

CHEM 345 Organic Chemistry I
Fall 2016

Instructors:

Dr. Greg Crouch, Fulmer 414 gcrouch@wsu.edu
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Stockroom Manager:

Andrea Kirchner Loewus, Fulmer 435A
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Prerequisite: A letter grade of C or better in Chem 102 or 106 or the equivalent course transfer.

Contacting Instructors and TAs: Please do not call. Rather, all instructor and TA email addresses are listed on the Blackboard course website. Please put "chem 345" in the subject field of the email.

Office Hours:

- Dr. Crouch: M/W/F 10:00-11:00 am and by email appointment.
- Dr. Mancini: M/W/F 2:00-3:00 pm and by email appointment.
- TAs office hours are held in Fulmer 401 as well as CUE tutoring center. A schedule will be posted on the course website as well as on the door to Fulmer 401 no later than the first week of class.

Class Meeting:

- Section 1 MWF 11:10-12:00 Fulmer 226
- Section 2 MWF 13:10-14:00 Heald G3
- Prelab meeting times depend on section. All labs meet in Fulmer 438 beginning the week of September 7th.

Course Website: All course material is on our website at:

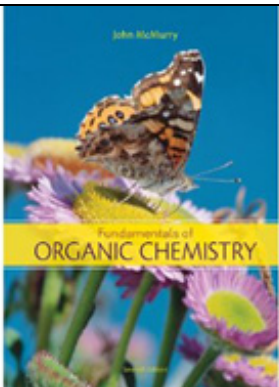
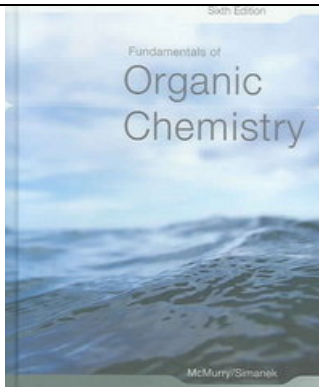
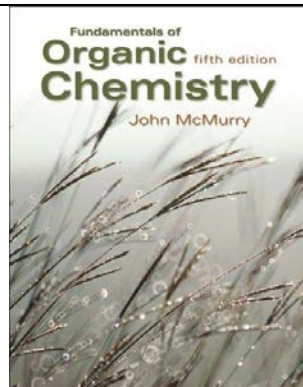
- <http://learn.wsu.edu>
- In addition, we have a course Facebook group page at: <http://www.facebook.com/groups/chem.345>

Required Course Materials: Two choices

1. There is a bundle in the bookstore for \$225 that contains Fundamentals of Organic Chemistry by McMurry (7th edition) in addition to the online homework system called OWL.
2. You may opt to buy access to OWL directly at:

<http://www.cengagebrain.com/course/1476386>

This option costs \$129. If you chose this route, you can find a used copy of Fundamentals of Organic Chemistry by McMurry for as little as \$10 from amazon or abebooks.com. An older (5th or 6th edition) of this text will work fine. **IMPORTANT:** Make sure you only purchase the text with the exact name "Fundamentals of Organic Chemistry." This author has written many books so make sure you get the correct version. Here are the covers from the last three editions:

		
7 th edition	6 th edition	5 th edition

For either option above, you will also need to purchase access to Learning Catalytics at a cost of \$12 for six months of access:

<http://learningcatalytics.com>

IMPORTANT: When registering for Learning Catalytics you must enter your student ID and make sure your name is spelled correctly. At the end of the term, your scores from the Learning Catalytics gradebook will be imported to Blackboard based on Student ID. If your ID is missing or incorrect, you will miss points.

Finally, a model kit is required. While there is a kit at the Bookie for \$26, you may also purchase one for \$15 from: http://www.darlingmodels.com/Individual-Orders-Molecular-Model-Kits/KIT-3-ISBN-978-09648837-4-1-MOLECULAR-VISIONS-Organic-Kit/prod_7.html

Model kits can also be purchased on eBay or Amazon for a reasonable price. It is essential you have a model kit before the first exam.

In summary the cheapest option is \$129 + \$10 (approximate used book) + \$12 (Learning Catalytics) + \$15 (model kit) \cong \$166. For those students going to Chem 348, you will not be required to purchase any additional materials.

For lab, you will need goggles and a lab coat. These are sold by the Chemistry Club at the beginning of the semester. You will not need to buy a lab book or a lab notebook.

Course Objectives and Description: Students completing Chem 345 will be able to

- 1) Rationalize molecular reactivity based on functional groups,
- 2) Master the foundational knowledge necessary for success in Chem 348,
- 3) Master simple laboratory methods dealing with compound separation, identification, and synthesis, and
- 4) Safely manipulate chemical compounds and understand chemical hazards in the laboratory.

Lecture Course Description: The Chem 345 curriculum is based on the “survey of functional groups” approach to teaching organic reactions and mechanisms. Each week we will be exploring a different type of organic compound. Please consult the lecture topic outline section of the course web site and keep up with reading and homework.

Lab Course Description: Chem 345 has a laboratory component that meets once per week for 3 hours. In order to pass the course, you must complete and pass all of the labs. You are not required to purchase any lab manuals as all printed materials are freely available on the course website. You are required to purchase a lab coat as well as goggles.

You must complete and turn in all of the labs in order to pass this course. In other words, failure to turn in a lab report at the end of the term will result in an automatic failing grade. Lab attendance is mandatory. If you miss a lab, there will be a make-up session at the end of the semester; you may make up a maximum of two labs. If you miss more than two labs during the semester without an excellent reason, you will automatically fail the course. If you cannot attend lab, you must email your TA and Andrea Kirchner-Loewus (andreakl@wsu.edu) before the scheduled lab time.

All labs must be turned in directly to your TA the week following their completion or to the Organic Stockroom Fulmer 435 (Manager, Andrea Kirchner-Loewus). Your TA will sign the report acknowledging receipt and Andrea or the Organic Stockroom staff will date-stamp them.

Early Policy: You will receive 0.25 points EXTRA CREDIT for each day you turn in your lab prior to the due date (maximum of 1 point per lab). If you wish to turn in a lab early, give it to your TA directly or Andrea/Organic Stockroom staff in 435 from 10-4 pm, Monday-Thursday (closed Fridays).

Late Policy: There is none. It has been superseded by the *Early Policy*. Labs turned in after the due date will be scored as a 0 (zero) and counted as a completed lab and thus cannot be made up at the end of the semester. If no stockroom personnel are present to accept your lab, you may drop it through the mail slot on the door to Fulmer 435A.

Student Learning Outcomes:

1. Use chemical acid/base reactivity to predict chemical equilibrium.
2. Describe chemical reactivity in terms of organic functional group chemistry, including functional group transformation.
3. Interpret structural changes within a chemical framework considering bond making and bond breaking.
4. Propose reasonable mechanisms that convert starting materials to product
5. Interpret stereochemical data that informs a mechanistic hypothesis.
6. Plan an organic synthesis using a retrosynthetic approach based on known chemical reactions.
7. Develop skill in safe chemical handling, measurements, experimental technique, and simple synthesis.
8. Plan simple compound separation schemes using solubility characteristics.

Assignments & Grading Policy: This course will be graded on the basis of homework, two midterm exams, a comprehensive final exam, lecture participation, and lab.

Homework: We will be using Mastering Chemistry for online homework this term. All assignments will be accessible through Blackboard Learn and count at 10% of your grade.

Midterm exams: Two hourly exams will be administered to assess subject mastery. These exams are not multiple choice. Prior semester exams are provided on the course website. The second midterm exam (as well as the final) are comprehensive. Each midterm exam is 20% of your grade. If you miss a midterm exam, your final will count at 45%

Final exam: A two-hour mandatory final exam will be administered at the end of the course. The final exam is worth 25% of your grade.

Lecture participation: Learning Catalytics will be used to assess lecture participation. Lecture participation is worth 5% of your grade.

Lab: Completing all 12 labs is required to pass this course and will count at 20% of your grade.

Assessment: Student Learning Outcomes 1 through 7 will be assessed using hand-graded exams, homework, and in-class participation. We do not use multiple choice exams so we can assign partial credit for reasonable answers. Any chemical separations theory necessary to Student Learning Outcome 8 will also be assessed using exams. The remainder of outcomes 7 and 8 will be assessed by graded lab reports.

Grade Scale: This course will use the following grade scale. Please note this scale may change slightly from year-to-year.

A	92-100	B	83-85	C	72-76	D	61-64
A-	89-91	B-	80-82	C-	69-71	F	<60
B+	86-88	C+	77-79	D+	65-68		

Grade Summary: The breakdown for each of graded component is show below, along with their weight in percentage. A sample calculation is also provided.

		sample calculation				
graded components	weight	score	weight	weighted score		
homework	10%	70	x 0.1	=	7	
test 1	20%	67	x 0.2	=	13.4	
test 2	20%	62	x 0.2	=	12.4	
lecture participation	5%	88	x 0.05	=	4.4	
final	25%	77	x 0.25	=	19.25	
lab	20%	90	x 0.2	=	18	
	100%	sum			74.45	

In the sample calculation above, the composite score of 74.45 would round to 74 and correspond to a letter grade of C according to the grade scale. However, since the final exam is comprehensive, we also consider that score alone and if it is better than the composite score, that will be the grade awarded. For example, the final exam score above is 77%, which corresponds to a letter grade of C+, so that is the grade awarded for the class.

composite score	final exam	best score	best letter grade
74	77	77	C+

We do not give make-up exams. *If you miss one hourly exam, the final exam will increase to 45% of your course grade.* To pass this course, you must complete all of the labs. *If you miss a lab, there will be make-up times available.*

Test Schedule: All tests and exams are evening exams. If you off campus due to a university sponsored event, you may arrange for an academic counselor to proctor the exam. You must make these arrangements within the first two weeks of the semester. If you miss an hourly exam, the final exam will count at 45%.

- Test 1, Thursday September 29th from 8:00 to 10:00 pm in Todd 116 & Fulmer 226
- Test 2, Thursday November 10th from 8:00 to 10:00 pm in Todd 116 & Fulmer 226
- Final Exam, Thursday December 15th from 7:00 to 10:00 pm, locations TBD

Tests 1 and 2 are written for a standard one-hour time frame so it is permissible to start Test 1 or Test 2 up to 9:00 pm and still have time to complete the exam. The Final Exam is written for an average student to complete in 90 minutes. Officially approved and scheduled night examinations have priority everything except officially scheduled lectures and labs. If you have a conflict with another evening academic activity such as a biology or physics lab course, you must arrange for an alternate test time at least two weeks prior to the exam. There is no penalty for missing an hourly exam as it simply increases the weight of the final exam. Do not make travel plans before the final exam. Your travel cannot be accommodated.

Test Policy and Regrades: In advance of exams, you will be provided with a notecard that you may bring to the exam. In addition to this notecard, bring only your student ID, a model kit, and pencils to the exams. You will be provided scratch paper. You may not bring any electronic or internet connected device to the exam. Do not bring or leave visible any notes other than on your card. If you are observed using any electronic device, reading off fellow student's tests, or having notes other than allowed, you will fail the exam and be asked to leave the testing room. interpreted as a breach of academic integrity and will be reported. Once exams have been graded, you may pick them up from the stockroom. Look over the exam carefully and make sure the points have been added correctly. If you find an error or have a question about the grading of the exam, return it to the stockroom attendant with a regrade request form attached (you can get these from the stockroom or on the course website) – we will not re-grade an exam once you remove it from the stockroom. Be very clear when completing the regrade form. For example, "there is an error in my total points" or "on question 2, I drew the correct intermediate structure...." Avoid requests that include "I feel as if I deserve more points."

Lecture Schedule

Week	Starting	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	August 22	Lecture 1		Lecture 2		Lecture 3
Week 2	August 29	Lecture 4		Lecture 5		Lecture 6
Week 3	September 5	Labor Day		Lecture 7		Lecture 8
Week 4	September 12	Lecture 9		Lecture 10		Lecture 11
Week 5	September 19	Lecture 12		Lecture 13		Lecture 14
Week 6	September 26	Lecture 15		Review	Test 1	No lecture
Week 7	October 3	Lecture 16		Lecture 17		Lecture 18
Week 8	October 10	Lecture 19		Lecture 20		Lecture 21
Week 9	October 17	Lecture 22		Lecture 23		Lecture 24
Week 10	October 24	Lecture 25		Lecture 26		Lecture 27
Week 11	October 31	Lecture 28		Lecture 29		Lecture 30
Week 12	November 7	Lecture 31		Review	Test 2	Veteran's Day
Week 13	November 14	Lecture 32		Lecture 33		Lecture 34
	November 21	Thanksgiving Vacation				
Week 14	November 28	Lecture 35		Lecture 36		Lecture 37
Week 15	December 5	Review		Review		Review
Finals	December 12				Final Exam 7-10 pm	

Lecture Topics:

We will cover chapters 1 through 12 in the text. Slides will be provided in advance of class. Typically Chapters 1-5 are covered on Test 1, Chapters 6-10 on Test 2, and all 12 chapters on the final exam.

Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information, contact a Disability Specialist

Academic Integrity: You are encouraged you to work with classmates on assignments, however, each student must turn in original work. No copying will be accepted. Falsified lab data is also a violation of academic integrity. Students who violate WSU's Standards of Conduct for Students will receive an F as a final grade in this course, will not have the option to withdraw from the course, and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions. In addition, if during an exam you use an internet connected or other electronic devices, you will fail the exam and be reported as described above.

Safety Statement: Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (<http://safetyplan.wsu.edu/>) and visit the Office of Emergency Management web site (<http://oem.wsu.edu/>) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.