Chemistry 216 - General Chemistry II: Principles of Chemical Reactions (Spring - 2018)

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Office Hours: Mon. 9:30-10:30 am.
Wed 9:30-10:30 am.
Review Session: Fri. 9:15-10:50 am. (Room CS-129)

SYLLABUS

Course Description:
Chemical kinetics and equilibrium, thermodynamics, redox reactions and electrochemistry, and topics in inorganic, organic, biological and environmental chemistry. Four hours lecture and six hours laboratory. (6 units)

Course Materials:
Course will be based on related chapters from textbook:
Openstax College Chemistry, 2015 Rice University.
The free electronic pdf version can be accessed through the following web site:
https://openstaxcollege.org/textbooks/chemistry
A hard copy of this textbook is available for purchase.

Blackboard:
Much of the information (syllabi, handouts, assignments, keys etc.) will be posted on blackboard.
The course can be accessed at http://blackboard.csusb.edu . Use your student ID to access the site. You will also be able to track your grades on blackboard.

Prerequisites:
CHEM 215 with a grade of C or better

Grading System:
Total number of points available 900. These points are allocated as follows: Three midterms (100 points each.), one final (200 points.), homework problems (100 points), and laboratory work (300 points).

<table>
<thead>
<tr>
<th>Midterm #1 (Fri. Apr. 20)</th>
<th>100 pts.</th>
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<tr>
<td>Midterm #2 (Fri. May. 11)</td>
<td>100 pts.</td>
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<tr>
<td>Midterm #3 (Fri. June. 1 )</td>
<td>100 pts.</td>
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<tr>
<td>Final Examination (Fri. June. 15) (10:00 - 11:50 am.)</td>
<td>200 pts.</td>
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<tr>
<td>Homework Problems</td>
<td>100 pts.</td>
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<tr>
<td>Laboratory Work</td>
<td>300 pts.</td>
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<tr>
<td>TOTAL</td>
<td>900 pts.</td>
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Points Grade
825-900 A
790-824 A-
750-789 B+
710-749 B
675-709 B-
630-674 C+
584-629 C
540-585 C-
490-539 D+
440-489 D
400-439 D-
Below 400 F

Examinations:
The will be three midterm examinations, each worth 100 points. The midterm examinations will each cover approximately one third of the course. The final examination will be comprehensive covering all the quarters' material. Must bring to all examinations a calculator. Cell phones are not permitted to be used as calculators during examinations. Should your cell phone ring during an examination period 10% of the examinee points will be deducted from your score. A photo I.D. is required at the time of turning in all examinations.

Homework: (See important additional information on page 5).

There will be 10 homework assignments, each worth 10 points. Homework assignments will be given each Friday, and will be due the following Friday. The assignments will be given on-line through "Sapling Learning".
You will need to create an account. www.saplinglearning.com/login
The cost of course access is $30. for the quarter.
Any difficulties encountered are addressed through "Sapling Student Support".
Additional information can be found on Blackboard.

Student Learning Outcome:
General Principles: Students will understand the general principles of chemistry. They will understand the basic principles associated to Thermodynamics, Chemical Kinetics, Chemical Equilibrium, Acid Base Reactions, Buffer Solutions, Titrations, and Electrochemistry. They will be able to perform standard stoichiometric, and solution calculations pertaining to the topics listed.

COURSE OUTLINE

Based on the textbook - Openstax College Chemistry

1. Thermochemistry.
   Chapter 5. Sections: 5.1 - 5.3

2(a). Thermodynamics.
   Chapter 16. Sections: 16.1 - 16.4
   (Not including topic Free Energy and Equilibrium pg. 923 - 926)
   Chapter 12. Sections: 12.1 - 12.7

   Chapter 13. Sections: 13.1 - 13.4

2(b). Thermodynamics.
   Chapter 16. Sections: 16.4 (Free Energy and Equilibrium pg. 923 - 926)

5. Acid – Base Equilibria.

6. Equilibria of Other Reaction Classes.
   Chapter 15. Sections: 15.1 - 15.3

7. Electrochemistry.
   Chapter 17. Sections: 17.2 - 17.4, 17.7

Sections covered on mid-term examines

Mid-Term #1:

1. Thermochemistry.
   Chapter 5. Sections: 5.1 - 5.3

2(a). Thermodynamics.
   Chapter 16. Sections: 16.1 - 16.4
   (Not including topic Free Energy and Equilibrium pg. 923 - 926)

Mid-Term #2:

   Chapter 12. Sections: 12.1 - 12.7

   Chapter 13. Sections: 13.1 - 13.4

Mid-Term #3:

2(b). Thermodynamics.
   Chapter 16. Sections: 16.4 (Free Energy and Equilibrium pg. 923 - 926)

5. Acid – Base Equilibria.
LABORATORY

Chemistry is an experimental science, and many fundamental principles are nicely demonstrated through experimentation. You are expected to perform the assigned experiments and to demonstrate your understanding through preparation of a laboratory report. The laboratory component of Chemistry 216 is an integral part of the total learning experience. More information concerning the laboratory requirements is found in the on-line laboratory manual through blackboard.

Required Laboratory Materials:
1. A notebook in order to keep a permanent record of your laboratory work.
2. Calculator.
3. Safety goggles will be given to you at the first laboratory session as part of your laboratory fees.

The Policy and Procedures Concerning Academic Dishonesty:

Plagiarism and cheating are violations of the Student Discipline Code (see Appendix of the CSUSB Catalogue of Programs) and may be dealt with by both the instructor and the Judicial Affairs Officer. Plagiarism is the act of presenting the ideas and writings of another as one’s own. Cheating is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive or fraudulent means. Plagiarism is academically dishonest and makes the offending student liable to penalties up to and including expulsion. Students must make appropriate acknowledgments of the original source where material written or complies by another is used. Questions about academic dishonesty and the policy should be addressed to the Office of the Vice President, Student Affairs.

Commitment to Diversity:

In our commitment to the furthering of knowledge and fulfilling our educational mission, California State University, San Bernardino seeks a campus climate that welcomes, celebrates, and promotes respect for the entire variety of human experience. In our commitment to diversity, we welcome people from all backgrounds and we seek to include knowledge and values from many cultures in the curriculum and extra-curricular life of the campus community. Dimensions of diversity shall include, but are not limited to, the following: race, ethnicity, religious belief, sexual orientation, sex/gender, disability, socioeconomic status, cultural orientation, national origin, and age. (from the CSU San Bernardino University Diversity Committee Statement of Commitment to Diversity, 1995)

In keeping with the university’s Commitment to Diversity, the faculty of the College of Natural Sciences fully supports the Americans with Disabilities Act (ADA). Faculty will provide reasonable accommodation to any student with a disability who is registered with the Office of Services to Students with Disabilities and who needs and requests accommodation. If you are in need of an accommodation for a disability in order to participate in this class, please contact Services to Students with Disabilities at UH-183, (909)537-5238. It is the student’s responsibility to seek academic accommodations for a verified disability in a timely manner.
"Personalized Teaching in a Chemistry Course Using Adaptive Learning"

Two on-line homework platforms will be utilized in this CHEM-216 course. **Sapling Learning**: (Traditional Homework system). Student cost $30. **Smart Sparrow**: (Adaptive Learning Homework system) The student cost of this system is paid for by the CRT grant. Access to these units will be provided through your classroom blackboard account.

Week #1: **Smart Sparrow**

Week #2: **Sapling Learning**

Week #3: **Smart Sparrow**

Week #4: **Sapling Learning**

Week #5: **Smart Sparrow**

Week #6: **Smart Sparrow**

Week #7: **Sapling Learning**

Week #8: **Sapling Learning**

Week #9: **Sapling Learning**

Week #10: **Sapling Learning**

The weeks in which Smart Sparrow is utilized the corresponding Sapling Learning units will be available for review at no credit.

Towards the end of the quarter a Questionnaire will be provided worth 10 points extra credit.

When CSUSB says "We Define The Future". This is what we are talking about !!!