

GENERAL INFORMATION (*Prepared 9/25/09*)

Chemistry 261 is a combined Lecture/Laboratory course in organic chemistry.

## LECTURE COMPONENT

## LECTURER:

Professor John-Stephen Taylor  
Office: LS 401A  
Phone: 314-935-6721  
e-mail: chem261@wustl.edu

## TEACHING ASSISTANTS:

Laura Anderson  
Jillian Smith  
Rongsheng Wang

## OFFICE HOURS:

Taylor (LS 401A)  
Tues.-Fri. 10:00 a.m. - noon L260

If you are not free during the hours listed above, you may arrange an appointment directly with Professor Taylor in the lecture room before or after lecture. Please do not attempt unscheduled "walk-ins" or to schedule appointments by telephone or email.

## TEXTBOOKS:

All three of the following are required for this course and are available at the W.U. Bookstore. Copies of 1 and 2 are on Reserve in Olin Library.

1. L.G. Wade, Jr., *Organic Chemistry*, Prentice-Hall, 7th Ed., 2010.
2. L.G. Wade and J. Simek, *Solutions Manual*, Prentice-Hall, 7th Ed., 2006.
3. Organic Chemistry Models: Orbit Chemistry Model Set (68827W) and package of black and white orbitals (68416C, 68417C). Custom Model Set sold through bookstore.

(The combination of 1 + 2 has ISBN number 0321631021)

**Note.** Older editions of Wade can also be used, but the page numbers, section numbers, and problem numbers may be different. If you should choose to use an older edition of Wade, it is up to you to determine the correspondence between reading assignments listed for the 6<sup>th</sup> edition and the edition that you are using.

## EXAMINATION INFORMATION:

## EXAM SCHEDULE:

Exam	Date	Time	Chapters in Wade / Lab Exp
1	Mon, 9/21	6:30 - 8:30 pm	Chapt. 1-3 / Lab 1
2	Tues, 10/13	6:30 - 8:30 pm	Chapt. 4-6 (part) / Lab 2-3
3	Mon, 11/9	6:30 - 8:30 pm	Chapt. 6 (part) 7-9 / Lab 4-5
4	Mon. 12/7	6:30 - 8:30 pm	Chapt. 10-11, 14-15 / Lab 6-7

Final	Thurs. 12/17	8:00 - 10:00 am	comprehensive
-------	--------------	-----------------	---------------

**EXAM ROOMS:** Lab Sciences Building 300, Wilson 214, January 110, and Crow 201.

**EXAMINATIONS:** All exams will be closed book and closed notes. Each semester exam will have a maximum score of 100 points; the final exam will have a maximum score of 100 points. Room assignments for exams will be made alphabetically, and will be both announced in class and posted on the 2<sup>nd</sup> floor of Lab/Sciences near the entrance to Room 300. (Please do not phone the Chemistry Department office for exam room numbers.) After each exam, answers will be posted near the 2<sup>nd</sup> floor main entrance of Lab/Sciences Building Room 300.

**LENGTH OF EXAMS:** During the semester, the exams are designed to take no more than one (1) hour to complete, and the final exam is designed to take no more than one (1) hour to complete. Students will be allowed up to two (2) hours (6:30-8:30 pm) to answer the questions on each of the four (4) in-semester hour exams and two (2) hours (8:00-10:00 am) to answer the questions on the end-of-semester final exam. The purpose of the increased time is to allow each student to demonstrate depth of understanding, while minimizing the effect of speed of reading and recall.

**ATTENDANCE AT EXAMS:** For a sufficiently serious emergency, a student can be excused from one (but no more than one) hour exam. The student should request an excuse from Professor Taylor by telephone or in person; if possible, the request should be made before the examination. The semester grade of a student who has been excused from one examination will be calculated as if the grade on that examination had been the arithmetic mean of the grades on the two hour exams which were taken, and adjusted according to the mean on the missed exam. ***No make up exams will be given. The final exam is mandatory. There will be no early or make up final exam given.***

**RETURN OF EXAMS:** Each student can choose between having his/her graded exam placed in the alphabetical bins on the 2<sup>nd</sup> floor of Lab/Sciences Building or held for pick up individually. The choice can be indicated by checking one of the boxes on the cover of the exam; if neither box is checked, the exam will be placed in the bins. If the student chooses to pick up the exam individually, it can be done at the organic help room (***LS 400C***) during ***Help Sessions (1-4 pm) as early as Tuesday*** following the Monday exam; Wednesday following a Tuesday exam; the student will be required to present identification (bearing a photo) before being given the exam.

**REGRADE OF EXAMS:** With a large class and many different types of exam questions it is entirely possible that you will get exam may have been misgraded might get a misgraded question at some point during the course. To determine if you exam was correctly graded please add the points up yourself, and compare your answers and the point values to the posted answer key. In the event that there has been a grading error such as an addition error, mis-assigned points, a correct answer that was marked wrong, or an answer that was missed by the grader, you may submit a regrade request. If your answer differs from the answer that was posted and you are unsure why it is wrong, please see the instructor or a TA during office hours to discuss your answer.

***Please remember that regrade requests are not a good way to ask questions about science. Regrades are only for fixing grading errors (i.e. addition errors, a correct answer that matches the answer key but was marked wrong, etc.)***

If you wish to appeal the grading of your exam, you must return it through the slot into the marked box on the 2<sup>nd</sup> floor of Lab/Sciences Building (***near the exam racks***) by ***Friday at 3 PM following the Monday exam or Tuesday exam***. You must staple to your exam a note which states which

question(s) is(are) to be regraded and why you believe that your answer deserves more credit. Nothing additional (notes, explanations, etc.) should be written on the exam and **NO changes or erasures should be made on the exam before regrading**. All exams submitted for regrading are examined by Professor Taylor and will be returned within one week through the alphabetical bins or to the TA's if so specified.

**CHEATING:** Cheating will not be tolerated! All suspected cases of cheating (Lecture or Laboratory Component) will be referred to Washington University's Committee on Academic Integrity. If the Committee on Academic Integrity finds a student guilty of cheating, then the penalty will be **automatic failure of the course**.

**COURSE LETTER GRADES:** For each of the five examinations (four semester exams plus one final exam, each worth 100 pts), the professor will determine the correspondence between numerical scores and letter grades by reading a random sample of exams. Note that the percentages of A's, B's, etc. are thus not predetermined, but result from the professor's assessment of the performance of the class. At the end of the semester, each student's scores will be summed together with the laboratory score which will also be worth 100 pts. However, in cases of marked improvement during the semester or the presence of one atypically low hour exam score, the semester letter grade may be higher than that which corresponds to the average of the individual grades. The professor's judgment of each individual case is the sole basis for a decision to raise (or not to raise) a grade, and such decisions are not subject to appeal or negotiation. In case of an excused exam, the final exam score will be used.

**READING/HOMEWORK ASSIGNMENTS:** Students should read the applicable sections in Wade before attending the lecture that covers these sections. Soon after each lecture, students should reread those sections and compare the text to their lecture notes. At the time of this second reading, the in-chapter problems should be worked. Homework problems in Wade are given both within each chapter and at the end of each chapter. Each student should work all of the in-chapter problems and as many of the end-of-chapter problems as time permits (all if it is at all possible, but minimally try to do a variety of different problems). Homework will not be collected; each student is to correct his/her own answers by consulting the answers given in the *Solutions Manual*.

**LECTURES:** The quantity of material to be learned in Chemistry 261 is too large to permit all of it to be covered in the lectures. The lectures will focus on the key ideas and on those parts of the material which the lecturer judges to most be in need of emphasis or explanation. The lecturer will assume that the students have read the corresponding sections in Wade before attending the lectures. Lectures will be in the Lab/Sciences Building Room 300 from 9:07 to 10:00 a.m. Monday - Friday.

**CHEMISTRY 261 HELP ROOM (Lecture component):** There will be a Chem 261 Help Room open Tues through Thursday from 1:00 - 4:00 p.m. in Lab/Sciences Building Room 400C. The course TA's for Chem 261 will be present to answer any questions about the course material.

**HELP AND PROBLEM SOLVING SESSIONS (Lecture component):** There will be an Exam Help session the Thursday afternoon before each of the semester exams from 4:00 - 6:00 pm in Lab Sciences 300. This session will be run by Professor Taylor. The purpose of these sessions is to allow the students an opportunity to get any last minute questions answered. General problem solving sessions will be held every week, Tues-Thursday evenings from 5:30-7:00 p.m. in LS 250 unless otherwise noted. These will be presented by the course TA's and will cover illustrative exam problems and homework problems.

**VIDEOTAPES OF LECTURES:** The Chemistry 261 lectures are videotaped; tapes will be available at the Olin Library Reserve Desk for use in Olin. The tapes will also be available by streaming video at: <http://streaming.wustl.edu/courses/lectures/pages/pages.html>. Username: chem261. The password is given in class and by email.

**CORNERSTONE:** Cornerstone: The Center for Advanced Learning, located on the South 40 at Gregg Hall, offers academic resources such as study groups, peer mentors, help desks, and course workshops to students seeking additional support in classes ranging from Chemistry and Calculus to Spanish and Freshman Writing. The Center also offers technological resources like programs for web design and learning style assessments. Those seeking disability information should contact Disability Resources at 935-5970 or link to Disability Resources from the Cornerstone website for further information. (URL: <http://cornerstone.wustl.edu>)

**HELP AND PROBLEM SESSIONS AND OFFICE HOURS:**

<b>Time/Location</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
9-10 AM LS 300 <b>Lecture</b>	<i>John Taylor</i>		<i>John Taylor</i>		<i>John Taylor</i>
10-12 LS 260 <b>Office Hr</b>		<i>John Taylor*</i>	<i>John Taylor</i>	<i>John Taylor</i>	<i>John Taylor</i>
1-4 PM LS 400C <b>Office Hr</b>		<i>Jill Smith</i>	<i>Rongsheng Wang</i>	<i>Laura Anderson</i>	
5:30-7:00 PM LS 250 <b>Problem solving sessions</b>		<i>Jill Smith</i>	<i>Rongsheng Wang</i>	<i>Laura Anderson</i>	
<b>Exam Help Session</b> 4-6 PM LS 300 (before exams)				<i>John Taylor</i>	

\* For a Tuesday exam, there will be no problem solving session or office hours on Tuesday, but they will be moved to Monday.

**LABORATORY COMPONENT**

**LECTURER:**

Dr. Steve Kinsley

Office: LS 101D

Phone: 314-935-9401

e-mail: [kinsley@wuchem.wustl.edu](mailto:kinsley@wuchem.wustl.edu)

**LABORATORY TEACHING ASSISTANTS:**

TBA

**OFFICE HOURS:**

Kinsley (LS 101D)  
 Mon - Thur 2:00-3:00 pm

**TA Office Hours**

TBA

If you are not free during the hours listed above, you may arrange an appointment directly with me by e-mail or phone. I am also available for walk-ins anytime my door is open.

**TEXTBOOKS:**

Chem 261-262 Laboratory Manual and carbonless-copy laboratory notebook.

**OPTIONAL TEXT:**

"Macroscale and Microscale Organic Experiments" (2nd Edition), Kenneth Williamson, D.C. Heath and Company. This reference book will be available in the laboratory and will be on reserve in the chemistry library and in the resource center (LS 400).

**LECTURE TIME:** All Sections Friday 2:00-3:00 p.m. Louderman 458  
 Sections meet on alternating weeks, Sections A-C first week; Sections D-H second week  
 See Schedule of Lecture Topics, Laboratory Experiments .... below)  
**Lecture Slides will be posted on Telesis**

**LABORATORY SECTIONS:** (Note: Sections meet on alternating weeks  
 See Schedule of Lecture Topics, Laboratory Experiments ....below)

**Week 1**

Lab Section	Day	Time
I	Saturday	9:00-1:00 p.m.
A	Monday	1:00-5:00 p.m.
B	Tuesday	8:00-Noon
C	Tuesday	1:00-5:00 p.m.

**Week 2**

Lab Section	Day	Time
D	Tuesday	8:00-Noon
E	Tuesday	1:00-5:00 p.m.
F	Wednesday	1:00-5:00 p.m.
G	Thursday	8:00-Noon
H	Thursday	1:00-5:00 p.m.

**LABORATORY GRADING:**

**(1) Laboratory Report and Notebook (330 points out of 400 points):** Each experiment will be worth a maximum of 55 points and will consist of notebook and the experiment report sheet. These reports are to be turned in on the forms provided at the end of the experiments. To these pages, any additional laboratory notebook pages should be attached. These are pages used for calculations as well as any other required supplementary material such as graphs, spectra, or relevant discussion of your results. A schedule of when laboratory reports are due is on page I-6 of the Manual. Each report is to be turned in during the student's laboratory period in the week the report is due. Late reports will be fined 5 points for up to 24 hours late and 10 points if more than 24 hours late. (If the student does not attend a lab period when a report is due, the report will be due during the first succeeding lab period.) Note: For determination of the Laboratory Report Score, the score for the lowest scoring report will be dropped. If you miss a lab, this lab will automatically be the dropped score.

**(a) Notebook:** Each student's notebook will be graded by awarding points for items that should be included in a notebook. An example of a notebook is given in Appendix C. The point distribution will be as follows:

<b>Purpose</b>	5 pts	Must be written before lab
<b>Table of Reagents &amp; Products</b>	5 pts	Must be filled out before lab
<b>Structures &amp; Reactions</b>	5 pts	Must be drawn before lab
<b>Procedure and Observations</b>	10 pts	Must be written during lab
<b>Experimental Results</b>	20 pts	Includes yield, purity, calculations or other workup of data.
<b>Conclusion</b>	10 pts	
<b>Total</b>	55 pts	

**(b) Experimental Results:**

**(i) Preparations:** Each preparation will be judged by the student's TA on the basis of general appearance, such as color and crystal form, and proper labeling of the sample. Samples will also be spot checked for accuracy in reporting melting point ranges and yields in the student's report.

**(ii) Other experiments:** Other experiments involve identifying unknowns, obtaining or observing kinetic or physical data. The results of these experiments will be judged on the basis of the accuracy of the results and/or the quality of data.

**(2) Lab Quizzes (30 points out of 400 points):** At the start of lab, a 5 point quiz will be given. Note: For determination of the Laboratory Quiz Score, the score for the lowest scoring quiz will be dropped. If you miss a lab, this quiz will automatically be the dropped score.

**(3) Laboratory Conduct (40 points out of 400 points):** All students will be evaluated on the basis of (a) the student's understanding of the experiments, (b) the student's laboratory technique, (c) the neatness of the student's bench, apparatus set-up, etc., and (d) efficiency in carrying out experiments. The TA will keep a record of each student's laboratory proficiency, and will also note if the student obeys the rules concerning laboratory safety, closing time, waste disposal, etc. A score with a maximum of 40 points will be assigned to each student.

**FINAL LABORATORY GRADE CALCULATION:** Final lab scores will be normalized across all lab sections and treated like one 100 pt exam and combined with the exam scores to determine the final grade (see section on Course Letter Grades Above).

**REGRADES:** Occasionally, mistakes are made during grading of laboratory reports or quizzes. In such cases, all regrade requests for laboratory experiments should be first directed to your TA. In the event that there is some disagreement or that the TA does not have the authority to make the requested change, the regrade request will be forwarded to the lecturer.

**SAFETY GOGGLES:** Students are required to provide an approved pair of safety goggles in order to be admitted to the laboratory. Approved safety goggles are available in the main chemistry stockroom (McMillen 108). These goggles meet specifications of the U.S. Occupational Safety and Health Act (OSHA-ANSI287.1-1979) and are approved by the Chemistry Department Safety Committee.

**DISPOSABLE GLOVES:** A box of disposable gloves must be purchased from the main chemistry stockroom (McMillen 108). Students can share boxes of gloves as long as the gloves are always available to each student during the appropriate lab period.

**LABORATORY TA OFFICE HOURS: TBA**

**SCHEDULE OF LECTURE TOPICS, LABORATORY EXPERIMENTS, READING ASSIGNMENTS, AND EXAMS**

Lecture #	Day	Date	Chapter in Wade	Topic	Laboratory Experiment
1	Wed	8/26	1	Introduction & Review	
2	Fri	8/28	1		Lab Lecture 1 for Sections A, B, C (Lab Lecture and Lab Section I on Saturday)
3	Mon	8/31	2	Structure &	Experiment 1 Recrystallization

				Properties of Organic Molecules	(Section A Monday) (Sections B,C Tuesday)
4	Wed	9/2	2		
5	Fri	9/4	2		Lab Lecture 1 for Sections D,E,F,G,H
	Mon	9/7		<b>NO CLASS LABOR DAY</b>	Experiment 1 Recrystallization (Section D,E Tuesday)
6	Wed	9/9	2/3	Alkanes	Experiment 1 Recrystallization (Section F) (Sections G, H Thursday)
7	Friday	9/11	3		Lab Lecture 2 for Sections A, B, C (Lab Lecture and Lab Section I on Saturday)
8	Mon	9/14	3		Experiment 2 Extraction (Section A Monday) (Sections B,C Tuesday)
9	Wed	9/16	3/4	The Study of Chemical Reactions	
10	Fri	9/18	4		Lab Lecture 2 for Sections D,E,F,G,H
	<i>Fri</i>	<i>9/18</i>		<i>Exam Help Session</i>	<i>LS300 4-6 PM</i>
11	Mon	9/21	4		Experiment 2 Extraction (Section D,E Tuesday)
	Mon	9/21		<b>EXAM 1 (Chapt 1-3, Lab 1)</b>	
12	Wed	9/23	4		Experiment 2 Extraction (Section F) (Sections G, H Thursday)
13	Fri	9/25	4		Lab Lecture 3 for Sections A, B, C (Lab Lecture and Lab Section I on Saturday)
14	Mon	9/28	5	Stereochemistry	Experiment 3 Chromatography (Section A Monday) (Sections B,C Tuesday)

15	Wed	9/30	5		
16	Fri	10/2	5		Lab Lecture 3 for Sections D,E,F,G,H
17	Mon	10/5	5		Experiment 3 Chromatography (Section D,E Tuesday)
18	Wed	10/7	5		Experiment 3 Chromatography (Section F) (Sections G, H Thursday)
	<i>Thurs</i>	<i>10/8</i>		<i>Exam Help Session</i>	<i>LS300 4-6 PM</i>
19	Fri	10/9	6	Alkyl Halides: Nucleophile Substitution & Elimination	No Lab Lecture (Section I Experiment 4 Williamson Ether Synthesis Saturday)
20	Mon	10/12	6		Experiment 4 Williamson Ether Synthesis (Section A Monday) (Sections B,C Tuesday)
	Tues	10/13		<b>EXAM 2</b> <b>Chapt 4-5, some 6</b> <b>Lab 2-3</b>	
21	Wed	10/14	6		
	Fri	10/16		<b>FALL BREAK</b>	
22	Mon	10/19	6		Experiment 4 Williamson Ether Synthesis (Section D,E Tuesday)
23	Wed	10/21	6/7	Structure and Synthesis of Alkenes	Experiment 4 Williamson Ether Synthesis (Section F) (Sections G, H Thursday)
24	Fri	10/23	7		Lab Lecture 5 for Sections A, B, C (Lab Lecture and Lab Section I on Saturday)
25	Mon	10/26	7/8	Reactions of Alkenes	Experiment 5 Isomerization Mechanism (Section A Monday) (Sections B,C Tuesday)
26	Wed	10/28	8		
27	Fri	10/30	8		Lab Lecture 5 for Sections D,E,F,G,H

28	Mon	11/2	8		Experiment 5 Isomerization Mechanism (Section D,E Tuesday)
29	Wed	10/4	9	Alkynes	Experiment 5 Isomerization Mechanism (Section F) (Sections G, H Thursday)
	<i>Thurs</i>	<i>10/5</i>		<i>Exam Help Session</i>	<i>LS300 4-6 PM</i>
30	Fri	11/6	9		Lab Lecture 6 for Sections A, B, C (Lab Lecture and Lab Section I on Saturday)
31	Mon	11/9	10	Structure and Synthesis of Alcohols	Experiment 6 Preparation of Cyclohexene (Section A Monday) (Sections B,C Tuesday)
				<b>EXAM 3</b> <b>Chapt. some 6,7-9</b> <b>Labs 4-5</b>	
32	Wed	11/11	10		
33	Fri	11/13	11	Reactions of Alcohols	Lab Lecture 6 for Sections D,E,F,G,H
34	Mon	11/16	11		Experiment 6 Preparation of Cyclohexene (Section D,E Tuesday)
35	Wed	11/18	14	Ethers, Epoxides, and Sulfides	Experiment 6 Preparation of Cyclohexene (Section F) (Sections G, H Thursday)
36	Fri	11/20	14		No Lab Lecture (Section I Experiment 7 Diels-Alder Reaction Saturday)
37	Mon	11/23	15	Conjugated Systems, Orbital Symmetry & UV Spectroscopy	Experiment 7 Diels-Alder Reaction (Section A Monday) (Sections B,C Tuesday)
	Wed-Fri	11/25-27		<b>Thanksgiving Break</b>	
38	Mon	11/30	15		Experiment 7 Diels-Alder Reaction (Section D,E Tuesday)
39	Wed	12/2	15		Experiment 7 Diels-Alder Reaction

					(Section F) (Sections G, H Thursday)
	<i>Thurs</i>	<i>12/3</i>		<i>Exam Help Session</i>	<i>LS300 4-6 PM</i>
40	Fri	12/4	15		
41	Mon	12/7	15	<i>Last Day of Class</i>	
	Mon	12/7		<i>Exam 4</i> <i>Chapt. 10-11,14-15</i> <i>Labs 6-7</i>	
	Thurs	12/17		<i>Final</i> <i>comprehensive</i>	<i>8:00 - 10:00</i>