



South Carolina State University
Environmental Sciences Field Station at Savannah River
COURSE SYLLABUS

Summer Session II 20___, 9am-5pm M, W, F or T, TH, SAT
(Instructor to announce daily dorm departure times)

Instructor's Name:

College: Science, Mathematics and Engineering Technology

Department: Biological & Physical Sciences

Course Title & Number: **ENV 490: Principles of Pollution Control**

Instructor's Office:

Instructor's Office Tel.:

Office Hours:

Email Address:

Classroom:

Required Textbook: Davis, M.L. & D.A. Cornwell (2008). Introduction to Environmental Engineering, 4th Ed. McGraw-Hill, NY, NY

I. COURSE DESCRIPTION

ENV 490 - Principles of Pollution Control: Students are exposed to environmental engineering principles through standard and cutting edge technologies designed to manage, mitigate or remediate pollutants in soil, water and air. The technologies include waste water management from domestic and industrial sources, landfills, surface water containment, remediation of wastes by chemical and biological process, and transport of solid and hazardous wastes. Students obtain familiarity with database management, characterization of contaminants, sensors, survey procedures, and State and Federal regulations and permitting.

Prerequisites:

1. 3 semesters of chemistry and Instructor permission; junior standing
2. All students are required to pass a General Employee Training (GET) multiple choice exam as a condition of retaining your internship. A 3-4 hour training course will precede the exam. Passing the exam is not difficult and only requires your attention during the training course.

II. COURSE OBJECTIVES

The course is designed to acquaint student with basic concepts of pollution, associated with soils, water, oceans, beach erosion and air. Emphasis will be put on solutions related with sustainable livelihood, minimizing the impact of human activities on pollution.

III. COURSE COMPETENCIES

Upon completion of this course, students should be able to:

- (a) Understand how pollution occurs and the natural and anthropogenic causes of pollution
- (b) Describe how pollution affects life on planet earth
- (c) Analyze efficiently pollution control mechanisms
- (d) Explain public policy on pollution and the role of Environmental Protection Agency on the matter.

IV. EXPECTED MEASURABLE OUTCOMES

After completing this course, students will have a fundamental understanding of water, ocean air and soil pollution, associated with appropriate control mechanisms.

Students will be given individual and/or group assignments, projects, reports in which they will be required to explain the applications of the techniques and topics learned.

V. OUTLINE OF COURSE CONTENT

Mting #	DATE	TOPIC	SUBJECT AREA	HOME WORK	DEPARTURE TIME	FIELD ACTIVITY AND/OR LAB
1		Introduction	Materials and Energy Balances	Ch. 1:1,		Field trip: SE National Science Academy activity: Ecology of constructed wetlands. Augusta ,GA
			Water	Water quality		
		Underground water				
		EXAM 1				
2		Wastewater treatment	Regulations	Ch. 6: 1-3		Field trip: SE NSAA: water testing, constructed wetlands; discussion w/Researchers Augusta, GA
			Pollutants			
			Wetlands			
			Water cycle /climate			
			EXAM 2			
3		Wastewater treatment (cont.)	Primary treatment	Ch. 6:5-10, 12-13		Field trip: Swearingen Ecology Associates Toxicity testing Columbia, SC
			Secondary treatment			
			Nutrient removal			
			Residuals			
			Physical	EXAM 3		
			Chemical			
4		Air pollution	Regulations	Ch. 7: 1-5		Field trip: SC DHEC Air measurement & Monitoring
			Pollutants and industrial air pollution control			
			Greenhouse effect, carbon cycle			
			EXAM 4			
5		Hazards	Hazardous waste: Management &	Ch. 10:6-		Field trip: USC Columbia

Mting #	DATE	TOPIC	SUBJECT AREA	HOME WORK	DEPARTURE TIME	FIELD ACTIVITY AND/OR LAB
			Control	9,Ch. 7:8,10-11		Tour of LEED building-West Quad Apple & AABE Luncheon
			Air pollution: transport, Sources, Treatment			
		Students	Students presentation	Reports		

VI. SPECIAL COURSE REQUIREMENTS

The course is “FIELD ORIENTED”, therefore be prepared to go into the field everyday. Everyday you should bring with you: water, food, a change of clothing, long pants (light weight), field boots, hat, and anything else you think you may need. Each course topic will have a supporting field/hands-on activity scheduled by the instructor.

- A. **Attendance:** Attendance is mandatory. Excused absences will be permitted. Leave a message on my phone if an emergency arises. For an absence to be excused, it **must** be brought to my attention and discussed/approved by me prior to the day in which you are to miss class, with the exception of emergencies. For every unexcused absence, 1.5% pts will be deducted from your final grade. **Absences and tardiness will negatively impact your stipend.**
- B. **Make-up Exams:** Make-up exams will be given only if student presents evidence of being excused officially by instructor. There will be no make up for pop quizzes.
- C. **Office hours:** Instructor will be available during the office hours posted above. However, meeting with the instructor outside of office hours requires an appointment.
- D. **Equipment Care:** Where applicable, each student is expected to exercise extreme caution and care when using any equipment. No piece of equipment is to be operated by any student until he or she has been thoroughly instructed on the equipment’s use and given permission to do so.
- E. **Academic Integrity:** All students shall refer to the most current South Carolina State University Handbook for instructions on Academic Integrity.

The highest standards of academic integrity shall be expected of all students. As such, academic dishonesty is prohibited. Academic dishonesty includes, but is not limited to cheating on examinations, unauthorized collaboration on individual assignments, unauthorized access to examination materials, and plagiarism.

Plagiarism is defined as the unauthorized use of ideas and/or phrases and representing the same as your own, intentionally or unintentionally. As such, a writer may not use in his or her writing the language, ideas, phrases, or sentences taken verbatim from another’s writing unless due credit is given to the writer by quotation and citation.

Students found guilty of plagiarism will fail the course. If any student is unsure whether an act may violate integrity policy, please consult with the instructor before engaging in the act.

VII. METHOD OF EVALUATION

Requirement	Date	Weight
Three (3) one hour lecture tests		
First Lecture Test		15%
Second Lecture Test (Mid Term)		15%
Third Lecture Test (Final Exam)		15%
Unannounced pop quizzes		10%
Assignments & Lab Reports		30%
Final Comprehensive Presentation & Poster Participation		10%
		5%
Total		100%

Note: All exam dates are tentative and are subject to change at the instructor's discretion.

VIII. GRADING SCALE

Letter Grade	A	B	C	D	F
Score	100-90%	89-80%	79-70%	69-60%	Below 60%