

# Chemistry 102: General Chemistry B

## Spring Semester 2014

**Instructor: Jan Florián**

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Lecture/Discussion: Tuesday, Thursday, 6:00 PM – 7:45 PM, FH-auditorium  
Office Hours: Tue 8:00 – 9:00 PM, Wedn 2:00 – 3:00 PM

**Prerequisites:** General Chemistry A

**Textbook:** “*Chemistry the Central Science*” 10<sup>th</sup>, 11<sup>th</sup> or 12<sup>e</sup> edition, by Brown, Lemay, Bursten, Murphy and Woodward

### Required Materials:

1. “Mastering Chemistry online learning system for *Chemistry the Central Science*, 12<sup>th</sup> edition” You can buy the Mastering access code online at <http://masteringchemistry.com/site/register/new-students.html> for \$66 (\$110 with eText).
2. A non-programmable calculator, capable of scientific notation.
3. Laptop computer (PC or Mac) with wireless internet for answering Mastering Chemistry questions in the classroom.

### Recommended Materials:

- “*Chemistry the Central Science*, 12<sup>th</sup> edition edition eText (can be purchased packaged together with *Mastering Chemistry*)
- “*Student’s solution manual*” for your textbook

**Course Overview:** Chemistry 102 is the second semester of a two-semester series in general chemistry. The course describes the internal composition, properties and interaction of the matter that forms human body and surrounding world. We will cover chapters 13 – 17, 19 – 21 and 24 of Brown’s text; a schedule of lecture topics accompanies this syllabus. Your attendance at lecture and discussion is expected. The correct answers of the quiz and exam questions may require knowledge of all information presented in the lecture, discussion, textbook, and Mastering. It is recommended that you read (and think about) appropriate chapter of the textbook prior to the lecture covering that chapter, and ask the questions relevant to the covered material during the lecture and the discussion.

**Homeworks:** Homework problems use the *Mastering Chemistry* online learning system. You will need to buy the access code and register at <http://masteringchemistry.com/site/register/new-students.html> before accessing the homeworks for the first time. During the registration, select your textbook, school (zip code 60626), and the course id **FLORIAN2014**. Homework assignments will be due every Mo, We, Fri at 10:59 PM.

**Exams:** Three 60 minute multiple-choice mid-semester exams and one 120 minute final exam will be given during semester. The final exam is cumulative. Make-up exams will be allowed for excused absences. For the absence to be classified as excused, students must notify the instructor about their absence before the exam and provide valid excuse (e.g. a doctor’s note) that covers the exam day and all days prior to the make-up exam day. The doctors note must be signed and contain legible name, hospital/office address and phone number and the reason for the absence. If the student disagrees with her/his score for the exam, she/he must request re-grading within one week from the day he/she received the graded exam.

**Quizzes:** Four online multiple-choice or short-answer quizzes will be given during the semester. No make-up quizzes will be allowed. Note that quizzes will require working notebook computer and classroom access to Mastering Chemistry.

**Grading scheme:** Your grade will be calculated using grading points that you earned in the four exams, homework assignments, and quizzes: 100% on each mid-semester exam = 18 points, 100% on the quiz total = 18 points, 100% on the homework problems = 10 points, 100% on the final exam = 36 grading points.

Your weakest quiz result will be disregarded. In addition, your mid-semester exam with the lowest score (or your total quiz score if it would be lower than your lowest mid-semester exam score) will be disregarded. Thus, the maximum total number of grading points that you can earn at the semester end is **3 x 18** (for mid semester exams and quizzes) + **36** (for the final exam) + **10** (for the homeworks) = **100 grading points**.

Grades for the class will be assigned according to the following scale

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<b>Earned Grading Points</b>	<b>Letter Grade</b>	<b>Earned Grading Points</b>	<b>Letter Grade</b>
86 – 100	A	55 – 60	C
80 – 86	A-	50 – 55	C-
75 – 80	B+	45 – 50	D+
70 – 75	B	40 – 45	D
65 – 70	B-	40 or less	F
60 – 65	C+		

**Midterm grade:** Your midterm grading points will be based on the two mid-semester exam results, quiz total (the lowest quiz will be disregarded) and homeworks that will all carry the same weight (i.e. 25 grading points each). Your midterm grade will be calculated using the same scale as your final grade (see above).

**Ethical Considerations:**

*Students will not collaborate on any exam or quiz. Only those devices and materials permitted by the instructor may be used to assist in examinations or quizzes. Students will not represent the work of others as their own. During the examinations quizzes, students must follow the seating arrangement determined by the instructor. Any student caught cheating during exam, or student who modifies his/her exam after it was returned back to him/her for inspection will be reported to the Deans office and will receive zero points for the given exam.*

**Tutoring center:**

The Tutoring Center offers free small group tutoring for Loyola students. The groups meet once a week through the end of the semester and are led by a student who has successfully completed study in the course material. To learn more or request tutoring services, visit the Tutoring Center online at [www.luc.edu/tutoring](http://www.luc.edu/tutoring).

**Tentative Schedule** (exact quiz and exam dates and coverage will be announced in class and on Sakai)

- Week 1 Ch 13: Properties of solutions, colligative properties.
  - Week 2 Ch 14: **Quiz 1.** Rates of chemical reactions, rate laws, rate constants.
  - Week 3 Ch 14: Microscopic view of reaction rates, reaction coordinate, catalysis, reaction mechanisms.
  - Week 4 Ch 15: **Exam 1 (Ch 11, 13-14).** Chemical equilibrium, equilibrium constant, reaction quotient.
  - Week 5 Ch 15: Calculating and applications of equilibrium constants, Le Chatelier's principle. **Quiz 2.**
  - Week 6 Ch 16: Acids and bases. pH scale.
  - Week 7 Ch 16: **Quiz 3.** Equilibrium constants for protonation of acids and bases. Solution pH. Polyprotic acids and bases.
  - Week 8 Spring break (March 3 – 8)
  - Week 9 Ch 17: **Exam 2.** Common ion effect, buffer solutions and their preparation, acid-base titrations.
  - Week 10 Ch 17: Solubility equilibria. **Last day to drop the class (March 24)**
  - Week 11 Ch 19: Spontaneity of chemical reactions, entropy, second law of thermodynamics.
  - Week 12 Ch 19: **Exam 3.** Free energy.
  - Week 13 Ch 20: Electron transfer reactions. Balancing oxidation-reduction reactions. Electrochemical cells. **Quiz 4.**
  - Week 14 Ch 20: Standard reduction potentials. The Nernst equation. Electrolysis. **Easter (April 17)**
  - Week 15 Ch 24,21: Coordination compounds. Magnetic properties. Nuclear chemistry.
- Final Exam, April 29 (Tuesday), FH-133, 6:00 – 8:00 pm**