

## COLLEGE CHEMISTRY II

Revised 11/29/2011

---

C - L - CR  
3 - 3 - 4

---

**Course Number** CHM111

**Prerequisite(s)** CHM 110 with a grade of “C” or better

**Co-requisite(s)** None

**Course  
Description**

This course is a continuation of the study of the atomic and molecular structure, nomenclature and equations, properties, reactions and states of matter, stoichiometry, gas laws, solutions, and equilibria. Other topics included are kinetics, thermodynamics, and electrochemistry.

**Course Outcomes:** Students should be able to demonstrate:

1. Rationality, logic and coherence through critical thinking;
2. Their ability to express themselves effectively in quantitative and qualitative terms;
3. The scientific method of inquiry;
4. Their ability to access, retrieve, synthesize and evaluate information.

**Textbook(s)** McMurry, John, and Fay, Robert C., Chemistry, 6th Ed., Pearson/Prentice Hall, 2011

Bhatti, A.M., Laboratory Manual for College Chemistry II, Spartanburg Community College, Spartanburg, SC, 2009

**References** N/A

**Other Required  
Materials, Tools,  
and Equipment:** A scientific calculator (no cell phone calculator)  
Safety goggles for the laboratory  
Solutions manual (optional) for McMurry & Fay’s Chemistry  
All lecture notes will be posted on the Science Department Website. Any additional resources (handouts) will be provided to the Student by the Instructor.

**Method of  
Instruction:** Lecture and discussion, demonstrations, audio-visual materials, on-line resources, projects, quizzes and written exams.

**Grading System:**

90 - 100	=	A
80 - 89	=	B
70 - 79	=	C
60 - 69	=	D
Below 60	=	F

<b><u>Grade</u></b>	Tests	=	50%
<b><u>Calculation</u></b>	Laboratory	=	30%
<b><u>Method:</u></b>	Final Exam	=	<b><u>20%</u></b>
		=	100%

**Attendance Policy:** See Student Handbook Pages 77-80  
The withdrawal date for Spring semester will be 04/02/12.

**Academic Conduct:** **ACADEMIC DISHONESTY:**  
Please See Student Handbook Page 98

**CELLULAR PHONES AND PAGERS/BEEPERS:**

Please See Student Handbook Pages 76-77

**Class procedures:** **Chemistry requires no one miss over 10 hours of lecture.**

Preparation:

1. Read over the material before coming to class.
2. Come prepared to do the work each day.
3. Be in your place with lecture notes at the beginning of each class period.
4. Pay careful attention to the printed instructions.
5. Be considerate of your class associates. Your activities may disturb them so they are unable to benefit from the lecture.
6. Report immediately to the instructor any emergencies or injuries that occur.

**Accommodations:** Students who need special accommodations in this class because of a documented disability should notify Student Disability Services by calling (864) 592-4818, toll-free 1-800-922-3679; via email through the SCC web site at [www.sccsc.edu/resources/disabilities](http://www.sccsc.edu/resources/disabilities); or by visiting the office located in the East Building Room 30-B on the SCC Central campus. Contacting Student Disability Services early in the semester gives the College an opportunity to provide necessary support services and appropriate accommodations.

**Course**  
**Competencies &**  
**Objectives:**

**As a result of successful completion of this course, a student will be able to:**

- I. Apply principles of thermochemistry, thermodynamics, and solution concentration.
  1. Define energy and related terms.
  2. Calculate heats of reaction.
  3. Apply Hess's law and calculations involving heats of formation.
  4. Apply calculations involving units of concentration.
  
- II. Apply calculations involving colligative properties and reaction rates.
  1. Apply calculations involving colligative properties.
  2. Apply calculations involving reaction rates.
  
- III. Apply principles of equilibria and ionization.
  1. Define equilibrium state and constant.
  2. Apply calculations involving equilibrium constants.
  3. Apply Le Chatelier's principle.
  4. Calculate quantities involving ionization constants and pH.
  
- IV. Apply principles of electrochemistry.
  1. Describe galvanic cells.
  2. Apply calculations involving standard potentials.
  
- V. Apply principles of organic and nuclear chemistry.
  1. Apply principles of organic chemistry.
  2. Apply principles of nuclear chemistry.
  
- VI. Describe main group chemistry and transition elements.
  1. Describe main group chemistry.
  2. Describe transition elements.
  
- VII. Apply basic laboratory operations.
  1. Apply basic laboratory operations to the study of heats of reactions, boiling-point elevation, reaction rates, chemical equilibrium, and antacids.
  2. Apply basic laboratory operations to the study of ionization, pH, common-ion effect, buffer solutions, oxidation-reduction, and molecular structure.