ORGANIC CHEMISTRY II SYLLABUS, Spring 2026

Instructor: **Dr. Brian Myers**

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Office Hours: MWF from 10–noon or by appointment. Open door or by appointment (virtual is an option). See: http://tinyurl.com/BJMofficehours.

Catalog info: Organic Chemistry 2 (CHEM 2521.03 CRN: 30103, CHEM 2621.01 (30114) is a 3-credit hour course

Lectures: 1:00–1:50 PM in Mathile 248

Text & Equip:

Electronic materials will be available in Canvas.

1) Required: Klein's Organic Chemistry, 5th Edition Integrated E-Text with E-Solutions Manual, WileyPLUS Next Gen Student Package (ISBN: 581394350940), **Multi-Semester** ~$185
1a) **OR** Klein's Organic Chemistry, 5th Edition Integrated E-Text with E-Solutions Manual, WileyPLUS Next Gen Student Package (ISBN 9781394350889), **Single-Semester** ~$120
2) Strongly Recommended: Klein's Organic Chemistry, 5th Edition **Loose-Leaf** ISBN: 9781394189373 (covers O-CHEM 1 & 2) ~$148
3) A Molecular Model kit like Molecular Visions: ISBN 9780964883710 ~$89 [or $28.70 directly from darlingmodels.com]

Need Help with the Wileyplus/electronic resources? Visit: https://wpsupport.wiley.com/s/contactsupport or call 833-601-3084 available 24/7.

Course goals: The course is designed so that the student can develop a basic understanding of organic chemistry structures and reactions thereby laying a foundation for further study in the field and closely related disciplines (e.g. biochemistry, molecular biology, and pharmaceutically relevant sciences).

Prerequisites: You must have completed CHEM 2511 or 2611 with a passing grade to enroll in this course. You must be enrolled concurrently in CHEM 2561 or 2671.

Withdraws: This course is a co-requisite with Organic 2 Laboratory Course (which could have also been completed previously). In the event that you need to withdraw from this course, you must also withdraw from CHEM 2561 (Organic 2 laboratory) or CHEM 2671 (Organic 2 laboratory for majors). Alternatively, if you withdraw from the Organic 2 Laboratory course you must also withdraw from this course.

Course Outcomes

At the end of this course students will be able to:

1. communicate the identity and structure of organic molecules.
2. describe structural and electronic features of organic molecules.
3. classify the reactivity of organic molecules based on their functional group or class.
4. propose viable syntheses of small-sized, organic molecules.

Misconduct: The University expects its students to conduct themselves in a dignified and honorable manner as mature members of the academic community and assumes that individually and collectively they will discourage acts of academic dishonesty. The University also expects cooperation among administrators, faculty, staff, and students in preventing acts of academic dishonesty, in detecting such acts, reporting them, and identifying those who commit them, and in providing appropriate punishment for offenders. The University Code of Academic Student Conduct is found in Appendix F of the Student Handbook: my.onu.edu/student_handbook. To this end, any student deviating from these standards in this course will be penalized to the fullest extent possible.

Incompletes: Incompletes will be given only when the work of the course is substantially completed and when the student's work is of passing quality.

Special accommodations policy:
Students requiring accommodations because of physical and/or learning disabilities should contact their Dean's office prior to or during the first week of classes. The student needs to initiate a discussion of classroom/testing procedure accommodations with the instructor at minimum of **2 days in advance of each exam/quiz**.

Point Breakdown:

3 exams, @ 135 points	405
6 quizzes, @ 45 points	270
Online Homework	125
Final Exam	200
TOTAL	**1000 POINTS**

Grade Scale:	
>870	A
869–760	B
759–650	C
649–580	D

Quizzes & Exams: There will be six 45-point quizzes given during the semester. Each quiz will last 15-20 minutes and will cover the most recent material presented in lecture. There will be three 135-point exams and a 200-point final exam. The exams will cover everything from the first day of class with an emphasis on the material covered since the previous exam. The final exam will be an ACS final which is cumulative for the entire year of organic chemistry.

Makeups: In the event that you feel that you will be unable to attend a scheduled exam/quiz, you must contact me prior to (or as soon as safely feasibly) to discuss your situation (by phone AND email). If an excused absence is granted by the instructor, the instructor reserves the right to 1) provide a makeup exam that contains questions covering material up to the day of the makeup exam, 2) administer a cumulative makeup exam at the end of term, 3) prorate the final, or 4) use other means of evaluation that are agreeable between the instructor and the student. The instructor reserves the right to choose the method of makeup. Unexcused absences including (but not limited to): sleeping through the exam, not informing the instructor in a timely fashion, and vacation travel will result in the score of zero. Departmental policy dictates that makeup exams will not be given to students before the class has taken the exam.

Online Homework (available through Canvas)

We will be using the WileyPLUS system in Canvas for our online homework. It will be graded. We will multiply your percent correct times 125 to get the score for the course.

Assignment	Due Date		Assignment	Due Date
Ch. 13	1/27 (Tues.)		Ch. 21	4/5 (Tues.)
Ch. 16	2/6 (Sun.)		Ch. 22	4/14 (Tues.)
Ch. 17	2/10 (Thurs.)		Ch. 24	4/21 (Tues.)
Ch. 18	2/22 (Sun.)		Ch. 25	4/30 (Thurs.)
Ch. 19	3/3 (Tues.)		Ch. 26	5/10 (Sun.)
Ch. 20	3/22 (Sun.)			

Class Schedule,* Organic Chemistry 2:

Date	Topic	Reading
01/19 M	No Class-Martin Luther King Jr. Day	–
01/21 W	Ch. 13 Ethers & epoxides: naming & synthesis	13.1 – 13.3
01/23 F	Ch. 13 Williamson ether synthesis, reactions of ethers	13.4 – 13.9
01/26 M	Ch. 13 Sharpless asymmetric epoxidation and opening epoxides	13.10 – 13.12
01/28 W	Ch. 16 Conjugation: additions to dienes (1,2 vs 1,4)	16.1 – 16.4
01/30 F	Retrosynthesis workshop 1	–
02/02 M	Retrosynthesis workshop 2	–
02/04 W	**Quiz 1**. Ch. 16 Diels-Alder reaction	16.5 – 16.10
02/06 F	Ch. 16 Intramolecular Diels-Alder, Ch. 17. Nomenclature of aromatic compounds	16.11 – 16.13, 17.1 – 17.3
02/09 M	Ch. 17 Aromaticity, Birch Reduction + molecular orbitals & aromaticity	17.4 – 17.8
02/11 W	Ch. 18 EAS Mechanisms: Nitration, halogenation, sulfonation	18.1 – 18.3
02/13 F	**Quiz 2**. Ch. 18 EAS Friedel-Crafts reactions	18.4 – 18.8
02/16 M	Ch. 18 Additional reactions on groups next to aromatics	18.9 – 18.11
02/18 W	Ch. 18 EAS: Adding to rings with E.D.G. & E.W.G.	18.12 – 18.13
02/20 F	Ch. 18 Nucleophilic aromatic substitution & retrosynthesis	18.14 – 18.15
02/23 M	**Quiz 3**. Ch. 19 Making aldehydes, ketones, & cyanohydrins/acetals	19.1 – 19.4
02/25 W	Ch. 19 Dithianes + imines	19.5 – 19.8
02/27 F	Ch. 19 Imines, enamines, Wolff-Kishner reduction	19.9 – 19.11
03/02 M	Ch. 19 Wittig and Baeyer-Villiger reactions	19.12 – 19.18
03/04 W	**Exam 1**	–
03/06 F	Ch. 20 Acyl Substitution	20.1 – 20.11
03/09 F	No Class: Spring Break	–
03/11 W	No Class: Spring Break	–
03/13 F	No Class: Spring Break	–
03/16 M	Ch. 20 Acid chloride synthesis & reactions, anhydrides, Fisher esterification	20.12 – 20.13
03/18 W	Ch. 20 Hydrolysis of esters, lactones, & amides (synthesis + reactions)	20.14 – 20.15
03/20 F	Ch. 20 Synthesis of nitriles from amides, reactions of nitriles	20.14 – 20.15
03/23 M	**Quiz 4.** Ch. 21 Enols & enolates halogenation & alkylation	21.1–21.3
03/25 W	Ch. 21 Enols and Enolates	21.4
03/27 F	Ch. 21 The aldol reaction	21.5
03/30 M	Ch. 21 The directed aldol reaction, Claisen, & malonic ester synthesis	21.5, 21.7
04/01 W	Ch. 21 Acetoacetic ester synthesis	21.7
04/03 F	No Class: Easter	–
04/06 M	Ch. 21 Michael reaction & Robinson annulation	21.6
04/08 W	**Quiz 5.** Ch. 22 Amine nomenclature, synthesis (review)	22.1 – 22.5
04/10 F	Ch. 22 Gabriel Synthesis, Hoffman Elim., Curtius Rearrangement, Cope Elim.	22.6 – 22.9
04/13 M	Ch. 22 Diazotization and Diazonium salts	22.10 – 22.12
04/15 W	**Exam 2**	–
04/17 F	Ch. 24 Carbohydrates – introduction & Fisher Projections, Reactions of sugars	24.1 – 24.8
04/20 M	Ch. 24 Carbohydrates - Applications/complex	24.9 – 24.10
04/21 T	No Class: Honor's Day	–
04/22 W	**Quiz 6.** Amino Acids & Proteins (Intro)	25.1
04/24 F	Amino Acids, pH Effects on, Synthesis of Amino Acids	25.2–25.3
04/27 M	Structure of Proteins and synthesis of proteins	25.4–25.5
04/29 W	Protein Function	25.6–25.8
05/01 F	**Exam 3**	–
05/04 M	Lipids: Fatty Acids: Saturated and Unsaturated; Properties; Waxes; Triglycerides	26.1–26.3
05/06 W	Reactions of Lipids	26.4–26.5
05/08 F	Phospholipids, Glycolipids, Sphingolipids, Steroids, Terpenes	26.6–26.8
05/12 T	Final Exam (7–9 PM) Room TBA	–

*Please note this schedule is a best guess estimate of the lecture content for a give date. Tuesday evening time blocks will be used for Supplemental Instruction Sessions.

Common Course Policies: Ohio Northern University is dedicated to providing an equitable educational experience for all enrolled students. Universal course policies can be found at: https://my.onu.edu/registrars_office/policies. Specifically, the following relevant topics are addressed: Academic Dishonesty Policy; Academic Accommodations Policy; ONU Health and Safety Policy; Title IX Policy; and Cancellation of In-person instruction.

Suggestions:

1) **Your textbook is your primary learning resource.** Read the assigned chapters prior to attending class. In class, I will stress the most important points and clarify difficult material. Lectures will not necessarily cover all the required material, and all the material covered in class will not necessarily be covered in the text. Thus, it is very important to read the text AND attend lecture.

2) **Organic chemistry is a cumulative subject:** Understanding the new material requires that you have mastered earlier material. Therefore, it is extremely important to keep up with the material.

3) **Work the assigned problems!** You cannot learn organic chemistry without doing practice problems. You are responsible for every problem in the text. Make certain that you understand the problem instead of just being able to reproduce the solution. While working problems, it is strongly suggested that you refer back to the text and reread sections of the previous chapters to find the information needed to answer the question. Only use the solutions manual to check problems, not to learn how to do the problems. Consider doing the problem set as if you are going to turn it in to me and do problems each day!

4) **Learn and apply concepts.** Although memorization of some key subject matter is required, it is necessary to learn concepts and apply them to the task at hand. Do not confuse having memorized class material (or solutions to a particular problem) as having learned the concepts. Understanding implies application of the information that has been acquired to solve new problems. One of the best ways to master the material is to build a good set of flashcards to predict reaction products (including the regiochemical and stereochemical outcomes) along with the important parts of the reaction mechanism.

5) **Do not use AI.** In this course, we will be learning skills that you will need to be able to apply on your own before you can succeed with more advanced work in your career and future courses. You will also need these skills to spot and correct errors in the output of AI (which in my survey has been substantial). Therefore, AI should not be used as it will be detrimental for your development.

6) **Use small study groups effectively.** Studying in small groups (2–3 people) can be very beneficial and is strongly recommended. But, do not do the majority of your studying for this course in groups. The most effective way to study with a group is to discuss the issues with which you are having the most difficulty.

6) **Take good class notes by hand.** Pay attention to the topics and material covered in lecture. This way you get a sense of what is important. Consider rewriting your notes adding in some relevant info and/or examples from text. While electronic tablets have been used by some students effectively, the use of paper & pencils/pens has been shown to be more effective.

7) **Study in a quiet environment each day**. Do some studying each day (likely 1–2 hours, which is far superior to 10 hours one day per week). Most successful students prefer to find a time each day away from others and especially electronic devices.

8) **Attend the Supplemental Instruction Sessions:** These optional sessions will be held Tuesday evenings 7–8 PM in Mathile 248 by Bella Spano (i-spano@onu.edu). They will include worksheets containing problems. The SI Leader conducts the evening sessions, attends lecture, and servs as a tutor.

9) Utilize tutoring, including 1) our embedded tutor 2) drop-in tutoring for chemistry courses is from 7–9 p.m. on Monday and Wednesday on the 2nd floor of Heterick; 3) ONU by-appointment tutoring via the Penji website (https://web.penjiapp.com/schools/onu) or the Penji app. Both by-appointment tutoring and drop-in tutoring begin the second week of the semester. Additional info: Tutoring Center web page

10) **Contact me:** If you are having difficulty with this course, contact me ASAP. If you do not know where to start asking questions, the question that needs answered is "When can I get in to see my instructor?".

Using cell phones in class is highly disruptive, do not use them during lecture.