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Department of Chemistry

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October 19, 2007

Kathleen M. Hallihan, Ph.D.
Director, Curriculum and Assessment
Colleges of the Arts and Sciences
CAMPUS

Dear Kathleen:

The Department of Chemistry requests to make some changes to the Chemistry 251, 252 and 253 (Organic Chemistry lecture) courses, and with the change to become effective in Autumn 2008. The changes for these courses are derived from a variety of pedagogical needs of the department, especially with regard to our efforts to incorporate research-oriented modules throughout the curriculum (as part of our NSF-funded Research Experiences to Enhance Learning (REEL) effort in STEM).

Currently students are only exposed to spectroscopic interpretation of organic structure in Chemistry 253, but that course is not a pre-requisite for taking any of the organic laboratory courses. Hence, it is difficult, if not impossible, to use spectroscopy in learning modules in the organic labs. Furthermore, each and every organic chemistry textbook presents spectroscopy around chapters 11–13, and if these chapters are skipped (as we currently do for 252), then there is an adverse impact on student learning and instructor teaching due to the textbook organization. Therefore, our structural changes for 251–253 provide for spectroscopy to be taught in Chemistry 252 so that students who take the Chemistry 255 organic chemistry laboratory course will be able to utilize spectroscopy for a REEL research module. The revised chapter coverage for 251–253 demonstrate these changes, and also allow for a more linear coverage of the chapter material in the organic chemistry textbooks, further improving pedagogical impact on the students. Finally, the organic faculty have long received complaints from students that Chemistry 251–253 are not 3-credit courses. Indeed, the courses have always had three 1-hour lectures by the faculty instructor and one 1-hour recitation, so there are 4 contact hours for these courses. Many students take too many concurrent courses with the organic lecture class in order to be full-time students, and this aspect adversely affects their academic performance in all of their courses, and especially organic lecture. Therefore, we further propose to change the credit hours to 4 for each of the Chemistry 251, 252 and 253 courses.

Sincerely,

Christopher M. Hadad
Professor of Chemistry
Acting Chair and Vice Chair for Undergraduate Studies

The Ohio State University
Colleges of the Arts and Sciences Course Change Request

Chemistry

Academic Unit

Organic Chemistry

CHEM 251

Book 3 Listing (e.g., Portuguese)

Course Number

Summer Autumn X Winter Spring Year 2008

Proposed effective date, choose one quarter and put an "X" after it; and fill in the year. See the OAA curriculum manual for deadlines.

A. Course Offerings Bulletin Information. Follow instructions in the OAA curriculum manual. Before you fill out the "Present Course" information, be sure to check the latest edition of the *Course Offerings Bulletin* and subsequent *Circulating Forms*. You may find that the changes you need have already been made or that additional changes are needed. If the course offered is less than quarter or term, please also complete the Flexibly Scheduled/OffCampus/Workshop Request form.

COMPLETE ALL ITEMS THIS COLUMN

Present Course

1. Book 3 Listing: 251 Organic Chemistry

2. Number: CHEM 251

3. Full Title: Organic Chemistry

4. 18-Char. Transcript Title: ORGANIC CHEM 251

5. Level and Credit Hours Undergraduate 03

6. Description: Structure, nomenclature, physical properties, (25 words or less) preparation, and reactions of hydrocarbons, alcohols, and ethers.

7. Qtrs. Offered : Au, Wi,

8. Distribution of Contact Time: (4 cl, 3-1hr lecture, 1-1hr recitation. (e.g., 3 cl, 1 3-hr lab)

9. Prerequisite(s): 123 or H203

10. Exclusion: (Not open to....)

11. Repeatable to a maximum of _____ credits.

12. Off-Campus Field Experience:

13. Cross-listed with:

14. Is this a GEC course?

15. Grade option (circle): Ltr S/U P
If P graded, what is the last course in the series?

16. Is an honors version of this course available? Yes

17. Other general course information:

COMPLETE ONLY THOSE ITEMS THAT CHANGE

Changes Requested

1. _____

2. _____

3. _____

4. _____

5. Level and Credit Hours Undergraduate 04

6. Introduction to structure, nomenclature, physical properties, preparation and reactions of alkanes, alkenes, alkynes, alcohols, ethers, epoxides. Other selected topics include stereochemistry, acids and bases, and reaction mechanisms,

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

B. General Information

1. Do you want the prerequisites enforced electronically (see the OAA manual for what can be enforced)?
Yes

2. Does this course currently satisfy any GEC requirement, if so indicate which category?
No

3. What other units require this course? Have these changes been discussed with those units?
AHR,AGR,AMP,ART,ASC,BIO,BUS,CED,EHE,ENG,EXP,GRD,HUM,MPS,NUR,PHR,SBS

4. Have these changes been discussed with academic units that might have a jurisdictional interest in the subject matter? Attach relevant letters.
NO

5. Is the request contingent upon other requests, if so, list the requests?
CHEM 252, CHEM 253

6. Purpose of the proposed change. (If the proposed change affects the content of the course, attach a revised syllabus and course objectives.)

To update course content and provide an increased understanding of organic chemistry. To increase course overlap with the organic laboratory courses CH 245, 246, 254, 255 that will benefit the students learning in both classes. This change will have pedagogically benefits to the students understanding of organic chemistry and provide cohesive instruction and research experiences. To receive the correct amount of credit per contact time in the course.

7. Describe any changes in library, equipment or other teaching aids needed as a result of the proposed change.

8. If the proposed change involves budgetary adjustments, describe the method of funding:

Approval Process The signatures or actions on the lines in ALL CAPS (e.g. ACADEMIC UNIT) are required.

1.  CHRISTOPHER M. HADDAD 10/15/07
Academic Unit Undergraduate Studies Committee Chair Printed Name Date

2. _____
Academic Unit Graduate Studies Committee Chair Printed Name Date

3.  CHRISTOPHER M. HADDAD 10/15/07
ACADEMIC UNIT CHAIR/DIRECTOR Printed Name Date

4. AFTER THE ACADEMIC UNIT CHAIR/DIRECTOR SIGNS THE REQUEST, FORWARD IT TO THE COLLEGES OF THE ARTS AND SCIENCES CURRICULUM OFFICE, 161 DENNEY HALL, 164 WEST 17TH AVENUE. THE ASC CURRICULUM OFFICE WILL FORWARD THE REQUEST TO THE APPROPRIATE COLLEGE CURRICULUM COMMITTEE.

5. _____
COLLEGE CURRICULUM COMMITTEE Printed Name Date

6. _____
ARTS AND SCIENCES EXECUTIVE DEAN Printed Name Date

7. _____
Graduate School (if appropriate) Printed Name Date

8. _____
University Honors Center (if appropriate) Printed Name Date

9. _____
Office of International Affairs (study tours only) Printed Name Date

10. _____
ACADEMIC AFFAIRS Printed Name Date

The Ohio State University
Colleges of the Arts and Sciences Course Change Request

Chemistry

Academic Unit

Organic Chemistry

CHEM 252

Book 3 Listing (e.g., Portuguese)

Course Number

Summer Autumn Winter X Spring Year 2008

Proposed effective date, choose one quarter and put an "X" after it; and fill in the year. See the OAA curriculum manual for deadlines.

A. Course Offerings Bulletin Information. Follow instructions in the OAA curriculum manual. Before you fill out the "Present Course" information, be sure to check the latest edition of the *Course Offerings Bulletin* and subsequent Circulating Forms. You may find that the changes you need have already been made or that additional changes are needed. If the course offered is less than quarter or term, please also complete the Flexibly Scheduled/OffCampus/Workshop Request form.

COMPLETE ALL ITEMS THIS COLUMN

Present Course

1. Book 3 Listing: 252 Organic Chemistry
2. Number: CHEM 252
3. Full Title: Organic Chemistry
4. 18-Char. Transcript Title: ORGANIC CHEM 252
5. Level and Credit Hours Undergraduate 03
6. Description: Chemistry of carbonyl compounds, acids and their derivatives, amines and aromatic compounds, (25 words or less)
7. Qtrs. Offered : Wi, Sp
8. Distribution of Contact Time: (4 cl, 3-1hr lecture, 1-1hr recitation)
(e.g., 3 cl, 1 3-hr lab)
9. Prerequisite(s): 251
10. Exclusion:
(Not open to....)
11. Repeatable to a maximum of _____ credits.
12. Off-Campus Field Experience:
13. Cross-listed with:
14. Is this a GEC course?
15. Grade option (circle): Ltr S/U P
If P graded, what is the last course in the series?
16. Is an honors version of this course available? Yes
17. Other general course information:

COMPLETE ONLY THOSE ITEMS THAT CHANGE
Changes Requested

1. _____
2. _____
3. _____
4. _____
5. Level and Credit Hours Undergraduate 04
6. Chemistry of conjugated systems, aromatics, aldehydes, ketones, carboxylic acids, organometallic chemistry, radical reactions. Spectroscopic methods of organic chemistry including mass spectrometry, infrared spectroscopy, nuclear magnetic resonance spectroscopy.
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____

B. General Information

1. Do you want the prerequisites enforced electronically (see the OAA manual for what can be enforced)?
Yes

2. Does this course currently satisfy any GEC requirement, if so indicate which category?
No

3. What other units require this course? Have these changes been discussed with those units?
AHR,AGR,AMP,ART,ASC,BIO,BUS,CED,EHE,ENG,EXP,GRD,HUM,MPS,NUR,PHR,SBS

4. Have these changes been discussed with academic units that might have a jurisdictional interest in the subject matter? Attach relevant letters.
No

5. Is the request contingent upon other requests, if so, list the requests?
CHEM 251, CHEM 253

6. Purpose of the proposed change. (If the proposed change affects the content of the course, attach a revised syllabus and course objectives.)
To update course content and provide an increased understanding of organic chemistry. To increase course overlap with the organic laboratory courses CH 245, 246, 254, 255 that will benefit the students learning in both classes. This change will have pedagogically benefits to the students understanding of organic chemistry and provide cohesive instruction and research experiences. To receive the correct amount of credit per contact time in the course.

7. Describe any changes in library, equipment or other teaching aids needed as a result of the proposed change.

8. If the proposed change involves budgetary adjustments, describe the method of funding:

Approval Process The signatures or actions on the lines in ALL CAPS (e.g. ACADEMIC UNIT) are required.

1.  CHRISTOPHER HADAD 10/15/07
Academic Unit Undergraduate Studies Committee Chair Printed Name Date

2. _____ Printed Name Date

3.  CHRISTOPHER HADAD 10/15/07
ACADEMIC UNIT CHAIR/DIRECTOR Printed Name Date

4. AFTER THE ACADEMIC UNIT CHAIR/DIRECTOR SIGNS THE REQUEST, FORWARD IT TO THE COLLEGES OF THE ARTS AND SCIENCES CURRICULUM OFFICE, 161 DENNEY HALL, 164 WEST 17TH AVENUE. THE ASC CURRICULUM OFFICE WILL FORWARD THE REQUEST TO THE APPROPRIATE COLLEGE CURRICULUM COMMITTEE.

5. _____ Printed Name Date

6. ARTS AND SCIENCES EXECUTIVE DEAN Printed Name Date

7. Graduate School (if appropriate) Printed Name Date

8. University Honors Center (if appropriate) Printed Name Date

9. Office of International Affairs (study tours only) Printed Name Date

10. ACADEMIC AFFAIRS Printed Name Date

The Ohio State University
Colleges of the Arts and Sciences Course Change Request

Chemistry

Academic Unit

Organic Chemistry

CHEM 253

Book 3 Listing (e.g., Portuguese)

Course Number

Summer Autumn Winter Spring X Year 2008

Proposed effective date, choose one quarter and put an "X" after it; and fill in the year. See the OAA curriculum manual for deadlines.

A. Course Offerings Bulletin Information. Follow instructions in the OAA curriculum manual. Before you fill out the "Present Course" information, be sure to check the latest edition of the *Course Offerings Bulletin* and subsequent Circulating Forms. You may find that the changes you need have already been made or that additional changes are needed. If the course offered is less than quarter or term, please also complete the Flexibly Scheduled/OffCampus/Workshop Request form.

COMPLETE ALL ITEMS THIS COLUMN

Present Course

1. Book 3 Listing: 253 Organic Chemistry
2. Number: CHEM 253
3. Full Title: 253 Organic Chemistry
4. 18-Char. Transcript Title: ORGANIC CHEM 253
5. Level and Credit Hours Undergraduate 03
6. Description: Selected topics in organic chemistry such as: carbohydrates, amino acids, nucleic acid, spectroscopic methods, polymers and molecular orbital theory.
(25 words or less)
7. Qtrs. Offered : Su, Au, Sp
8. Distribution of Contact Time: (4 cl, 3-1hr lecture, 1-1hr recitation)
(e.g., 3 cl, 1 3-hr lab)
9. Prerequisite(s): 252
10. Exclusion:
(Not open to...)
11. Repeatable to a maximum of _____ credits.
12. Off-Campus Field Experience:
13. Cross-listed with:
14. Is this a GEC course?
15. Grade option (circle): Ltr S/U P
If P graded, what is the last course in the series?
16. Is an honors version of this course available? Yes
17. Other general course information:

COMPLETE ONLY THOSE ITEMS THAT CHANGE

Changes Requested

1. _____
2. _____
3. _____
4. _____
5. Level and Credit Hours Undergraduate 04
6. Introduction to the chemistry of aldehydes and ketons, derivatives of carboxylic acids, substitution reactions of carbonyl compound, amines, carbon-carbon bond forming reactions and polymers. Also an introduction to the chemistry of biomolecules such as carbohydrates, amino acids, nucleic acids, and lipids.
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____

B. General Information

1. Do you want the prerequisites enforced electronically (see the OAA manual for what can be enforced)?

Yes

2. Does this course currently satisfy any GEC requirement, if so indicate which category?

No

3. What other units require this course? Have these changes been discussed with those units?

AHR,AGR,AMP,ART,ASC,BIO,BUS,CED,EHE,ENG,EXP,GRD,HUM,MPS,NUR,PHR,SBS, YES

4. Have these changes been discussed with academic units that might have a jurisdictional interest in the subject matter? Attach relevant letters.

YES

5. Is the request contingent upon other requests, if so, list the requests?

CHEM 251, CHEM 252



6. Purpose of the proposed change. (If the proposed change affects the content of the course, attach a revised syllabus and course objectives.)

To update course content and provide an increased understanding of organic chemistry. To increase course overlap with the organic laboratory courses CH 245, 246, 254, 255 that will benefit the students learning in both classes. This change will have pedagogically benefits to the students understanding of organic chemistry and provide cohesive instruction and research experiences. To receive the correct amount of credit per contact time in the course.

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2.	Academic Unit Graduate Studies Committee Chair	Printed Name	Date
3.	 ACADEMIC UNIT CHAIR/DIRECTOR	CHRISTOPHER HADDAD Printed Name	10/15/07 Date
4.	AFTER THE ACADEMIC UNIT CHAIR/DIRECTOR SIGNS THE REQUEST, FORWARD IT TO THE COLLEGES OF THE ARTS AND SCIENCES CURRICULUM OFFICE, 161 DENNEY HALL, 164 WEST 17TH AVENUE. THE ASC CURRICULUM OFFICE WILL FORWARD THE REQUEST TO THE APPROPRIATE COLLEGE CURRICULUM COMMITTEE.		
5.	COLLEGE CURRICULUM COMMITTEE	Printed Name	Date
6.	ARTS AND SCIENCES EXECUTIVE DEAN	Printed Name	Date
7.	Graduate School (if appropriate)	Printed Name	Date
8.	University Honors Center (if appropriate)	Printed Name	Date
9.	Office of International Affairs (study tours only)	Printed Name	Date
10.	ACADEMIC AFFAIRS	Printed Name	Date

Curriculum Comparison for Chemistry 251, 252, 253

Current CH 251

Chapter 1 – Structure and Bonding
Chapter 2 – Acids and Bases
Chapter 3 – Introduction to Organic Molecules
Chapter 4 - Alkanes
Chapter 5 – Stereochemistry
Chapter 6 – Understanding Organic Reactions
Chapter 7 – Alkyl Halides and Nucleophilic Substitution
Chapter 8 – Alkyl Halides and Elimination Reactions
Chapter 9 – Alcohols, Ethers and Epoxides
Chapter 10 – Alkenes
Chapter 11 – Alkynes

Current CH 252

Chapter 12 – Oxidation and Reduction
Chapter 15 – Radical Reactions
Chapter 16 – Conjugation, Resonance and Dienes
Chapter 17 – Benzene and Aromatic Compounds
Chapter 18 - Electrophilic Aromatic Substitution
Chapter 19 – Carboxylic Acids and the Acidity of the OH bonds
Chapter 20 – Introduction to Carbonyl Chemistry: Organometallic Reagents, Oxidation and Reduction
Chapter 21 – Aldehydes and Ketones – Nucleophilic Addition
Chapter 22- Carboxylic Acids and Their Derivatives – Nucleophilic Acyl Substitution
Chapter 25 – Amines

Current CH 253

Chapter 13 – Mass Spectrometry and Infrared Spectroscopy
Chapter 14 – Nuclear Magnetic Resonance Spectroscopy
Chapter 23 – Substitution Reactions of Carbonyl Compounds at the alpha carbon
Chapter 24 – Carbonyl Condensation Reaction
Chapter 26 – Carbon-Carbon Bond-Forming Reaction in Organic Synthesis
Chapter 27 – Carbohydrates
Chapter 28 – Amino Acids and Proteins
Chapter 29 – Lipids
Chapter 30 – Synthetic Polymers

Modified CH 251

Chapter 1 – Structure and Bonding
Chapter 2 – Acids and Bases
Chapter 3 – Introduction to Organic Molecules
Chapter 4 - Alkanes
Chapter 5 – Stereochemistry
Chapter 6 – Understanding Organic Reactions
Chapter 7 – Alkyl Halides and Nucleophilic Substitution
Chapter 8 – Alkyl Halides and Elimination Reactions
Chapter 9 – Alcohols, Ethers and Epoxides
Chapter 10 – Alkenes
Chapter 11 – Alkynes

Modified CH 252

Chapter 12 – Oxidation and Reduction
Chapter 13 – Mass Spectrometry and Infrared Spectroscopy
Chapter 14 – Nuclear Magnetic Resonance Spectroscopy
Chapter 15 – Radical Reactions
Chapter 16 – Conjugation, Resonance and Dienes
Chapter 17 – Benzene and Aromatic Compounds
Chapter 18 - Electrophilic Aromatic Substitution
Chapter 20 – Introduction to Carbonyl Chemistry: Organometallic Reagents, Oxidation and Reduction
Chapter 21 – Aldehydes and Ketones – Nucleophilic Addition

Modified CH 253

Chapter 19 – Carboxylic Acids and the Acidity of the OH bonds
Chapter 22- Carboxylic Acids and Their Derivatives – Nucleophilic Acyl Substitution
Chapter 23 – Substitution Reactions of Carbonyl Compounds at the alpha carbon
Chapter 24 – Carbonyl Condensation Reaction
Chapter 25 – Amines
Chapter 26 – Carbon-Carbon Bond-Forming Reaction in Organic Synthesis
Chapter 27 – Carbohydrates
Chapter 28 – Amino Acids and Proteins
Chapter 29 – Lipids
Chapter 30 – Synthetic Polymers

Revised Syllabi

Chemistry 251 (no changes in course content)

Chemistry 252

Chemistry 253

Chemistry 251 – Autumn 2007

Organic Chemistry I



Instructor: Dr. Christopher Callam
380-C Celeste Laboratory 292-0679
ccallam@chemistry.ohio-state.edu

Lecture: Monday, Wednesday and Friday 1:30 p.m.-2:18 p.m.; 1000 McPherson Laboratory (MP)

Office Hours: Monday, Wednesday and Friday 11:30 a.m.-1:18 p.m. Wednesday and Friday 2:30 p.m. - 3:30 p.m. These are just my official office hours. You are welcome to stop by at anytime. If I am not in my office I am in one of the labs on the 4th floor of Celeste; feel free to come talk to me. You may also make an appointment by e-mail and suggest times that are convenient for you to stop by my office

Course Objectives: The main course objective is for everyone to gain a better understanding of the principles that govern organic chemistry. This course hopes to develop an **understanding** of the common functional groups, bonding, conformations, stereochemistry and reactions of organic chemistry. Our main goal is that you understand the material and have an excellent foundation for further studies in CH 252-255. If you have any questions do not hesitate to ask.

My job is to teach you and to help you learn this material.

Textbook: *Organic Chemistry* (2nd Edition) by Janice G. Smith, McGraw Hill. (ISBN – 978-0-07-335670-9)
Study Guide / Solution Manual for Organic Chemistry (2nd Edition) by Janice G. Smith and Erin R. Smith, McGraw Hill. (ISBN – 978-0-07-304987-8)
HGS Polyhedron Molecular Model Kit, Organic Chemistry Set, McGraw Hill.

The textbook and solutions manual are required. The model kit is optional but highly recommended.

Internet Pages: <https://carmen.osu.edu>

I. Structure of Class

Lecture and Reading Assignments: An outline of the lecture topics will be provided to the students at the beginning of each week on Carmen. In these outlines, I will summarize all of the major topics to be covered. The fine details will not be contained in these outlines and it is imperative to your success that you take notes on the material covered in lecture. I will also give you the suggested reading assignments, suggested problems to solve from the book, and weekly reminders for upcoming quizzes, exams and review sessions. I expect that you attend all lectures and come prepared and ready to **participate**. Attendance at lecture is very important for a successful performance in the class.

Carmen: This course will make extensive use of Carmen. It is important that you log on as soon as possible to ensure you can access the required information. Log in on <https://carmen.osu.edu> Your name is your OSU name and your password is the same as your OSU E-mail password. I will post the lecture outline notes, homework problems, old quizzes and exams, and answers keys as .pdf files. You will need a copy of Adobe Acrobat Reader on your computer. This will allow you to read and print out the material. If you don't have this program, you can download it free from <http://www.adobe.com/products/acrobat/readstep.html>. All of your quiz and examination scores will be posted and it is important that you verify the posted scores are correct.

Recitations Sections: The recitations will be problem-solving orientated. The TA will come prepared with important topics and new questions to review during that time period. On occasion, there will be a 15 minute quiz during the last part of recitation. Recitation is **NOT** optional. **You must go to the recitation you are scheduled for and you are not allowed to take the quiz in the wrong recitation section.**

Review Sessions: Review sessions for the midterm exams will be held on the Sundays prior to the exams (10/7 -1:30-3:30 p.m and 11/4 – 1:30-3:30 p.m.) in MP 1000 (McPherson). During these sessions we will answer questions for the book, practice problems and old exams; no new material will be introduced. You should come to the review session with your **questions ready to ask**. The review session for the final exam will be on Sunday (12/2) from 1:30 p.m.-3:30 p.m. in McPherson 1000.

II. Homework, Quizzes, Midterms, and Final Exam

***** Attached is a calendar indicating the important dates in the course. *****

Homework Problems and Study Habits: *Organic chemistry is best learned by working out problems; this means working the problem and then looking at the answer, not reading the questions and agreeing with the answer.* Read the book with pencil and paper in hand and practice writing the structures and mechanisms you encounter in each chapter. I advise you to work as many problems as possible. All suggested study problems within the chapters should be worked. In addition to the book problems, I will provide homework problems for each week that are pertinent to the week's lecture topics. These homework assignments will not be graded or collected; they are

for your own benefit and should be worked out as practice and review. The answers to the questions will be posted on Carmen at the end of each week. The type and level of difficulty on the quizzes and exams will reflect the homework assignments. *Spend time with the material each day of the week (for most people this means a minimum of 10-15 h per week)*. Those students who try to study only a week before the examination usually do very poorly.

Quizzes: There will be six 15 minute quizzes given throughout the quarter in the recitation sections or in lecture. Only five quizzes will be counted toward your final grade. Unexpected events can occur during the quarter which prevent you from taking a quiz; if you miss one quiz it will not be counted. If you take all six quizzes, then only the highest five will be counted. Under most circumstances there will be no makeup quizzes. The quiz topics will cover the previous week's lecture material. **IF YOU TAKE THE QUIZ IN THE WRONG RECITATION SECTION, IT WILL BE A ZERO.**

Midterm Exams: There will be two midterm exams on the dates listed below and on the course calendar from **8:00 p.m. - 10:00 p.m.** in the rooms listed below. The material you will be responsible for on each midterm is indicated. The final exam is comprehensive and will be held on December 5, 2007 (11:30 a.m. -1:18 p.m.) in 131 HI.

See me during the first week of class if you have a commitment that conflicts with these exam times. If necessary, there will be **ONE** makeup exam held on the day indicated below, but at an earlier time. I will not be sympathetic to your requests if you inform me of conflicts after September 28, 2007.

Molecular model kits (optional) will be allowed during the exams but they cannot be shared. You are **not** allowed to use any notes or books during the exam. Cell phones should remain inside your bag at all times in the silent mode.

<u>Exam</u>	<u>Date</u>	<u>Lectures Covered</u>	<u>Location</u>
Midterm 1	10/10	1,2,3,4,5,6,7,8	100 IH
Midterm 2	11/7	9,10,11,12,13,14, 15,16 17,18,19,20	131 HI
Final Exam	12/5	Cumulative (1-30)	131 HI

Return and Re-grading of Exams: Midterms will be returned in the first recitation meeting following the exam and the TA will go over it with you at that time. **If you wish for your exam to be re-graded, you should give it to your TA before you leave the recitation room.** I will re-grade the exams personally. You must give all re-grades to your teaching assistant before you leave the class during which it is returned. **I will not accept re-grades that come to me any other way.**

Grades: The course grade will be determined by the total number of points in the class. I anticipate the average grade in the class will be curved to a C. The breakdown of points will be as follows:

5	Highest Quizzes	(5 x 20 PTS)	100	12.5 %
2	Midterms	(2 x 200 PTS)	400	50.0 %
1	Final Exam	(300 PTS)	300	37.5 %
	Total		800	

Grade Distribution

100-93% = A
92-90% = A-
89-87% = B+
86-83% = B
82-80% = B-
79-77% = C+
76-73% = C
72-70% = C-
69-67% = D+
66-60% = D
59-0% = E

Course Topics: The chapters from the book that will be covered this quarter are listed below. We will deviate throughout the quarter from the order that the book presents the material in order to present the material in a clear and logical format. The exact topics, suggested readings, suggested problems from each chapter covered will be listed on the weekly lecture outlines.

- Chapter 1 – Structure and Bonding
- Chapter 2 – Acids and Bases
- Chapter 3 – Introduction to Organic Molecules
- Chapter 4 - Alkanes
- Chapter 5 – Stereochemistry
- Chapter 6 – Understanding Organic Reactions
- Chapter 7 – Alkyl Halides and Nucleophilic Substitution
- Chapter 8 – Alkyl Halides and Elimination Reactions
- Chapter 9 – Alcohols, Ethers and Epoxides
- Chapter 10 – Alkenes
- Chapter 11 - Alkynes

III. Recitations and Teaching Assistants

Recitations:

04725-7	T	1:30 p.m.-2:18 p.m.	MP 1008	Chad
04726-2	T	1:30 p.m.-2:18 p.m.	MP 1045	Nicolas
04727-8	T	1:30 p.m.-2:18 p.m.	MP1046	Matt
04728-3	R	1:30 p.m.-2:18 p.m.	MP 1008	Chad
04729-9	R	1:30 p.m.-2:18 p.m.	MP 1045	Nicolas
04730-6	R	1:30 p.m.-2:18 p.m.	MP1046	Matt
04731-1	T	2:30 p.m.-3:18 p.m.	MP1040	Chad
04732-8	T	2:30 p.m.-3:18 p.m.	MP 1045	Nicolas
04733-2	T	2:30 p.m.-3:18 p.m.	MP 1046	Matt
04734-8	R	2:30 p.m.-3:18 p.m.	MP 1040	Chad
04735-3	R	2:30 p.m.-3:18 p.m.	MP 1045	Nicolas
04736-9	R	2:30 p.m.-3:18 p.m.	MP 1046	Matt

TAs:

Chad Eichman

e-mail: ceichman @chemistry.ohio-state.edu

Office Hours : Tuesday (11:30 a.m.-12:30 p.m.) – 380-A CE

Friday (2:30 p.m.-3:30 a.m.) – 380-A CE

Nicolas Proust

e-mail: proust.1@osu.edu

Office Hours : Wednesday (2:30 p.m – 4:30 p.m.)- 380-A CE

Matthew DeMatteo

e-mail: mdematte@chemistry.ohio-state.edu

Office Hours : Mondays (2:30 p.m. – 4:30 p.m.) – 380-A CE

IV. Miscellaneous Information

Academic Misconduct: Academic misconduct of any type will not be tolerated and will be dealt with severely, according to University guidelines.

1. Know Your Rights. Do not let other students in your class diminish the value of your achievement by taking unfair advantage. Report any academic dishonesty you see.

2. Acknowledge Your Sources. Whenever you use words or ideas that are not your own when writing a paper, use quotation marks where appropriate and cite your source in a footnote, and back it up at the end with a list of sources consulted. Avoid the appearance of plagiarism.

3. Protect Your Work. In examinations, do not allow your neighbors to see what you have written; you are the only one who should receive credit for what you know.

4. Avoid Suspicion. Do not put yourself in a position where you can be suspected of having copied another person's work, or of having used unauthorized notes in an examination. Even the appearance of dishonesty may undermine your instructor's confidence in your work.

5. Do your own work. The purpose of assignments is to develop your skills and measure your progress. Letting someone else do your work defeats the purpose of your education, and may lead to serious charges against you.

6. Never falsify a record or permit another person to do so. Academic records are regularly audited and students whose grades have been altered put their entire transcript at risk.

7. Never fabricate data, citations, or experimental results. Many professional careers have ended in disgrace, even years after the fabrication first took place.

8. Always tell the truth when discussing your work with your instructor. Any attempt to deceive may destroy the relation of teacher and student.

<http://www.northwestern.edu/uacc/8cards.html>

Disabilities: If you have a university-documented disability, you should see me as soon as possible. If your disability requires that quizzes or examinations be taken outside regularly scheduled times, see the Office of Disability Services, Room 150 Pomerene Hall (292-3307)

Dates for dropping and Withdrawal: The last date for withdrawal from this class without a W is Friday, October 6 and without petition is Friday, November 3.

NOTE: YOU ARE RESPONSIBLE FOR ALL CHANGES TO THIS SYLLABUS MADE IN CLASS WHETHER OR NOT YOU ARE IN ATTENDANCE

Chemistry 252 – Winter 2005 Organic Chemistry II



Instructor: Dr. Christopher Callam
380-C Celeste Laboratory 292-0679
ccallam@chemistry.ohio-state.edu

Lecture: Tuesday and Thursday 6:30-7:48 p.m.; 1015 McPherson Laboratory (MP 1015)

Office Hours: Monday 12:00-4:00, Wednesday 5:30-6:30, Friday 3:30-5:30. These are just my official office hours you are welcome to stop by at anytime, if I am not in my office I am in one of the labs on the 4th floor of Celeste. You may also make an appointment by e-mail and suggest times that are convenient to stop by my office

Course Objectives: The main course objective is for everyone to gain a better understanding of the principles that govern organic chemistry. This course hopes to develop an **understanding** of the common functional groups and their reactions in organic chemistry. These concepts will be utilized further in Chemistry 253. If you have any questions do not hesitate to ask. *My job is to teach you and to help you learn this material.*

Textbook: *Organic Chemistry* (2nd Edition) by Janice G. Smith, McGraw Hill.
(ISBN – 978-0-07-335670-9)
Study Guide / Solution Manual for Organic Chemistry (2nd Edition) by Janice G. Smith and Erin R. Smith, McGraw Hill. (ISBN – 978-0-07-304987-8)
HGS Polyhedron Molecular Model Kit, Organic Chemistry Set, McGraw Hill.

Internet Pages: <https://webct.mps.ohio-state.edu>

Prerequisites: Completion of Chemistry 251 or the equivalent. In order to do well in Chemistry 252 you must know the principles of Chemistry 251.

I. Structure of Class

Lecture and Reading Assignments: An outline of the lecture topics will be provided to the students at the beginning of each week. In these outlines, I will summarize all of the major reactions to be covered as well as the most important topics. The fine details will not be contained in these outlines and it is imperative to your success that you take notes on the material covered in lecture. I will also give you the suggested reading assignments, suggested problems to solve from the book, and weekly reminders. I expect that you attend all lectures and come prepared ready to participate.

WebCT: This course will make extensive use of WebCT. It is important that you log on as soon as possible to ensure you can access the required information. Log in on <https://webct.ohio-state.edu> Your name is your OSU name and your password is the same as your OSU E-mail password. I will post the lecture outline notes, homework problems, homework keys, quizzes and exam keys as Adobe Acrobat pdf files. You will need a copy of Adobe Acrobat Reader on your computer. This will allow you to read and print out the material. If you don't have this program, you can download it free from <http://www.adobe.com/products/acrobat/readstep.html>. All of your quiz and examination scores will be posted and it is important that you verify the posted scores are correct (mistakes can be made in posting grades).

Recitations Sections: The recitations will be problem solving orientated. The TA will come prepared with important topics and new questions to review during that time period. On occasion, there will be a short 10 minutes quiz during the last part of recitation. Recitation is **NOT** optional.

Review Sessions: Review sessions for the midterm exams will be held on the Mondays prior to the exams (1/24, 2/21) from 7:30-9:30 pm in MQ 264 (Mac Quigg). During these sessions we will answer questions for the book, practice problems and practice exams, no new material will be introduced. The review session for the final exam will be on Sunday (3/13) from 2:00-4:00 pm in McPherson 1015.

II. Homework, Quizzes, Midterms, and Final Exam

***** Attached is a calendar indicating the important dates in the course. *****

Homework Problems and Study Habits: *Organic chemistry is best learned by working out problems; this means working the problem and then looking at the answer, not reading the questions and agreeing with the answer.* Read the book with pencil and paper in hand and practice writing the structures and mechanisms you encounter in each chapter. I advise you to work as many problems as possible. All suggested study problems within the chapters should be worked. In addition to the book problems, I will provide homework problems for each week that are pertinent to the weeks lecture topics. These homework assignments will not be graded or collected they are for your own benefit and should be worked out as practice and review. The answers to the questions will be posted on WebCT at the end of each week. The type and level of difficulty on the quizzes and exams will reflect the homework assignments.

Quizzes: There will be six short ten-minute quizzes given throughout the quarter in the recitation sections or in lecture. Only five quizzes will be counted toward your final grade. Unexpected events can occur during the quarter which prevent you from taking a quiz; if you miss one quiz it will not be counted. If you take all six quizzes, then only the highest five will be counted. Under most circumstances there will be no makeup quizzes. The quiz topics will cover the previous weeks lecture material.

Midterm Exams: There will be three midterm exams on the dates listed below and on the course calendar from 7:30-9:30 p.m. in room EA 160 (209 W. 18th Building). The material you will be responsible for on each midterm is indicated. The final exam is comprehensive and will be held on March 15, 2005 (Time to be announced) in MP 1015. See me during the first week of class if you have a commitment that conflicts with these exam times. If necessary, there will be ONE makeup exam held on the day indicated below, but at an earlier time. I will not be sympathetic to your requests if you inform me of conflicts after January 14, 2005.

Exam	Date	Lectures Covered	Location
Midterm 1	1/26	1,2,3,4,5,6	160 EA
Midterm 2	2/23	7,8,9,10,11,12,13,14	160 EA
Final Exam	3/15	Cumulative	1015 MP

Those students graduating at the end of Winter 2005 must see me before the fifth week of the class to make arrangements for taking the senior final exam.

Return and Re-grading of Exams: Midterms will be returned in the first lecture meeting following the exam and I will go over it with you at that time. **If you wish for your exam to be re-graded, you should give it to me or your TA before you leave the lecture hall.** I will re-grade the exams personally. You must give all re-grades to your teaching assistant or me before you leave the class during which it is returned. **I will not accept re-grades that come to me any other way.**

Grades: I anticipate the average grade in the class will be a C. The breakdown of points will be as follows:

5	Highest Quizzes	(5 x 20 PTS)	100	13.3 %
2	Midterms	(2 x 200 PTS)	400	53.3 %
1	Final Exam	(250 PTS)	250	33.3 %
	Total		750	

Grade Distribution

100-93% = A

92-90% = A-

89-87% = B+

86-83% = B

82-80% = B-

79-77% = C+

76-73% = C

72-70% = C-

69-67% = D+

66-60% = D

59-0% = E

III. Recitations and Teaching Assistants

Recitations:	M	6:30-7:18 p.m.	04523-6	Carrie Hayes	SM 1042
	M	7:30-8:18 p.m.	04524-1	Carrie Hayes	SM 1042
	W	6:30-7:18 p.m.	04525-7	Carrie Hayes	SM 1042
	W	7:30-8:18 p.m.	04526-2	Carrie Hayes	SM 1042

TAs: Carrie Hayes
 E-mail: chayes @chemistry.ohio-state.edu
 Office Hours : Tuesday, 10:00 a.m. – 12:00 p.m., 1120 Newman Wolfrom Lab

IV. Miscellaneous Information

Academic Misconduct: Academic misconduct of any type will not be tolerated and will be dealt with severely, according to University guidelines.

Disabilities: If you have a university-documented disability, you should see me as soon as possible. If your disability requires that quizzes or examinations be taken outside regularly scheduled times, see the Office of Disability Services, Room 150 Pomerene Hall (292-3307)

Course Topics: The chapters from the book that will be covered this quarter are listed below. We will deviate throughout the quarter from the order that the book presents the material in order to present the material in a clear and logical format. The exact topics, suggested readings, suggested problems from each chapter covered will be listed on the weekly lecture topic outlines.

Chapter 12 – Oxidation and Reduction

Chapter 15 – Radical Reactions

Chapter 16 – Conjugation, Resonance and Dienes

Chapter 17 – Benzene and Aromatic Compounds

Chapter 18 - Electrophilic Aromatic Substitution

Chapter 19 – Carboxylic Acids and the Acidity of the OH bonds

Chapter 20 – Introduction to Carbonyl Chemistry: Organometallic Reagents, Oxidation and Reduction

Chapter 21 – Aldehydes and Ketones – Nucleophilic Addition

Chapter 22- Carboxylic Acids and Their Derivatives – Nucleophilic Acyl Substitution

Chapter 25 – Amines

NOTE: YOU ARE RESPONSIBLE FOR ALL CHANGES TO THIS SYLLABUS MADE IN CLASS WHETHER OR NOT YOU ARE IN ATTENDANCE

Chemistry 253 – Spring 2007

Organic Chemistry III



Instructor: Dr. Christopher Callam
380-C Celeste Laboratory 292-0679
ccallam@chemistry.ohio-state.edu

Lecture: Monday, Wednesday and Friday 1:30 p.m.-2:18 p.m.; 1000 McPherson Laboratory (MP 1000)

Office Hours: Monday, Wednesday, Friday 12:30 pm - 1:18 pm. Wednesday and Friday, 2:30-4:00 pm. These are just my official office hours you are welcome to stop by at anytime. If I am not in my office I am in one of the labs on the 4th floor of Celeste, feel free to come talk to me. You may also make an appointment by e-mail and suggest times that are convenient to stop by my office.

Course Objectives: The main course objective is for everyone to gain a better understanding of the principles that govern organic chemistry. This course hopes to develop an **understanding** of NMR, IR, MS spectroscopy, enolate chemistry, and the chemistry of bio-molecules such as carbohydrates, amino acids and nucleic acids. This course is designed to help you develop scientific problem solving skills and application of organic chemistry to new situations.

My job is to teach you and to help you learn this material. If you have questions at anytime feel free to ask.

Textbook: *Organic Chemistry* (2nd Edition) by Janice G. Smith, McGraw Hill.
(ISBN – 978-0-07-335670-9)
Study Guide / Solution Manual for Organic Chemistry (2nd Edition) by Janice G. Smith and Erin R. Smith, McGraw Hill. (ISBN – 978-0-07-304987-8)
HGS Polyhedron Molecular Model Kit, Organic Chemistry Set, McGraw Hill.

Internet Pages: carmen.osu.edu

I. Structure of Class

Lecture and Reading Assignments: An outline of the lecture topics will be provided to the students at the beginning of each week. In these outlines, I will summarize all of the major topics to be covered. The fine details will not be contained in these outlines and it is imperative to your success that you take notes on the material covered in lecture. 10% of the lectures for this course will be presented using PowerPoint. These notes will be made available on-line in advance of the lecture. I will also give you the suggested reading assignments, suggested problems to solve from the book, and weekly reminders. I expect that you attend all lectures and come prepared ready to participate. If you use the lecture time to actively **THINK** and participate it will ease your studies and allow you to develop your skills at a faster pace.

Carmen: This course will make extensive use of Carmen. It is important that you log on as soon as possible to ensure you can access the required information. Your login is your OSU name and your password is the same as your OSU E-mail password.

I will post the lecture outline notes, homework problems, homework keys, old quizzes and old exam keys, current quizzes and exams as Adobe Acrobat pdf files. You will need a copy of Adobe Acrobat Reader on your computer. This will allow you to read and print out the material. If you don't have this program, you can download it free from <http://www.adobe.com/products/acrobat/readstep.html>. All of your quiz and examination scores will be posted and it is important that you verify the posted scores are correct.

Recitations Sections: The recitations will be problem solving orientated. The TA will come prepared with important topics and new questions to review during that time period. There will be a short 15 minutes quiz during the last part of recitation. Recitation is **NOT** optional. You must go to the recitation you are scheduled for and you are not allowed to take the quiz in the wrong recitation section.

Review Sessions: Review sessions for the midterm exams will be held on the Mondays prior to the exams (4/16, 5/7) from 8:00 p.m. - 10:00 p.m. in MP 1000. During these sessions we will answer questions for the book, practice problems and practice exams, no new material will be introduced. You should come to the review session with your questions ready to ask. If you would like certain problem reviewed at the review sessions you can email them to me in advance. The review session for the final exam will be on Sunday (6/3) from 3:00 p.m.-5:00 p.m. in MP 1000.

II. Homework, Quizzes, Midterms, and Final Exam

*** *Attached is a calendar indicating the important dates in the course.* ***

Homework Problems and Study Habits: *Organic chemistry is best learned by working out problems; this means working the problem and then looking at the answer, not reading the questions and agreeing with the answer.* Read the book with pencil and paper in hand and practice writing the structures and mechanisms you encounter in each chapter. I advise you to work as many problems as possible. All suggested study problems within the chapters should be worked. In addition to the book problems, I will provide homework problems for each week that are pertinent to the weeks lecture topics. These homework assignments will not be graded or collected they are for your own benefit and should be worked out as practice and review. The answers to the questions will be posted on Carmen at the end of each week. *Spend time with the material each day of the week (10-15 h per week).* Those students who try to study only a week before the examination usually do very poorly.

Quizzes: There will be six short fifteen-minute quizzes given throughout the quarter in the recitation sections. Only five quizzes will be counted toward your final grade. Unexpected events can occur during the quarter which prevent you from taking a quiz; if you miss one quiz it will not be counted. If you take all six quizzes, then only the highest five will be counted. Under most circumstances there will be no makeup quizzes. The quiz topics will cover the lecture material from the previous week.

Midterm Exams: There will be two midterm exams on the dates listed below and on the course calendar from 8:00 p.m. - 10:00 p.m. in room Independence Hall 100 (IH-100) The material you will be responsible for on each midterm is indicated below. The final exam is comprehensive and will be held on June 6, 2007 (1:30 p.m. -3:18 p.m.) – **LOCATION TO BE ANNOUNCED IN CLASS AT A LATER DATE.**

See me during the first week of class if you have a commitment that conflicts with these exam times. If necessary, there will be ONE makeup exam held on the day indicated below, but at an earlier time. I will not be sympathetic to your requests if you inform me of conflicts after April 1, 2007.

Molecular model kits will be allowed during the exams and are optional, they cannot be shared. You are **not** allowed to use any notes or books during the exam. *Cellphones should remain inside your bag at all times in the silent mode.*

Exam	Date	Lectures Covered	Location
Midterm 1	4/18	1,2,3,4,5,6,7,8,9,10	IH 100
Midterm 2	5/9	11,12,13,14,15,16,17,18,19	IH 100
Final Exam	6/6	Cumulative (1-29)	TBA

Return and Re-grading of Exams: Midterms will be returned in the recitation meeting the week following the exam. Your teaching assistant will go over it with you at that time. **If you wish for your exam to be re-graded, you should give it to your TA before you leave the recitation room.** I will re-grade the entire exam personally. **I will not accept re-grades that come to me any other way.**

Grades: I anticipate the average grade in the class will be a C. The course grade will be determined by the total number of points in the class. The breakdown of points will be as follows:

5	Highest Quizzes	(5 x 25 PTS)	125	15.1 %
2	Midterms	(2 x 200 PTS)	400	48.5 %
1	Final Exam	(300 PTS)	300	36.4 %
	Total		825	

Grade Distribution

100-93% = A

92-90% = A-

89-87% = B+

86-83% = B

82-80% = B-

79-77% = C+

76-73% = C

72-70% = C-

69-67% = D+

66-60% = D

59-0% = E

Course Topics: The chapters from the book that will be covered this quarter are listed below. We will deviate throughout the quarter from the order that the book presents the material in order to present the material in a clear and logical format. The exact topics, suggested readings, suggested problems from each chapter covered will be listed on the weekly lecture topic outlines.

Chapter 13 – Mass Spectrometry and Infrared Spectroscopy

Chapter 14 – Nuclear Magnetic Resonance Spectroscopy

Chapter 23 – Substitution Reactions of Carbonyl Compounds at the alpha carbon

Chapter 24 – Carbonyl Condensation Reaction

Chapter 26 – Carbon-Carbon Bond-Forming Reaction in Organic Synthesis

Chapter 27 – Carbohydrates

Chapter 28 – Amino Acids and Proteins

Chapter 29 – Lipids

Chapter 30 – Synthetic Polymers

III. Recitations and Teaching Assistants

Recitations:

04731-7	T	12:30-1:18 pm	MP 2019	Christopher McDaniel
04732-2	T	12:30-1:18 pm	SO 0105	Matt DeMatteo
04733-8	T	12:30-1:18 pm	MP 1008	Dian He
04734-3	R	1:30-2:18 pm	EL 2002	Christopher McDaniel
04735-9	R	1:30-2:18 pm	MP 1008	Matt DeMatteo
04736-4	R	1:30-2:18 pm	SM 1180	Dian He
04737-0	T	12:30-1:18 pm	MP 1045	Christopher McDaniel
04738-5	T	12:30-1:18 pm	MP 1008	Matt DeMatteo
04739-1	T	12:30-1:18 pm	MP 1005	Dian He
04740-0	R	1:30-2:18 pm	MP 1045	Christopher McDaniel
04741-5	R	1:30-2:18 pm	MP 1005	Matt DeMatteo
04742-1	R	1:30-2:18 pm	MP 1008	Dian He

TAs:

Christopher McDaniel
e-mail: cmcdanie@chemistry.ohio-state.edu
Office Hours : 2:30 pm – 4:30 pm – Mondays – 380-A Celeste

Dian He
e-mail: dhe@chemistry.ohio-state.edu
Office Hours : 2:30 pm – 4:30 pm – Fridays – 380-A Celeste

Matt DeMatteo
e-mail: mdematte@chemistry.ohio-state.edu
Office Hours : 3:30 pm - 4:30 pm – Tuesdays and Wednesdays – 380-A Celeste

IV. Miscellaneous Information

Academic Misconduct: Academic misconduct of any type will not be tolerated and will be dealt with severely, according to University guidelines.

1. Know Your Rights. Do not let other students in your class diminish the value of your achievement by taking unfair advantage. Report any academic dishonesty you see.

2. Acknowledge Your Sources. Whenever you use words or ideas that are not your own when writing a paper, use quotation marks where appropriate and cite your source in a footnote, and back it up at the end with a list of sources consulted. Avoid the appearance of plagiarism.

- 3. Protect Your Work.** In examinations, do not allow your neighbors to see what you have written; you are the only one who should receive credit for what you know.
- 4. Avoid Suspicion.** Do not put yourself in a position where you can be suspected of having copied another person's work, or of having used unauthorized notes in an examination. Even the appearance of dishonesty may undermine your instructor's confidence in your work.
- 5. Do your own work.** The purpose of assignments is to develop your skills and measure your progress. Letting someone else do your work defeats the purpose of your education, and may lead to serious charges against you.
- 6. Never falsify a record** or permit another person to do so. Academic records are regularly audited and students whose grades have been altered put their entire transcript at risk.
- 7. Never fabricate** data, citations, or experimental results. Many professional careers have ended in disgrace, even years after the fabrication first took place.
- 8. Always tell the truth** when discussing your work with your instructor. Any attempt to deceive may destroy the relation of teacher and student.

<http://www.northwestern.edu/uacc/8cards.html>

Disabilities: If you have a university-documented disability, you should see me as soon as possible. If your disability requires that quizzes or examinations be taken outside regularly scheduled times, see the Office of Disability Services, Room 150 Pomerene Hall (292-3307)

NOTE: YOU ARE RESPONSIBLE FOR ALL CHANGES TO THIS SYLLABUS MADE IN CLASS WHETHER OR NOT YOU ARE IN ATTENDANCE

Chemistry 252 – Winter 2005 Organic Chemistry II



Instructor: Dr. Christopher Callam
380-C Celeste Laboratory 292-0679
ccallam@chemistry.ohio-state.edu

Lecture: Tuesday and Thursday 6:30-7:48 p.m.; 1015 McPherson Laboratory (MP 1015)

Office Hours: Monday 12:00-4:00, Wednesday 5:30-6:30, Friday 3:30-5:30. These are just my official office hours you are welcome to stop by at anytime, if I am not in my office I am in one of the labs on the 4th floor of Celeste. You may also make an appointment by e-mail and suggest times that are convenient to stop by my office

Course Objectives: The main course objective is for everyone to gain a better understanding of the principles that govern organic chemistry. This course hopes to develop an **understanding** of the common functional groups and their reactions in organic chemistry. To provide an introduction and overview of spectroscopy; such as nuclear magnetic resonance spectroscopy, infrared spectroscopy, and mass spectrometry. If you have any questions do not hesitate to ask. *My job is to teach you and to help you learn this material.*

Textbook: *Organic Chemistry* (2nd Edition) by Janice G. Smith, McGraw Hill.
(ISBN – 978-0-07-335670-9)
Study Guide / Solution Manual for Organic Chemistry (2nd Edition) by Janice G. Smith and Erin R. Smith, McGraw Hill. (ISBN – 978-0-07-304987-8)
HGS Polyhedron Molecular Model Kit, Organic Chemistry Set, McGraw Hill.

Internet Pages: <https://webct.mps.ohio-state.edu>

Prerequisites: Completion of Chemistry 251 or the equivalent. In order to do well in Chemistry 252 you must know the principles of Chemistry 251.

I. Structure of Class

Lecture and Reading Assignments: An outline of the lecture topics will be provided to the students at the beginning of each week. In these outlines, I will summarize all of the major reactions to be covered as well as the most important topics. The fine details will not be contained in these outlines and it is imperative to your success that you take notes on the material covered in lecture. I will also give you the suggested reading assignments, suggested problems to solve from the book, and weekly reminders. I expect that you attend all lectures and come prepared ready to participate.

WebCT: This course will make extensive use of WebCT. It is important that you log on as soon as possible to ensure you can access the required information. Log in on <https://webct.ohio-state.edu> Your name is your OSU name and your password is the same as your OSU E-mail password. I will post the lecture outline notes, homework problems, homework keys, quizzes and exam keys as Adobe Acrobat pdf files. You will need a copy of Adobe Acrobat Reader on your computer. This will allow you to read and print out the material. If you don't have this program, you can download it free from <http://www.adobe.com/products/acrobat/readstep.html>. All of your quiz and examination scores will be posted and it is important that you verify the posted scores are correct (mistakes can be made in posting grades).

Recitations Sections: The recitations will be problem solving orientated. The TA will come prepared with important topics and new questions to review during that time period. On occasion, there will be a short 10 minutes quiz during the last part of recitation. Recitation is **NOT** optional.

Review Sessions: Review sessions for the midterm exams will be held on the Mondays prior to the exams (1/24, 2/21) from 7:30-9:30 pm in MQ 264 (Mac Quigg). During these sessions we will answer questions for the book, practice problems and practice exams, no new material will be introduced. The review session for the final exam will be on Sunday (3/13) from 2:00-4:00 pm in McPherson 1015.

II. Homework, Quizzes, Midterms, and Final Exam

***** Attached is a calendar indicating the important dates in the course. *****

Homework Problems and Study Habits: *Organic chemistry is best learned by working out problems; this means working the problem and then looking at the answer, not reading the questions and agreeing with the answer.* Read the book with pencil and paper in hand and practice writing the structures and mechanisms you encounter in each chapter. I advise you to work as many problems as possible. All suggested study problems within the chapters should be worked. In addition to the book problems, I will provide homework problems for each week that are pertinent to the weeks lecture topics. These homework assignments will not be graded or collected they are for your own benefit and should be worked out as practice and review. The answers to the questions will be posted on WebCT at the end of each week. The type and level of difficulty on the quizzes and exams will reflect the homework assignments.

Quizzes: There will be six short ten-minute quizzes given throughout the quarter in the recitation sections or in lecture. Only five quizzes will be counted toward your final grade. Unexpected events can occur during the quarter which prevent you from taking a quiz; if you miss one quiz it will not be counted. If you take all six quizzes, then only the highest five will be counted. Under most circumstances there will be no makeup quizzes. The quiz topics will cover the previous weeks lecture material.

Midterm Exams: There will be three midterm exams on the dates listed below and on the course calendar from 7:30-9:30 p.m. in room EA 160 (209 W. 18th Building). The material you will be responsible for on each midterm is indicated. The final exam is comprehensive and will be held on March 15, 2005 (Time to be announced) in MP 1015. See me during the first week of class if you have a commitment that conflicts with these exam times. If necessary, there will be ONE makeup exam held on the day indicated below, but at an earlier time. I will not be sympathetic to your requests if you inform me of conflicts after January 14, 2005.

Exam	Date	Lectures Covered	Location
Midterm 1	1/26	1,2,3,4,5,6	160 EA
Midterm 2	2/23	7,8,9,10,11,12,13,14	160 EA
Final Exam	3/15	Cumulative	1015 MP

Those students graduating at the end of Winter 2005 must see me before the fifth week of the class to make arrangements for taking the senior final exam.

Return and Re-grading of Exams: Midterms will be returned in the first lecture meeting following the exam and I will go over it with you at that time. **If you wish for your exam to be re-graded, you should give it to me or your TA before you leave the lecture hall.** I will re-grade the exams personally. You must give all re-grades to your teaching assistant or me before you leave the class during which it is returned. **I will not accept re-grades that come to me any other way.**

Grades: I anticipate the average grade in the class will be a C. The breakdown of points will be as follows:

5	Highest Quizzes	(5 x 20 PTS)	100	13.3 %
2	Midterms	(2 x 200 PTS)	400	53.3 %
1	Final Exam	(250 PTS)	250	33.3 %
	Total		750	

Grade Distribution

100-93% = A
 92-90% = A-
 89-87% = B+
 86-83% = B
 82-80% = B-
 79-77% = C+
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 72-70% = C-
 69-67% = D+
 66-60% = D
 59-0% = E

III. Recitations and Teaching Assistants

Recitations:	M	6:30-7:18 p.m.	04523-6	Carrie Hayes	SM 1042
	M	7:30-8:18 p.m.	04524-1	Carrie Hayes	SM 1042
	W	6:30-7:18 p.m.	04525-7	Carrie Hayes	SM 1042
	W	7:30-8:18 p.m.	04526-2	Carrie Hayes	SM 1042

TAs: Carrie Hayes
 E-mail: chayes @chemistry.ohio-state.edu
 Office Hours : Tuesday, 10:00 a.m. – 12:00 p.m., 1120 Newman Wolfrom Lab

IV. Miscellaneous Information

Academic Misconduct: Academic misconduct of any type will not be tolerated and will be dealt with severely, according to University guidelines.

Disabilities: If you have a university-documented disability, you should see me as soon as possible. If your disability requires that quizzes or examinations be taken outside regularly scheduled times, see the Office of Disability Services, Room 150 Pomerene Hall (292-3307)

Course Topics: The chapters from the book that will be covered this quarter are listed below. We will deviate throughout the quarter from the order that the book presents the material in order to

present the material in a clear and logical format. The exact topics, suggested readings, suggested problems from each chapter covered will be listed on the weekly lecture topic outlines.

Chapter 12 – Oxidation and Reduction

Chapter 13 – Mass Spectrometry and Infrared Spectroscopy

Chapter 14 – Nuclear Magnetic Resonance Spectroscopy

Chapter 15 – Radical Reactions

Chapter 16 – Conjugation, Resonance and Dienes

Chapter 17 – Benzene and Aromatic Compounds

Chapter 18 - Electrophilic Aromatic Substitution

Chapter 19 – Carboxylic Acids and the Acidity of the OH bonds

Chapter 20 – Introduction to Carbonyl Chemistry: Organometallic Reagents, Oxidation and Reduction

NOTE: YOU ARE RESPONSIBLE FOR ALL CHANGES TO THIS SYLLABUS MADE IN CLASS WHETHER OR NOT YOU ARE IN ATTENDANCE

Chemistry 253 – Spring 2007

Organic Chemistry III



Instructor: Dr. Christopher Callam
380-C Celeste Laboratory 292-0679
ccallam@chemistry.ohio-state.edu

Lecture: Monday, Wednesday and Friday 1:30 p.m.-2:18 p.m.; 1000 McPherson Laboratory (MP 1000)

Office Hours: Monday, Wednesday, Friday 12:30 pm - 1:18 pm. Wednesday and Friday, 2:30-4:00 pm. These are just my official office hours you are welcome to stop by at anytime. If I am not in my office I am in one of the labs on the 4th floor of Celeste, feel free to come talk to me. You may also make an appointment by e-mail and suggest times that are convenient to stop by my office.

Course Objectives: The main course objective is for everyone to gain a better understanding of the principles that govern organic chemistry. This course hopes to develop an **understanding** of carboxylic acids, enolate chemistry, and the chemistry of bio-molecules such as carbohydrates, amino acids and nucleic acids. This course is designed to help you develop scientific problem solving skills and application of organic chemistry to new situations.

My job is to teach you and to help you learn this material. If you have questions at anytime feel free to ask.

Textbook: *Organic Chemistry* (2nd Edition) by Janice G. Smith, McGraw Hill.
(ISBN – 978-0-07-335670-9)
Study Guide / Solution Manual for Organic Chemistry (2nd Edition) by Janice G. Smith and Erin R. Smith, McGraw Hill. (ISBN – 978-0-07-304987-8)
HGS Polyhedron Molecular Model Kit, Organic Chemistry Set, McGraw Hill.

Internet Pages: carmen.osu.edu

I. Structure of Class

Lecture and Reading Assignments: An outline of the lecture topics will be provided to the students at the beginning of each week. In these outlines, I will summarize all of the major topics to be covered. The fine details will not be contained in these outlines and it is imperative to your success that you take notes on the material covered in lecture. 10% of the lectures for this course will be presented using PowerPoint. These notes will be made available on-line in advance of the lecture. I will also give you the suggested reading assignments, suggested problems to solve from the book, and weekly reminders. I expect that you attend all lectures and come prepared ready to participate. If you use the lecture time to actively **THINK** and participate it will ease your studies and allow you to develop your skills at a faster pace.

Carmen: This course will make extensive use of Carmen. It is important that you log on as soon as possible to ensure you can access the required information. Your login is your OSU name and your password is the same as your OSU E-mail password.

I will post the lecture outline notes, homework problems, homework keys, old quizzes and old exam keys, current quizzes and exams as Adobe Acrobat pdf files. You will need a copy of Adobe Acrobat Reader on your computer. This will allow you to read and print out the material. If you don't have this program, you can download it free from <http://www.adobe.com/products/acrobat/readstep.html>. All of your quiz and examination scores will be posted and it is important that you verify the posted scores are correct.

Recitations Sections: The recitations will be problem solving orientated. The TA will come prepared with important topics and new questions to review during that time period. There will be a short 15 minutes quiz during the last part of recitation. Recitation is **NOT** optional. You must go to the recitation you are scheduled for and you are not allowed to take the quiz in the wrong recitation section.

Review Sessions: Review sessions for the midterm exams will be held on the Mondays prior to the exams (4/16, 5/7) from 8:00 p.m. - 10:00 p.m. in MP 1000. During these sessions we will answer questions for the book, practice problems and practice exams, no new material will be introduced. You should come to the review session with your questions ready to ask. If you would like certain problem reviewed at the review sessions you can email them to me in advance. The review session for the final exam will be on Sunday (6/3) from 3:00 p.m.-5:00 p.m. in MP 1000.

II. Homework, Quizzes, Midterms, and Final Exam

*** *Attached is a calendar indicating the important dates in the course.* ***

Homework Problems and Study Habits: *Organic chemistry is best learned by working out problems; this means working the problem and then looking at the answer, not reading the questions and agreeing with the answer.* Read the book with pencil and paper in hand and practice writing the structures and mechanisms you encounter in each chapter. I advise you to work as many problems as possible. All suggested study problems within the chapters should be worked. In addition to the book problems, I will provide homework problems for each week that are pertinent to the weeks lecture topics. These homework assignments will not be graded or collected they are for your own benefit and should be worked out as practice and review. The answers to the questions will be posted on Carmen at the end of each week. *Spend time with the material each day of the week (10-15 h per week).* Those students who try to study only a week before the examination usually do very poorly.

Quizzes: There will be six short fifteen-minute quizzes given throughout the quarter in the recitation sections. Only five quizzes will be counted toward your final grade. Unexpected events can occur during the quarter which prevent you from taking a quiz; if you miss one quiz it will not be counted. If you take all six quizzes, then only the highest five will be counted. Under most circumstances there will be no makeup quizzes. The quiz topics will cover the lecture material from the previous week.

Midterm Exams: There will be two midterm exams on the dates listed below and on the course calendar from 8:00 p.m. - 10:00 p.m. in room Independence Hall 100 (IH-100) The material you will be responsible for on each midterm is indicated below. The final exam is comprehensive and will be held on June 6, 2007 (1:30 p.m. -3:18 p.m.) – **LOCATION TO BE ANNOUNCED IN CLASS AT A LATER DATE.**

See me during the first week of class if you have a commitment that conflicts with these exam times. If necessary, there will be ONE makeup exam held on the day indicated below, but at an earlier time. I will not be sympathetic to your requests if you inform me of conflicts after April 1, 2007.

Molecular model kits will be allowed during the exams and are optional, they cannot be shared. You are **not** allowed to use any notes or books during the exam. *Cellphones should remain inside your bag at all times in the silent mode.*

Exam	Date	Lectures Covered	Location
Midterm 1	4/18	1,2,3,4,5,6,7,8,9,10	IH 100
Midterm 2	5/9	11,12,13,14,15,16,17,18,19	IH 100
Final Exam	6/6	Cumulative (1-29)	TBA

Return and Re-grading of Exams: Midterms will be returned in the recitation meeting the week following the exam. Your teaching assistant will go over it with you at that time. **If you wish for your exam to be re-graded, you should give it to your TA before you leave the recitation room.** I will re-grade the entire exam personally. **I will not accept re-grades that come to me any other way.**

Grades: I anticipate the average grade in the class will be a C. The course grade will be determined by the total number of points in the class. The breakdown of points will be as follows:

5	Highest Quizzes	(5 x 25 PTS)	125	15.1 %
2	Midterms	(2 x 200 PTS)	400	48.5 %
1	Final Exam	(300 PTS)	300	36.4 %
	Total		825	

Grade Distribution

100-93% = A

92-90% = A-

89-87% = B+

86-83% = B

82-80% = B-

79-77% = C+

76-73% = C

72-70% = C-

69-67% = D+

66-60% = D

59-0% = E

Course Topics: The chapters from the book that will be covered this quarter are listed below. We will deviate throughout the quarter from the order that the book presents the material in order to present the material in a clear and logical format. The exact topics, suggested readings, suggested problems from each chapter covered will be listed on the weekly lecture topic outlines.

Chapter 21 – Aldehydes and Ketones – Nucleophilic Addition

Chapter 22- Carboxylic Acids and Their Derivatives – Nucleophilic Acyl Substitution

Chapter 23 – Substitution Reactions of Carbonyl Compounds at the alpha carbon

Chapter 24 – Carbonyl Condensation Reaction

Chapter 25 – Amines

Chapter 26 – Carbon-Carbon Bond-Forming Reaction in Organic Synthesis

Chapter 27 – Carbohydrates

Chapter 28 – Amino Acids and Proteins

Chapter 29 – Lipids

Chapter 30 – Synthetic Polymers

III. Recitations and Teaching Assistants

Recitations:

04731-7	T	12:30-1:18 pm	MP 2019	Christopher McDaniel
04732-2	T	12:30-1:18 pm	SO 0105	Matt DeMatteo
04733-8	T	12:30-1:18 pm	MP 1008	Dian He
04734-3	R	1:30-2:18 pm	EL 2002	Christopher McDaniel
04735-9	R	1:30-2:18 pm	MP 1008	Matt DeMatteo
04736-4	R	1:30-2:18 pm	SM 1180	Dian He
04737-0	T	12:30-1:18 pm	MP 1045	Christopher McDaniel
04738-5	T	12:30-1:18 pm	MP 1008	Matt DeMatteo
04739-1	T	12:30-1:18 pm	MP 1005	Dian He
04740-0	R	1:30-2:18 pm	MP 1045	Christopher McDaniel
04741-5	R	1:30-2:18 pm	MP 1005	Matt DeMatteo
04742-1	R	1:30-2:18 pm	MP 1008	Dian He

TAs:

Christopher McDaniel
 e-mail: cmcdanie@chemistry.ohio-state.edu
 Office Hours : 2:30 pm – 4:30 pm – Mondays – 380-A Celeste

Dian He
 e-mail: dhe@chemistry.ohio-state.edu
 Office Hours : 2:30 pm – 4:30 pm – Fridays – 380-A Celeste

Matt DeMatteo
 e-mail: mdematte@chemistry.ohio-state.edu
 Office Hours : 3:30 pm - 4:30 pm – Tuesdays and Wednesdays – 380-A Celeste

IV. Miscellaneous Information

Academic Misconduct: Academic misconduct of any type will not be tolerated and will be dealt with severely, according to University guidelines.

1. Know Your Rights. Do not let other students in your class diminish the value of your achievement by taking unfair advantage. Report any academic dishonesty you see.

2. Acknowledge Your Sources. Whenever you use words or ideas that are not your own when writing a paper, use quotation marks where appropriate and cite your source in a footnote, and back it up at the end with a list of sources consulted. Avoid the appearance of plagiarism.

- 3. Protect Your Work.** In examinations, do not allow your neighbors to see what you have written; you are the only one who should receive credit for what you know.
- 4. Avoid Suspicion.** Do not put yourself in a position where you can be suspected of having copied another person's work, or of having used unauthorized notes in an examination. Even the appearance of dishonesty may undermine your instructor's confidence in your work.
- 5. Do your own work.** The purpose of assignments is to develop your skills and measure your progress. Letting someone else do your work defeats the purpose of your education, and may lead to serious charges against you.
- 6. Never falsify a record** or permit another person to do so. Academic records are regularly audited and students whose grades have been altered put their entire transcript at risk.
- 7. Never fabricate** data, citations, or experimental results. Many professional careers have ended in disgrace, even years after the fabrication first took place.
- 8. Always tell the truth** when discussing your work with your instructor. Any attempt to deceive may destroy the relation of teacher and student.

<http://www.northwestern.edu/uacc/8cards.html>

Disabilities: If you have a university-documented disability, you should see me as soon as possible. If your disability requires that quizzes or examinations be taken outside regularly scheduled times, see the Office of Disability Services, Room 150 Pomerene Hall (292-3307)

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