

**Course Syllabus
Chemistry 100
Fall 2009
Oxford College of Emory University**

Class Meets MWF, 8:30-10:25am, Room 223 Pierce

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Office Hours: Tuesday/Thursday (10:00-11:00am) or by appointment

Course Description

Chemistry 100 is the first course in a two-semester sequence for General Chemistry. This class fulfills the introductory chemistry requirement for pre-nursing students. It can also be taken by non-science majors to complete their laboratory science general education requirement. The topics covered in CHEM 100 include: 1) experimental design and measurement; 2) fundamental properties of matter; 3) states of matter and the properties of gases; 4) aqueous solutions; 5) chemical reactions; 6) energy; and 7) environmental sustainability.

*Note: If you have taken and passed CHEM 141, you cannot receive credit for CHEM 100.

Course Goals

The general goal of CHEM 100 is to provide an introduction to the study of matter and the various changes it can undergo and to demonstrate how/why the study of chemistry is relevant to YOUR life. In the course of completing this goal, the various concepts of chemistry that are discussed will aid in developing your human capacities and contribute to your liberal arts education. More specifically, by completing the ground-level ozone study, you will begin to develop problem solving and critical thinking skills, become better acquainted with experimental design (including data collection and analysis), and practice effective communication (both orally and written). This experience will show you how a chemist can solve a real problem and reveal the interdisciplinarity of a social issue such as air quality.

Materials and Resources

- Textbook (optional): Introduction to General, Organic, and Biochemistry, 8th edition, Bettelheim/Brown/March
- Student study guide and solutions manual (accompaniment to textbook; optional)
- Carbon-copy lab notebook (required)
- Safety Glasses (required)
- Non-graphing scientific calculator (required)
- PRS Interwrite student response clicker remote (required)
- Blackboard Class Conference (<https://classes.emory.edu>)

Grading

Your grade will be broken down into the following categories:

Exam 1 (Unit 1 and 2)	20%
Exam 2 (Unit 3 and 4)	20%
Exam 3 (Unit 5 and 6)	20%
Final Exam (cumulative) ¹	20%
Laboratories	15%
Ground Level Ozone Project	5%

¹Your final exam can be used to replace your lowest exam grade (can only replace *one* of your semester exams). If you miss an exam due to absence, your final exam will act as your make-up exam.

²If you complete all of the Blackboard HW exercises and tutorials prior to the due dates, you will receive 5 points on your lowest lab grade. If you miss class on a day when a lab is conducted, you will receive a grade of 0 for that lab; if the lab is done over a two day period, you will lose 50 points for each day you are absent. There are no makeup labs unless approval is given from the Office of Academic Affairs (death in the immediate family, hospitalization, etc.).

Laboratories

You will do 6 labs in the course of the semester (15% total):

- 1) Experimental Design Lab (formal report; 3%)
- 2) Atomic Spectra Lab (notebook sheets; 1%)
- 3) Lewis Structure Dry Lab (notebook sheets; 1%)
- 4) Imploding Can Lab (formal report; 4%)
- 5) Stoichiometry Lab (formal report; 4%)
- 6) Dilution lab/calibration curve for ground level ozone analysis (formal report; 2%)

Guidelines for the lab formal reports and notebook sheets will be provided in separate documents.

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Ground-level Ozone Project

Each student will complete a ground level ozone detection study by working in a collaborative group with two other students. Included in this will be why ground-level ozone in Newton County needs to be measured and how one could actually go about measuring it. Each group will then use ground-level ozone detectors and design an experimental protocol for collecting ozone concentration data. Subsequently, each group will create a final presentation that summarizes all of the pertinent background information, as well as the ozone concentration data and analysis. This report will be given to the local environmental agency Keep Covington/Newton Beautiful. The ground-level ozone project will be graded based on the course instructor's evaluation of the presentation.

Final letter grades will be assigned as shown below:

A	(93-100%)
A-	(90-92%)
B+	(87-89%)
B	(83-86%)
B-	(80-82%)

C+	(77-79%)
C	(73-76%)
C-	(70-72%)
D+	(67-69%)
D	(60-66%)

Honor Code

It is assumed that all Oxford College students will adhere to the highest standards of academic honesty and will uphold the Oxford College Honor Code.

Specific things to keep in mind for CHEM 100:

- you are expected to do your own work when taking an exam
- only a non-programmable calculator, pencil, and other pre-approved documents are permitted in the exam
- no cell phones are allowed in class during an exam period
- all work handed in for lab must be done as an individual unless otherwise stated by the lab instructor
- any idea or thought used in a laboratory assignment must be properly referenced
- even though you may collect data in groups, you are not to collaborate with other students when completing lab report sheets/formal summaries

It is my duty, according to the Honor Code, to report any incidences of misconduct to the Honor Council. Anyone who is found guilty of violating the Honor Code may receive a grade of F for the course. It is strongly recommended that each student carefully read through the Oxford College Student Honor Code.

Tentative Schedule

Week 1: Course introduction / Read ozone case study

Week 2: Unit 1 (Experimental Design and Measurement – Ch1 Bettelheim)

Week 3: Unit 2 (Atomic Structure – Ch2 Bettelheim)

Week 4: Unit 2

Exam I

Week 5: Unit 3 (Chemical Bonding – Ch4 Bettelheim)

Week 6: Unit 3

Week 7: Unit 4 (States of Matter and Gas Laws – Ch 6 Bettelheim)

Week 8: Unit 4

Exam II

Week 9: Unit 5 (Chemical Reactions and Energy of Reactions – Ch 5 Bettelheim)

Week 10: Unit 5

Week 11: Unit 6 (Aqueous Solutions and Aqueous Reactions – Ch 5 & 7 Bettelheim)

Exam III

Week 12: Ground Level Ozone Detection Study

Week 13: Ground Level Ozone Detection Study

Week 14: Ground Level Ozone Detection Study

Week 15: Ground Level Ozone Detection Study

Week 16 Review

Ground Level Ozone Final Project due Dec. 9

Final Exam: Tuesday, Dec. 15 (9-12am)

Note: There will be no class on Oct. 21 and Oct. 23; we will make up these classes on Sept. 1 and Sept. 15 from 8:00-9:30am.