General Chemistry II
CHEM 1412-301
Fall 2011, Blinn College – Bryan

INSTRUCTOR: Dr. Chammi Gamage-Miller
Email: eCampus mail or chammi.gamage@blinn.edu
Tel: 979 -209-7593
Office Hours: MW 3.00 pm – 4.00 pm TH 12.00 pm – 1.00 pm
Office: H-252

COURSE DESCRIPTION:
CHEM 1412 consists of the study of the fundamental laws, theories and concepts of chemistry including oxidation-reduction reactions, electrochemistry, thermodynamics, chemical equilibria, nuclear and organic chemistry. Three class hours and three laboratory hours per week. Credit: Four semester hours.

PREREQUISITE:
MATH 1314 or its equivalent, CHEM 1410 or CHEM 1411 with a grade of “C” or better.

CORE CURRICULUM COURSE:
This is a course in the 42-hour Core Curriculum of Blinn College. As such, students will develop proficiency in appropriate intellectual competencies, exemplary educational objectives and general perspectives. The URL of the Blinn College core curriculum web site is: http://www.blinn.edu/corecurriculum/42hourcore.htm

STUDENT LEARNING OUTCOMES:
After completing this course, you will be able to:

- Predict the colligative properties of solutions using the theory of solutions.
- Convert between concentration units of molality, molarity, mole fraction, and percent by mass.
- Use kinetic theory to calculate the rate of a chemical reaction and its dependence on experimental data.
- Calculate the effects of changing reaction conditions on chemical equilibrium.
- Determine the effect of ionic equilibria on pH.
- Calculate the pH of a buffer solution.
- Determine the solubility of a compound from its solubility product.
- Use the concept of entropy inherent in the Second and Third Laws of Thermodynamics to calculate entropy and Gibb’s free energy changes for physical changes and chemical reactions.
- Predict the spontaneity of a chemical reaction using thermodynamic data.
Calculate the electrode potential and the cell potential of voltaic cells.
Apply Faraday's Law to calculate amount of products produced by electrolysis.
Name and identify the various types of isomers encountered in coordination chemistry.
Predict nuclear decay using the principles of nuclear chemistry.
Calculate the rate of radioactive decay of an isotope from its half-life.
Name and identify the simple organic compounds and their functional groups.

REQUIRED TEXTBOOKS AND MATERIALS:
Lab Eye Protection: OSHA approved goggles
Laboratory Notebook: The Official Laboratory Research Notebook , Jones and Bartlett
Homework: Mastering Chemistry, Pearson, Prentice Hall
Supplies: Scientific calculator. The calculator cannot be programmable nor can it have graphic capabilities.

OUTLINE OF THE COURSE CONTENT AND SCHEDULE:
See attached schedule

CIVILITY STATEMENT
Members of the Blinn College community, which includes faculty, staff and students, are expected to act honestly and responsibly in all aspects of campus life. Blinn College holds all members accountable for their actions and words. Therefore, all members should commit themselves to behave in a manner that recognizes personal respect and demonstrates concern for the personal dignity, rights, and freedoms of every member of the College community, including respect for College property and the physical and intellectual property of others. Civility applies to attire as well as language, behavior, and cell phone usage. Please dress appropriately for the academic classroom and laboratory.

CIVILITY NOTIFICATION STATEMENT:
If a student is asked to leave the classroom or have access to the online classroom denied because of uncivil behavior, the student may not return to that class until he or she arranges a conference with the instructor. It is the student’s responsibility to arrange for this conference.

COURSE REQUIREMENTS
Exams: 4 exams worth 100 points each given about as indicated in the attached schedule. The final exam is worth 200 points.
Laboratory Experiments: The laboratory portion of this course counts for 25% of the total course grade. We have 10 labs and 4 lab exams scheduled. See attached schedule for details.
**Quizzes:** There will be a number of quizzes given during the semester. The dates will be announced before each quiz.

**Homework:** There will be 10 assignments due during the semester. Homework collection and grading will be handled by the online mastering chemistry program. A code must be purchased in order to access this system. Further instructions and due dates are given at the website: www.masteringchemistry.com and on e-campus under resources/homework link.

**Course ID: CAFFEINE**

**Eye protection:** Students are responsible for purchasing appropriate eye protection and wearing eye protection during laboratories. Appropriate eye protection for this class will be safety goggles.

**EXAM AND MAJOR ASSIGNMENT CALENDAR:**
See attached schedule

**CRITERIA FOR GRADING AND DETERMINING FINAL GRADE:**
Grades will be posted on e-campus on % basis. Formal grading will be based on a point system as follows:

- Four Major Exams 100 points each (400 total)
- Quizzes 75 points
- Laboratory Work 150 points
- Lab Exam 25 points each (100 total)
- Homework 75 points
- Comprehensive Final 200 points

Total 1000 points

The grading system of Blinn College recognizes the following grade values:

- A ≥ 900 points mastery of material
- B ≥ 800 points “
- C ≥ 700 points “
- D ≥ 600 points “
- F less than 599 points “

**BLINN COLLEGE POLICIES:**

a. Attendance: The College District believes that class attendance is essential for student success; therefore, students are required to promptly and regularly attend all their classes. Each class meeting builds the foundation for subsequent class meetings. Without full participation and regular class attendance, students shall find themselves at a severe disadvantage for achieving success in college. Class participation shall constitute at least ten percent of the final course
grade. It is the responsibility of each faculty member, in consultation with the division chair, to determine how participation is achieved in his or her class. Faculty will require students to regularly attend class and will keep a record of attendance from the first day of class and/or the first day the student’s name appears on the roster through final examinations. If a student has one week’s worth of unexcused absences (2 classes) during the semester, he/she will be sent an e-mail by the College requiring the student to contact his/her instructor and schedule a conference immediately to discuss his/her attendance issues. Should the student accumulate two week’s worth of unexcused absences (4 classes), he/she will be administratively withdrawn from class.

There are four forms of excused absence officially recognized by Blinn College: (1) observance of religious holy days: The student should notify his/her instructor(s) not later than the 15th day of the semester concerning the specific date(s) that the student will be absent for any religious holy day(s); (2) representing Blinn College at an official institutional function; (3) official involvement in a high school activity for “dual credit” students; and (4) military service. Other excuses will be considered and may be considered excusable at the instructor’s discretion, with documentation. Missing lecture or lab or both will count as one absence.

b. Dropping: If a student chooses to drop the course, it is that student’s responsibility to complete a drop order at the Office of Enrollment Services. Failure to do so could result in a grade of F in the course. The last day to drop with a “Q” is Friday, November 18, 2011.

c. Honor System: Blinn College does not tolerate cheating, plagiarism, or other acts of dishonesty. Definitions of these acts and procedures for dealing with them are described in "Scholastic Dishonesty" in the Blinn College Student Handbook, copies of which are available at the information desk in the administration building. All tests will be closed book and notes. All students will remove hats and sunglasses before tests. In my classes, we are on a student honor system which we will talk about the first day. Plagiarized work will be automatically given a zero and may be reported for disciplinary action.

d. Electronic Device Policy: All the functions of all personal electronic devices designed for communication and/or entertainment (cell phones, pagers, beepers, iPods, and similar devices) must be turned off and kept out of sight in all Blinn College classrooms and associated laboratories. Any noncompliance with this policy will be addressed in accordance with the Blinn College civility policy (Administrative Policy).

e. Problem Resolution: If you have a complaint about your class, you should first request a conference with your instructor to try and resolve the problems or issues. If the problems or issues cannot be resolved at the instructor level, you should request a conference with the Division Chair, Mr. Dwight Bohlmeyer, Science 241, dbohlmeyer@blinn.edu.

f. Health Concerns: Eating and drinking are not allowed in classrooms or laboratories.
g. ADA Statement: Reasonable accommodations for students with documented learning or physical disabilities will be made upon presentation of a formal request by the student. An official request form is supplied and completed by the Office of Disability Services (ODS) located in the College Park Center Administration Building (Room A-135). The URL to the Office of Disability Services webpage is http://www.blinn.edu/disability.htm. Accommodation is not retroactive from the time of concluding agreement for accommodation.

If you need individual accommodations to meet course objectives because of a documented disability, please make an appointment with me to discuss your needs as soon as possible so that we can ensure your full participation in class and fair assessment of your work.

h. Blinn Handbook: The above requirements and policies are discussed more fully in the Blinn College Student Handbook which, by reference, is incorporated into this information. Blinn College Student Handbook is available online at http://www.blinn.edu/student%20handbook.pdf. Please obtain and read.

OTHER

**Laboratory dress policy:** (1) Closed-toe shoes must be worn, (2) Clothing must cover the skin from the neck to below the knees, (3) Shirts must have sleeves; alternatively, a lab coat / apron may be worn, (4) Students are responsible for providing their own safety goggles / glasses and (5) If safety glasses are worn they must be high-impact.

**Exam Policy:** All exams are comprehensive. Make up exams will be allowed in exceptional situations at my discretion, but only if taken before the graded exam is returned to the class. If a student misses an exam, it is his/her responsibility to arrange makeup exam or discuss it with instructor. Otherwise, missing exam will cost you a zero grade. All graded exams must be returned to the instructor after 24 hours. If you fail to return an exam you will lose 5 points each day.

**Lab grading policy:** Labs will be graded according to lab reports and data collection. Lab reports will be due at the beginning of the next lab period after the lab is completed. You will lose 5 points per class period for labs turned in late. Missing a lab will result in a zero for the experiment being performed that day. There are no make-up labs. For missing labs you will be allowed to summit pre lab/post lab reports (50% lab grade). No student will allow copying data from a lab partner for any reason (50% lab grade). A student must be in the lab in order to report data.

**Quizzes:** There will be no makeup offered for quizzes. The lowest of the quiz grades will be dropped.

**Homework policy:** Homework will be graded on the following criteria: 1. Homework completed by deadline 2. The assignment is complete 3. The correct answers

The homework is worth 75 points. If you fail to submit your homework, you will receive a grade of zero for that section. You will receive a score for each chapter assignment.

**Personal Folder:** Each student must maintain a personal folder to turn in all the material to be graded.
# Tentative Lecture and Lab Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>TH(H207) 12.00 pm - 1.15 pm</th>
<th>MW(S218) 1.25 pm - 2.40 pm</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>29-Aug</td>
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<td>31-Aug</td>
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<tr>
<td>5-Sep</td>
<td></td>
<td>Ch11: Solutions</td>
<td>Practice Problems</td>
<td>Q-1</td>
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<tr>
<td>7-Sep</td>
<td></td>
<td>Conc. Units &amp; solubility</td>
<td>E-21: Freezing Point</td>
<td>E-21 pre lab</td>
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<tr>
<td>12-Sep</td>
<td></td>
<td>Colligative properties</td>
<td>Review</td>
<td>Q-2: HW 1-2</td>
</tr>
<tr>
<td>14-Sep</td>
<td>EXAM 1</td>
<td>Lab Exam 1</td>
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<tr>
<td>19-Sep</td>
<td></td>
<td>Ch12: Rate law and rxn order</td>
<td>E-22: rates of reaction</td>
<td>E-22 Pre/E-21 Posts</td>
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<tr>
<td>21-Sep</td>
<td></td>
<td>Integrated rate law &amp; mechanisms</td>
<td>E-23: Iodine clock rxn</td>
<td>E-23 pre/E-22 post labs</td>
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<tr>
<td>26-Sep</td>
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<td>Arrhenius Equation</td>
<td>Practice Problems</td>
<td>Q-3</td>
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<tr>
<td>3-Oct</td>
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<td>Le Chatelier’s Principle</td>
<td>E-25: pH</td>
<td>E-25 pre/E-24 post labs</td>
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<tr>
<td>5-Oct</td>
<td></td>
<td>Ch 14: Acid-Base concept</td>
<td>Review</td>
<td>Q-4 HW 3-4</td>
</tr>
<tr>
<td>10-Oct</td>
<td>EXAM 2</td>
<td>Lab Exam 2</td>
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<tr>
<td>12-Oct</td>
<td></td>
<td>pH, Salts, Lewis acid/base</td>
<td>E-26: Ka of an acid</td>
<td>E-26 pre/E-25 post labs</td>
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<tr>
<td>17-Oct</td>
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<td>Ch15: pH calculations for salts</td>
<td>Buffers, titration curves</td>
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<tr>
<td>19-Oct</td>
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<td>Polyprotic acids, Ksp</td>
<td>Practice Problems</td>
<td>Q-5</td>
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<tr>
<td>24-Oct</td>
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<td>Ch17: Galvanic cell</td>
<td>E-28: Ksp</td>
<td>E-28 pre/E-26 post labs</td>
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<tr>
<td>26-Oct</td>
<td></td>
<td>Nernst equation and Redox reactions</td>
<td>Practice Problems</td>
<td>Q-6</td>
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<tr>
<td>31-Oct</td>
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<td>Cell potential and equilibrium</td>
<td>E-29: Electrochemistry</td>
<td>E-29 pre/E-28 post labs</td>
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<tr>
<td>2-Nov</td>
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<td>Corrosion</td>
<td>Electrolysis</td>
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<tr>
<td>7-Nov</td>
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<td>Review</td>
<td>Review</td>
<td>HW 5-7</td>
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<tr>
<td>9-Nov</td>
<td>EXAM 3</td>
<td>Lab Exam 3</td>
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<td>14-Nov</td>
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<td>Ch20: Coordination chemistry</td>
<td>Naming compounds, Isomers</td>
<td>Q-7</td>
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<tr>
<td>16-Nov</td>
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<td>Ch22: Nuclear Decay</td>
<td>E31: Nuclear chemistry</td>
<td>Q-8</td>
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<tr>
<td>21-Nov</td>
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<td>Isotopes and half lifes</td>
<td>Ch23: Functional groups</td>
<td>E-31 pre/E-29 post labs</td>
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<td>23-Nov</td>
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<tr>
<td>28-Nov</td>
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<td>Naming compounds</td>
<td>E34: Recycled Plastic</td>
<td>E-34 pre/E-31 post labs</td>
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<tr>
<td>30-Nov</td>
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<td>Simple reactions</td>
<td>Review</td>
<td>HW 8-10</td>
</tr>
<tr>
<td>5-Dec</td>
<td>EXAM 4</td>
<td>Lab Exam 4</td>
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<tr>
<td>7-Dec</td>
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<td>Final Review</td>
<td>Final Review</td>
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**FALL-2011 CHEM 1412-301**

**FINALS SATURDAY DEC 10TH 2011 1.00 pm - 3.00 pm**