Soochow University

CHM 320 Atmospheric Chemistry

Summer 2021

Course information

Course Credits: 4

Contact Hours: 55 hours

Class Time: 8:30 - 10:20

Instructor: TBA

Course Format: Online

Course Description

Atmospheric chemistry is a hot field closely connected with our daily life. In this course, instructors will demonstrate the critical chemistry phenomenon and procedure in atmosphere to students. The core topics in this course will include atmospheric transport, the continuity equation, geochemical cycles, the greenhouse effect, aerosols, stratospheric ozone, the oxidizing power of the atmosphere, smog, photochemical reaction, acid rain and etc. By studying in this course, students will gain insight in into prevailing issues related to atmosphere and environment.

Prerequisite(s)

None

Soochow University

Learning Objectives

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

1. Have a basic knowledge of the atmospheric chemical composition;
2. Develop understanding of the essential reactions in atmospheric chemistry;
3. Gain insight into environmental issues and related control strategies;
4. Master the principles of ubiquitous atmospheric phenomenon;
5. Develop awareness of environment protection.

Methodology

Methodology	Hours	Hours of work During class	Hours of work After class
Online Video	50	88 hours (60%)	
Online Forum Discussion	8		
Assessment	30		
Personal study	30		68 hours (40%)
Tasks	22		
Practical teaching preparation	10		
Bibliographic search	6		
Total	**156**	**88**	**68**

Textbook(s)

Introduction to Atmospheric Chemistry by Daniel Jacob, Princeton University Press, 1999.

Tasks and Evaluation

Assignments	40% (10% for each)
Midterm	25%
Final exam	35%

Students are required to attend online classes on the scheduled time. Missing classes without permission will lead to decrease in overall grade.

- Missing less than two classes: no penalty.
- Missing more than two classes: 7% will be taken off from the overall grade.

Online forum discussion is required. Students are required to post at least one question and answer at least one question on the forum weekly.

Online Tutorials are mandatory. Students will read and discuss academic articles provided. Students will also discuss the case studies for the week's lectures. Each Tutorial will be 1 hour.

All exams will be held online and the time of each exam will be limited to 1 hour. Exams must also be taken at the scheduled time. There will be no make-up exams

Rating system:

1. Assessment

ASSESSMENT ITEM	PERCENT OF FINAL GRADE
Assignments	40% (10% for each)
Midterm	25%
Final exam	35%

2. Grading Scale

A+ 96-100	A 90-95	A- 85-89
B+ 82-84	B 78-81	B- 75-77
C+ 71-74	C 66-70	C- 62-65
D 60-61	F < 60	

Course Content

Week	Lecture	Topics	Dues	%
1	1	Measures of Atmospheric Composition		
	2	Atmospheric Pressure		
	3	Simple Models		
	4	Atmospheric Transport		
	5	The General Circulation	Assignment 1	10
2	6	The Continuity Equation		
	7	Geochemical Cycling Of Elements		
	8	Early Evolution of The Atmosphere		
	9	The Nitrogen Cycle		
	10	The Oxygen Cycle	Assignment 2	10
3	11		Midterm Test	25
	12	The Carbon Cycle		
	13	The Greenhouse Effect		
	14	Sources And Sinks of Aerosols		
	15	Radiative Effects	Assignment 3	10
4	16	Chemical Kinetics		
	17	Photochemical Reaction		
	18	Stratospheric Ozone		
	19	Stratospheric Ozone (Cont.)		
	20	Oxidizing Power of The Troposphere	Assignment 4	10

5	21	Ozone Air Pollution		
	22	Ozone Air Pollution (Cont.)		
	23	Acid Rain		
	24	Acid Rain (Cont.)		
	25		Final Exam	35

University Regulations and Services

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

Soochow University also highly respects students' accommodation for disabilities and religions. You might contact the Student Accessibility Office if you have any questions, concerns or if you would like to report any offensive behaviors.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.