

Syllabus

ENV 4101 Elements of Air Pollution /ENV 5105 Foundations of Air Pollution, Spring 2008

Instructor: **Dr. Chang-Yu Wu**

- **Time & Room:** M&W Periods 4&5 @ PSY151
- **Office Hour:** M&W 1-2 PM or by appointment (open door policy)
- **Teaching Assistants:** Lindsey Riemenschneider (lariemen@ufl.edu, BLK 412, TBA)
- **Prerequisite:** CHM 2046, PHY 2049, EES 4200
- **Professional component:** 3 credits of Engineering Design
- **Textbook:**
Air Quality, 4th Ed, by Thad Godish, *CRC Press*, ISBN 156670586X.
Class notes are available at the course's website:
<http://www.ees.ufl.edu/homepp/cywu/ENV4101/ENV4101.html>
- **Course Description:** Sources, effects and regulations of air pollutants. Meteorology and dispersion of air pollutants. Sampling and analysis of gaseous and particulate air pollutants. Photochemical air pollution and mobile sources.
- **Course Objectives:**
By the end of the course, the student will be able to do the following:
 1. To *explain* the structure and composition of atmosphere and *determine* the properties of gases and aerosols.
 2. To *explain* the atmospheric, health and welfare effects of air pollution.
 3. To *calculate* the kinetics and equilibrium of gas phase reactions in combustion systems and in the atmosphere.
 4. To *explain* the scales of air motion, to *determine* the atmospheric stability and to *calculate* air dispersion.
 5. To *describe* the principles of gaseous and particulate monitoring systems
 6. To *describe* air regulations
 7. To *explain* air resources topics to the **professional society** and **general public**

Calculation of Course Grade:

	UG	G
1. Homeworks:	20%	40%
2. Quizzes	20%	30%
3. Midterm Exams:	40%	
4. Project	20%	30%

A	≥ 90	B+	82-88
B	74-80	C+	67-72
C	60-65	D+	55-58
D	50-53	E	≤ 48

Grade is **NOT** curved in this course. It is theoretically possible for everyone in the class to get an **A** (or an **F**). Your performance depends only on how you do, not on how everyone else

in the class does. It is therefore in your best interest to work with your classmates in every possible legal way.

There will be a “gray area” of 2 points between the specified numerical cutoff grades. Two people getting the same weighted averaged grade might therefore get different course grades. If you are in one of these gray areas, whether you get the higher or lower grade depends on whether you test (quiz and exam) performance has been improving (your grade goes up) or declining (it goes down), and whether your participation in group work (class activity, homework & project) has been good (up) or inadequate (down).

General Assignment Policy

All assignments should be submitted **at the beginning of class time on specified dates**. **10%** will be deducted for any late assignment (homework, project report) submitted on the same day after class, **20%** for that submitted on the 2nd day, and **40%** for that on the 3rd day. Any assignment submitted late for more than 3 days will **NOT** be accepted unless with a certified medical excuse or if it is agreed by Dr. Wu prior to the due time with reasonable explanation.

Undergraduate students should form a team consisting of 3-4 people. A team needs to have at least one member from each gender (i.e. can not all be of the same gender). Graduate students should conduct an individual project. For the homework, each team only needs to submit **1** team copy. Select an air pollutant as your team’s name. The names of all members of each team should be reported to Dr. Wu by **the first class of Week 2**. Those who do not belong to any team by the due date will be assigned by Dr. Wu and will forfeit their right to object the assignment. Each team should elect a **TEAM LEADER**. The team leader will be responsible for getting the assignments due on time and is compensated for an additional **5%** of the project grade for his/her extra effort. Each member's performance and contribution will be evaluated by team members in the middle and the end of the semester. If a member is deemed by the team for not contributing his share, Dr. Wu may request the member to submit his/her assignment **individually**.

Homework Policy

- Homework questions are posted at the course's website 1 week before the deadline unless otherwise specified. In order to save trees, **NO** hard copy will be handed out. Solution will be posted after all teams have submitted the homework.
- Your team finds out how to solve the problems through **TEAM EFFORTS** instead of assigning problems to individual team member. According to past years’ experiences, those teams that simply split homework questions into individual assignments always did very poorly in exams. Note that at least 40% of the midterm problems will be similar to homework questions. Discussion among different teams is allowed and encouraged. However, directly copying from other team's work without your own digestion is not acceptable (e.g. same mistakes) and both teams will be reported to the University.
- If your procedure is correct but there are errors in calculation, you get partial credit. It's important to **SHOW YOUR PROCEDURE CLEARLY**. You won't get any credit if your procedure is wrong or unclear, even if you magically have the correct numbers. If you use any number from any table or graph, you need to CITE the source (e.g. Table 1.1). There will be no credit for magic numbers that appear in the solution.
- Every graduate student should submit his/her homework individually.

- The TA is here to help you. If you have questions regarding your homework, TA is your first aid. If you have questions regarding homework grading, also check with your TA. However, if you don't get a satisfactory response, be sure to discuss with Dr. Wu.

In Class Team Activities

From time to time, in class activities **BASED ON TEAMS** will be conducted. 0.1 bonus point (per team member who shows up and participates) toward the final grade will be given to one team in each activity. There is **NO LIMIT** of the bonus points that a team is allowed to get.

Weekly Quiz Policy

A 10 minutes quiz is administered at the beginning of class (see class schedule). It is a close book & note test. Only the content covered after the previous quiz will be tested. **NO make-up** quiz will be allowed. However, every student is allowed to drop two quizzes (for any reason including sickness, family reunion, just feeling lazy or others) with the lowest grades when calculating the final grade. You are expected to answer the questions without complicated calculations.

Midterm Exam Policy

Smile☺, there is no final. We only have midterms.

Each midterm exam is **1 hour 50 minutes** and only covers the materials instructed prior to that exam. The exam consists of **two parts**. The **first** part is **close book**, and you can expect to answer the questions without any calculation. It's designed to test your conceptual understanding of the subject. Once you have turned in the first part to the proctor, you can start the **second** part, which is **open book and open note but no discussion**. You will need a calculator for this part. It's your call to determine how you want to allocate time for each part but you'll have to finish both parts in the time period specified above.

A make-up for the midterm will be allowed only with certified medical excuse or if it is discussed with Dr. Wu prior to the exam. Only one make-up exam is administered, which is comprehensive and will be offered at a designated time near the end of the semester at the place set by Dr. Wu. It will be fair but challenging (i.e. Dr. Wu strongly encourages you not to do so).

Project Policy

Select a topic related to **Indoor Air Pollution**. Some examples are listed below (but not limited to):

- Problem Buildings: residential
- Problem Buildings: occupational
- Combustion By-Products
- Asbestos
- Aldehydes
- Indoor VOCs and SVOCs
- Radon
- Biological contaminants
- Noise
- Electromagnetic wave

Objectives of the project: identify the sources for such a pollutant, health effects, regulations (Federal/State/Local, EPA/OSHA) and possible measures to lower its concentration. Each team should discuss with Dr. Wu for the topic of its choice. To avoid multiple teams choosing the same topic, the first team to finalize the topic with Dr. Wu gets the right. A **2-Page Proposal** (1.5 line spacing, 12 Times New Romans, 1 inch margin on each side, letter size paper, no hand writing) should be submitted to Dr. Wu by the deadline specified in Schedule. A **Project Presentation** will be scheduled at the end of the semester. A **Project Report** is also required (due date specified in Schedule). The final report should be **reviewed** by one other team before submitted to Dr. Wu. It's the team's responsibility to arrange the review done before their submission, and the reviewers should sign on the draft (which should be submitted, too). 3% of your project's final grade is based on the inclusion of the review, and 2% of your project final grade is based on your review of other's report. The purpose of this review is to get comments/suggestions from your classmates (regarding content, format, flow, etc), and you certainly should incorporate the comments/suggestions in the final version to be submitted.

The weight of the grade: proposal 15%, final presentation 40% and final report 40%, report review by other team 3%, review of other team's report 2%.

[Guidelines for the proposal/reports/presentation are available at the course's website.](#)