SYLLABUS

Fall 2011

Chem 1411/51590

| Instructor: | E-Mail: <u>jwuzli2004@yahoo.com</u> | | |
|----------------------------|-------------------------------------|--|--|
| Dr. Jisen Wu | Phone: (281)438- 0986 | | |
| Hours: | Rooms: | | |
| Tues. 5:30PM - 8:30PM | LHSB 409 | | |
| Thur. 5:30PM – 8:30PM | LHSB 416 | | |
| Tutoring Hours: | Rooms: | | |
| Tuesday: 12:00pm – 5:00 pm | LHSB 313 | | |
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Prerequisite:

Required Textbook: Chemistry, by Raymond Chang McGraw Hall, Tenth Edition

Laboratory Manual: Chemistry 1411/1412 Laboratory Manual – *with Instrumental Analysis*, Houston Community College Central Campus, 2010 Edition

Course Intent:

This course is intended for the student majoring in one of the physical sciences or who is enrolled in pre-professional plan in medicines, pharmacy, dentistry, or veterinary medicine.

Course Goals:

The goal of this course is to acquaint the students with basic concepts of general chemistry. Scientific topics include:

- 1 Physical and chemical properties of matter. Handing numbers in measurements, dimensional analysis in solving problems
- 2 Atomic Theory and structure of atom. Molecules, ions, and chemical formulas.
- 3 Atomic and molecular mass, chemical reaction and chemical equation.
- 4 General properties of aqueous solution and reactions in aqueous solutions
- 5 General properties of gases. The gas laws and the ideal gas equation.
- 6 Introduction of chemical thermodynamics, enthalpy of chemical reactions.
- 7 Quantum Theory and Electronic Structure of atoms. Periodic characteristic properties of elements.
- 8 Chemical bonding, Lewis structures, molecular geometry.
- 9 Intermolecular forces. Properties of Liquids and solids.

| Grading: | Final Exam | 25% |
|----------|------------------------------------|-----|
| | Three exams each worth | 10% |
| | Lab | 30% |
| | Homework | 15% |
| | Daily participation and Attendance | 5% |

SYLLABUS CHEM 1411/51590 INSTRUCTOR: JISEN WU Aug. 28, 2011

| DATE | Tuesday (409) 5:30 – 8:30 pm | DATE | Thursday (416) 5:30 – 8:30 pm |
|----------|---|----------|---|
| Aug. 30 | Lab. 1, Expt. 1, Lab Safety and Basic Lab Techniques | Sept. 1 | Ch. 1: The Study of Change. Ch.1.1 – 1.9 |
| Sept. 6 | Lab. 2, Expt. 2, Separation of the Components in an Inorganic Mixture | Sept. 8. | Ch. 2: Atoms, Molecules, and Ions. Ch. 2.1 – 2.6 |
| Sept. 13 | Ch. 2: Atoms, Molecules, and Ions, Ch. 2.7 – 2.8; Ch. 3: Mass Relationships in Chemical Reactions. Ch.3.1 – 3.4 | Sept. 15 | Ch. 3: Mass Relationships in Chemical Reactions. Ch.3.5 –3.10. |
| Sept. 20 | Ch. 4: Reactions in Aqueous Solutions: Ch.4.1 – 4.4 | Sept. 22 | Exam 1 (Ch.1 - 3) |
| Sept. 27 | Lab. 3 The Iron-Copper Molar ratio – Single Replacement Reaction and Limiting Reagent | Sept. 29 | Ch. 4; Reactions in Aqueous Solutions: Ch.4.5 – 4.8Ch. 6: Oxidation – Reduction Reactions. Ch.6.1 – 6.6 |
| Oct. 4 | Lab. 4, Expt. 6, Conductivities of Solutions | Oct. 6 | Ch. 5: Gases Ch. 5.1 – 5.4 |
| Oct. 11 | Lab. 5, Expt. 7, Reactions in Aqueous Solutions: Single and Double Displacement Reactions | Oct. 13 | Ch. 5: Gases Ch. 5.5 – 5.8 |
| Oct. 18 | Ch. 6: Thermochemistry. Ch. 6.1 – 6.5 | Oct. 20 | Ch. 6: Thermochemistry. Ch. 6.6 – 6.7 |
| Oct. 25 | Lab. 6, Expt. 8, Heat of Neutralization Measured by Vernier Computer Interface | Oct. 27 | Ch. 7: Quantum Theory and the Electronic Structure of Atoms. Ch.7.1 – 7.5 |
| Nov. 1 | Exam 2 (Ch. 4 – 6) | Nov. 3 | Ch. 7: Quantum Theory and the Electronic Structure of Atoms. Ch.7.6 – 7.9 |
| Nov. 8. | Ch. 8: Periodic Relationships Among the Elements. Ch. 8.1 – 8.6 | Nov. 10 | Ch. 9: Chemical Bonding 1: Basic Concepts. Ch. 9.1 – 9.5 |
| Nov. 15 | Ch. 9: Chemical Bonding 1: Basic Concepts. Ch. 9.6 – 9.10 | Nov. 17 | Ch. 10: Chemical Bonding II: Molecular Geometry and Hydrization of Atomic Orbitals. Ch. 10.1 – 10.4 |
| Nov. 22 | C h. 10: Chemical Bonding II: Molecular Geometry and Hydrization of Atomic Orbitals. Ch. 10.5 – 10.8 | Nov. 24 | Thanksgiving |
| Nov. 29 | Ch. 11: Intermolecular Forces and Liquids. Ch.11.1-11.9 | Dec. 1 | Review |
| Dec. 6 | <i>Exam 3.</i> (Ch. 7 – 11) | Dec. 8 | Review |
| Dec. 13 | Final | Dec. 15 | |

| * Important Date: | Aug. 27 – Sept. 13 | 70% Refund |
|-------------------|----------------------|---|
| | Aug. 30 | Last day for drop/add /Swap |
| | Sept. 14 - 19 | 25% Refund |
| | Nov. 3 `` Dec. 23 | Last Day for Administrative & Student Withdrawals – 4:30 pm Grades available to students |