

Syllabus: General Chemistry 121 - 01
Monday, Wednesday, Friday 9:10- 10:05 am WH 141
Dr. C. Scholz

Office hours: Monday and Wednesday, 2:00 – 4:00 pm, MSB 333
Tel.: (256) 824 6188, cscholz@chemistry.uah.edu

Textbook: *Kotz and Treichel: "Chemistry and Chemical Reactivity",
5th edition, Saunders College Publishing*

- August 30: Introduction, Distribution of syllabus
- Sept. 1, 3: Chapter 1, Matter, Measurement, Physical Properties
- Sept. 8, 10: Chapter 2, Atoms, Elements, The Mole
- Sept. 13, 15, 17: Chapter 3, Molecules and Ions
- Sept. 20, 22, 24: Chapter 4, Stoichiometry
Sept. 27: 1. exam
- Sept. 29, Oct 1: Chapter 5, Reactions in Aqueous solutions
- Oct. 4, 6: Chapter 5, Acids, Bases
- Oct. 11, 13, 15: Chapter 6, Energy and Chemical Reactions
- Oct. 18, 20, 22: Chapter 7 Wave-Particle Dualism, Chapter 8, Electron Spin and Magnetism
- Oct. 25, 27: Chapter 8, Electronic Structure, Periodic Trends, Chemical Properties
October 29: 2. exam
- Nov. 1, 3, 5: Chapter 9, Bonding: Valence electrons model
- Nov. 8, 10, 12: Chapter 10, Bonding: Molecular orbitals model
- Nov. 15, 17, 19: Chapter 11, Chemistry of Carbon
November 22: 3. exam
- Nov. 29, Dec. 1, 3: Chapter 12 Gas Laws, Ideal gas, Partial Pressure
- Dec. 6, 8: Chapter 13 Liquids and Solids, Intermolecular forces, Phase diagrams
- Dec. 10: Repeat Session
Dec. 15: Final Exam 8:00 – 10:30 am

**Three one-hour exams will be given, each one accounting for 25 points of
the final grade. Homework will account for 25 points.
The final exam will account for 50 points.**

Helpful Notes

- Advice:** Chemistry 121 is an introductory course into chemistry, as such it covers all aspects of the field. Since a broad spectrum of chemical subjects will be discussed in a relatively short period of time, the course demands time and effort. Read (and re-read) your textbook before coming to class, start early and fulfill all homework assignments on time, no extension can be granted, work textbook problems. Do not fall behind!
- Homework:** Homework problems are posted online:
<http://owl.thomsonlearning.com>
A pin-number is needed to access the homework site. It is included with newly purchased textbooks.
Register immediately and make sure you register for the correct course.
- Attendance:** Attendance is mandatory and will be monitored.
- Misconduct:** Any form of cheating (copying other exams, asking others for answers, cheat sheets etc.) will result in an “F” for this particular exam, repeated cheating will result in an “F” for the entire course.
- Complaints:** If you have difficulties or complaints about this course, you should first discuss them with me. If such a discussion would be uncomfortable for you, or failed to resolve the issue, contact the Chair of the Chemistry Department, Dr. Baird. His phone number is: 256 824 6411, his office is MSB 203-C.
- Disabilities:** Students with disabilities should notify me immediately, so that special modifications can be arranged.
- Grading:**
- | | |
|------------|---|
| 100% – 90% | A |
| 89% - 75% | B |
| 74% - 60% | C |
| 59% - 40% | D |
| 39% - | F |

General/Inorganic Chemistry Laboratory I

Fall 2004

Instructor: Office:
e-mail: Office hours:
Phone:

Books & supplies: Laboratory Manual Chemistry 125, General Chemistry I, Second Edition, by M. Setzer & W. Setzer, The Prentice Hall Molecular Model Set for General and Organic Chemistry, and a calculator.

Clothing: Students must provide the following safety clothing; these items **are not furnished**. Eye protection is required **at all times** while in the laboratory; **safety glasses** or prescription glasses that provide **adequate** protection of the eyes are acceptable (clear lenses only). If there is a question as to adequate coverage, please consult the Laboratory Manager. Contact lenses are extremely dangerous in a chemistry laboratory and are strongly discouraged. If you insist on wearing contact lenses, you must wear face-fitting goggles and you must identify yourself to your lab instructor. Rubber or latex **gloves** should be worn while carrying out experimental work, handling chemicals, etc. A **laboratory coat or apron** is required. If an apron is used, you must also have **long sleeves**. Long hair must be pulled back or otherwise restrained. Closed-toe shoes must be worn; sandals or any other types of open shoes are prohibited. No roller blades or skates are allowed in the lab. It is also recommended that students bring a roll of **paper towels** for their own use.

General Information: Each laboratory procedure should be carefully studied **before** the lab session. The pre-lab assignment must be completed prior to the experiment. You will not be allowed to begin an experiment without first completing the pre-lab. If you have not completely read the lab instructions and precautions, you are a hazard to yourself and those around you. The instructor will cover the overall purpose and principles of the experiment at the beginning of the laboratory. If there is anything about the experiment you do not understand, feel free to ask questions at any point. Some equipment must be signed out from the stockroom. This equipment **must be returned** at the end of your lab period. Report any injuries or chemical spills to your instructor immediately.

Attendance and General Citizenship: This is a 100-level course; attendance is **mandatory**. You are expected to show respect for your instructor and your classmates. Cell phones and pagers must be turned off while you are in lab. You will be required to leave if you do not observe these rules.

Grading: Grades will be assigned according to the following breakdown: Final grades will be assigned according to the average earned using the scheme at left. Percentage scores will correspond to the following letter grades: $\geq 90\%$ A

| | |
|------------------------------------|-------------|
| Pre-lab and Post-lab Questions 25% | |
| Experimental Worksheets 65% | 80%-89.9% B |
| Safety, technique, preparation 10% | 70%-79.9% C |
| | 60%-69.9% D |
| | < 60% NC |

Late papers will be graded down according to the following scheme: two days late, -20%; one week late, -40%; two weeks late, you get NO points. We will accept NO EXCUSES for late laboratory reports.

Cheating will not be tolerated. Anyone found cheating will be dealt with according to the UAH Student Handbook.

Laboratory techniques and safety practices. These points are based upon the observations of the teaching assistant as to how you conduct yourself in the laboratory (Are you handling noxious chemicals in the fume hood? Are you cleaning up spills on the bench or on the balances? Are you wearing safety glasses? Are you using the equipment and glassware properly?).

Punctuality, lab preparation, etc. These points are based upon the observations of the teaching assistant as to whether you are prepared to carry out the day's experiment (Did you come to the laboratory on time and prepared to do the experiment?).

Pre-lab questions will be collected by your instructor at the beginning of class. If you are tardy, your pre-lab questions will not be collected or graded for that session (although you should still have them finished

in order to have permission to participate in the lab); a grade of zero will be recorded. Three tardinesses will count as one unexcused absence.

Quizzes, announced or unannounced, may be given throughout the semester at the discretion of the instructor.

If you have an unavoidable absence, CONTACT THE INSTRUCTOR AS SOON AS POSSIBLE. A day will be scheduled at the end of the term to carry out make-ups for excused absences; you *must* discuss the labs to be made up with your instructor *before* this day. You must provide documentation as to the cause of the absence in order to be eligible to make up a lab either during the term or on the make up day. An instructor must be present for a student to make up a lab. Adequate notice must be provided to the stockroom to ensure materials can be prepared. The instructor will tell you when the experimental worksheet will be due for the make-up session. Unexcused absences cannot be made up, the worksheet will not be graded, and a grade of zero will be recorded. *After two unexcused absences, you will receive a grade of "NC" for the course.*

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Glassware: Laboratory glassware is expensive. When experiments are carried out using glassware, some things will get broken and we expect that. However, excessive breakage, or breakage resulting from carelessness are unacceptable laboratory practices--poor laboratory technique, and will be graded accordingly. When you break glassware be sure to dispose of it correctly in the broken glass container, not just in a trash can. For broken thermometers, be sure to clean up the any mercury mess as well as the glass.

Safety: Because flammable liquids and corrosive and health-damaging chemicals are frequently encountered in the laboratory; unsafe laboratory practices cannot and will not be tolerated. Anyone observed violating safety rules, which may result in damage to their own health (for example, not wearing safety glasses, handling noxious chemicals outside the hood, etc.), will be reprimanded and graded down on technique. No food or drinks are allowed in the laboratory. All books, coats, backpacks, etc. must be placed on the shelves in the front area of the laboratory. If the safety violation threatens the health or safety of others, the violator will be asked to leave the laboratory. Student refusing to leave will be removed by campus police. Know where the fire extinguisher, safety shower, and eyewash fountain are located.

Chemical Waste Disposal: In order to avoid environmental contamination, laboratory chemicals must be disposed of properly. All wastes should be placed in appropriately labeled containers. If you are not sure where to dispose of any waste ask your instructor. Do not pour anything down the sink without explicit instructions to do so. Solid chemical waste is placed in the appropriate chemical waste bucket, NOT IN THE TRASH CAN. Broken glass is placed into the broken glass container, place only broken glass in the broken glass container. Never put solids, organic wastes, or heavy-metal salts down the drain!

Schedule:

Week Experiment # Experiment

1 Introduction, lab drawer assignment, Lab Safety

2 1 Fractional Crystallization: A Bittersweet Separation

3 2 A Series of Copper Reactions

4 2 A Series of Copper Reactions, continued

5 3 Hot Stuff? Calorimetry and Heats of Reaction

6 4 The Bohr Model: The Hydrogen Atom and Spectroscopy

7 5 The Periodic Table: Classification of Elements

8 6 Covalent Bonding and Molecular Orbitals: How Electrons Glue Atoms Together

9 7 Physical Properties as a Guide to Classification of Chemicals

10 8 Molecular Models of Organic Compounds (bring your models)

11 9 Synthesis of Aspirin

12 10 Determination of the Molar Mass of a Volatile Liquid

13 Clean Up and Check out, Make-ups

Complaint Procedure: If you have difficulties or complaints related to this course, your first action usually should be to discuss them with your instructor. If such a discussion would be uncomfortable for you or fails to resolve your difficulties, you should speak to Mary Setzer, Chemistry Stockroom Manager, phone: 824-3259, email: <msetzer@chemistry.uah.edu>. If you still are unsatisfied, you should contact Professor James K. Baird, Chair of the Chemistry Department. His telephone number is 824-2416 and his email address is <chemch@email.uah.edu>. If you remain unsatisfied, you should discuss the matter with

Professor Debra Moriarity, Associate Dean of the College of Science. Dean Moriarity's telephone number is 824-6605 and her email address is <moriard@email.uah.edu>.

Special Needs Students: If you have special needs for this class, which require a modification of seating or other class procedures, you must discuss them fully with the instructor during the first week of class.

Withdrawing from the lab: Withdrawal is not official until it has been processed by the Records Office. Failure to attend lab without an official withdrawal will result in a grade of "NC".