

**Course Syllabus
Chemistry 142
Spring 2009
Oxford College of Emory University**

Class Meets TTh, 10:00-11:15, Tuesday 2:30-5:30 Room 223 Pierce

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What is a Liberal Arts Education?

A liberal arts education is an interdisciplinary education including courses in humanities, natural sciences, social sciences, and physical education.

Why Pursue a Liberal Arts Education?

This course aims to use chemistry as a springboard into a liberal arts education by helping YOU develop your human capacities, that is the “qualities, capacities, domains, and/or dispositions native to us as human beings that allow education to occur in the first place.”* Marshall Gregory, Ice Professor of English, Liberal Education, and Pedagogy at Butler University, breaks down these capacities into eight categories:

- 1) Language
- 2) Reason
- 3) Imagination
- 4) Introspection
- 5) Aesthetic Responsiveness
- 6) Moral and Ethical Deliberation
- 7) Sociability
- 8) Physicality

One may see the goal of a liberal arts education as the advanced development of all of these human capacities. By doing so, YOU will be better equipped to live an “autonomous, socially responsible, intellectually perspicuous, and morally defensible life.”¹

¹Marshall Gregory, “Forgetting, Learning, and Living: A Pedagogical Theory of How Education Makes a Difference Even Though We Forget Most of What We Learn” 2006.

Course Description

Chemistry 142 is the second course in a two-semester sequence for General Chemistry. This class fulfills one half of the introductory chemistry requirement for science majors at Emory University. It can also be taken by non-science majors to complete their laboratory science general education requirement. The topics covered in CHEM 142 include: 1) basic bonding principles of the transition elements; 2) properties of matter, particularly of the liquid and solid states; 3) properties of solutions; and 4) properties of general aqueous chemical reactions and acid-base reactions (including rates of reactions, equilibrium, solubility, thermodynamics, and electrochemical reactions).

Course Goals

The general goal of CHEM 142 is to complete your training in general chemistry, in particular gaining a more complete understanding of the properties of matter and the nature of chemical reactions. By successfully completing this course, you should be able to apply your understanding of the properties of matter and chemical reactions to organic reactions, which will be covered in CHEM 221-222, and you should be prepared to continue the more in-depth discussions of chemical reactions that you will encounter in physical chemistry (CHEM 300 and 331-332).

Materials and Resources

- Textbook: Chemistry, by Darrel Ebbing (required)
- Student study guide and solutions manual (accompaniment to textbook; optional but highly recommended)
- Carbon-copy lab notebook (required)
- Safety Glasses (required)
- Non-graphing scientific calculator (required)
- PRS Interwrite Remote (required)
- Blackboard Class Conference – General Chemistry with Lab II (<https://classes.emory.edu>)
- Emory email (ex: jeichle@emory.edu)
- "Oxford: Chemistry" Learnlink conference (for general announcements from the chemistry department)

Grading

Your grade will be broken down into the following categories:

Exam 1 (Chapters 22, 11, 12)	20%
Exam 2 (Chapters 13, 14, 15, 16)	20%
Exam 3 (Chapters 17, 18, 19)	20%
Final Exam (cumulative) ¹	20%
Laboratories*	20%

¹Your final exam can be used to replace your lowest exam grade.

Laboratories

You will do 12 labs in the course of the semester. Formal reports will be required for 4 of these labs, and notebook sheets/calculations will be required for the remaining 8 labs. Guidelines for the lab formal reports and notebook sheets will be provided in separate documents.

*Note: If you complete all of the homework assignments on Blackboard, you will be allowed to drop your lowest lab grade.

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 142:

- 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 is done as a group, however there is to be NO collaboration between lab groups for any formal report or problem sheet.
- any unoriginal idea or thought used in a laboratory assignment must be properly referenced.

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 (chapters from Ebbing in parentheses)

Week 1: coordination chemistry (CH 22, sections 3-5, 7)

Week 2: states of matter – liquid and solid state (CH 11)

Week 3: solutions (CH 12)

Exam I

Week 4: rates of reactions (CH 13)

Week 5: rates of reactions

Week 6: equilibrium (CH 14)

Week 7: acid-base reactions (CH 15)

Week 8: acid-base equilibrium (CH 16)

Week 9: acid-base equilibrium

Exam II

Week 10: solubility and complex ion equilibrium (CH 17)

Week 11: solubility and complex ion equilibrium

Week 12: thermodynamics and equilibrium (CH 18)

Week 13: thermodynamics and equilibrium

Week 14: electrochemistry (CH 19)

Exam III

Week 15: review

Final Exam: Wednesday, May 6, 9-12am