DOANE UNIVERSITY

Course Syllabus

Term, Year, Section

Course Information

CHM 206 - Organic Chemistry II
4 Credits
Course Dates/Times - Asynchronous Online

Calendar: 2024-2026

https://web.doane.edu/sites/default/files/2024-06/24-26%20OLA%20Calendar%205.24.pdf

The calendar lists pertinent dates regarding drop and withdrawal dates.

Instructor Information

Name:

Email Address:

Office Hours:

If you need to contact me directly, my preference is that you will email me. Please allow 24 hours for me to respond to emails Monday through Friday and 48 hours on the weekend.

Communicating With the Instructor

When questions arise throughout the course, please remember to check the following resources for an answer before reaching out to me:

1. Course Syllabus
2. Announcements
3. The Question Center discussion board

Question Center Discussion

The Question Center Discussion is a great place for you to ask questions and get answers from your peers and from me. You are encouraged to post your questions here before reaching out directly to me unless it is a time-sensitive matter. If you have questions of a personal nature such as relating to a personal emergency, questioning a grade on an assignment, or something

else that needs to be communicated privately, you are welcome to contact me directly via email or phone.

Response Time

If you need to contact me directly, my preference is that you will email me. Please allow 24 hours for me to respond to emails Monday through Friday and 48 hours on the weekend.
If you have a question about the technology being used in the course, please contact the Doane University Service Center for assistance, their contact information is listed later in the syllabus.

Technology Help

If you have a question about the technology being used in the course, please contact the Doane University Service Center for assistance, their contact information is listed later in the syllabus. If there are third-party tools utilized in the course, please reach out to them directly.

Course Details

Catalog Description

This course will teach students advanced organic reactions, syntheses, mechanistic, and structural studies of organic compounds. Furthermore, students will learn the organic synthesis of proteins and DNA. Through lecture and laboratory, students successfully completing the course will demonstrate an understanding of organic synthesis, organic laboratory skills, and instrumentation, such characterization of unknowns, nuclear magnetic resonance, infrared spectroscopy, chromatography, and mass spectroscopy.

Course Prerequisites

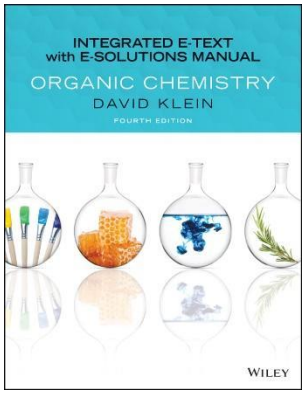
CHEM 205 - Organic Chemistry I

Course Textbook and Materials

E-Book: Organic Chemistry: Integrated with Solutions Manual 4th Edition

Wiley Plus Access (includes textbook, solutions manual, and online assignments)

- Author(s): David R. Klein
- Publisher: Wiley
- eText ISBN : 978-1-119-83026-9



*Course books and materials will be integrated into your Canvas portal

Course Lab

As this is a 4-credit course, you can expect to complete three hands on labs and on virtual lab to fulfill the course requirements. You will sign up through the Doane bookstore to buy a voucher for Science Interactive. Instructions are on Canvas. Please complete the purchase of your lab voucher in the first week of your course so that you do not fall behind and loose points.

Learning Objectives and Course Outline

Program Objectives

1. Demonstrate conceptual understanding and ability to apply fundamental chemical concepts and theory.
2. Effectively communicate scientific concepts, data, results, and arguments through writing.
3. Effectively communicate scientific concepts, data, results, and arguments through presentations.
4. Understand the origin of scientific knowledge and be able to design or/and execute robust chemical experiments to answer valid scientific questions.
5. Represent data appropriately, interpret results, and defend conclusions based on evidence.
6. Demonstrate understanding of and competent use of the tools and experimental techniques of chemistry.
7. Obtain, read, understand and interpret relevant chemical literature.
8. Demonstrate a basic fluency in mathematical reasoning and be able to apply it to chemical systems.

Course Objectives

By the end of the course, you will be able to:

1. Execute detailed organic reaction mechanisms using the push arrow formalism.

2. Predict product outcomes of organic reactions and reaction mechanisms.
3. Propose synthetic routes for product formations.
4. Deduce starting materials based on the products.
5. Apply NMR, IR, MS theory to characterize organic chemistry molecules.
6. Connect organic chemistry concepts to lab experiments and vice versa.
7. Apply hands-on organic chemistry lab techniques and analyze lab results.

Doane Core Connections

These can be found on the Philosophy of the Undergraduate Core at Doane website.

Course Outline

Week	Topic	Assessments & Activities	Aligned Objectives
1	**Alkyne Reactions**	1. Textbook Readings 2. Watching of Instructional Videos 3. Self-Introduction Discussion 4. Wiley Adaptive Learning Assignment 5. Wiley Quiz 6. Science Interactive: Getting Started Lab Safety Lab Kit Inventory	1.1 Discover how to prepare alkynes through elimination reactions. 1.2 Compare different addition reactions to alkenes to that of their alkyne counterparts. 1.3 Utilize reactions learned within this chapter to synthesize new compounds.
2	**Radical Reactions**	1. Textbook Readings 2. Watching of Instructional Videos 3. Discussion 4. Wiley Adaptive Learning Assignment	2.1 Interpret single electron transport mechanisms as we go through the steps of initiation, propagation, and termination. 2.2 Demonstrate the various reactions which utilize radical chemistry. 2.3 Utilize radical halogenation as a starting point in organic synthesis.

		5. Wiley Quiz	
3	**Diels-Alder and 1,2 vs 1,4 Additions**	1. Textbook Readings 2. Watching of Instructional Videos 3. Discussion 4. Wiley Adaptive Learning Assignment 5. Wiley Quiz	3.1 Expand upon previous addition problems to incorporate 1,2 vs 1,4 addition. 3.2 Analyze how different molecular orbital interact in Diels-Alder reactions. 3.3 Compare the likelihood of specific product formation based on substrate functionalization for Diels-Alder reactions.
4	**Aromaticity and Aromatic substitution Reactions**	1. Textbook Readings 2. Watching of Instructional Videos 3. Discussion 4. Wiley Adaptive Learning Assignment 5. Wiley Quiz 6. Virtual Lab: Nuclear Magnetic Resonance	4.1 Distinguish between Aromatic and Antiaromatic compounds. 4.2 Interpret how different functional groups can direct either ortho/para or meta. 4.3 Interpret the various different types of nucleophilic aromatic substitution reactions and classify them by their electrophile.
5	**Alcohols, Ethers, Epoxides and Oxidation/Reduction Reactions**	1. Textbook Readings 2. Watching of Instructional Videos 3. Discussion 4. Wiley Adaptive Learning Assignment 5. Wiley Quiz 6. Hands-on Lab: Hydrolysis of Acetylsalicylic Acid	5.1 Investigate how alcohols and ethers react. 5.2 Investigate how alcohols and ethers lead to carbocation rearrangement. 5.3 Explore various reactions which circumvent the rearrangement process. 5.4 Apply various concepts of organic chemistry

6	**Organometallic reactions and aldehyde and ketones**	1. Textbook Readings 2. Watching of Instructional Videos 3. Wiley Adaptive Learning Assignment 4. Wiley Quiz 5. Hands-on Lab: Synthesis and Analysis of Soap	6.1 Identify how Grignard and organolithium compounds can be used to form Carbon-Carbon bonds. 6.2 Illustrate the process for which carbonyls can become substituted using acid catalyzed functional group formation. 6. 3 Examine how acetals can be used to make inert compounds for functional group protection.
7	**Reactions of Carboxylic acids**	1. Textbook Readings 2. Watching of Instructional Videos 3. Wiley Adaptive Learning Assignment 4. Wiley Quiz 5. Hands-on Lab: Synthesis of Fragrant Esters	7.1. Identify the basic mechanism for which carboxylic acids can be substituted. 7.2 Construct a library of reactions which build off the formation of an acid chloride.
8	**Enolate and carbonyl condensations**	1. Textbook Readings 2. Watching of Instructional Videos 3. Wiley Adaptive Learning Assignment 4. Wiley Quiz 5. Final Exam	8.1 Analyze how enols and enolates form and can be used to directly alkylate or halogenate. 8.2 Predict the products of complex enolate based reactions such as the aldol and Claisen condensation. 8.3 Demonstrate all the steps needed to perform a Robinson annulation.

Course Requirements

This is an online course and there will **not be any face-to-face class sessions**. All communications, submissions of assignments, course interactions, and posting of grades will

utilize Canvas LMS (https://doane.instructure.com). You must have a **reliable internet connection** throughout the duration of the course.

Attendance/Participation

Attendance in an online course means logging into Canvas regularly and participating in all of the activities that are posted in the course. In addition, check your Doane University email account regularly, as I may send important information about the course.

Class Preparation

Preparation for class means reading the assigned readings and reviewing all information required for that module. You should plan to work on this course every day. Regular engagement is expected for online courses.

Netiquette Guidelines

At heart, Netiquette (etiquette for the Internet) is simple, good manners and business courtesy. Some of it may seem basic, but some infringements can result in major problems for others or can create an unintended insult to another user. The guidelines are adapted from The Core Rules of Netiquette by Virginia Shea (1994). For more information, please review the Netiquette Guidelines in the Student Resource Center.

Computer Requirements

For the successful use of Canvas please refer to Doane University's minimum computer requirements. This also includes:

- Reliable computer and internet connection
- A web browser (Chrome or Mozilla Firefox)
- Adobe Acrobat Reader (free)
- Word processing software—Microsoft Word or Google Docs
- Webcam and mic*

*For privacy purposes, use of a webcam is **optional** during video conferencing and recording.

Campus Network or Canvas Outage

When access to Canvas is not available for an extended period of time (greater than one entire evening - 6 pm until 11 pm) you can reasonably expect that the due date for assignments will be changed to the next day.

Drop and Add Dates

If you feel it is necessary to withdraw from the course, please contact your advisor for full details on the types of withdrawals that are available and their procedures.

Federal requirements state that students must complete 75% of the coursework to be eligible to receive an incomplete for the course. If students fall more than two weeks behind, they cannot meet this requirement.

Academic Integrity

Fundamental to our mission, our core values, and our reputation, Doane University adheres to high academic standards. Students of Doane University are expected to conduct themselves in a manner reflecting personal and professional integrity. Disciplinary actions may be taken against students whose academic behavior is not congruent with the expectations of the University. Students are responsible for adhering to the standards detailed in this policy. Not being familiar with these standards does not mean that the students will not be accountable for adherence to them. Additional details on the Academic Integrity policy for violating academic integrity are published in the undergraduate and graduate catalogs. Please review Doane University's Academic Integrity Policy.

Course Specific Academic Integrity (if applicable, otherwise delete)

Describe or list the specifics for this course.

Course Grading

Submitting Assignments

All assignments, unless otherwise communicated to me, must be submitted via Canvas. Each assignment will have a designated place to submit your work. All materials, assignments, and deadlines are subject to change without prior notice. It is your responsibility to stay in touch with me and review the course site, including Announcements, regularly to learn about changes to assignments or due dates.

Grading Scale

Assignment of letter grades is based on a percentage of points earned. The letter grade will correspond with the following percentages achieved. All course requirements must be completed before a grade is assigned.

Grade	Percentage
A+	97-100%
A	93-96%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%

C+	**77-79%**
C	**73-76%**
C-	**70-72%**
D+	**67-69%**
D	**63-66%**
D-	**60-62%**
F	**<60%**

Grading Scheme

The following outlines the weighted breakdown for how grades will be calculated:

Type of Assessment or Activity	**Total possible points (weighted Grade)**
Discussions (4)	15% of Grade
Wiley Plus Adaptive Assignments (8)	25% of Grade
Wiley Plus Adaptive Quizzes (8)	10 % of Grade
Labs (1 virtual, 3 hands-on)	25 % of Grade
Final Exam Wiley Plus	25 %
Total	**100%**

Proctored Assessments:

This course may contains proctored exams, which are **not optional**. For these proctored events, Doane uses a third-part platform, which is a secure, online proctoring service that allows you to complete your exam from any chosen location at any time. Proctoring provides your instructor with the assurance that any suspicious activity by test takers will be monitored and reported. The cost of the proctoring is included in the tuition and fees for this course.

Late or Missed Assignments

All assignments must be completed and turned in to finish the course. Furthermore, all assessment types (assignments, discussions, labs, quizzes, final exam) must be submitted by the

due date to receive credit. Unless you discuss an extension with me before the due date, late submissions will receive zero points.

Assignment & Assessment Feedback

There is no extra credit offered in this course.

Please allow up to one week from date of submission for grades and any feedback the instructor wishes to provide back on written assignments. Be sure to review my feedback, as this will help you reflect on what you have learned while receiving suggestions for improvement.

Grade Appeals

Students who believe that their grade was miscalculated due to a mathematical error should contact the instructor within **ten (10) days of the grade posting**. A student is encouraged to talk with their advisor to offer an assessment of the concern and to clarify the steps of the appeal process. More information is published in the Undergraduate and Graduate Catalogs.

Studying and Preparation Time

The course requires you to spend time preparing and completing assignments. A three-credit course requires 144 hours of student work. Therefore expect to spend approximately 9 hours a week preparing for and actively participating in this week course.

Tutor Me

Students will have access to a free tutor me service within their Canvas account. You can connect with a live free tutor or submit a paper to get feedback before submitting.

Late or Missed Assignments

ALL assignments must be finished and turned in to complete the course. Unless the instructor is notified BEFORE the assignment is due and provides an opportunity for the student to submit his/her assignment late, points may be taken off for a late assignment.

Students are required to complete 75% of the course material in order to receive credit for the course. If students who fall more than two weeks behind, they cannot meet this requirement and will receive a withdrawal (W) for the course if this occurs within the first four weeks of the course. If this happens after the third week students will receive an F for the course.

Submitting Assignments

All assignments, unless otherwise announced by the instructor, MUST be submitted via Canvas. Each assignment will have a designated place to submit the assignment. Support and Services

Technical Support

If you are in need of technical assistance, please access the Self-Service Portal. You may reach the help desk at 402-826-8411 or by email at helpdesk@doane.edu.

Accessibility Statement

In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, professional disability specialists and support staff at Doane University facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities. Doane University staff coordinate student transitions from high schools and community colleges, conduct in-service training for faculty and staff, enable the resolution of accessibility issues, conduct community outreach, and facilitate collaboration among Doane University staff on disability policies, procedures, and accommodations.

Accommodations & Disability Services

Doane University's Disability Services Office will provide guidance on accommodations and universal access. To request accommodations please complete the Self-Identification Form and visit the website for additional information as soon as possible.

Academic Support

Doane University offers all of its students access to Academic Support services.

Title IX Requirements: Mandatory Reporting

At Doane, all university employees, including faculty, are considered Mandatory Reporters. As a Mandatory Reporter, I am required to report incidents of sexual misconduct and relationship violence to the Title IX Coordinator and, thus, cannot guarantee confidentiality. This means that if you tell me about an incident of sexual harassment, sexual assault, domestic violence, dating violence, stalking and/or other forms of prohibited discrimination, I have to share the information with the University's Title IX Coordinator. My report does not mean that you are officially reporting the incident. This process is in place to ensure you have access to and are able to receive the support and resources you need. For additional information, including confidential resources, please visit the Campus Advocacy, Prevention, and Education (CAPE) Project.

Anti-Harassment Policy

Doane University, referred to as the "University", is committed to providing a safe and non-discriminatory learning, living, and working environment for all members of the University community. This policy addresses the University's responsibilities under Title IX, the Violence Against Women Reauthorization Act of 2013, and the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act ("Clery Act"). More information is published in the Student Handbooks.

Instructional Technology Accessibility and Privacy Policies

Technology accessibility and privacy policies are available on the Student Resource Center within the Canvas LMS.

Syllabus Addendum & Disclaimer

I (the instructor) view the course syllabus as an educational contract between myself and each student. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. I reserve the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes via email or in the course site Announcements. Please remember to check your Doane University email and the course site Announcements often.

Syllabus Changes

The instructor and Doane University reserve the right to make changes as necessary to this course syllabus. All students will be notified of any changes.

Syllabus Addendum

Each student is responsible for being aware of the policies, resources, and expectations as specified in the Doane Syllabus Addendum.