

**Introductory Organic Chemistry Laboratory (CHM 328): Fall 2013**  
**Sections 101 (CRN 1502)**  
**3:30 p.m., Monday**

Credit: 3 hours

Prerequisite CHM 218, Co-requisite: CHM 327

**Instructor:** Dr. Lawrence R. Schmitz, Science 480, 696-2373, [schmitz@marshall.edu](mailto:schmitz@marshall.edu)

**Office Hours:** TR 1:30 – 3:30, W 3:15 – 4:30

**Required text:** Laboratory Manual to Accompany Organic Chemistry: A Short Course. Hart, Craine, Hart and Vinod, Brooks/Cole Cengage Learning, 2012.

**Other required items:** safety goggles, paper towels

**Recommended:** laboratory coat or apron

**Catalog Description:** The laboratory to accompany CHM 327. Students learn the basic techniques used in the modern organic chemistry laboratory. (CR: CHM 327; PR: CHM 218)

**Learning Outcomes:** Students will

- (1) Be introduced to basic laboratory skills including purifying organic compounds, and carrying out organic reactions,
- (2) interpret experimental data, and
- (3) Provide laboratory experience that emphasizes and reinforces the principles and concepts of chemistry in CHM 327.

You will practice these skills by doing experiments in the laboratory. Assessment will be based on pre-labs question, lab reports and results in the lab, post-lab questions, quizzes and two exams.

**Attendance:** Completion of all experiments and exams is required. Attendance is required.

**Making Up a Lab:** Only “Excused Absences”, as defined in the MU policies, can be made up. The proper procedure is to notify me (by e-mail, phone, or in person) as soon as possible; any documentation (such as doctor’s notes) have to be submitted directly to the Dean of Student Affairs (Dr. Stephen W. Hensley; MSC 2W38) who will then notify me (for details see the MU Undergraduate catalog).

Note that one lab grade will be dropped in computing your score. If you miss a laboratory it will become your drop grade. If you miss more than one lab you will be give a zero on that lab if your absence was not excused. If you have excused absences for more than one lab and do not make them up during the week of the lab, you will be given an incomplete in the course so you can makeup the missed labs.

**University Policies:** This course will be conducted in accord with applicable University policies. They can be found at: [http://www.marshall.edu/wpmu/academic-affairs/?page\\_id=802](http://www.marshall.edu/wpmu/academic-affairs/?page_id=802)

**Grading**

There will be two exams in this course. Quizzes will be unannounced. Questions may concern material previously covered but will generally be concerned with the subject of the day. Except for the last lab, reports are due two lab periods after the experiment is completed. Late reports will be penalized 20% per day or part of a day that they are late.

**Course Grade**

Your overall grade will be determined as shown below:

Pre-Lab Questions	15%
Lab Report and Results	30%
Post-Lab Questions	15%
Quizzes:	15%
Exams:	25%

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Total	100%
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Based on a total of 100% grades will be the highest grade possible on the following scale:

A  $\geq$  90%, B  $\geq$  80%, C  $\geq$  70%, D  $\geq$  60%, F < 60%

**Safety:** Detailed information on safety can be found the following link:

[http://portal.acs.org/portal/PublicWebSite/about/governance/committees/chemicalsafety/publications/WPCP\\_012294](http://portal.acs.org/portal/PublicWebSite/about/governance/committees/chemicalsafety/publications/WPCP_012294)

Please review this information.

Some important safety rules for our lab are listed below.

1. No unauthorized experiments will be performed.
2. Eating and drinking are not allowed in the laboratory.
3. Never work alone in the laboratory.
4. No horseplay is allowed in the laboratory.
5. Eye protection is required at all times in the laboratory. Wearing contact lens is highly discouraged. Those who must wear contact lens are required to notify your instructor and teaching assistants.
6. All accidents or hazardous situations should be reported to your instructor immediately.
7. Wear clothing that covers you body. Shoes must cover your feet (sandals are not acceptable). Your legs should be covered to at least the knees (shorts and short skirts are not acceptable). Shirts or blouses should cover your upper body (bare mid-drifts are not allowed).
8. Confine long hair in the lab.
9. Know the location proper use of the safety equipment in the lab.
10. Wash your hands immediately on leaving the lab.
11. Avoid breathing fumes.
12. If your clothing or hair catches fire, yell for help, drop to the floor and role to smother the flames.
13. You must go to the infirmary if you are injured or become sick in the lab.

A safety training module and quiz will be available online. When this module is ready you will be notified by email. You will be required to complete the training and pass the quiz before you will be allowed to start the third experiment.

## COURSE SCHEDULE

8/26	Introduction, Safety, Notebook, Check-in.
9/9	Exp. 1: Melting Point Determination: Purity and Identity of Crystalline Organic Compounds
9/16	Exp. 7: Conformations of Alkanes and Cycloalkanes (Parts A and B)
9/23	Exp. 2: Recrystallization: Purification of Crystalline Organic Compounds (Macroscale Recrystallization of Acetanilide)
9/30	Exp.3: Distillation: Separation and Purification of Organic Liquids (Separation of a Binary Mixture by Simple Distillation)
10/7	Exp. 4: Extraction: A Separation and Isolation Technique
10/7	Exp. 5: Isolation of Natural Products: Caffeine (Isolation of Caffeine from Tea)
10/14	<b>MID-TERM EXAM.</b>
10/21	Exp. 8A: Cyclohexene from Cyclohexanol (Macroscale – Part A)
10/28	Exp. 11A: Nitration of Bromobenzene (Part A -1, Macroscale)
11/4	Exp 13: Preparation of <i>t</i> -Butyl Chloride (an S <sub>N</sub> 1 reaction)
11/11	Exp 15: Reactions of Aldehydes and Ketones (Part C-4, A Crossed Aldol Condensation)
11/18	Exp 18B: Hydrolysis of a Nitrile (Preparation of Benzoic Acid from Benzonitrile – Macroscale)
12/2	<b>FINAL EXAM.</b> Check-out, Last report due at the end of class.

**Completion of all Experiments and Exams is Required  
Attendance is Required**