

**SYLLABUS FOR CHEMISTRY 111  
SUMMER SEMESTER 2006**

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| INSTRUCTOR:         | Dr. Brentley S. Olive, MSPH, Ph.D., CIH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| OFFICE:             | FSB 304<br>Phone: (256) 765-4215<br>Email: <a href="mailto:bsolive@una.edu">bsolive@una.edu</a> ,<br>Website: <a href="http://www2.una.edu/bsolive">www2.una.edu/bsolive</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| OFFICE HOURS:       | Monday: 7:00-7:30; 9:30-11:00<br>Tuesday: 7:00-7:30; 9:30-11:00<br>Wednesday: 7:00-7:30; 9:30-11:00<br>Thursday: 7:00-7:30; 9:30-11:00<br>Friday: 7:00-7:30; 9:30-10:00<br>( <i>Other Hours by Appointment</i> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| COURSE:             | General Chemistry 111                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| TIME/PLACE          | Section 01 - MTWHF 7:30 – 9:30 – FSB 301                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CREDIT:             | Three Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| PREREQUISITES:      | One unit of high school chemistry or a college level fundamental chemistry course. Must be currently enrolled in CH 111-L unless previously completed with a grade of D or above.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| TEXT:               | <u>Chemistry &amp; Chemical Reactivity</u> , Sixth Edition, 2006 by Kotz, Treichel, & Weaver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| COURSE DESCRIPTION: | The fundamental principles and laws governing inorganic substances. Introductory materials, subatomic and atomic theory, chemical equations and calculations, thermochemistry, periodic table, chemical bonding, and molecular structure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| COURSE OBJECTIVES:  | <ol style="list-style-type: none"><li>1. To study the properties and composition of matter and the way substances interact with each other in chemical reactions.</li><li>2. To examine the relationship of chemistry to the other sciences and the implications and applications.</li><li>3. To study the units of measurements routinely used to measure length, volume, mass, temperature, and moles.</li><li>4. To study the laws of science and learn how empirical facts can be generalized to establish scientific laws.</li><li>5. To study the contributions from different countries and cultures to the knowledge of science.</li><li>6. To learn the methods of science and scientific inquiry and the ethical, technological, and environmental implications of chemistry .</li><li>7. To learn symbols, formulas, nomenclature, and physical properties of elements and compounds.</li><li>8. To study the atomic and electronic structure of atoms and the relationship between structure and chemical reactivity.</li><li>9. To learn about stoichiometry, the quantitative chemical relationships.</li><li>10. To introduce the students to a fundamental study of solutions; concentrations of solutions and the dilution of solutions.</li><li>11. To study the relationship between energy and chemical reactions.</li><li>12. To study the forces of attraction that bind atoms to each other.</li><li>13. To study the basic molecular shapes of molecules using the valence bond and molecular orbital theories.</li></ol> |

COURSE CONTENT: Units of Measurement, Description of Matter, Atomic Theory of Matter, Atomic Symbols and Chemical Formulas, Chemical Equations, Periodic Table of the Elements, Atomic Mass Scale, Naming Compounds, Mass and Moles of Substances, Determining Chemical Formulas, Stoichiometry, Calculations Involving Solutions, Kinetic Molecular Theory, Basic Properties and Measurements of Heats of Reaction, Basic Structure of Atoms, Electronic Structure of Atoms, Periodicity of the Elements, Ionic Bond, Covalent Bond, Molecular Geometry, Ionic Equations in Solutions

HOMEWORK ASSIGNMENTS: We will be utilizing the Online Web-based Learning (OWL) system. This system was developed at the University of Massachusetts and allows students to complete homework assignments online. Problem sets will be assigned for various topics in each chapter. Due dates will be announced. It is suggested that students work the practice problems at the end of each chapter, however, these problems will not be taken up or graded; they are for the student's benefit only.

EVALUATION: Four Exams (400 Points)  
OWL Assignments (100 Points)  
One Final Comprehensive Exam (200 Points) {Friday, June 30 - 7:30-9:30 a.m.}

|       |                        |                        |
|-------|------------------------|------------------------|
| Grade | A 630-700 Points (90%) | D 420-489 Points (60%) |
|       | B 560-629 Points (80%) | F 0-419 Points (<60%)  |
|       | C 490-559 Points (70%) |                        |

There will be no make-up exams. The final comprehensive exam will count an additional 100 points for each hour exam missed. If all four exams are taken, the lowest grade may be dropped, but the final exam will count an additional 100 points (i.e., 300 points) so as to keep the total possible points at 700.

A grade of C or better is required in CH 111 and 111-L in order to advance to 300 level chemistry courses.

CLASS ATTENDANCE: General Regulations, 2006-2007 University Bulletin, Page 52 ...One week of class for a summer four week session. Any student missing more than 5 classes for any reason will receive a Grade of F for the course. It is your responsibility to verify your presence at each class.

WITHDRAWAL FROM THE COURSE: June 23 - Last day for course withdrawal (W)

Students dropping the lecture course must also drop the corresponding laboratory course.

EQUAL OPPORTUNITY STATEMENT: It is the policy of the University of North Alabama to afford equal opportunity in education to qualified students. Therefore, a student who has a disability that inhibits the student's ability to meet course requirements and who desires accommodations must contact the instructor and Developmental Services within the first three class meetings of the semester (within the first three days during summer terms). The goal is to develop a timely accommodations plan and to file an Americans with Disabilities Act (ADA) Accommodation Form. Course requirements will not be waived, but accommodations will be made to allow each student to meet course requirements, provided the student acts within the first three class meetings in working with the instructor to develop an accommodation plan. If a disability is identified later in the semester, a non-retroactive accommodation plan will be developed at that time.

**SYLLABUS FOR CHEMISTRY 111  
SUMMER SEMESTER 2006**

- INSTRUCTOR:** Dr. Brentley S. Olive, MSPH, Ph.D., CIH
- OFFICE:** FSB 304  
Phone: (256) 765-4215  
Email: [bsolive@una.edu](mailto:bsolive@una.edu),  
Website: [www2.una.edu/bsolive](http://www2.una.edu/bsolive)
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Friday: 7:00-7:30; 9:30-10:00  
(*Other Hours by Appointment*)
- COURSE:** General Chemistry 111 Lab
- TIME:** Section A – Monday -Thursday 11:00-1:45
- PLACE:** FSB 300
- CREDIT:** One Hour
- PREREQUISITES:** Must be taken concurrently with CH 111 unless the lecture course was passed previously.
- TEXT:** Laboratory Manual for Principles of General Chemistry, Seventh Edition, by Jo A. Beran
- COURSE DESCRIPTION:** The determination of densities, chemical formulas, combining ratios, molar masses, limiting reactants, molecular structure, etc.
- COURSE OBJECTIVES:**
1. To learn safety rules and procedures and the location of common laboratory and safety equipment.
  2. To learn how to properly select and operate laboratory instruments.
  3. To learn to name inorganic compounds according to the guidelines set forth by the IUPAC.
  4. To characterize some physical properties of some compounds.
  5. To identify “unknowns” by various methods such as density, solubility, and reactivity.
  6. To determine the percent by mass of water in a hydrate and to establish the mole ratio of salt to water.
  7. To determine the empirical formula of a compound.
  8. To determine the limiting reactant in a formation of a precipitate and the percent composition of the salt mixture.
  9. To determine the specific heat of a metal, to measure the heat of neutralization of an acid-base reaction, and to measure the heat evolved or absorbed for the dissolution of a salt.
  10. To quantitatively determine the concentration of an acidic/basic solution by titration.
  11. To learn to predict the three dimensional shape of simple molecules using the Valence Shell Electron Pair Repulsion (VSEPR) Theory.

|          |                                     |     |
|----------|-------------------------------------|-----|
| GRADING: | Laboratory Reports                  | 35% |
|          | Quizzes                             | 30% |
|          | Performing Experiments (Attendance) | 25% |
|          | Final Exam (open-book/notes)        | 10% |

A quiz will be given at the beginning of each lab. The quiz will have questions from material covered in the previous experiment, and questions from the next scheduled experiment. If you are absent from a lab (see below), you are still responsible for learning the material, and will be required to take the quiz along with the other students at the beginning of the next laboratory period.

**CLASS ATTENDANCE:** General Regulations, 2005-2006 University Bulletin, Page 51...Four weeks of class equals 4 sessions for a class that meets only one day per week. Any student missing more than 4 labs for any reason will receive a grade of F for the course.

Specific Regulations: In most circumstances, if you are absent from a lab, you will receive a zero for the quiz and lab report. Each student will be allowed to drop his/her lowest quiz and report grade.

**WITHDRAWAL FROM THE COURSE:**

April 21 - Last day for course withdrawal (W) -- Students dropping the lab must also drop the lecture course.

**EQUAL OPPORTUNITY STATEMENT:**

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**SCHEDULE:**

|         |                                                                    |
|---------|--------------------------------------------------------------------|
| June 6  | Overview of Syllabus; Check-in; Dry Lab 1 – The Laboratory and SI  |
| June 7  | Experiment 1 – Basic Laboratory Operations                         |
| June 8  | Dry Labs 2A & 2B – Nomenclature                                    |
| June 12 | Dry Labs 2C – Nomenclature                                         |
| June 13 | Experiment 6 – Percent Water in a Hydrated Salt                    |
| June 14 | Experiment 7 - Empirical Formulas                                  |
| June 15 | Experiment 8 - Limiting Reactant                                   |
| June 19 | Finish Exp. 8/Experiment 2 – ID of a Compound: Chemical Properties |
| June 20 | Experiment 12 - Inorganic Compounds and Metathesis Rxns.           |
| June 21 | Experiment 10 - Vinegar Analysis                                   |
| June 22 | Experiment 21 – Calorimetry                                        |
| June 26 | Dry Lab 3 - Atomic and Molecular Structure                         |
| June 27 | Dry Lab 3 – Atomic and Molecular Structure (continued)             |
| June 28 | Check Out; Final Exam                                              |