



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 332 Organic Chemistry II

**Course CRN # and Section:** 20243, Section 01

**Semester Taught:** Spring 2019

**Professor:** Hong Yin

**Credit Hours:** 4

**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:** TR 1:00-2:15 PM Inclement weather start time: 1:15 PM

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

**Building and Room Number:** S400

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

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

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

**Catalog Description:** A continuation of CHEM 331. Three hours lecture, three hours laboratory.

**Course Rationale:**

Chem 332 is an undergraduate course on the fundamental concepts and theories of Organic Chemistry II. This course is designed for both chemistry majors and non-chemistry majors to have a good organic chemistry background for their further studies in their own field. This course is the second section of the whole organic chemistry course, and it builds on Chem 331 to provide students with a basic understanding of modern organic chemistry.

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

This Moodle site will be used to post lecture materials, lab manuals, handouts, problem sets, announcements, updates, exam grades, etc. Students will be enrolled in the course by the instructor. All schedules listed in this course disclosure are subject to change. Students should consult the Moodle site for the most updated calendar.

**Hardware/Software Needed:**

- MasteringChemistry access code – Required
- Molecular Model Set – Optional

**Text requirements:**

- Organic Chemistry, Paula Yurkanis Bruice, Eighth ed., Pearson, 2017. - Required
- Study Guide and Solutions Manual to accompany Organic Chemistry - Recommended

**Concord University Educational Goal(s):**

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.

**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), attitudinal development (#2) and components of CU educational goals pertinent to skills (#1&2) 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 course, you will:

- *know/understand:*

1. the core concepts and theories in Organic Chemistry II
2. Organic Chemistry is around us and plays an important role in modern society

- *be able to: (skills)*

1. name and draw structures of various types of organic compounds and their derivatives; describe their physical and chemical properties
2. relate chemical structure and reactivity
3. define stereochemistry of organic molecules
4. predict reaction products and interpret reaction mechanism
5. acquire and interpret data using a variety of modern instrumentation, including MS, FTIR and NMR; apply different methods to determine chemical structures
6. employ your knowledge of organic transformation in problem solving and designing organic synthesis

### Course Requirements:

Organic Chemistry Laboratory is a co-requisite for Chemistry 332. You must be enrolled in Chemistry 332L concurrently with Chemistry 332. Chemistry 332L is not a separate entity. This means that your Chemistry 332 laboratory grade will influence (positively or negatively) your Chemistry 332 final grade.

### Grading Policy and Scale, Make-up Policy, Late Work

Your final grade for this course will be determined by the following activities:

Quizzes	120 (10 pts each x 12 )
Online Homework	150 (15 pts each x 10)
Midterm Exams	360 (120 pts each x 3)
Final Exam	120
Laboratory	250
Total Points	1000

### Grade Distributions:

There are total 1000 points for this course.

A 900-1000; B 800-899; C 700-799; D 600-699; F < 600

#### 1) *In-class Quizzes (12%):*

A short quiz will be given at some point during class period most weeks. Each quiz will cover material from the day's assigned reading or material from previous day's class. There is only one makeup quiz given in organic chemistry. If you must miss a quiz due to extenuating circumstances, you must notify the instructor as soon as possible.

#### 2) *Online MasteringChemistry Homework (15%):*

Online homework will be assigned as we progress through each chapter during the semester using MasteringChemistry system. Using online homework is mandatory. I will provide more details via email or handout about purchasing and signing up for the connecting online homework. If you complete all these assignments before the deadline each week, you will earn total 150 points (15 pts each, 10 assignments total) when calculating your final grade. Please do not hesitate to ask or email me if you have any questions about your homework.

**Late Work:** It is student's responsibility to check and make note of the due dates of the online MasteringChemistry assignments. Late submissions of any graded 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. It is important to start these assignments well in advance of the due date. Computer issues or inaccessibility of the internet will NOT be considered a valid excuse for late assignments.

3) **Textbook Problems:**

For additional preparation and practice, it is strongly recommended to work-out the problems in the textbook. Textbook problems will not be graded and answers are to be found in the solution manual.

4) **Midterm Exams (36%):**

Three midterm exams (120 pts each) will be given during the whole semester. The midterm exams will focus on the chapters we are learning currently according to the course schedule.

5) **Final Exam (12%):**

The final exam (120 pts) will be a comprehensive, American Chemical Society standardized exam that covers material from both Chem 331 and 332. **(5/9/2019, Thursday 11:30 AM-1:45 PM)**

**Calculators:** Only *non-programmable calculators* are allowed to use during quizzes and exams. Remove covers from non-programmable calculators before entering the exam site.

**Electronic Device:** Any type of communication or electronic device (cell phones, ipods, headphones, ipads, etc.) is prohibited at exam/quiz sites. Place electronic devices in your bookbag which itself must be placed at the front of the exam room. Any student caught with an electronic device during exam/quiz will receive an "F" for the exam and will be brought up on charges of Academic Dishonesty.

**Make-ups:** Only one make-up exam will be given close to the end of the semester. The make-up exam 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 exam you are going to miss if you will be out of campus on university business. Scheduled make-up exam will be a comprehensive paper exam which is totally different with the original exam. All the topics and concepts which are taught in this semester may be involved in the make-up exam. Failure to schedule or complete the make-up exam will result in a zero for the missed exam.

6) **Laboratory (25%):**

Please see Chemistry 332 Laboratory Syllabus in detail.

**Course Timeline (Schedule of Assignments/Assessments/Presentations)**

Day of	Text Chapter	MasteringChemistry Homework Due/ Quiz	Reading for next class
Before 1 <sup>st</sup> class	Class prep		Ch 8.16-8.18 Benzene and Aromaticity (pg. 362-367)
1/15	Ch 8: Delocalized Electrons: Aromaticity	Take-home Quiz#1	Ch 8.19-8.22 Benzene and Aromaticity (pg. 367-373)
1/17	Ch 8: Delocalized Electrons: Aromaticity		Ch 18.1-18.7: Electrophilic Aromatic Substitution (pg. 867-880)
1/22	Ch 18: Reactions of Benzene and Substituted Benzenes	Quiz#2	Ch 18.8-18.15: Electrophilic Aromatic Substitution (pg. 880-896)
1/24	Ch 18: Reactions of Benzene and Substituted Benzenes		Ch 18.16-18.22: Electrophilic Aromatic Substitution (pg. 896-910)
1/29	Ch 18: Reactions of Benzene and Substituted Benzenes	Quiz#3	
1/31	Review for Exam 1		
2/5	Exam 1	Homework 01 Homework 02	Ch 16.1-16.5: Carbonyl Chemistry: (pg. 739-757)

2/7	Ch 16: Carbonyl Chemistry 1: Reactions of Aldehydes and Ketones		Ch 16.6-16.10: Carbonyl Chemistry (pg. 757-774)
2/12	Ch 16: Carbonyl Chemistry 1: Reactions of Aldehydes and Ketones	Quiz#4	Ch 16.11-16.14: Carbonyl Chemistry (pg. 774-781)
2/14	Ch 16: Carbonyl Chemistry 1: More Reactions		Ch 16.15-16.17: Carbonyl Chemistry (pg. 781-786)
2/19	Ch 16: Carbonyl Chemistry 1: More Reactions	Quiz#5	Ch 15.1-15.5: Carboxylic Acids (pg. 685-698)
2/21	Ch 15: Reactions of Carboxylic Acids and Carboxylic Acid Derivatives	Homework 03 Homework 04	Ch 15.6-15.10: Carboxylic Acids (pg.698-711)
2/26	Ch 15: Reactions of Carboxylic Acids and Carboxylic Acid Derivatives	Quiz#6	Ch 15.11-15.14: Carboxylic Acid Derivatives (pg.711-717)
2/28	Ch 15: Reactions of Carboxylic Acids and Carboxylic Acid Derivatives		Ch 15.15-15.19: Carboxylic Acid Derivatives (pg.717-727)
3/5	Ch 15: Reactions of Carboxylic Acids and Carboxylic Acid Derivatives	Quiz#7	
3/7	Review for Exam 2		
3/11-3/15	<b>Spring Break</b>		
3/19	Exam 2	Homework 05 Homework 06	Ch 17.1-17.5: Carbonyl Alpha Substitution Reactions (pg. 801-810)
3/21	Ch 17: Carbonyl Chemistry 2: Reactions at the $\alpha$ -Carbon		Ch 17.6-17.9: Carbonyl Alpha Substitution Reactions (pg. 810-817)
3/26	Ch 17: Carbonyl Chemistry 2: Reactions at the $\alpha$ -Carbon	Quiz#8	Ch 17.10-17.16: Carbonyl Condensation Reactions (pg. 817-831)
3/28	Ch 17: Carbonyl Chemistry 2: Reactions at the $\alpha$ -Carbon		Ch 17.17-17.22: Carbonyl Condensation Reactions (pg. 831-842)
4/2	Ch 17: Carbonyl Chemistry 2: Reactions at the $\alpha$ -Carbon	Quiz#9	Ch 20.1-20.10: Carbohydrates (pg. 949-965)
4/4	Ch 20: The Organic Chemistry of Carbohydrates	Homework 07 Homework 08	Ch 20.11-20.19: Carbohydrates (pg. 965-981)
4/9	Ch 20: The Organic Chemistry of Carbohydrates	Quiz#10	
4/11	Review for Exam 3		
4/16	Exam 3		Ch 13.1-13.8: Mass Spectrometry (pg. 566-583)
4/18	Ch 13: Mass Spectrometry		Ch 13.9-13.18: Infrared Spectroscopy (pg. 583-602)
4/23	Ch 13: Infrared Spectroscopy	Quiz#11	Ch 14.1-14.12: Nuclear Magnetic Resonance Spectroscopy (pg. 620-644)
4/25	Ch 14: NMR Spectroscopy	Homework 09 Homework 10	Ch 14.13-14.24: Nuclear Magnetic Resonance Spectroscopy (pg. 644-667)
4/30	Ch 14: NMR Spectroscopy	Quiz#12	
5/2	Review for Final Exam		
5/9	<b>ACS Standardized Final Exam</b>		

**Course Schedule Modifications:**

This schedule reflects an approximate calendar. Not all sections of each chapter will be covered. All chapter reading is based on Bruice 8<sup>th</sup> ed., if you are using a different edition it is your responsibility to make sure you are reading the correct material and do not miss anything. I may deviate slightly from this schedule. I retain the right to alter the schedule as necessary based upon student comprehension of particular topics and other unforeseen circumstances. If change is necessary, it will be announced in class.

**Class Civility:**

Since every student is entitled to full participation in class without interruption, all students are expected to be in class and prepared to begin on time and remain for the duration of the class period. If you have a valid reason for leaving class early, please inform the instructor before the class starts. Disruption of class, whether by latecomers, noisy devices or inconsiderate behavior, side conversations will not be tolerated. All noise-generating devices must be turned off when you enter the classroom. Electronic devices used during class/laboratory time will result in your being asked to leave classroom and an unexcused absence. The instructor reserves the right to deduct points for disruptive behavior. Respect for individual differences and alternative viewpoints will be maintained at all times.

**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 (for example):** Not applicable