2014

162-03 General Chemistry II

Supaporn Kradtrap-Hartwell

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Instructor: Dr. Supaporn Kradtap Hartwell  
Contact: Logan Hall, Room 304 A, email: kradtaps@xavier.edu  Phone: 745-3397  
Office hours: M W F 11.00 AM-12.00 N and T R 2.15-3.00 PM  
Class meetings: MWF 10.00–10.50 A.M. Room 100 Logan Hall

**Course description**: This is the second semester of a two-semester sequence in general chemistry. It is intended for students majoring in Chemistry, Biology, Natural Sciences, or those seeking entry into health professional programs. This course partially fulfills requirements for entry into medical, dental, and veterinary schools. Topics to be discussed: liquids, solids, and solutions; kinetics and equilibrium; acids and bases; thermodynamics; and electrochemistry.

**Prerequisites**: Chem 160 (Gen. Chem. I)  
Please bring calculator to class

**Tentative Schedule**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>Jan 13-29</td>
<td>Liquids, Solids and Phase Changes (Chapter 10, skip section 7-9)</td>
<td>No class on Jan 20 (Martin Luther King day)</td>
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<td></td>
<td>Entropy and Free Energy (Chapter 8, section 12 &amp; 13 only)</td>
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<td>Solutions and their properties (Chapter 11, skip section 10)</td>
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<td>F Jan 31</td>
<td>TEST # 1</td>
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<tr>
<td>Feb 3 –21</td>
<td>Chemical Kinetics (Chapter 12)</td>
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<td>Chemical Equilibrium (Chapter 13)</td>
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<td>M Feb 24</td>
<td>TEST # 2</td>
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<td>Feb 26 – Mar 24</td>
<td>Aqueous Equilibria: acids and Bases (Chapter 14)</td>
<td>No class on Mar 3-7 (Spring break)</td>
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<td>Part I: Buffers and titrations (Chapter 15 sections 1-9)</td>
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<td>W Mar 26</td>
<td>TEST # 3</td>
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<td>Mar 28-April 23</td>
<td>Part II: Solubility equilibria (Chapter 15 sections 10-13)</td>
<td>No class on April 17-21 (Easter break)</td>
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<td>Thermodynamics (Chapter 16, skip section 3)</td>
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<td></td>
<td>Electrochemistry (Chapter 17)</td>
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<td>F April 25</td>
<td>TEST # 4</td>
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<tr>
<td>April 28 –May 2</td>
<td>Transition Elements and Coordination Chemistry (Chapter 20)</td>
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<tr>
<td>W May 7</td>
<td>FINAL EXAM 10.00 a.m. – 11.50 a.m.</td>
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**NOTE**: This syllabus is subject to change depending on class progress and extenuating circumstances. Any changes to this syllabus will be announced to the class in as timely a manner as possible.

**Final exam** is a standardized examination by the American Chemical Society covering general chemistry materials of **both semesters**

(see back)
Grading:

- **Homework (online Mastering Chemistry)/Quiz**: 15%
- **Tests**: 70%
- **Final exam**: 15%

**Homework access**: www.masteringchemistry.com

- Course ID: MCHARTWELL 16214
- Log in with your student ID

**Attendance**: Instructor is requested to report attendance record to the Director of the Student Academic Support Service.

**Grading scale:**

- **A** 94-100
- **A-** 91-93
- **B+** 88-90
- **B** 84-87
- **B-** 80-83
- **C+** 77-79
- **C** 73-76
- **C-** 70-72
- **D+** 67-69
- **D** 63-66
- **D-** 60-62
- **F** 59 and below

Upon review at the end of the semester, this scale may be adjusted downward.

**NOTE:**

1) According to the Xavier University Catalog, a grade A is earned for exceptional performance. This is also the grading policy of the faculty in the Chemistry Department. (Department Grading Policies can be found at [http://www.xavier.edu/chemistry/dept_policies_grading.cfm](http://www.xavier.edu/chemistry/dept_policies_grading.cfm))

2) Academic Honesty: Cheating on any test or examination will result in a grade of “F” for the course. The student may appeal according to normal procedures stated in the university catalog.

3) It is the responsibility of the student to inform the instructor at the beginning of the semester of any individual conditions that may require special attention. Appropriate consideration will be given in these situations.

4) Test/Exam absence: In case of sickness, bring letter from doctor and contact the instructor as soon as possible to schedule for test/exam. In case of necessary business e.g. sport meet, family issue, contact instructor in advance with letter from your academic advisor or sport director/coach to schedule for test/exam. Missed test/exam cannot be made up without evidence/document of reasonable excuses.

CHEM162 Satisfies NSTA Reporting Standards for Teaching Science Numbers 1a, 1b, 1c, 1e

**Student Learning Outcomes**: At the end of this course the student will be able to:

- predict the physical properties of liquids, solids, and solutions.
- calculate the rates of reactions, and understand the molecular basis for chemical kinetics.
- demonstrate both a qualitative and a quantitative understanding of chemical equilibrium.
- calculate the pH of solutions of strong/weak acids & bases, buffers, and titration curves.
- calculate the potentials of redox reactions and thermodynamic values for all reactions.