

## CHE112 COURSE SYLLABUS

**COURSE TITLE:** General Chemistry I Laboratory

**CREDITS:** 1      **PREREQUISITES/COREQUISITES:** Coreq. CHE111

**MEETINGS:** TWR 11:00 in Room 233 Sullivan

### FOR WHOM PLANNED:

This course is planned for science majors and especially chemistry majors. The course provides a strong foundation in chemistry laboratory skills, performance of science investigations, use of scientific equipment, and calculations with experimental data. *A special double section of the course will be linked to the AToMS Learning Community, where writing, mathematical modeling, and physics will be integrated into assignments.*

### INSTRUCTOR INFORMATION

Section Instructors:

XXXXXXXXXX

Section 01 (Lab Room 215):

Office: 249 Sullivan Science

Email: [tanumber1@uncg.edu](mailto:tanumber1@uncg.edu)

Phone: 334-3758

Office /Tutoring Hour: 3-4 Wednesday  
(Prelab Instructor also)

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Section 02 (Lab Room 221):

Office: 249 Sullivan Science

Email: [tanumber2@uncg.edu](mailto:tanumber2@uncg.edu)

Phone: 334-3758

Office/Tutoring Hour: Thursday 2-3

### CATALOG DESCRIPTION:

Laboratory work to accompany 111.

### STUDENT LEARNING OUTCOMES:

Student Learning Outcomes for the course:

- 1) Learn and practice safety standards in a chemical laboratory environment
- 2) Develop skills in handling scientific equipment and making measurements
- 3) Apply recordkeeping and reporting methods that reflect the integrity and ethics associated with scientific data and information
- 4) Apply scientific inquiry to develop knowledge of chemical systems
- 5) Classify substances based on their physical and chemical properties
- 6) Synthesize and characterize a chemical compound
- 7) Perform calculations describing mass and energy changes during chemical reactions
- 8) Use scientific instruments to make quantitative measurements of the properties of samples
- 9) Maintain a laboratory notebook
- 10) Write formal reports in the style of scientific publications

*In addressing these course content objectives, students will also address the following General Education Learning Goals and GNS Learning Outcomes.*

**As a GNS course, the Student Learning Outcomes are:**

- 1) Demonstrate an understanding of the principles of scientific inquiry**
- 2) Demonstrate knowledge of basic principles as they apply to broader concepts**

- 3) Evaluate the credibility of sources of scientific information.
- 4) Analyze qualitative and quantitative empirical data.
- 5) Demonstrate an understanding of the impact of science on technology and society.

The following UNCG General Education Learning Goals will be addressed:

**LG1. Foundational Skills:** *Think critically; Develop appropriate fundamental skills in information literacy*

**LG2. The Physical and Natural World:** *Understand fundamental principles of science, and recognize its relevance in the world*

**LG4. Personal, Civic, and Professional Development:** *Develop a capacity for ethics in a global society; Develop a capacity for social responsibility in a global society*

#### **TEACHING METHODS AND ASSIGNMENTS FOR ACHIEVING LEARNING**

**OUTCOMES:** CHE112 is a laboratory course in which students study principles of chemistry and apply them in an investigational setting. Each laboratory class period begins with a prelaboratory classroom session that reviews the scientific principles related to the investigation, introduces the equipment and techniques to be used, and reviews safety issues related to the investigation. Students perform experiments in the laboratory room. On report pages or formal reports, students report their findings on each experiment and respond to questions requiring analysis and application of the scientific principles and data from the experiment.

#### **EVALUATION AND GRADING:**

You will receive grades in four areas:

Reports	75%
Notebook	10%
Quizzes	10%
Technique	5%

Report sheets are due in the designated Report Box. Late reports will be assessed a penalty of 10 points per school day. Some value will remain with reports up to one month after the report due date or up to Reading Day, whichever comes first. Reading Day is the absolute deadline for all work. Formal reports are weighted twice the value of the Report Sheet experiments.

Technique points are given depending on how well the experiment is conducted. These points include taking appropriate safety precautions in lab, being prepared, cleanliness, and following instructions given.

There will be a minimum of four quizzes. The quizzes will be derived from material for the present lab experiment or previous two lab experiments.

**Grading Policy: NO GRADES WILL BE DROPPED!**

#### **REQUIRED TEXTS/READINGS/REFERENCES:**

**Text:** General Chemistry Lab Manual, published by Hayden-McNeill, 2009

**Other materials:** safety goggles (provided)

**ACADEMIC INTEGRITY POLICY:** Each student is expected to read and understand the

Academic Integrity Policy. Refer to UNCG *Undergraduate Bulletin*. A summary follows.

### **Academic Honesty**

Students are expected to be familiar with and abide by the Academic Integrity Policy (<http://studentconduct.uncg.edu/policy/academicintegrity/>). Violations will be prosecuted by imposing sanctions as suggested in the policy

Your work is expected to be your own. We encourage learning through interaction with your colleagues. However, your report work and responses to questions must be your own individual work. Following discussion with any colleagues, go your separate ways and prepare your own individual report.

The integrity of scientific data is paramount and thus, all data and observations must be recorded in ink as a permanent record in the notebook. Failure to adhere to the above will result in initiating an academic integrity violation report which can lead to failure in the course.

### **ATTENDANCE POLICY:**

#### **Attendance Policy**

Students who do not attend the lab class the first two scheduled meetings of the semester can be dropped from the course.

A combination of 3 or more absences or missing reports constitutes unsatisfactory performance in the lab course. Under such circumstances, students will:

- Fail the course if the situations are unexcused
  - Receive an Incomplete for the course if the situations are excused [personal illness (must have a note from a physician) or a death in the immediate family (provide obituary or funeral program)].
- Under unusual circumstances, students may be permitted to complete an experiment in another lab section that meets that week. The experimental record must be signed by the instructor in the substitute section.

### **FINAL EXAMINATION:**

There is no final examination for this laboratory course

### **ADDITIONAL REQUIREMENTS:**

#### **Safety**

Students who do not attend all of the prelab will not be permitted to perform the laboratory experiment. Students will not be permitted to work in the lab with open-toed footwear or other inappropriate dress. **SHOES MUST COVER THE ENTIRE TOP OF THE FOOT.** Pants or skirts must cover to below the knee. Proper safety attire and behavior is required. Safety goggles are required at all times when you are in the lab room, whether or not you are actively engaged in an experiment. Violation will result in a grade deduction and warning. After one warning, the instructor will ask you to leave and give you a zero for the day. **Safety violations will not be tolerated! Refusal to wear goggles or the appropriate footwear will result in the dismissal of the lab for that day and a grade of a zero.**

**CHEMISTRY 112**  
**FALL 2012**  
**TENTATIVE SCHEDULE**

WEEK OF		EXPERIMENT #	TITLE
August	20	-	Intro/Placement Exam
	27	0	Safety Video/ Measurement and Recordkeeping(1.6-7)
September	3	1 (No Lab Monday)	Investigation of Pennies Part II (1.6-7) (Check In)
	10	3	Law of Definite Composition (2.3, 3.8-3.10)
	17	5	Synthesis of Aspirin (4.2-3)
	24	6	Standardization of Sodium Hydroxide (4.4)
October	1	7	Acetic Acid Content of Vinegar (4.4)
	8	Fall Break	NO LAB
	15	12	Charles Law (5.4-6) <b><u>(Integrated with MAT or PHY on mathematical modeling)</u></b>
	22	13	Thermochemistry (6.2-5) <b><u>Formal written report (Integrated with ENG 230 on scientific writing)</u></b>
	29	8	Conductivity: Properties of Solutes in Aqueous Solution (9.4-5)
November	5	9	Ionic Reactions in Aqueous Solution (4.5-4.8)
	12	16	<b>Host of Middle College for science lesson led by chemistry students</b>
	19	Thanksgiving	Monday Dumas Method for Molar Mass; Others: NO LAB
	26	15	Elucidation of Molecular Structures with Models (9.5-10; 10.4-5)

December	3		NO LAB
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(Textbook Chapter in parentheses for Tro "Chemistry: A Molecular Approach")