



The mission of Concord University is to provide quality, liberal arts based education, to foster scholarly and creative activities and to serve the regional community (<http://www.concord.edu/academics/>).

**Course Prefix, Number and Title:** Chemistry 332L Organic Chemistry II Laboratory

**Course CRN # and Section:** 20244, Section 1A; 20245, Section 1B

**Semester Taught:** Spring 2019

**Professor:** Hong Yin

**Credit Hours:** 0

**Office Location:** 401B Science Hall

**Prerequisites:** CHEM 331 with a grade of C or better.

**Office Hours:** T 11:00-1:00 PM, W 1:00-3:00 PM, F 1:00-2:00 PM and by appointment

**Course Time:**

Lab Section 1A: T 8:00-10:50 AM S309 Inclement weather start time: 10:00 AM

Lab Section 1B: T 2:30-5:20 PM S400 Inclement weather start time: 2:30 PM

**Email:** [hyin@concord.edu](mailto:hyin@concord.edu)

**Building and Room Number:** 1A: S309 1B: S400

**Phone:** (304)384-5315

**Office Fax:** (304)384-6022

**College/Department Website:** <http://www.concord.edu/physci/node/1>

**Course Description/Rationale:**

Three hours laboratory. Chem 332L is a co-requisite for Chem 332. The laboratory requires completing the corresponding designed experiments according to the lecture section.

**Course Management System:** [moodle.concord.edu](http://moodle.concord.edu)

**Hardware/Software Needed:**

- Hayden-McNeil carbonless copy notebook
- Safety goggles
- Combination lock for lab drawer (1 per lab group)

**Text requirements:**

Laboratory manual for each experiment will be provided by the instructor which can be found at Moodle site. You are responsible for bringing a printed copy with you to lab.

**Concord University Educational Goals:**

The mission, educational goals, and objectives of the chemistry program are aligned with the CU Mission & Educational Goals (<http://catalog.concord.edu/index.php?catoid=8>).

**Department Mission:**

The Department of Physical Sciences challenges students to become interdisciplinary, ethically responsible professionals and scientists. Our degree programs and courses engage students with fundamental scientific content with the aim to transform them into leaders in their discipline and equip them to succeed in future careers and post-graduate studies. Our faculty foster a dynamic learning environment that broadens students' knowledge, skills, and attitudes through active-learning curricula.

**Chemistry Program Educational Goals & Objectives:**

Students in the chemistry program will be challenged to gain content knowledge and problem-solving skills across the five major subdivisions of the chemical sciences. They will also gain diverse communication skills, and demonstrate attitudes conducive to working in an ethical, safe, responsible, and professional manner.

**Concord University Educational Goals Assess:**

**Skills:** Proficiency in interpreting data, integrating information, formulating ideas, thinking critically, and communicating with others, as demonstrated by the following competencies:

- Effective inter-communication skills and literacy adapted as needed for the demands of various kinds of discourse: listening and speaking; reading and writing; numeracy; graphic communication
- An ability to employ appropriate observational, logical, analytical, computational, creative, and critical thinking skills within and across academic disciplines; and to apply these skills in problem-solving.
- An ability to learn and work effectively both independently and collaboratively.

**Knowledge:** Familiarity with principles underlying academic discourse in various fields, as demonstrated by the following capabilities:

- An awareness of the fundamental characteristics and properties of the physical universe.

This course addresses components of the chemistry program objectives pertinent to knowledge & problem-solving skills (#1), communication skills (#1), and attitudinal development (#1&2) and components of CU educational goals pertinent to skills (#1,2&7) and knowledge (#2). Concord University Goal #1 – Skills, Learning Outcomes 2 will be formally assessed during the semester.

**National Standards:** Not applicable

**Specific Learning Outcomes:**

By the end of this lab, you will be able to:

1. understand the objective and theory of each experiment by applying knowledge obtained in Chem 332 lecture to problem solving in the laboratory
2. know and follow the safe laboratory practices and regulations for handling laboratory equipment and chemical reagents appropriately
3. use standard procedures and laboratory equipment to properly carry out the experiments
4. use modern instrumentation including physical and spectroscopic means to determine chemicals
5. maintain an appropriate scientific notebook by accurately describing experiment information, recording data and analyzing results
6. communicate the concepts, content and results of organic experiments through effective writing and oral communication skills

### Course Requirements:

- Safety and Laboratory Rules: Before any laboratory work is permitted, you must read the “Safety and Laboratory Rules for Organic Chemistry” and then sign a statement that you will abide by these rules.
- Clothing: NOTE: SAFETY GOGGLES ARE REQUIRED FOR ORGANIC CHEMISTRY LABORATORIES. They can be purchased at the University Bookstore. Proper lab attire is the equivalent of a T-shirt, pants that cover from the waist to the ankles, and shoes that cover the entire foot. Tank tops, muscle shirts, spaghetti strap tops, tube tops, backless shirts, are all on the UNACCEPTABLE list. Slip on shoes that cover the tops of their feet but leave the heel area exposed are also UNACCEPTABLE.
- Notebook: Use a Hayden-McNeil carbonless copy notebook for theories, techniques, observations, calculations, and conclusions. Follow the guidelines given by your instructor on how to keep a good laboratory notebook. Your instructor will grade your notebook after each laboratory.
- Pre-lab exercises: A pre-lab exercise will be provided couple of days before the laboratory period. The exercises will be based on the experiment of the previous week and the experiment to be performed. Study the experiments before you come to the laboratory! You are expected to understand the principles of the experiment and to know what you are going to do before coming to the laboratory. You are much more likely to finish lab on time if you come prepared.
- Your instructor is in charge of your laboratory section. Follow instructions made by your instructor concerning lab safety, keeping the lab clean, procedures, handing in assignment, etc. Do not be hesitant about asking your instructor questions, she is there to help you. Also, no food or beverages is permitted within the laboratory. Failure to heed the instructions of your instructor will result in a lower instructor subjective grade.
- Chem 332L must be taken concurrently with Chem 332. If you do not show up for the first lab, you will be administratively dropped from the laboratory class list. If you withdraw from Chem 332 you must simultaneously withdraw from Chem 332L unless special permission is granted by the instructor.

### Grading Policy and Scale

Pre-lab Exercises.....	20%
Notebook.....	30%
Experimental Results (including lab report form, etc).....	30%
Safety and Technique (performance in the lab, etc).....	10%
Instructor Subjective Grade (including neatness, attitude, etc.).....	5%
Others.....	5%
Total.....	100%

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**\*Each experiment=20 pts in your overall Chem 332L grades. Check-in=5 pts, Check-out=5 pts.**

**Total Lab Points = 20 pts x 12 experiments + 5pts Check-in + 5pts Check-out= 250 pts**

For **EACH EXPERIMENT**, you need to complete following assignments and demonstrate good lab skills and working attitude:

- Pre-lab Exercises: **4 pts** (Finish it and turn it in at the beginning of each lab)
- Notebook: **6 pts** (Turn in the yellow copy pages at the beginning of each next lab)
- Experimental Results (lab report form): **6 pts** ( Download from moodle site, finish it in the lab and hand in next lab)
- Safety and Technique: **2 pts**
- Instructor Subjective Grade: **1 pt**
- Others: staple your notebook copy pages with experimental results: **1 pt**

**Late Work:** Late submissions of any graded lab assignment will not be accepted and you will receive a score of zero for the assignment. If you plan to be absent when an assignment is due, make arrangements to turn it in prior to the due date.

**Make-up Policy:** Only one make-up lab will be given close to the end of the semester. The make-up lab will only be given in the case of serious university excuse, illness, or emergency. You must submit the make-up request and documentation before the lab you are going to miss if you will be out of campus on university business. Failure to schedule or complete the make-up lab will result in a zero for the missed lab.

#### Course Timeline (Schedule of Experiments)

Week	Scheduled Date	Expt	Subject
	Tuesday Section (8:00 AM/2:30 PM )		
1	1/15/19		No Laboratory
2	1/22/19	1	Check-In
			General instructions, safety, and lab notebook
			Aromatic Substitution I: Bromination of Aniline, Acetanilide, and Phenol
3	1/29/19	2	Chromic Acid Oxidation of <i>para</i> -Nitrotoluene to <i>para</i> -Nitrobenzoic Acid
4	2/5/19	3	Aromatic Substitution II: Nitration of Methyl Benzoate: Relative Reactivity of Aromatic Compounds
5	2/12/19	4	Aryldiazonium Ion Reaction: Formation, Displacement, Coupling
6	2/19/19	5	Reduction of Ketones to Alcohols with Sodium Borohydride
7	2/26/19	6	The Grignard Reaction: Oxidation of Aryl Methyl Ketones to Aromatic Carboxylic Acids
8	3/5/19	7	Synthesis of Isopentyl Acetate by Fischer Esterification
9	3/12/19		<b>Spring Break</b>
10	3/19/19	8	Acetylation: Aspirin and <i>N</i> -Acetylanthranilic Acid
11	3/26/19	9	The Haloform Reaction: Oxidation of Aryl Methyl Ketones to Aromatic Carboxylic Acids
12	4/2/19	10	The Claisen-Schmidt Reaction: Benzalacetone and Dibenzalacetone
13	4/9/19	11	Infrared Spectroscopy
14	4/16/19	12	Nuclear Magnetic Resonance Spectroscopy
15	4/23/19		Make-up Lab
16	4/30/19		Check-Out

### **Accessibility/Accommodations**

Concord University is committed to responding to the needs of students with disabilities as defined by the Americans with Disabilities Act. Please inform your instructor at the beginning of the class semester if you have a disability and are requesting accommodations. It is your responsibility to self-disclose that you are requesting accommodations. The University and instructor will provide you with a reasonable accommodation. You should register with CU's Disability Services Office, located in the Athens campus Jerry and Jean Beasley Student Center, Bottom Floor, across from the Campus Post Office. The Disability Services Office phone is 304-384-6086 or you can email the Director, Nancy Ellison, at nellison@concord.edu for assistance.

### **Academic Dishonesty**

Academic dishonesty is morally unacceptable as well as destructive to the learning and teaching atmosphere. Academic dishonesty includes the giving or receiving of improper help on examinations or assignments, falsifying documents, and plagiarism (the act of stealing and using, as one's own, the ideas or the expression of the ideas of another). Such dishonesty can lead to a variety of penalties — including but not limited to failure of assignment, failure of course, loss of institutional privileges, or dismissal from the University. (See University Catalog Academic Policies and Procedures.)

### **Concord University Honor Code**

A Concord University Honor Code was approved by students, staff, faculty, administration, and the CU Board of Governors. The Code states:

*"As a member of the Concord University Community I will act with honesty and integrity in accordance with our fundamental principles and I will respect myself and others while challenging them to do the same."*

The Honor Code is intended to unite the Concord community behind a culture of honesty, integrity, and civility.

### **Class/Online Attendance Policy**

Regular class attendance is part of a student's academic obligation at Concord. Irregular attendance may affect academic performance adversely and is detrimental to the atmosphere of a class.(See University Catalog Academic Policies and Procedures.)

### **Emergency Alert System**

In an effort to increase safety and security on our campus, Concord University encourages everyone to register for instant text message alerts. Alerts will only be used for security and safety notices. All students, faculty, and staff are eligible to receive text message alerts on their cell phones or email alerts. Please contact the IT HelpDesk for further assistance (304-384-5291).

### **Emergency Information**

Emergency/courtesy telephones are located at the main entrance of each residence hall and at various other locations on campus. Emergency telephones can be identified by the flashing blue light and will provide the user with a direct link to Public Safety at the press of a button. To report an on-campus emergency, call 304-384-5357 or 911. The Office of Public Safety is located on the bottom floor of the

Rahall Technology Center. For further emergency information go to:  
<http://www.concord.edu/administration/office-public-safety>.

### **Inclement Weather Policy**

As a general policy, the University will remain in normal operations during adverse weather conditions. In the event of severe weather conditions, the following may occur:

#### University Closure

No students or employees are to report.

#### Classes Cancelled

Students do NOT report BUT employees are expected to report to work at their normal time.

#### Operating on an Inclement Weather Delay

Under this schedule, all 8 a.m. classes will start at 10 a.m. Students and faculty will follow the Inclement Weather Schedule. (See <http://www.concord.edu/emergency-alerts> for Athens/Beckley Inclement Weather Schedules.)

*\*Announcements invoking the late schedule or other options referenced above are aired on area radio and television stations and are sent as text and email messages to those enrolled for this service.*

### **Student Conduct**

In classrooms, online, laboratories, and during any activities that are part of course requirements, students are expected to observe reasonable rules of conduct.

### **Sexual Harassment & Assault**

Federal law, Title IX, and Concord University policy prohibits discrimination, harassment, and violence based on sex and gender (including sexual harassment, sexual assault, domestic/dating violence, stalking, sexual exploitation, and retaliation). If you or someone you know has been harassed or assaulted, you can receive confidential counseling support through the Concord University Counseling Center (304-384-5290). Alleged Violations can be reported non-confidentially to the Concord University Title IX Coordinator at 304-384-6327 or [titleix@concord.edu](mailto:titleix@concord.edu). Reports to Campus Security can be made at (304-384-5357). As an employee at Concord University, I am a mandatory reporter which means I must report any sexual misconduct I am made aware of. This includes verbal or written (such as in an assignment) disclosures of sexual harassment or sexual assault.

### **Technology Services**

Contact the CU Help Desk at extension 5291 from campus or 304-384-5291 off campus. You may also e-mail [cuhelpdesk@concord.edu](mailto:cuhelpdesk@concord.edu).

### **Syllabus Disclaimer**

**"This syllabus is subject to change based on the needs of the class. Please check it regularly."**

**Miscellaneous:** Not applicable