



CHM 2211 ORGANIC CHEMISTRY II

DR. STEFANIE H. HABENICHT
SPRING 2020

The Important Stuff:

Instructor: Dr. Stefanie H. Habenicht

 st.habenicht@chem.ufl.edu

 (352) 273 0550

 Sisler 329A

Class Time/Location: Flint 0050.

Class # 11418:

MWF: 3:00 p.m. – 3:50 p.m. (8th period)

Class # 11420:

T: 1:55 p.m. – 2:45 p.m. (7th period)

3:00 p.m. – 3:50 p.m. (8th period)

R: 3:00 p.m. – 3:50 p.m. (8th period)

About This Course: The second half of the CHM 2210/CHM 2211 sequence intended for majors and preprofessional students. A study of the structures, syntheses and reactions of organic compounds.

We will build on the foundation laid in CHM2210 as we learn about spectroscopy and the structure and reactivity of organometallic compounds, aldehydes/ketones, carboxylic acids & their derivatives, enolate anions & enamines, conjugated dienes, benzene & its derivatives, and amines.

Prerequisite: CHM2010 or CHM2212.

Corequisite: CHM2211L.

Required:

Brown, Iverson, Anslyn and Foote, *Organic Chemistry*, 8th Edition, eBook or print (Cengage Learning; ISBN: 978-1-305-85035-0)

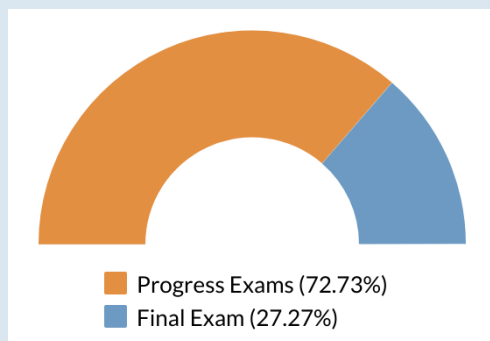


Recommended:

Iverson, *Organic Chemistry, Student Study Guide and Solutions Manual*, 8th Edition (Cengage Learning; ISBN: 978-1-305-86450-4)

Where to Buy: [Publisher's Website](#)

Assignments and Grades:



Four progress exams (100 points each, 8:20 p.m. – 9:50 p.m.) will be given in assembly. Each exam will be cumulative, but will emphasize the material covered following the previous exam. Dates: Jan 29th, Feb 26th, Mar 23rd, Apr 14th.

The **Final Exam** is worth 150 points, is cumulative and will be given on Apr 25th, 8:00 p.m. – 10:00 p.m.

Your grade will be calculated out of 550 total points and the following grading scale will be used:

A: ≥ 93%, **A-:** ≥ 90 %

B+: ≥ 87%, **B:** ≥ 82 %, **B-:** ≥ 78%

C+: ≥ 72%, **C:** ≥ 65%, **C-:** ≥ 60%

D+: ≥ 55%, **D:** ≥ 50%, **D-:** ≥ 45%

E: < 45%

The instructor reserves the right to change the grading scale at any time during the semester.

Bring and display your student ID for all exams.

Quick Access:

Canvas Home:



Office Hours:



Assignments:



Homework:



Resources:



Tentative Course Schedule – Class # 11418 (MWF):

Date	Chapters: Topics
M 1/6	13: Introduction, Nuclear Magnetic Resonance
W 1/8	13: The ^1H -NMR spectrum (signal number & area, equivalent Hs)
F 1/10	13: ^1H -NMR (chemical shift, spin-spin coupling, coupling constants)
M 1/13	13: the ^{13}C -NMR spectrum, examples
W 1/15	15: Organometallic Compounds (Grignard, Organolithium, Gilman, Epoxide Opening)
F 1/17	15: Carbenes and Carbenoids
M 1/20	Martin Luther King Jr. Day – no class!
W 1/22	16: Aldehydes & Ketones (naming, addition of carbon nucleophiles)
F 1/24	16: Addition of carbon nucleophiles (cont'd), Wittig reaction
M 1/27	16: HWE reaction, addition of oxygen nucleophiles
W 1/29	Progress Exam 1 (8:20 p.m. – 9:50 p.m., room assignments will be posted in Canvas) – no class!
F 1/30	16: Addition of oxygen nucleophiles (cont'd), acetals as protecting groups, synthesis examples
M 2/3	16: Addition of nitrogen nucleophiles, keto-enol-tautomerism,
W 2/5	16: Oxidation, reduction, α -carbon chem.
F 2/7	17: Carboxylic acids (naming: DIY, structure & acidity, preparation)
M 2/10	17: Reduction, esterification, decarboxylation
W 2/12	18: Functional Derivatives of Carboxylic Acids (reactivity trends)
F 2/14	18: Reaction with water (hydrolysis)
M 2/17	18: Reaction with water (cont'd), reaction with alcohols
W 2/19	18: Reaction with alcohols (cont'd), anhydride formation
F 2/21	18: Reactions with organometallic compounds, reduction
M 2/24	19: Enolate Anions (formation, alkylation), acidity of α -hydrogens
W 2/26	Progress Exam 2 (8:20 p.m. – 9:50 p.m., room assignments will be posted in Canvas) – no class!
F 2/28	19: Aldol condensation & Henry reaction
M 3/2 – F 3/6	Spring Break!
M 3/9	19: Claisen & Dieckmann condensations, hydrolysis & decarboxylation of β -ketoesters
W 3/11	19: Enamines (alkylation & acylation), Michael addition
F 3/13	19: Robinson annulation, crossed enolate reactions using LDA
M 3/16	20: Dienes & Conjugated Systems (stability, molecular orbitals)
W 3/18	23: Molecular orbitals (cont'd), electrophilic addition
F 3/20	20: Pericyclic Reaction Theory, Diels-Alder Reaction (overview)
M 3/23	Progress Exam 3 (8:20 p.m. – 9:50 p.m., room assignments will be posted in Canvas) – no class!
W 3/25	20: Diels-Alder reaction (details & examples)
F 3/27	21: Benzene & Aromaticity (structure & stability of benzene, concept of aromaticity, examples)
M 3/30	21: π -MOs of cyclic conjugated systems; aromatic & antiaromatic hydrocarbons
W 4/1	21: Heterocyclic aromatic compounds, aromatic hydrocarbon ions, phenols, rxns at a benzylic pos.
F 4/3	22: Reactions of Benzene and Its Derivatives (EAS: halogenation, nitration)
M 4/6	22: EAS (sulfonation, alkylation, acylation)
W 4/8	22: Activating/deactivating effects
F 4/10	22: Substitution of disubstituted benzenes, nucleophilic aromatic substitution
M 4/13	Informal Review (Synthesis)
T 4/14	Progress Exam 4 (8:20 p.m. – 9:50 p.m., room assignments will be posted in Canvas)
W 4/15	No class!
F 4/17	23: Amines (naming: DIY, structure, basicity, aliphatic amines, aromatic amines)
M 4/20	23: Preparation of amines (alkylation of ammonia/amines and azide anions), rxns with nitrous acid
W 4/22	23: Hofmann elimination, Cope elimination
S 4/25	Final Exam (8:00 p.m. – 10:00 p.m., room assignments will be posted in Canvas)

A list of recommended end-of-chapter problems and additional worksheets will be posted in Canvas.

Tentative Course Schedule – Class # 11420 (TR):

Date	Chapters: Topics
T 1/7	Introduction 13: Nuclear Magnetic Resonance, the ^1H -NMR spectrum (signal number & area, equivalent Hs)
R 1/9	13: ^1H -NMR (chemical shift, spin-spin coupling, coupling constants)
T 1/14	13: The ^{13}C -NMR spectrum, examples 15: Organometallic Compounds (Grignard, Organolithium, Gilman, Epoxide Opening)
R 1/16	15: Carbenes and Carbenoids
T 1/21	16: Aldehydes & Ketones (naming, addition of carbon nucleophiles, Wittig reaction)
R 1/23	16: HWE reaction, addition of oxygen nucleophiles
T 1/28	No class!
W 1/29	Progress Exam 1 (8:20 p.m. – 9:50 p.m., room assignments will be posted in Canvas)
R 1/30	16: Addition of oxygen nucleophiles (cont'd), acetals as protecting groups, synthesis examples
T 2/4	16: Addition of nitrogen nucleophiles, keto-enol-tautomerism, oxidation, reduction, α -carbon chem.
R 2/6	17: Carboxylic acids (naming: DIY, structure & acidity, preparation)
T 2/11	17: Reduction, esterification, decarboxylation 18: Functional Derivatives of Carboxylic Acids (reactivity trends)
R 2/13	18: Reaction with water (hydrolysis)
T 2/18	18: Reaction with water (cont'd), reaction with alcohols, anhydride formation
R 2/20	18: Reactions with organometallic compounds, reduction
T 2/25	19: Enolate Anions (formation, alkylation), acidity of α -hydrogens – 7th period only
W 2/26	Progress Exam 2 (8:20 p.m. – 9:50 p.m., room assignments will be posted in Canvas)
R 2/27	19: Aldol condensation & Henry reaction
T 3/3 R 3/5	Spring Break!
T 3/10	19: Claisen & Dieckmann condensations, hydrolysis & decarboxylation of β -ketoesters, enamines (alkylation & acylation), Michael addition
R 3/12	19: Robinson annulation, crossed enolate reactions using LDA
T 3/17	20: Dienes & Conjugated Systems (stability, molecular orbitals, electrophilic addition)
R 3/19	20: Pericyclic Reaction Theory, Diels-Alder Reaction (overview)
M 3/23	Progress Exam 3 (8:20 p.m. – 9:50 p.m., room assignments will be posted in Canvas)
T 3/24	20: Diels-Alder reaction (details & examples) – 7th period only
R 3/26	21: Benzene & Aromaticity (structure & stability of benzene, concept of aromaticity, examples)
T 3/31	21: π -MOs of cyclic conjugated systems; aromatic & antiaromatic hydrocarbons, heterocyclic aromatic compounds, aromatic hydrocarbon ions, phenols, rxns at a benzylic pos.
R 4/2	22: Reactions of Benzene and Its Derivatives (EAS: halogenation, nitration)
T 4/7	22: EAS (sulfonation, alkylation, acylation), activating/deactivating effects
R 4/9	22: Substitution of disubstituted benzenes, nucleophilic aromatic substitution
T 4/14	Informal Review (Synthesis) – 7th period only
T 4/14	Progress Exam 4 (8:20 p.m. – 9:50 p.m., room assignments will be posted in Canvas)
R 4/16	23: Amines (naming: DIY, structure, basicity, aliphatic amines, aromatic amines)
T 4/21	23: Preparation of amines (alkylation of ammonia/amines and azide anions), rxns with nitrous acid, Hofmann elimination, Cope elimination
S 4/25	Final Exam (8:00 p.m. – 10:00 p.m., room assignments will be posted in Canvas)

A list of recommended end-of-chapter problems and additional worksheets will be posted in Canvas.

Other Important Stuff and Policies:

A Piece of Advice: Do not miss class. Make your own set of notes during lecture in each class. Rewrite your notes as part of your study plan. Keep up with the course and you will be in good shape. Try and allow at least 2 hours **per day** (6 days a week) to study, work the problems and read the book chapters. You can find additional practice problems, quizzes and exams on the internet. Do not wait until the last minute to ask for help – use the office hours. Organic chemistry is a challenging course, but it is completely manageable if you **work hard and practice!**

Homework will not be collected or graded. It is your responsibility to work the end-of-chapter problems (see Canvas) and read the book – this is essential for being successful in the course and will help you on the exams. Don't turn to the solutions manual immediately! Understanding a given solution is not the same as finding it yourself!

Contacting the Instructor/Office Hours: Emails are for administrative purposes only, and **not for distance-instruction**. All academic inquiries must be made during office hours or before/after lectures (if time permits). If this is not possible, visit the OCLC (see below). Be prepared before coming to office hours, bring specific questions and your previous work. Questions about grades will not be discussed during office hours due to privacy regulations.

Organic Chemistry Learning Center (OCLC): Graduate teaching assistants are available M – F (~ 9:00 a.m. – 4:00 p.m.) in JHH 205 (OCLC). A schedule will be posted as soon as it becomes available. Additional tutoring is available at the Broward Teaching Center (<https://teachingcenter.ufl.edu/>).

eLearning Website (Canvas): <http://elearning.ufl.edu/> (updated regularly with announcements, exam scores and information, worksheets, handouts, and lecture notes). It is your responsibility to check Canvas often to make sure that you do not miss important announcements and to ensure that your gradebook is accurate. For computer assistance, visit <http://helpdesk.ufl.edu/>.

Attendance and Classroom Etiquette: You are expected to come to class and be there on time. Be respectful of others. Make sure your cell phone does not ring during class. The use of electronic devices for any non-course related activities is prohibited during lectures/exams without consent of the instructor (note taking tablets are permitted). Audio-recording is permitted, but video recording and/or taking pictures is strictly prohibited. Failure to comply is a direct violation of the Student Honor Code (disruptive conduct) and may result in your dismissal from the classroom.

Grades will be assigned in accordance with University policy: (<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>).

Exam Absence Policy: This course administers all conflicts with scheduled exams in accord with the University policy (<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>). University recognized conflicts include, but are not limited to, religious observances, participation in official university activities, military obligations, and court-imposed legal obligations. Students will be given the opportunity to take a *conflict exam*, which will be given shortly *before* the scheduled exam provided that

the conflict is a) properly documented and b) disclosed to the Instructor **at least one week before** the scheduled exam.

Unpredicted absences due to medical or sudden family emergencies are not covered under the above conflict exam policy. A student who is absent for an exam due to one of the reasons listed above must contact the instructor as soon as they are able, and must submit documentation to the Dean of Students Office (<https://care.dso.ufl.edu/instructor-notifications/>). Once the instructor is satisfied with the validity of the documentation, a make-up exam will be scheduled after a reasonable amount of time, *i.e.*, before the end of the semester. If the student's documentation is deemed insufficient to excuse the absence, a score of zero will be assigned for the missed exam. Exams missed without any documentation will be assigned a score of zero.

Exam Regrades: If you have a question concerning the grading of an exam, you may submit it for regrading. Once submitted, the **entire exam** will be regraded to ensure accuracy and your score may increase or decrease accordingly. All exam grading inquiries must be submitted in writing to Dr. Habenicht by the student no later than **one week** from the date that the exams are returned to the class. Staple the cover sheet provided in Canvas to the exam, briefly describe the perceived grading error and bring your exam to class or to Dr. Habenicht's office hours. Questions regarding grades/grading are not accepted by e-mail. Please note that your exams will be photocopied prior to being returned to you.

Conflict & Makeup Exam Schedule:

Conflict and makeup exam dates and times will be announced in Canvas.

Standard Syllabus Statements:

Faculty Evaluations: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Other Important Information:

- **Disability Resources:** Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.
- **Division of Student Affairs (Counseling, Dean of Students Office):** <http://www.ufsa.ufl.edu/>
- **UF Grades and Grading Policies:** <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>
- **Lose or find something during class?** Visit the Chemistry lost-and-found (Leigh Hall 218).
- **Need help adding or dropping this class?** Contact a Chemistry undergraduate advisor here: <https://www.chem.ufl.edu/undergraduate/academic-advisors/>
- Your well-being is important to the University of Florida. The U Matter, We Care initiative (<http://www.umatter.ufl.edu/>) is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

The UF Student Honor Code (see <http://regulations.ufl.edu/wp-content/uploads/2018/06/4.040-1.pdf>): *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

Honor Code violations include, but are not limited to, copying on an exam (or helping another student to copy) and/or turning in an exam for regrading that has been changed since it was graded by the instructor.

Any student found responsible for an academic honesty violation will receive a zero (0) for the compromised exam.