

Chemistry 2300: Principles of Organic Chemistry

Instructor:

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Meeting Time/Place: Online lecture videos.

Office Hours:

No specific time. Please email me directly with your question or setup an appointment for a virtual meeting.

Textbook:

"Essential Organic Chemistry" 2nd Ed., Paula Y. Bruice, Pearson, ISBN-10: 1256081833 (required)

Earlier edition or other version of Organic Chemistry textbook should work.

eBook is available via Canvas: Click "[Bookshelf](#)" on the left.

Or, Go to "Modules" and then "General Introduction" , Click "eTextbook".

Model Kit:

Model Kit: Available in Chem Store (1st Floor of Widtsoe). (highly recommended)

Course Outline and Exam Schedule:

Week	Chapter(s)
1	Introduction, Chapter 1
2	Chapter 2

3	Chapter 3
4	Chapter 3, Exam 1 (9/24, 12 am - 11:59 pm)
5	Chapter 4
6	Chapter 5
7	Chapter 6
8	Chapter 7, Exam 2 (10/22, 12 am - 11:59 pm)
9	Chapter 8
10	Chapter 9
11	Chapter 9
12	Chapter 10, Exam 3 (11/15, 12 am - 11:59 pm)
13	Chapter 11
14	Chapters 11, 12
15	Chapter 12 (12/10, Bonus Quiz, 12 am - 11:59 pm)
16	Final Exam (12/13, 12 am - 11:59 pm)

Note: 9/3 Labor Day, 10/19 Fall break, 11/21 - 11/23 Thanksgiving

More practice problems:

You are highly encouraged to complete the exams from previous years. These will help you immensely in preparing for the exams so that you can score well.

For exams and answer from 2015 to 2019: these are available at "Modules" via Canvas for this course.

Online links to additional organic chemistry materials:

Organic chemistry: www.jbpub.com/organic-online/webhome.htm

Additional OChem videos: <https://www.khanacademy.org/science/organic-chemistry>

General Learning Objectives for 2300

1. Apply electronegativity and VESPR to draw the Lewis structure and predict chemical properties for various functional groups.
2. Use electronegativity, octet rule, and electron(s)-moving to write the resonance structures and judge the order of stability for these structures.

3. Apply the concepts of acid/base and nucleophile/electrophile to predict a chemical reaction.
4. Recognize constitution (structural) isomers, configuration isomers, conformation isomers, and stereoisomers, and explain the difference in chemical and physical properties among these compounds.
5. Write correct electron-pushing mechanisms for the topic reactions in each chapter.
6. Apply the concepts of resonance and inductive effects to predict the chemical and physical properties for different functional groups and the molecule to which these functional groups are attached.
7. Explain the reaction mechanisms by using the concepts of steric hindrance, stability of carbocation, and leaving group capability.
8. Use the pK_a values to explain or define the roles of a molecule with lone-pair electron (:Z) as base, nucleophile, or leaving group in a chemical reaction.
9. Explain aromaticity and recognize aromatic compounds.
10. Perform all of the detailed learning objectives for every chapter posted online or distributed as hard copy.

Broad Objectives (for course evaluation):

1. Gaining factual knowledge (terminology, classifications, methods, trends)

- a. Apply electronegativity and hybridization concept to draw the Lewis structure and predict chemical properties for various functional groups.
- b. Use electronegativity, octet rule, and electron(s)-moving to write the resonance structures and judge the order of stability for these structures.
- c. Use the pK_a values to explain or define the roles of a molecule with lone-pair electron (:Z) as base, nucleophile, or leaving group in a chemical reaction.

2. Learning fundamental principles, generalizations, or theories

- a. Apply the concepts of acid/base and nucleophile/electrophile to predict a chemical reaction.
- b. Recognize constitution (structural) isomers, configuration isomers, conformation isomers, and stereoisomers, and explain the difference in chemical and physical properties among these compounds.

- c. Apply the concepts of resonance and inductive effects to predict the chemical and physical properties for different functional groups and the molecule to which these functional groups are attached.
- d. Explain the reaction mechanisms by using the concepts of steric hindrance, stability of carbocation, and leaving group capability.
- e. Explain aromaticity and recognize aromatic compounds.

3. Learning to apply course material (to improve thinking, problem solving, and decisions)

- a. Write correct electron-pushing mechanisms for the topic reactions in each chapter.
- b. Perform all of the detailed learning objectives for every chapter posted online or distributed as hard copy.

How to take the exams?

1. The exam will be available on Canvas in the specific window as indicated.
2. The multiple choice of exam will be available at specific window. You need to take the exam within the window and within the time limit.
3. You are encouraged to take the exam as a closed book exam as you may run out of time if using additional help.
4. For the written part, upload your answer sheet as a **single PDF file** before the due date.

Assessment (Bonus quiz):

There will be 10 multiple choice questions for the bonus quiz with a total of twenty points. Nine of these questions will come from previous exams. One question comes from the new material. These points will be bonus points and will be added to your total point for determining your final grade.

Grading Scheme:

Point Distribution:

1. Three monthly exams (100 pts each, 90 pts from multiple choice question (45 totals) and 10 pts from written part). No exam can be dropped. No makeup exam will be given.
2. Final (200 pts, 180 pts from multiple choice question (90 totals) and 20 pts from written part): Everyone needs to take the final. The final cannot be partially dropped and substituted with scores from other exams.
Total Points: 500 pts
3. Points from your assessment (bonus quiz) will be added to your total when calculating your final grade.

Grade Breakdown:

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
% Scores	≥90%	≥85%	≥80%	≥76%	≥72%	≥68%	≥64%	≥60%	≥56%	≥50%	<50%
Total Points	≥450	≥425	≥400	≥380	≥360	≥340	≥320	≥300	≥280	≥250	<250

4. For more information, see "General Introduction" at "Modules".

UNIVERSITY POLICIES:

COVID-19 Classroom Protocols

In order to continue to provide a high-standard of instruction at USU, and to limit the spread of COVID-19 during the pandemic, students are asked to follow certain classroom protocols during the fall 2020 semester. These protocols are in place not only for your safety but also the safety of the rest of the campus community. You will be asked to clean your desk area at the start of each class, sit in designated seats, wear face coverings and follow dismissal instructions. There may be individual medical circumstances that prevent some students from using face coverings. These circumstances will be rare, but if they do exist, we ask that everyone be respectful. It is imperative that we each do our part so that on-campus instruction can continue.

Academic Freedom and Professional Responsibilities

Academic freedom is the right to teach, study, discuss, investigate, discover, create, and publish freely. Academic freedom protects the rights of faculty members in teaching and of students in learning. Freedom in research is fundamental to the advancement of truth. Faculty members are entitled to full freedom in teaching, research, and creative activities, subject to the limitations imposed by professional responsibility. [USU Policy 403](#) further defines academic freedom and professional responsibilities.

Academic Integrity - "The Honor System"

The University expects that students and faculty alike maintain the highest standards of academic honesty. The Code of Policies and Procedures for Students at Utah State University ([Student Conduct](#)) addresses academic integrity and honesty and notes the following:

Academic Integrity: Students have a responsibility to promote academic integrity at the University by not participating in or facilitating others' participation in any act of academic dishonesty and by reporting all violations or suspected violations of the Academic Integrity Standard to their instructors.

The Honor Pledge: To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge: "I pledge, on my honor, to conduct myself with the foremost level of academic integrity". Violations of the Academic Integrity Standard (academic violations) include, but are not limited to cheating, falsification, and plagiarism

Plagiarism

Plagiarism includes knowingly "representing by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials." The penalties for plagiarism are severe. They include warning or reprimand, grade adjustment, probation, suspension, expulsion, withholding of transcripts, denial or revocation of degrees, and referral to psychological counseling.

Full details for USU Academic Policies and Procedures can be found at:

- [Student Conduct](#)
- [Student Code](#)
- [Academic Integrity](#)
- [USU Academic Policies and Procedures](#)

Students with Disabilities

Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Disability Resource Center (DRC). Please contact the DRC prior to or as early in the semester as possible. Alternate formats for course content are available with advanced notice.

Contacting the Disability Resource Center (DRC):

- Location in Room 101 of the University Inn.
- Phone Numbers
- 435-797-2444 voice
- <http://www.usu.edu/drc/>

Disability Related Resources for Current Students

- [DRC Student Handbook](#)
- [Deaf and Hard of Hearing Student Handbook](#)
- [Disability Related Scholarships](#)
- [Campus Resources](#)
- [Documentation Guidelines](#)
- [Online Resources for Students with Disabilities](#)

Diversity Statement

Regardless of intent, careless or ill-informed remarks can be offensive and hurtful to others and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, contact

- Moises Diaz, Director of Multicultural Student Services (435) 797-1733
<mailto:moises.diaz@usu.edu>;
- James Morales, Vice President of Student Services (435) 797- 1712
james.morales@usu.edu;
- Ann Austin, Vice Provost for Faculty Development and Diversity,
<mailto:ann.austin@usu.edu>;
- Maure Smith, GLBTA Services, <mailto:maure.smith@usu.edu>;
- Steven Russell, Student Advocate (435) 797-1720
<mailto:s.r.@aggiemail.usu.edu>.
- You can learn about your student rights by visiting:
<http://www.usu.edu/student-services/studentcode>.

Grievance Process

Students who feel they have been unfairly treated may file a grievance through the channels and procedures described in the Student Code:

<http://www.usu.edu/student-services/pdf/StudentCode.pdf> - page=3

(Article VII. Grievances, pages 27-36).