Houston Community College – Southeast

Course Outline for CHEM 1412 – General Chemistry II

Fall, 2014 (from August 25 to December 14, 2014) (16 weeks)

Class Number 29577

Time and Location Room
Tuesdays: 8:00 am – 11:00 am FM 312 (lecture)
Thursdays: 8:00 am – 11:00 am FM 206 (Lab)

Instructor

Dr. Joanne Lin

Office Hours: 2 pm to 4 pm, Tuesdays and Thursdays or by appointments

Office Phone: 713-718-7855

Email: joanne.lin@hccs.edu

Textbook, Lab manual and other items:

1. Required:

   b. Lab Manual: Chemistry 1412 Laboratory Manual by the Houston Community College Chemistry faculty
   c. Scientific calculator, (if you use I Phone, it will not be allowed during exam)
   d. Two (2) separate notebooks: one for note taking; and one for “*class projects”

   * Class projects are exercises assigned during class for a group of students working together in solving problems. These are considered “extra credits” to be added at the end of the semester.

2. Optional:

   a. safety goggle, (you can bring your own pair or use the ones provided by HCC)
   b. lab coat, (or you can wear a big old T-shirt)


**Important Dates:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>August 24</td>
<td>Last day for 100% refund</td>
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<tr>
<td>August 25</td>
<td>Classes begin</td>
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<tr>
<td>August 25 – Sept 10</td>
<td>70 % refund</td>
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<tr>
<td>August 24</td>
<td>Last day for Drops/Add/Swap, registration ends</td>
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<tr>
<td>August 25</td>
<td>Classes begin</td>
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<tr>
<td>Sept 1</td>
<td>labor Day Holiday</td>
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<td>Sept 8</td>
<td>OE day, Official Date of Record</td>
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<td>Sept 11-16</td>
<td>25% refund</td>
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<td>October 14</td>
<td>Deadline for Fall degree or certificate</td>
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<td>October 31</td>
<td>Last day to drop</td>
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<td>December 7</td>
<td>Instruction ends</td>
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<tr>
<td>December 8-14</td>
<td>Final Exam</td>
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<tr>
<td>December 14</td>
<td>Semester ends</td>
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**Important Message from HCCS to All Students:**

"Students who repeat a course three or more times may soon face significant tuition/fee increases at HCC and other Texas public colleges and universities. Please ask your instructor/counselor about opportunities for tutoring/other assistance prior to considering course withdrawal, or if you are not receiving passing grades."

**American Disability Act:** The Office of Students with Disabilities at HCC reminds faculty that they are required to include the following statement on all their class syllabi: Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at the respective college at the beginning of each
semester. Faculty is authorized to provide only the accommodations requested by the Disability Support Services Office.

For questions, contact the Disability Counselor at your college. To visit the ADA Web site, log on to www.hccs.edu, click Future Students, scroll down the page and click on the words Disability Information.

District ADA Coordinator – Donna Price – 713.718.5165

Free Tutoring by:

1. Departmental tutors (provided by Southeast College)
2. Online (for all Colleges): Available 24 hours a day, 7 days a week, 365 days a year. See HCC Home page for details.

Important Message from Instructor to All Students:

This syllabus serves as a binding contract between students and the instructor. Any rule, grading and grade calculation are solely based on what stated in the syllabus.

1. Cell phones and laptops: Usage is strongly discouraged in the classroom and lab room. All cell phones must be turned off during an examination and should be at a silent mode in class (lab and lecture)

2. Withdrawal: Students simply stop coming to the class WITHOUT officially dropping the class will receive an F from this course. Instructor does not drop students from class due to student's excessive absence or unsatisfactory performance.

If you need to drop the class for any reason, you can do it by either of the following methods by September 29, 2014:

(a) Completing an official withdrawal form at any HCCS campus.

(b) Drop online yourself

3. Early Departure: Please sit near the (exit) door if you do not plan to stay for the entire class time. If you must leave, please leave quietly.

Early Alert Program:

A weekly or monthly attendance and exam records may be forwarded automatically to the Counseling Department without student's consent.

Prerequisite: One-year high school chemistry or either one of the chemistry courses (CHEM 1305, CHEM 1405 and CHEM 1413) and Math 0312/1314. Student taking this class without proper prerequisites is at his/her own risk.

If you forgot or did not have proper pre-requisite, you may go to http://preparatorychemistry.com/ for inexpensive or even free Introductory Chemistry textbook and audio version of the book or to www.whfreeman.com/bleioidian for free access for reviewing CHEM 1405 materials.
Course Description & Course Intent: Basic Concepts of chemistry presented for students intending to major in one of the physical or medical sciences (chemistry, physics, medicine, etc.), engineering or mathematics. Topics include atomic and molecular structure, periodic table, stoichiometry, chemical bonding, thermodynamics, gas law, solutions, acids and bases, molecular forces and the state of matter. This course is intended for students who need general college level chemistry in preparation for higher-level science courses in their respective curricula. Chemical concepts and exams are emphasized from a mathematical approach.

Southeast College Natural Science Department Rules and Regulations: Contact Department Chair, Dr. Mahtash Moussavi (713-718-7276) for HCC policies related questions. All cell phones should be turned off during examinations and should be at silent mode during lecture sections. No rest room use unless it's an emergency during the test.

Attendance and Tardiness Policy and Student Responsibilities: Students are expected to follow the rules established by the State and the College printed in Annual Schedule of Classes. Students are solely responsible for making up materials missed due to their tardiness, early departure, and absence, and are expected to study and sign roll sheets every time in class.

Academic Honesty Policy: Student who is caught cheating will receive a grade of zero for that exam or lab report with no exceptions and may be administratively withdrawn from the class.

Exam Policy: Write the version(s) on your Scantron. No make-up lecture exams are allowed for any excuses and thus students are allowed to drop the lowest lecture exam given by instructor. System Final Exam is mandatory and cannot be dropped. System Final Exam may be counted twice to replace the lowest test score of the regular exams if the Final Score is higher than the lowest one. Thus missing the Final or inadequate preparation for it will have adverse consequence affecting your grade.

Lab Policy: No make-up labs are allowed. Students must watch safety video during the first lab of class. Students who missed the Videotape: Starting with Safety reserved in the library must take the written Safety exam to meet the requirement.

Students are required to read through the experiment beforehand in order to be well organized and adequately prepared for each experiment. In addition, eating, drinking and horse playing are not allowed in the lab. Safety goggle must be worn at all times in the lab. Experiments are performed in-group. (Maximum: 3 students in a group depending on the enrollment). All experiments with chemicals released must be performed in the hood.

Grading Policy: Your letter grade will be based on how well you have met the requirement and grading policy. You are strongly encouraged to do your homework and practice exams.

Lecture portion: total 80%; Lab portion: total: 20% ==> Total 100%.
Breakdown:
Lecture:
3 Lecture Exams 60%
1 Comprehensive System Final 20%
Lab:

Safety rules and chemical apparatus + Data report of experiments 10%

Pre-and Post-lab questions/exercises 10%

For any unpredictable or uncontrollable absence due to illness or work, you must bring the third party’s documentation like physician’s note or letter from employer to avoid point deduction of your lab. No grade will be released over the phone or by email or to your friend, classmates or spouse even if you are taking the same class. All tests will be returned for viewing and for any grading error during the following class and must be returned for grade recording. Failure to return the test will result in recording as a zero for the test.

Grading Scale: 90-100 = A; 80-89.99 = B; 70-79.99 = C; 60-69.99 = D; Below 60 = F.

Tips for Learning Chemistry: Chemistry is a math-based subject, which requires conceptual understanding and application, and is not a subject that you can learn or master passively. Chemistry is best learned through doing. Listening to lecture attentively is essential for mastery of the course. CHEM 1411 is difficult and it’s a math-based course, which requires students putting more effort than what they did in Chemistry 1305, 1405 or 1413. Usually it requires 20 or more hours a week to study and practice. Students easily fall behind if they do not keep up weekly study and miss classes. Scores from exams speak for your readiness and preparation for the class. Remember that reading solutions is solely different from solving problems and doing homework and practice exams yourself. To study effectively, you should read the assignments before attending lectures.
# Summary of the Schedule

Chapters to be covered: Chapter 11, 12, 13, 14, 15, 16, 17, 18, 19 and 22 (10 chapters)

Experiments to be run: Lab Safety, # 1, 2, 4, 5, 6, 7, 9, 15, 17 (9 experiments)

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<thead>
<tr>
<th>Wk</th>
<th>date (Tues)</th>
<th>Activities</th>
<th>Date (Thursdays)</th>
<th>Activities</th>
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<tbody>
<tr>
<td>1</td>
<td>8-26</td>
<td>Syllabus and prologue</td>
<td>8-28</td>
<td>Lab safety/Exp. 1</td>
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<tr>
<td>2</td>
<td>9-2</td>
<td>Chapter 11</td>
<td>9-4</td>
<td>Exp. 2</td>
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<tr>
<td>3</td>
<td>9-9</td>
<td>Chap. 11, chap. 12</td>
<td>9-11</td>
<td>Exp. 4</td>
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<td>4</td>
<td>9-16</td>
<td>Chap. 12</td>
<td>9-18</td>
<td>Review chap. 11 and 12</td>
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<tr>
<td>5</td>
<td>9-23</td>
<td>EXAM I (11 and 12)</td>
<td>9-25</td>
<td>Exp. 5</td>
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<tr>
<td>6</td>
<td>9-30</td>
<td>Chap. 13</td>
<td>10-3</td>
<td>Exp. 6</td>
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<td>7</td>
<td>10-7</td>
<td>Chap. 14</td>
<td>10-9</td>
<td>Review of Chap 13, 14</td>
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<td>8</td>
<td>10-14</td>
<td>EXAM II (13, 14)</td>
<td>10-16</td>
<td>Chap. 15</td>
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<td>9</td>
<td>10-21</td>
<td>Chap. 15</td>
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<td>Exp. 7</td>
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<td>10</td>
<td>10-28</td>
<td>Chap. 16</td>
<td>10-30</td>
<td>Exp. 9</td>
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<tr>
<td>11</td>
<td>11-4</td>
<td>Review Chap. 15 and 16</td>
<td>11-6</td>
<td>Exam III (15, 16)</td>
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<tr>
<td>12</td>
<td>11-11</td>
<td>Chap. 17</td>
<td>11-13</td>
<td>Exp. 15</td>
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<tr>
<td>13</td>
<td>11-18</td>
<td>Chap. 17 and Chap. 18</td>
<td>11-20</td>
<td>Thanksgiving</td>
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<tr>
<td>14</td>
<td>11-25</td>
<td>Chap. 18</td>
<td>11-27</td>
<td>Chap. 24</td>
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<tr>
<td>15</td>
<td>12-2</td>
<td>Chap. 22</td>
<td>12-4</td>
<td>Review Final</td>
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<tr>
<td>16</td>
<td>12-9</td>
<td>Final (Comprehensive)</td>
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**Detailed information on the chapters and experiments:**

I. Chapters

*Chapter 11. Properties of Solutions*

*Chap 12. Chemical Kinetics.*

*Chap 13. Chemical Equilibrium.*

*Chap 14. Acids and Bases.*

*Chap 15. Acid-Base Equilibria and Solubility Equilibria.*

*Chap. 16. Solubility and Complex Ion Equilibrium*

*Chap 17, Spontaneity, Entropy, Free Energy and Equilibrium*

*Chap 18. Electrochemistry,*

*Chap 19. The Nucleus: A Chemist’s View*

*Chap 22. Organic and Biological Molecules*

II. Experiments:

Exp. 1: Solubility and Metathesis Reaction in Aqueous Solutions

Exp. 2: Molecular Weight Determination by Freezing Point Depression

Exp. 4: Kinetics of a Chemical Reaction: The Iodine Clock Reaction

Exp. 5: Hydrolysis of Anions and Cations of Salts

Exp. 6: Acid-Base Titration

Exp. 7: Determination of Dissociation Constant of a weak Acid

Exp. 9: Qualitative Analysis of Cations

Exp. 15: Structural Formula and Isomerism/Molecular geometry with models

Exp. 17/18: Preparation of Aspirin/ Detection with UV-Vis Spectroscopy