

CHEM 2561 Syllabus (Spring 2025)

Laboratory for Organic Chemistry 2 (Prof. Myers Sections)

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Office Hours: MWF: 10–12. Open door or by appointment (virtual is an option)

CHEM 2551.21 (CRN: 30105) Tuesday 08:00 AM MY205/217

CHEM 2551.23 (CRN: 30108) Tuesday 12:00 PM MY205/217

CHEM 2551.33 (CRN: 31234) Tuesday 03:00 PM MY205/217

Catalog Info: Chemistry 2561 is a 1 credit hour course. Reactions with/on radicals, dienes, aromatics, alcohols, carbonyls, amines, the structure and chemistry of carbohydrates, and organic polymer chemistry. Taken concurrently with CHEM 2521. Credit may be received for CHEM 2561 or 2661, but not for both. Offered spring semester.

Course Fee: \$40.003

Goals: The lab experiments in this course are designed to illustrate the practical implementation of the theories and concepts discussed in the Chemistry 2521 lecture course. The laboratory experiments and exercises will enhance and deepen your understanding of the lecture materials. Student learning objectives/outcomes for each experiment can be located in the lab manual.

Required Texts:

- *Organic Chemistry Laboratory Experiments and Exercises* (the Lab Manual). 2024 Edition
- Carbonless copy notebook (both sheets are perforated) (ISBN 9781506647401)
- Klein, David, *Organic Chemistry*. 4th ed. (TEXT), Wiley.

Required equipment: Safety goggles and appropriate laboratory attire as specified in the Lab Manual under “Lab Attire & Protective Clothing.” **Goggles must be brought to lab each week—Not left in your lab drawer.**

Requirements: Completion of CHEM 2511 or 2611 and CHEM 2551 or 2651 with a passing grade. CHEM 2561 is intended to be taken concurrently with CHEM 2521. If you withdraw from CHEM 2521 you must also withdraw from CHEM 2561. In the event that you must withdraw from CHEM 2561, you must arrange a time with your instructor to check-out of your drawer. If you do not checkout of your drawer, a hold will be placed on your university account.

Canvas: Laboratory prelab assignments and supplemental materials will be available online through Canvas. If you have problems accessing the course, please contact the IT helpdesk (x1111). Typically, 2 attempts for each prelab assignment are allowed. **Prelabs must be completed prior to coming to lab.**

Preparedness: The student must complete the notebook table, prelab exercise, and assigned reading prior to the lab period.

Lab notebook: Please refer to the Lab Manual pages 11–13.

Missing Lab/Makeups: In the unlikely event that you are unable to attend lab, you need to let your lab instructor know immediately by email and/or phone. For an excused absence you will need to complete the experiment during a different time. If this is not possible, your laboratory score will be prorated based on your performance during the semester. For an unexcused absence, you will receive zero points for all the graded activities associated with that laboratory period. Three unexcused absences will result in immediate failure of the course.

Cancellation of In-person Instruction: If ONU must cancel in-person class meetings for weather or any other reason, an announcement will be released in the official RAVE email and text. The campus will be told that ONU will be moving to virtual instruction. For this class, you will likely be expected to complete course material asynchronously; please check Email & Canvas. Contact your instructor with any questions or concerns. You may be required to make up any classes cancelled.

Safety: Please be aware that the lab experiments you will complete require the use of toxic substances. Thus, prudent attention to safety practices should be followed at all times. Please make your instructor aware of any medical conditions that might affect your ability to safely complete these experiments.

Grading: The overall grade in the course will be determined by the following point breakdown

Possible Points

Prelab Reaction Quiz (week 2)	10	Grading Scale	
Lab Exams (2 x 30 pts each)	60	A	88.0 – 100%
Canvas prelab assignments (12 x 5 pts each)	60	B	75.0 – 87.9%
Lab reports/worksheets (12 x 20 pts each)	240	C	65.0 – 74.9%
Lab Technique	20	D	55.0 – 64.9%
Laboratory Final (week 15)	<u>60</u>	Worse	0 – 54.9%
Total	450 points		

Common Course Policies

Ohio Northern University is dedicated to providing an equitable educational experience for all enrolled students. Universal course policies applicable to all courses can be found at the following link:

https://my.onu.edu/registrars_office/policies. Specifically, this website includes the policies for the following topics:

- Academic Dishonesty Policy
- Academic Accommodations Policy
- ONU Health and Safety Policy
- Title IX Policy
- Diversity, Equity, and Inclusion Language

Course learning objectives

Upon successful completion of this course, students will be able to:

1. Employ safe practices in the laboratory.
2. Maintain a proper laboratory notebook.
3. Synthesize and purify simple organic molecules using basic lab techniques (distillation, recrystallization, extraction).
4. Identify the basic chemical concepts utilized in the choice of reaction conditions, techniques, and isolation methods.
5. Utilize spectroscopic data (MS, IR, ^1H NMR, ^{13}C NMR) to identify organic compounds.
6. Predict the outcome of organic reactions using a basic understanding of mechanisms and functional group reactivity.

Lab Date	Lab Experiment Title	Required Reading (Lab Manual/Text)
January 21,23	Check-in, Safety Lecture Reaction Review	p. 1–10 TEXT: Chap. 7–11
January 28,30	(Exp 13) Free Radical Bromination A Canvas prelab is due Turn in notebook pages In-class prelab quiz over reactions	p. 107 TEXT: 455–476
February 4,6	(Exp 14) A Reaction with <i>N</i> -Bromosuccinimide A Canvas prelab is due Turn in notebook pages	p. 115 TEXT: 388–391
February 11,13	(Exp 15) Synthesis of a Secondary Alcohol via Reduction of a Ketone Synthesis Problem Solving Session A Canvas prelab is due Turn in notebook pages	p. 123 TEXT: 539–545
February 18,20	(Handout) A Fast Diels-Alder Reaction A Canvas prelab is due Turn in notebook pages	Handout TEXT: 753–759
February 25,27	(Exp 19) Esterification: Synthesis of Isoamyl Acetate A Canvas prelab is due Turn in notebook pages	p. 145 TEXT: 962–965
March 4,6	(Exp 18) Iodination of Vanillin A Canvas prelab is due Turn in notebook pages EXAM	p. 139 TEXT: 829–832
March 11,13	Spring Break	–
March 18,20	(Exp 21 Part A) Synthesis of Lidocaine AND (Exp 20) Identification of an Unknown Compound A Canvas prelab is due Turn in individual Unknown worksheet	p. 149 and 167 TEXT: 971–975
March 25,27	(Exp 21 Part B) Synthesis of Lidocaine (90 min reflux) A Canvas prelab is due Turn in packet and notebook pages	p. 167 TEXT: 1066–1068
April 1,3	(Exp 23) Reductive Amination in Three steps A Canvas prelab is due Turn in notebook pages	p. 179 TEXT: 1069–1071
April 8,10	No Lab- Honor's Day	
April 15,17	(Exp 22) Knoevenagel Condensation A Canvas prelab is due Turn in notebook pages EXAM	p. 175 TEXT: 996–1022
April 22,24	(Exp 24) Synthesis of Azo Dyes A Canvas prelab is due Turn in notebook pages	p. 183 TEXT: 1077–1083
April 29, May 1	(Exp 25) Studying the Chemistry of Carbohydrates, Polarimetry A Canvas prelab is due Turn in individual worksheet	p. 189 TEXT: Chap. 24
May 6,8	Check-out FINAL EXAM	

TEXT = Klein, 4th Edition