

ORGANIC CHEMISTRY II: CHEMISTRY 360 SYLLABUS
SPRING 2019 Course ID=000072, CHEM360-01

Classroom: Langseth 118 Dr. Craig P. Jasperse web: http://www.mnstate.edu/jasperse/ Office: Hagen 407J Telephone: 477-2230 e-mail: jasperse@mnstate.edu	Office Hours: M/W/F 9-10:30, 1:00-2:00, Mon 9-10:30, 1:00-2:00 Tues 10-11:30, 1:00-2:00 Wed 9-10:30, 1:00-2:00 Thurs None, but may be available 12-1:15 Fri 9-10:30, 1:00-2:00
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Required Text and Materials:

- 1) Text: "Organic Chemistry", 8th edition OR 7th edition OR 6th edition, by Wade (Note: if you have a different Wade edition, or a version of Carey's Organic Chemistry as used at NDSU, contact me in order to use what you have.)
Note: These aren't the newest versions, so you can buy used ones cheap on-line. See website for Amazon links to cheap copies: <http://web.mnstate.edu/jasperse/Required%20Text%20and%20Materials.pdf>
- 2) Solutions Manual: "Solutions Manual, Organic Chemistry." Get the edition that matches the textbook edition you buy. (In other words, if you have 8th edition test, make sure you get the 8th edition solution manual, etc.)
- 3) Online "Sapling" homework. <http://www2.saplinglearning.com>

Test Schedule

Test #1 (100 pts) Wednesday, Feb. 13	Ch. 10 Structure and Synthesis of Alcohols Ch. 11 Reactions of Alcohols
Test #2* (50 pts) Wednesday, Feb. 27	Ch. 13 Nuclear Magnetic Resonance Spectroscopy Ch. 12 Infrared Spectroscopy
Test #3 (100 pts) Monday, April 8	Ch. 18 Ketones and Aldehydes Ch. 22 Alpha Substitutions and Condensations of Enols and Enolate
Test #4 (100 pts) Monday, May 6	Ch. 19 Amines Ch. 20 Carboxylic Acids Ch. 21 Carboxylic Acid Derivatives
Final Exam (150 pts) Thursday, May 9, 11:30	Comprehensive (Standardized American Chemical Society Exam)

Grading Summary:

Tests	350 points	Tentative letter grades	
Final exam	150 points	A/A-	≥90%
Sapling online homework	80 points	B-/B/B+	≥80%
Take-Home Quizzes	20 points	C-/C/C+	≥70%
		D-/D/D+	≥56%

(+5 points extra credit possible for perfect attendance)

Note: The instructor may lower but will not raise the numbers required for a letter grade.

Attendance: Perfect attendance will be rewarded with 5 points of extra credit. Be sure to sign the attendance sheet each day!

Final Exam: The final exam will be cumulative, covering the Organic II semester.

Jasperse website: <http://web.mnstate.edu/jasperse/Chem360/Chem360.html> This will provide links to:

Notes for use in class	Recorded Lectures	Extra Practice Sets	Quizzes
Practice Tests	Jasperse Schedule	Textbook Info	Miscellaneous

Book Homework Problems: All assigned book problems are representative of what I consider to be reasonable test-level problems, and have worked-out answers in the Solutions Manual. With solutions manuals available, I will not collect the book homework. After each class, review your notes and try to work all of the assigned book problems for the sections covered. Do all of the assigned end-of-chapter problems as soon as a chapter is completed in class.

On-line “Sapling” homework Problems: You will be required to buy access to an on-line homework system (see later page in syllabus for details.) These problems will be computer-graded, will give you some practice and sometimes tips, and will help to keep you from procrastinating. These also provide some “easy points”, Sapling is partially intended as a “grade lifting” component.

Recorded Lectures and On-Line Availability: Video version of comparable lectures covering comparable material from last year are available. I will try to record and post new videos of this year’s lectures as well. Videos in which I talk through each practice set and practice test problem are also available.

Recorded on-line lectures will be used on Snow Days/Flood Days

Final Exam and Grading

The final exam will be cumulative for this semester. Problems will be similar in style to what you’ve seen throughout the semester. The final exam will be worth 150 points.

Class E-Mail List

An email list will be used to notify you of special scheduling information or other miscellany. (If I am sick and won’t be able to hold class; if there are errors in one of the practice tests or book problems or in something I communicated in class, etc.) The list defaults to your official mnstate e-mail address. If that isn’t what you actually use, contact me.

Course Description

CHEM 360 Survey of Organic Chemistry: Part II (3 credits)

The structure, nomenclature, reactions, reaction mechanisms, and synthesis of carbon compounds that contain oxygen and nitrogen. **Prerequisite:** Chem 350

Note: Organic Chemistry Laboratory II, Chem 365, is a related but separate class. It is not required, but if you want to be in the lab you must be registered for it.

Student Learning Outcomes/Course Objectives

The general outcome goals are that students will understand the structure, characterization, nomenclature, reactions, reaction mechanisms, and synthesis of carbon compounds including those that contain oxygen and/or nitrogen. A general summary of major learning topics is summarized on page 1, with the listing of chapters that will be covered. A more detailed list of learning topics is summarized on page 4, with an approximately day-by-day listing of topic coverage. Most of the learning outcomes will be assessed by problems in which students must demonstrate their understanding. The list of problems on page 3 represents a detailed and representative sampling of the types of problems that should be solvable by a student who has achieved all the learning outcomes.

Academic Honesty

Cheating will not be tolerated and will be reported to the Dean of your College and the Vice President for Academic Affairs. It may also be reported to the Student Conduct Committee for further disciplinary action. For a full description of the MSUM Academic Honesty Policy, please see the Student Handbook. (<http://www.mnstate.edu/sthandbook/POLICY/index.htm>)

Sapling OnLine Homework, version 2019

Re-enrolling for Organic II, if you Paid a 2-semester package fee for Organic I

To register for the course for those who purchased the two semester access, find the Chem 360 Spring course. From there, if you paid the 2-semester access, there should be a button somewhere eventually that says "Use your Sapling Learning Credit to enter the course".

Enrolling if you did not pay for a 2-semester package

1. Go to <http://saplinglearning.com>
2. a. If you already have a Sapling Learning account, log in, click "View Available Courses", then skip to step 3. b. If you have a Facebook account, you can use it to quickly create a SaplingLearning account. Click "create account" located under the username box, then click "Login with Facebook". The form will auto-fill with information from your Facebook account (you may need to log into Facebook in the popup window first). Choose a password and timezone, accept the site policy agreement, and click "Create my new account". You can then skip to step 3. c. Otherwise, click "create account" located under the username box. Supply the requested information and click "Create my new account". Check your email (and spam filter) for a message from Sapling Learning and click on the link provided in that email.
3. Find your course in the list (listed by school, course, and instructor) and click the link.
4. Select your payment options and follow the remaining instructions. **NOTE: There is a 14 day grace period to access your courses before payment, and there is a 60 day refund policy. For more information on refunds, visit:**
<http://www.saplinglearning.com/help/?topic=9>

- Once you have registered and enrolled, you can log in at any time to complete or review your homework assignments.
- During sign up - and throughout the term - if you have any technical problems or grading issues, send an email to support@saplinglearning.com explaining the issue. The Sapling support team is almost always more able (and faster) to resolve issues than your instructor and TAs.

Getting on when you've already enrolled: (see lower down for enrolling at first)

1. Website: <http://www.saplinglearning.com/>
2. Login
3. Click on your class
4. If you click on "Activities and Due Dates" in the upper left corner, that will list assignments.
5. Miscellaneous:
 - After you open an assignment, there is an option to "print" it. I like to write on paper and keep my work so I can study it later, for example. However, this will NOT print the "hints" which are often very helpful.
 - You can try a problem as many times as you like. But the scoring will cost you 5% of the points available (per problem) for each incorrect attempt.
 - **Jaspere can enter due-date extensions.**
 - Take some time with the introduction materials, including the "training assignment" and the "drawing tips and shortcuts" practice problems.
 - You can go back and work on things after they are due. So you can use these as a study tool later on if you wish (or when you're studying for PCAT or whatever....)

Course Summary:

- See: <http://web.mnstate.edu/jasperse/Online/Chem360-CourseSummary.pdf>

Course and Test Learning Objectives:

- See <http://web.mnstate.edu/jasperse/Online/Objectives%20Organic%20Chemistry%20360.pdf>

Use of Other Textbooks:

- See: <http://web.mnstate.edu/jasperse/Chem360/OtherBooks/OtherTexbooks.htm>

Jasperse Normal Schedule:

- See: <http://web.mnstate.edu/jasperse/Online/NormalSchedule.pdf>
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ACCESSIBILITY:

Minnesota State University Moorhead is committed to providing equitable access to learning opportunities for all students and strives to make courses inclusive and accessible in accordance with sections 504 and 508 of the 1973 Rehabilitation Act and the Americans with Disabilities Act. The University will make reasonable accommodations for students with documented disabilities. Accessibility Resources (AR) is the campus office that collaborates with students in need of accommodations and assists in arranging reasonable accommodations.

- If you have, or think you may have, a disability (e.g. mental health, attentional, learning, chronic health, sensory or physical), please contact Accessibility Resources at (218) 477-4318 (V), (800) 627.3529 (MRS/TTY), kari.klettke@mnstate.edu or stop by to schedule an appointment with Kari Klettke, Director, in 154C Flora Frick Hall. Please also contact Accessibility Resources if you are currently registered for accommodations and have any questions or concerns. Additional information is available on the AR website: <http://www.mnstate.edu/accessibility>

MSUM Sexual Violence Policy: Acts of sexual violence are intolerable. MSUM expects all members of the campus community to act in a manner that does not infringe on the rights of others. We are committed to eliminating all acts of sexual violence.

MSUM faculty and staff are concerned about the well-being and development of our students. We are obligated to share information with the MSUM Title IX Coordinator in certain situations to help ensure that the students' safety and welfare is being addressed, consistent with the requirements of the law. These disclosures include but are not limited to reports of sexual assault, relationship violence, and stalking.

If you have experienced or know someone who has experienced sexual violence, services and resources are available. You may also choose to file a report. For further information, contact Lynn Peterson, Coordinator of Sexual Assault Services at Hendrix Clinic and Counseling Center, 218-477-2211, or Ashley Atteberry, Title IX Coordinator in Owens Hall 208 (218-477-2174; ashley.atteberry@mnstate.edu). Additional information is available at: www.mnstate.edu/titleix

ORGANIC CHEMISTRY II PROBLEMS, USING WADE 8

Amazon link, for Used Textbooks and Solutions Manuals (Cheap)

- Organic Chemistry (8th Edition) by L. G. Wade Jr

https://www.amazon.com/s/ref=nb_sb_ss_i_3_18?url=search-alias%3Dstripbooks&field-keywords=wade+organic+chemistry+8th+edition&prefix=Wade+Organic+Chemistry+8th+edition&stripbooks%2C167&crd=EQRKPH7VPDSN

- If you are using a different textbook, for example Wade 7th or 6th edition, or Carey 10th or 9th of 8th edition, see the following links to see which problems are appropriate from those books. If you don't have one of the books on this list, then I don't have a list of problems from your book that are appropriate.

<http://web.mnstate.edu/jasperse/Chem360/Other%20Books-Problems%20and%20Readings%20342/Other%20Books-Problems%20and%20Readings.htm>

Chapter Topic	Wade Chap	Wade 8 Problems In the Chapter	Wade 8 Problems Back of the Chapter
Structure and Synthesis of Alcohols	10	1, 5d, 6, 8, 10, 12a,b,d, 13-16, 17 (esters only), 18-20, 22-26	31, 33a-d, 34b,c, 35a,c, 36b,c, 37 (review from chapter 8), 38a-l, 39, 40, 42, 43
Reactions of Alcohols	11	1a,b,d, 2, 3, 4.1,2, 5a,b, 6, 9, 10, 11, 12a, 13, 14, 22, 23, 26a, 33, 34, 35, 36, 37, 38	40 (do the bromides only), 41 (skip g), 42, 43, 44, 48a, b, c, f, g, h, 49, 50, 52, 53, 56
Nuclear Magnetic Resonance Spectroscopy	13	2, 3, 4, 5, 6, 7, 9, 11, 13a, 15, 16, 18, 22, 24a-e, 25, 27, 29, 30, 32	33, 34, 35 (skip d), 36, 38, 39, 40, 41, 43, 44, 49
Infrared Spectroscopy	12	4, 5	16
Ketones and Aldehydes	18	1a,b, 6, 7, 8, 9, 11, 17a, 18, 20a, 21, 23, 24, 25, 26a,b,d, 27, 28, 29, 30, 31, 32, 33a-d, 34a-c, 36a	38a-c, e-g, l, 39a,e, 40, 41, 43, 44, 47a,c,d, 49, 50a,b,d,e, 51a-f,h, 52, 53a-g, i-l, 54a-e, 55a,c,d,e,f 57, 58, 59, 64a-d, 65
Alpha Substitutions and Condensations of Enols and Enolate	22	(Enols, Halogenation) 1, 2, 3, 5, 10, 11, 12, 13, 14, (Aldol) 18, 19, 22, 23, 24, 25, 26, 27, 28, 29, 30,32, (Claisen) 34a, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, (alkylation-decarboxylation) 46, 47, 49, 50, Ch 18.15, 16 (Wittig)	60, 61, 62, 63, 64, 65, 66 (Basically draw the dicarbonyl precursor), 67, 68 (skip c,g), 69a, d, e, 70, 71, 73a-c
Amines	19	1,2(skip b,d), 3a-c, 5b,c, 6a-c, 15, 16, 17, 26, 27, 28, 30a-c, e-g, 31	32a-e, 33, 35a,c,d 36a, h,i, j,l,m (NaBH(OAc) ₃ = NaBH ₃ CN), p, q, 37f, 39a,d,g, 42
Carboxylic Acids	20	1b-d,g, 2a-c, 3, 4, 5, 6, 11 b,c,d,f, 12, 13, 15b,c, 16a,b, 18, 19, 20, 21, 23, 24	25 (not d,g, i), 26a,b,c,f,g, (IUPAC only), 27a,e,f,h,I, 28, 29 (skip b), 30a,d,e, 31, 32a,c,d, 33, 35a-e,i,j,k, 36a-c,e,f, 37, 38, 39, 41, 42, 44, 47
Carboxylic Acid Derivatives	21	1a-c, 6-14,16, 18, 31, 32a,b	42a-c, 43a,c,d,e,f, 44, 45a,e,f, 46, 47 (saponification is NaOH/H ₂ O hydrolysis), 48a,b, 49a,b,d, e, 50a,b,c,e,f,g,h, j, l, 54a,c,d,f,j, 55, 57a-c

Chemistry 360, Jasperse, Spring 2019 Wade 8 (43 class days, 39 lectures)			Reading Assignment
Date	Topic		
1	14-Jan	Intro; Structure, Nomenclature, Properties, Weak Acidity of Alcohols	10.1-10.6
2	16-Jan	Synthesis of Alcohols; Organometallic Reactions.	10.7-10.9
3	18-Jan	Synthesis of Alcohols; Organometallic Reactions.	10.7-10.9
	21-Jan	No Class. Martin Luther King Day.	no class
4	23-Jan	Side Reactions; Reduction of Carbonyl Compounds	10.10-10.11
5	25-Jan	Oxidation of Alcohols	11.1-11.3
		Skip 10.12	
		Skip 11.4, 11.11-13	
6	28-Jan	Conversion of Alcohols to Tosylates or Halides; Uses of Tosylates and Halides	11.5-11.9
7	30-Jan	Miscellaneous; Chemical Tests; Multistep Synthesis	11.10, 11.14
8	1-Feb	Retrosynthetic Analysis	
9	4-Feb	Catchup, Multistep Synthesis Problems	Catchup
10	6-Feb	Review for Test 1	---
11	8-Feb	¹ H NMR Overview: Chemical Shift, Integration, and Splitting; ¹ H NMR Problem Solving	13.5-8
12	11-Feb	¹ H NMR Overview: Chemical Shift, Integration, and Splitting; ¹ H NMR Problem Solving	13.5-8
T1	13-Feb	Test #1 Covering Chapters 10-11.	Test 1
13	15-Feb	¹ H NMR Problem Solving	13.5-8
14	18-Feb	More Problem Solving; Complex Splitting; Stereochemical Nonequivalence of Protons	13.9-10
15	20-Feb	¹³ C NMR; Infrared Spectroscopy	13.12-13; 12.11-12
16	22-Feb	Spectroscopy Catchup, Integrated Problems	catchup
		(Focus on 13.5-8, 12-13; Skim 13.1-4, 9, 10; Skip 11, 14)	
17	25-Feb	Ketones/Aldehydes. Nomenclature, Properties, Intro.	18.1-7
T2	27-Feb	Test #2 Covering Chapters 12-13. 50 points.	Test 2
18	1-Mar	Synthesis of Ketones/Aldehydes.	18.7-11
	4-Mar	No Class, Spring Break	
	6-Mar	No Class, Spring Break	
	8-Mar	No Class, Spring Break	
19	11-Mar	Reactions of Ketones/Aldehydes	18.12, 14-17, 18-19
20	13-Mar	Carbonyls and Condensation Polymers.	18.20-21
21	15-Mar	Catchup; Enols and Enolates Intro. Acid/Base Considerations; Proton as Electrophile	22.1-2, 22.15
		(Skip 18.13, for now....)	
22	18-Mar	Enols and Enolates Intro. Acid/Base Considerations; Proton as Electrophile	22.1-2, 22.15
23	20-Mar	Halogenation; Alkylation; Double Activation; Ester Hydrolysis; Decarboxylation	22.3, 5, 15-17
24	22-Mar	The Aldol Reaction (Aldehyde/Ketone as Electrophile)	22.7-11
		(Skip 22.4,6, 18, 19)	
25	25-Mar	Claisen Reaction (Ester as Electrophile)	22.12-17
26	27-Mar	Catchup	
27	29-Mar	The Wittig Reaction and Alkene Synthesis; Catchup	18.13
28	1-Apr	Catchup, Integrated Practice Problems.	Catchup
29	3-Apr	Amines. Intro, Nomenclature, Properties; Basicity of Amines; Structural Factors; Salts	19.1-7
30	5-Apr	Reactions of Amines	19.10-13, 17-18
T3	8-Apr	Test #3 Covering Chapters 18 and 22.	
31	10-Apr	Diazonium Chemistry; Amine Synthesis by Reductive Amination of Carbonyls	19.17-19
32	12-Apr	More Synthesis of Amines	19.19
		(Skip 19.8-9,14-16,24-25)	
33	15-Apr	Carboxylic Acids: Nomenclature; Properties; *ACIDITY*; Salts; Soap; SYNTHESIS	20.1-5
34	17-Apr	Acid Synthesis; Reactions	20.8-11
	19-Apr	No Class, Easter Friday	
	22-Apr	No Class, Easter Monday	
35	24-Apr	Reactions of Acids: Nucleophilic Acyl Substitution; Carboxylic Acid Derivatives	20.13-15; 21.1-3
36	26-Apr	Interconversions Among Acids and Derivatives; Synthesis and Mechanism; Catchup	21.5-7
		(Skip 20.6,7,12; Skip 21.4))	
37	29-Apr	Condensation Polymers,	21.5-7
38	1-May	Practice Problems	Practice
39	3-May	Catchup, Practice	Practice
T4	6-May	Test #4 Chapters 19-21	Test 4
	9-May	Final Exam, 11:30am., Thursday	Final Exam