor Boca Raton Campus, EG 216; SeaTech Campus, ST 202 Wednesday 2:00 – 4:00 pm, EG 216 954-924-7223 mjahandarlashaki@fau.edu
5. TA contact information	
<i>TA's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i>	N/A
6. Course description	
This course introduces students to the regulations dealing with air quality, basic meteorology, the physics at atmospheric dispersion, indoor air quality and design of air pollution control systems. The class meets for one 170-minute lecture per week. In-class quizzes are held every week. There is a major case study presentation and four assignments, and a midterm exam and a final exam are given.	
7. Course objectives/student learning outcomes/program outcomes	
<i>Course objectives</i>	I. Present the fundamental concepts of air quality in engineering, as applied to the regulation, analysis, design, modeling, and operation of air pollution control systems. II. Expose students to air sampling and air quality assessment tools. III. Expose students to design considerations for air pollution control systems.

Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
Course Syllabus

<i>Student learning outcomes & relationship to ABET 1-7 objectives</i>	<p>A. Students will be able to understand the fundamental air pollution concepts and regulations necessary to analyze basic civil/environmental engineering problems (1,2,4,6)</p> <p>B. Students will be able to utilize air sampling and atmospheric dispersion modeling to assess air quality in basic contexts (1,4,6)</p> <p>C. Students will be able to select and design an appropriate air pollution control system for a basic scenario involving gas-phase and particulate pollutants (1,4,6)</p> <p>D. Students will be able to evaluate air quality issues associated with different industries and propose relevant air pollution mitigation strategies (1,3,4,5,7)</p>	
<i>Relationship to program educational objectives</i>	Objective A: Practice environmental engineering within the general area of water and wastewater, air quality, solid and hazardous waste, groundwater and soil remediation, and sustainability and pollution prevention in the organizations that employ them	M
	Objective B: Advance their knowledge of environmental engineering, both formally and informally, by engaging in lifelong learning experiences including attainment of professional licensure and/or graduate studies	H
	Objective C: Serve as effective professionals, based on strong interpersonal and teamwork skills, an understanding of professional and ethical responsibility, and a willingness to take the initiative and seek progressive responsibilities	M
	Objective D: Participate as leaders in activities that support service to, and/or economic development of, the region, the state and the nation	H
8. Course evaluation method (percentages subject to change)		
Midterm	25%	<i>Note:</i> The minimum grade required to pass the course is “C”
Final Exam	35%	
Quizzes (every lecture; Fishbowl technique)	15%	
Assignments (likely four; Excel submission)	10%	
Case Study Presentation	15%	
<p><i>Attendance</i> to class is required. You are expected to participate in all sessions and keep up with the material. Participation in University-approved activities or religious observances, with prior notice, will not be penalized. You are not expected to be a distraction in the class. Final grades will be reduced by one letter for class disruption or lack of participation (as determined by the instructor).</p> <p>All questions must be sent publicly through Canvas, so other students also benefit from the answers. Only personal or confidential matters should be sent via email to the professor, all others will be ignored. Keep copies of all assignments for ABET purposes.</p> <p>Tests are closed book; however, an equation sheet may be provided by the instructor. More details will be announced prior to exams. The final exam will be cumulative.</p>		

Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
Course Syllabus

9. Course grading scale

There are no fixed criteria for the grading scale.
The overall performance as related to course objectives and outcomes is evaluated and considered during grading.

10. Policy on makeup tests, late work, and incompletes

Exams will be given only at the scheduled times and places, unless previous arrangements have been made no less than one (1) full week in advance. No one is exempt from exams.
Makeups are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam. Makeup exams will be administered and proctored by department personnel unless there are other pre-approved arrangements.
Late work is not acceptable. *Incomplete grades* are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency, incomplete grades will not be given. All late submissions are subject to 20% penalty per day.
Note: Incomplete grades are only reserved for those students who were passing but could not complete the required work due to exceptional circumstances.

11. Special course requirements

The goal of integrating writing in this course is to improve students' ability to produce professional quality engineering reports. Contact the University Center for Excellence in Writing at 561-297-3498 or www.fau.edu/UCEW for assistance.
Report all technical problems in Canvas to helpdesk (<http://www.fau.edu/helpdesk>)

12. Classroom etiquette policy

University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones, are to be disabled in face-to-face class sessions. Please review the university Netiquette policy guidelines at <https://www.fau.edu/oit/student/netiquette.php>. Remember you are an adult—your communication with the professor and your classmates should be appropriate. You are responsible for reading all announcements posted by the instructor. Check the announcements each time you login to be sure you have read all of them since your last login session.

13. Attendance policy statement

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of nonattendance.
Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations, or participation in University-approved activities. Examples of University approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances, and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absence and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
Course Syllabus

14. Disability policy statement

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

15. Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

16. Code of Academic Integrity policy statement

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf

Grounds for Dismissal and/or Invalidation of Exam Results:

- Having a cell phone in your possession during the exam
- Having any device with copying, recording, or communication capabilities in your possession. These include but are not limited to tablets, laptops, cameras, pagers, PDAs, headsets, tape players, MP3 players, calculator watch, smart watch, electronic dictionaries and translators, and transmitting devices.
- Copying from another examinee's answer sheet or colluding with other examinees
- Accessing any unauthorized materials during the exam (cheat sheet, Canvas, any notes, etc.)
- Beginning the exam before the proctor instructs you to do so
- Failing to stop writing immediately when time is called
- Writing in any supplied reference materials
- Removing pages from your exam booklet or other supplied materials
- Leaving the exam area without authorization

17. Required texts/reading

Slides and other files posted by the instructor on Canvas; Hard copies will not be provided

18. Supplementary/recommended readings

1. K. Wark, C. F. Warner, W. T. Davis (1998), *Air Pollution: Its Origin and Control*; Addison-Wesley.
2. N. De Nevers (1995), *Air Pollution Control Engineering*; McGraw Hill.
3. C. D. Cooper, F. C. Alley (2002), *Air Pollution Control: A Design Approach*; Waveland Press.
4. T. Godish, W. T. Davis, J. S. Fu (2014), *Air Quality*; CRC Press.

**Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
Course Syllabus**

19. Course tentative outline, including dates for exams and presentations	
Week	Topics
1 (January 15)	Introduction to Air Pollution Unit Conversion
2 (January 22)	Criteria Air Pollutants Air Pollution Regulations Indoor Air Quality
3 (January 29)	Air Sampling and Analysis
4 (February 5)	Particle Size Distribution General Principles for Air Pollution Control
5 (February 12)	Terminal Settling Velocity
6 (February 19)	Meteorological Aspects of Air Quality Atmospheric Dispersion
7 (February 26)	Settling Chambers Cyclones
8 (March 4)	Wet Scrubbers Filters Midterm Exam Review
9 (March 11)	Spring Break (No Class)
10 (March 18)	Midterm Exam
11 (March 25)	Midterm Exam Discussion Electrostatic Precipitators (ESPs)
12 (April 1)	Control of Gas Phase Pollutants Adsorption
13 (April 8)	Absorption Combustion
14 (April 15)	Biofiltration Final Exam Review
15 (April 22)	Case Study Presentations
May 6	Final Exam