

Instructor: Dr. Melanie Rose

Office: CFS 114 Hours: Mo 1-4, Tu 3-4, We 11-12, or by appointment

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Text: Chemistry 116 Laboratory Manual Location: lab meets in CFS 213

**Course Description:** This laboratory course accompanies the lecture course CHM 136. The experiments are designed to complement and supplement material that is covered in the lecture. The first half of the course includes activities which demonstrate physical and chemical properties of specific classes of organic compounds, and methods of identification. The second half of the course includes experiments involving some typical biological molecules, their properties, and identification. Credit: 1 hour

**Learning Objectives:** Students who successfully complete this course will observe and acquire knowledge about physical and chemical characteristics of several classes of organic and biological compounds. They will develop laboratory skills involved in testing for specific elements, molecules, or classes of compounds, and be able to apply this information to solving simple problems.

**Safety:** Students will be required to read, acknowledge, and agree to the safety rules for laboratory. Approved safety goggles **MUST** be worn in all labs during every experiment. This is an absolute REQUIREMENT. You can buy safety goggles from the Chemistry Club (CFS 310 or CFS lobby during 1<sup>st</sup> few weeks) or at home improvement stores like Home Depot, but it is your responsibility to arrange that purchase. While in the lab, you must also wear pants that cover the whole leg and shoes that enclose the whole foot (NOT sandals, backless or strappy shoes, shorts, or Capri's). Failure to follow ALL of the safety rules will result in expulsion from the laboratory and a zero for that day's grade.

**Attendance:** Student attendance and participation is required for all labs. Instructions, safety issues, and quizzes are given at the beginning of a lab, so you need to arrive on time. If you miss a quiz due to tardiness, you will receive a zero for that quiz. If you cannot attend a lab, written documentation from a doctor, attorney, coach, military commander, etc. must be given to your TA. There are NO MAKEUP LABS. You may NEVER attend any other lab section to make up missed laboratories, and you are responsible for any material covered in a missed lab. If you have an official excused absence for either the midterm or the final, the make-up will be a cumulative (Exp 1-18) exam. You must contact Dr. Rose by 4/23 to make arrangements to take this exam. If you miss the midterm, you still must take the scheduled final and also the make-up.

**Conduct:** Students are expected to follow the TA's instructions, wear appropriate attire and safety equipment, treat others with respect, maintain honesty and integrity, and behave in a professional manner that is conducive to learning. There is to be no food or drink, no smoking, and no use of cell phones in the laboratory. Poor management of laboratory materials, sloppiness in the work area, improper waste disposal, and any other action the instructor feels is detrimental to the development of good laboratory skills may result in a lowered lab grade. If you check in to a lab drawer, it is mandatory that you check out (even if you drop the course). Failure to check out of your drawer will result in a \$25 charge in addition to any breakage that has accrued.

**Grading:** Grading is based on active participation, quizzes, the midterm, and the final. Active participation includes, but is not limited to, attendance, exhibiting good conduct, performing the lab activity, completing the experiment write-up, and following all instructions and safety rules,

etc. Quizzes will cover material from both the previous lab as well as the lab assigned for that day. The midterm will cover experiments 1-10 and the final exam will cover experiments 11-18. Your course grade will be determined by the total points received from the midterm, final, 16 highest quiz grades (out of a total of 18), and 16 highest lab participation grades (out of a total of 18). You are responsible for keeping track of your total points and estimating your course grade. Remember that your lab TA doesn't assign final course grades.

Lab participation: 10 points each x 16 labs	160
Quizzes: 5 points each x 16	80
Midterm (Experiments 1-10):	50
Final (Experiments 11-18):	<u>50</u>
Total	340

<u>Total Points</u>	<u>Course Grade</u>
306-340 points	A
272-305 points	B
238-271 points	C
204-237 points	D
Below 204 points	F

**Tentative Schedule:**

Week of 2/4	Check In, Lab #1	Safety; Comparison of Organic and Inorganic Compounds
Week of 2/11	Lab #2 and #3	Elemental Analysis; Solubility Properties
Week of 2/18	Lab #4 and #5	Reactions of Hydrocarbons; Properties of Alkyl Halides
Week of 2/25	Lab #6 and #7	Alcohols; Aldehydes and Ketones
Week of 3/3	Lab #8 and 10	Benedict's Reagent; Carboxylic Acids
Week of 3/10	No Labs: Spring Break	
Week of 3/17	Lab #9 and Midterm	Carboxylic Acid Esters
Week of 3/24	Lab #11 and #12	Amines; Amides
Week of 3/31	Lab #13 and #14	Carbohydrates; Seliwanoff's Test
Week of 4/7	Lab #15 and #16	Acidic Hydrolysis; Enzymatic Hydrolysis
Week of 4/14	Lab #17 and #18	Detection of Amino Acids; Denaturation
Week of 4/21	Final Exam and check out	