



CHEM 3368 – Environmental Chemistry – Spring 2018

INSTRUCTOR:	Dr. Tarek M. Trad	OFFICE:	CFS 317J
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TIME AND LOCATION

Environmental Chemistry – CHEM3368 – 01: MWF 11:00 am – 11:50 am, Chemistry and Forensic Science Building (CFS), room 102

OFFICE HOURS

MWF 2:00 pm – 3:40 pm

Other times by appointment or on “walk in” basis

REQUIRED MATERIALS

- Textbook: *Environmental Chemistry*, Fifth Edition, by Colin Baird and Michael Cann. Published by Freeman.
- Scientific calculator: Texas Instruments model TI-30 or similar.

COURSE DESCRIPTION

The chemical principles underlying the effects of air, water, and soil pollution are covered. Specific attention is paid to gas phase radical reactions, light absorption characteristics of atmospheric components, solution chemistry of fresh and salt water systems, and the mobility and chemistry of metal components of soil systems. Spring even years.

Prerequisite: A minimum grade of C in CHEM 1411, CHEM 1412, CHEM 2401, CHEM 2323 and CHEM 2325 (or concurrent enrollment in CHEM 2325).

LEARNING OUTCOMES

Successful completion of this course is expected to provide students with the following outcomes:

- Provide the student with the critical thinking skills to analyze, set-up and solve chemical problems related to air, water, and soil pollution.
- Enable the student to interpret chemical change in the environment and the correlation between the presence of certain chemical species in the environment and the chemical change occurring.
- Show that modern chemical theory reflects a reasonable interpretation of natural laws as discovered by the experimental method.
- Relate the science of environmental chemistry to the student’s physical environment of work, study, and recreation.

LEARNING OBJECTIVES FOR CORE CURRICULUM REQUIREMENTS

- The core outcomes addressed in this class are: critical thinking skills, communication skills, empirical and quantitative skills, teamwork, social responsibility, and personal responsibility.

GRADING SYSTEM

- *Midterm Exams (60% of your overall grade):* There will be three major midterm exams plus a comprehensive final.
- *Final (24% of your overall grade):* The **Final Exam is comprehensive** and will be given during finals week.
- *Homework assignments (16% of your overall grade):* Homework assignments will be posted on Blackboard. You must print out the assignment, answer problems and show work only in the provided

space (legibly) and turn it in during the first five minutes of class on the due date. You are expected to read the assigned chapters in the textbook and work through the homework problems. Solving problems will help you strengthen your understanding of the material. Reading the textbook and practicing problems are the best ways for building the skills needed to do well on assignments and exams. **If you fail to turn in your assignment on time, you will receive zero points. No late assignments will be accepted.**

- *Attendance:* will be assigned at the discretion of the instructor. Points awarded for class attendance will be considered as “Bonus” points. The number of points could be up to 10 for perfect attendance during the semester.
- Your overall grade will be determined based on the following point system:
 - Homework assignments (4 @ 20 points each) 80
 - Tests (3 @ 100 points each) 300
 - Final 120

Total possible points:	500

<i>RANGE</i>	<i>LETTER GRADE</i>
450.0 – 500.0	A
400.0 – 449.5	B
350.0 – 399.5	C
300.0 – 349.5	D
0 – 299.5	F

- I reserve the right to extend the cutoff percentages lower (but I will **NOT** raise them).

CLASS POLICIES

- *Cell Phones:* As cell phones are disruptions to the learning environment, these must be silenced during lectures and tests.
- *Attendance:* It is among the minimum requirements. All students are expected to be on time for class. Showing up late will not be tolerated and may result in appropriate actions taken by the professor at his own discretion. Attendance during exams is required, unless prior arrangements are made. No make-up exams will be given. Excused absences on exams must be pre-approved.

OTHER COURSE POLICIES

- *Accommodation for students with disabilities:* It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.
- SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities.

- *Collaboration:* In general I encourage you to work with others. Collaboration will enable you to get much more out of the class than if you work alone. Specifically I would encourage you to work with others to prepare for exams and assignments and lectures. However, your work must be your own. It is a violation of class policy to use somebody else's answers as your own. No collaboration is allowed during exams.
- *Policy on cell phones and electronic devices:*
Lectures: With the exception of approved graphing calculators and wrist watches, no other electronics (for example cell phones and computers) are allowed during lecture, unless the user has requested and received permission from the instructor to use a specific device. The first violation of this policy will be met with a warning. If there are subsequent violations, the student may be asked to move to the back row of the classroom, or to leave; the lecture will pause until this has been accomplished.
- *Exams:* On exams, the visible presence of a cell phone, earbuds or other electronic device (except approved calculators and watches) is not allowed and will be penalized. Exceptions will be granted to individuals who have requested and received permission to use a specific device from the instructor.

SHSU POLICY STATEMENTS

The **Sam Houston State University Policies** on (1) Academic Dishonesty, (2) **Student Absences on Religious Holy Days**, (3) **Students with Disabilities**, and (4) **Classroom Visitors** are each designed to strengthen community and learning and are fully applicable in this course. You are encouraged to review a summary of these important policies online at <http://www.shsu.edu/syllabus/>

Additional context and details on all of these policies are available on the following web page:

<http://www.shsu.edu/dept/academic-affairs/aps/aps-students.html>

TENTATIVE COURSE OUTLINE AND ACTIVITIES:

- Chapter numbers are taken from *Environmental Chemistry*, Fifth Edition, by Colin Baird and Michael Cann.
- Instructor may alter the schedule as the course proceeds.

CHAPTER 1 CHAPTER 2 CHAPTER 3	Stratospheric Chemistry: The Ozone Layer The Ozone Holes The Chemistry of Ground Level Air Pollution EXAM I – Monday, February 19
CHAPTER 4 CHAPTER 5	The Environmental and Health Consequences of Polluted Air The Greenhouse Effect EXAM II – Friday, March 26
CHAPTER 10 CHAPTER 11 CHAPTER 12	The Chemistry of Natural Waters The Pollution and Purification of Water Toxic Heavy Metals EXAM III – Monday, April 23
PART IV	Toxic Organic Compounds (If time allows)
FINAL	Wednesday, May 09, 12:00 pm – 02:00 pm

For information on drop/register dates, and other important dates, please visit the Academic Calendar page on the SHSU website.