**Chemistry 115 Course Information**

This is a 4 unit course; 4 lecture periods **and** 3 lab periods per week.

**Text**  *Foundations of College Chemistry*, Hein & Arena 14th edition

**Optional** *Study Guide* or *Solutions Manual* for above text

**Lab Manual** *Chemistry 115 Lab Manual*

**Web Sites** blackboard <http://gcccd.blackboard.com/>

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**Class Meeting times**

Lecture Monday – Thursday 05:00 PM - 07:05 PM, Bldg 30, Room 250

Laboratory Monday, Tuesday 07:15 PM - 09:50 PM, Bldg 30, Room 250

Wednesday 07:15PM - 09:25PM, Bldg 30, Room 250

**Additional requirements and prerequisites**

* Calculator - A standard scientific calculator is required for the course. If you have any questions concerning your calculator check with your instructor, a calculator which could potentially give an unfair advantage may be disallowed in testing situations!
* Safety Glasses - Available in bookstore and hardware stores.
* Lock for laboratory drawer - Must be Master Lock series approved by chemistry stockroom. If a different lock is used, then it may get cut off if access to the drawer is required.
* Elementary Algebra

**Chemistry 115 or 120?**

This is an introductory course for those students not planning to take General Chemistry (120, 141, or 142). It is **not** intended as preparation for Chemistry 120. Typical majors are nursing, allied health fields, and others wanting a one semester course with a lab. Physical science, engineering, biology, or pre-med majors should start with Chemistry 120. If you are heading to a **physician’s assistant** program, check the requirements carefully. Some programs require Chemistry 115, others require the traditional first-year general chemistry, which means that you should be in Chemistry 120.

**Attendance**

Regular attendance is expected. The instructor will plan to drop any student who misses more than 2 classes. You are an adult and in a college course. If you wish to drop, **you** must turn in the forms and get a receipt. Partial absences (late arrivals, long breaks, early exits, etc.) will constitute a ½ day absence. Make-up work for an absence of any kind must be completed to the satisfaction of the instructor. No absence relieves the student of the responsibility of completing all work assigned.

**Grading**

Those enrolled at the end of the semester must receive a letter grade unless they have chosen the P/NP option. An “incomplete” may be arranged for completion of a particular item such as the final exam, but will not be given to allow repeat of the course. Withdrawal or P/NP grading is available through admissions and records. Grades will be posted on Blackboard. Notify instructor immediately if you have questions regarding the posted grades.

|  |  |
| --- | --- |
| Exams | 50% |
| Final Exam | 10% |
| Laboratory | 30% |
| Homework | 10% |
| **Total** | **100%** |

**Approximately** 90% will be an A, 80% a B, 65% a C and 55% a D grade. The final grade will be no more than 1 letter grade higher than the exam average. A +/– grading scale is used.

**Exams and Quizzes:**  There will be five exams and one final exam this semester. The five exams will be given approximately every week. The final is comprehensive and will be given the last week of class. No make-up quizzes will be given. Make-up exams will be given with an acceptable and verifiable excuse. It is the student’s responsibility to arrange a make-up exam within 1 day of the original test date.

**Laboratory:** We will meet for lab three days a week. It is important for you to read the experiment prior to coming to lab. You must also complete any pre-lab questions. Due to the abbreviated term there **will not be any lab make-ups permitted.** Also, no lab work may be done without an instructor present in the laboratory. Because of potential safety problems, children may not attend lab.

You are responsible for any lost or broken equipment in the laboratory and will be charged for all missing equipment at the end of the semester. In addition, a **$15 fee will be assessed for any student** **who fails to check out of the laboratory**.

**Homework Assignments (From Hein)**

In order to learn chemistry you should do as many problems as possible. You should begin by working through all of the examples in the chapters. Ideally you will also complete the entire end of chapter exercises.  I have, however, chosen some representative exercises which you should complete first. These problems will be collected each Thursday. These problems will be graded for completeness and selected problems will be graded if they are answered correctly. The assignment of problems is listed at the end of the syllabus. Please turn in problems on notebook paper stapled together since they may not be returned until the following week.

**Academic Integrity Policy**

Cheating and plagiarism (using as one’s own ideas, writings or materials of someone else without acknowledgement or permission) can result in any one of a variety of sanctions. Such penalties may range from an adjusted grade on the particular exam, paper, project, or assignment to a failing grade in the course. The instructor may also summarily suspend the student for the class meeting when the infraction occurs, as well as the following class meeting. For further clarification and information on these issues, please consult with your instructor or contact the office of the Assistant Dean of Student Affairs.

**Accommodations for Students with Disabilities:**

Students with disabilities who may need accommodations in this class are encouraged to notify the instructor and contact Disabled Student Services & Programs (DSP&S) **early in the semester** so that reasonable accommodations may be implemented as soon as possible. Students may contact DSP&S in person in room 110 or by phone at (619) 644-7112 (voice) or (619) 644-7119 (TTY for deaf).

**Student Learning Outcomes:** This course is both a lecture and a lab course. Our major goals for the semester are to become fluent in the language of chemistry and to utilize the tools of chemistry to analyze a variety of chemical phenomena. We will also explore the behavior of materials in the laboratory and use our knowledge of chemistry to explain that behavior.

In particular, each student will be able to do the following upon completion of this course:

·         Demonstrate a working knowledge of the language of chemistry.

·         Apply quantitative reasoning to chemical problems

·         Apply a laws and theories to explain and predict the properties of atoms and molecules.

·         Employ laboratory equipment and techniques to collect, organize and evaluate experimental data.

**Course Objectives** (from Course Outline)

The student will:

1. Identify, categorize, and name a variety of chemical compounds based upon their chemical formula.
2. Write, balance, and interpret chemical and nuclear equations.
3. Analyze problems to identify data, unknown value, and determine an appropriate method of solution.
4. Utilize unit dimensional analysis to solve a variety of chemical conversion problems.
5. Describe atomic structure, periodicity and molecular structure in terms of subatomic particles.
6. Utilize kinetic molecular theory to write explanations of chemical phenomena in molecular terms.
7. Perform and analyze chemical experiments in the laboratory

**115 Schedule - Summer 2015**

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| --- | --- | --- |
| Week | Chapter and Topic | Lab Experiment |
| June 8 | 1 – An Introduction to Chemistry  2 – Standards for Measurement  Worksheet 1 – Dimensional Analysis I  Worksheet 2 – Dimensional Analysis II  3 – Elements and Compounds  4 – Properties of Matter  **Exam #1** | **Experiment 1 – Exponential Notation and Significant Figures** (begin nomenclature)  **Exp 2 -** Check-in **/ Measurement** **and Calc Practice**  **Problem Session** |
| June 15 | 5 – Early Atomic Theory and Structure  7 – Quantitative Composition of Compounds  Worksheet 4 – Moles I  Worksheet 5 – Moles II  8 – Chemical Equations  **Exam #2** | **Exp 4 – Nomenclature**  6 – Nomenclature of Inorganic Compounds  **Exp 3 – Density**  **Problem Session** |
| June 22 | 9 – Calculations from Chemical Equations  Worksheet 6 - Stoichiometry  10 – Modern Atomic Theory  Worksheet 7 – Periodic Properties  11 – Chemical Bonds: the Formation of Compounds from Atoms  **Exam #3** | **Exp 9 – Single Replacement**  **Exp 10 - Double Replacement Reactions**  **Problem Session** |
| June 29 | 12 – The Gaseous State of Matter  Worksheet 9 – Gas Laws  13 – Properties of Liquids  14 – Solutions  Worksheet 10 - Solutions  **NO THURS. CLASS JULY 4 (obs)** | **Exp 7 - Preparation and Properties of Oxygen**  **Exp 8 - Preparation and Properties of Hydrogen**  **Problem Session** |
| July 6 | 15 – Acids  Worksheet 11 – Solution Stoichiometry and Acid Base  18- Nuclear Chemistry  Experiment 14: Nuclear Chemistry Worksheet  **Exam #5** | **Exam #4**  **Exp 5 – Caloric Content of Nuts**  **Problem Session** |
| July 13 | 19 Organic Chemistry  20 Biochemistry  **Final Exam** | **Exp 12 - Titrating Vinegar**  **Exp 11 - Molecular Geometry/VSEPR**  **Check-out / Problem Session** |

**Homework Problems**

| Chapter | **Review Questions** | **Paired Exercises** |
| --- | --- | --- |
| 1 | 1,2,3,10,14,15 | 1,2,3,6,10,12 |
| 2 | 1,4,12,16 | 4,6,8,10,12,14,20,22,28,32,36,44,50, 54,56,63 |
| 3 | 2,3,9,10.17 | 6,10,14,16,20,32,40 |
| 4 | 10.12 | 2,8,14,39 |
| 5 | 4,6,11 | 2,6,14,16,18,20,24,33,36,38 |
| 6 | 2,6 | 2,4,8,10,12,14,16,18,20,22,24,34 |
| 7 | 1,2,3,5,8,10,16 | 2,4,6,8,10,12,14,16,20,26,30,32,34,38,42,49, 54,57,64,68,72,77 |
| 8 | 3,4,6 | 2,4,8,10,14,16,20,22,35,37,42 |
| 9 | 7 | 6,8,10,12,14,16,18,24,30,33,36,39,41,46,52 |
| 10 | 4,5,6,8,12,14,25 | 2,4,12,14,18,22,26,28,30,32,36,42,46,49,53,56, 59,62 |
| 11 | 7,11,12,16,19,26,27 | 2,4,8,14,16,24,26,30,31,32,34,36,40,42,47,48, 50,556,57,63,69 |
| 12 | 2, 5,15,25 | 2,6,8,12,14,16,18,20,22,26,30,32,40,44,48,54, 55,59,67,72,74,81,86 |
| 13 | 8,10,14,15,16,17,23,25,26.37 | 2,4,6,8,12,14,16,28,30,39,41 |
| 14 | 2,17,18,19,20,24,25,37,41 | 2,4,6,8,10,14,16,18,20,22,24,28,30,42,44,51,59,63,65,67,77 |
| 15 | 14,16,17 | 2,4,8,12,18,24,28,30,34,38,42,44,46,48,50,61 |
| 18 | 6,23,29 | 2,4,6,8,10,12,14,16,20,21,23,32,38,44 |
| 19 | 2,6,16,18,19,20,23 | 2,10,12,14,16,18,22,81,86 |
| 20 | 4,6,10,11,16,21,25,29,43,61,62,64,68,69 | |