

## CHEM 348 Organic Chemistry II Spring 2016

### Instructors:

Dr. Greg Crouch, Fulmer 414  
[gcrouch@wsu.edu](mailto:gcrouch@wsu.edu)

**Prerequisite:** A letter grade of C or better in Chem 345.

**Contacting Instructors and TAs:** We will be using Blackboard Learn as our course website. All instructors and TAs can be contacted via BB Learn email. Please put "chem 348" in the subject field of the email.

### Office Hours:

- Dr. Crouch: M/W/F 11:00-12:00 pm **and** by email appointment. When emailing for an appointment, provide several times that are open in your calendar so I can find a common block.
- 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 10:10-11:00 Todd 216

**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.348>

### Required Course Materials:

*Continuing Students.* When you log into Blackboard (<http://learn.wsu.edu>) and follow the mastering chemistry link on the left most menu, you will be presented with an option to sign in using your Pearson ID (the same as last semester). This will carry forward your license for the book and other course materials.

*New Students and students who took Chem 345 prior to fall 2015.* We will use Bruice's Organic Chemistry (7<sup>th</sup> edition) with Mastering Chemistry for online homework as well as Learning Catalytics for classroom response technology. You have three options:

- 1) You may purchase the book and Mastering Chemistry access for \$149.00 at Crimson & Gray or \$160.70 at the Bookie.
- 2) Crimson & Gray also provides a textbook rental option with Mastering access code for \$99.00. Be aware of the rental term is for a single semester.
- 3) For those of you with a laptop or third or fourth generation iPad (those with retina displays) you may opt for the eBook and Mastering Chemistry access for \$100.00 at Crimson and Gray or \$109.30 at the Bookie. Please be aware that if you select this option, the only tablet that displays the eBook well is an iPad with retina display. Laptops all work but Android devices shrink the size of the text so it requires magnification and thus is not easy to read.
- 4) You may also purchase Mastering Chemistry with or without the eBook when you register through Blackboard Learn. **Write down your Pearson ID**

- a. The cost is \$90.00 Mastering Chemistry with the eBook or,
- b. \$66.00 for Mastering Chemistry without the eBook. This option requires a separate purchase of Learning Catalytics for \$12.00 that brings the total cost to \$78.00.

*Mastering Chemistry* and Learning Catalytics are necessary for whatever option you select. Mastering Chemistry support can be found at <http://247pearsoned.custhelp.com/> In addition, WSU is a priority customer so you have access to phone tech support at 855-875-1797. If you contact support let your agent know you use Modified Mastering that is connected to BlackBoard Learn.

In addition to the text and Mastering Chemistry shown above, you will need an organic model like. These can be very expensive so be careful. A cheap model kit is [http://www.darlingmodels.com/Individual-Orders-Molecular-Model-Kits/KIT-3-ISBN-978-09648837-4-1-MOLECULAR-VISIONS-Organic-Kit/prod\\_7.html](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.

**Course Objectives and Description:** Students completing Chem 348 will be able to

- 1) Rationalize molecular reactivity based on functional groups,
- 2) Develop abstract reasoning skills sufficient to preform synthesis and mechanism type questions in Chem 348.
- 3) Extend problem solving skills to a small group learning community.

### *Couse Description*

This course builds on the functional group/synthetic approach introduced in Chem 345 with a focus on synthesis and mechanism. In addition to lecture, Chem 348 provides an opportunity to develop your chemical problem solving skills through small group workshops. These workshops have limited enrollment and are run by senior teaching assistants. By participating in these workshops, you will learn useful ways of solving synthesis and mechanism problems that directly relate exams. There will be 12 workshops throughout the semester. In Chem 348, 70% of your grade is based on exams, 10% on homework, and 20% on attendance and participation in the workshops.

### *Workshops*

There will be 12 workshops throughout the semester where attendance is required. In these workshops you will be provided with problem sets that cover important nomenclature, structures, reactions, and mechanisms that you will be responsible to learn. These problem sets and keys will be posted on the course website the following week. If you come to office hours for help on these problem sets, you must bring your work. In other words, do not bring blank pages and ask me or a TA to solve the problem. This does not help you prepare for exams.

### **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. Work as an effective team member of a problem solving small group.

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

*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 50%

*Final exam:* A two-hour mandatory final exam will administered at the end of the course. The final exam is worth 30% of your grade.

*Homework & Lecture Participation:* Mastering Chemistry is your online homework tool and Learning Catalytics will be used to assess lecture participation. Homework and Lecture participation together is worth 10% of your grade.

Workshops are worth 20% of your grade

**Assessment:** Student Learning Outcomes 1 -6 will be assessed with homework, lecture participation, and hand-graded exams. We do not use multiple choice exams so we can assign partial credit for reasonable answers Student Learning Outcome 7 will also be assessed by attendance and participation in the 12 required workshops.

**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		

**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 February 18<sup>th</sup> from 8:00 to 10:00 pm in Todd 116 & Fulmer 226
- Test 2, Thursday March 31<sup>st</sup> from 8:00 to 10:00 pm in Todd 116 & Fulmer 226
- Final Exam, Wednesday May 4<sup>th</sup> from 7:00 to 10:00 pm, location TBD

**Test Policy and Regrades:** 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. Doing so will result in a failing grade and be 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

<i>Week</i>	<i>Starting</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
Week 1	January 11	Lecture 1		Lecture 2		Lecture 3
Week 2	January 18	MLK Day		Lecture 4		Lecture 5
Week 3	January 25	Lecture 6		Lecture 7		Lecture 8
Week 4	February 1	Lecture 9		Lecture 10		Lecture 11
Week 5	February 8	Lecture 12		Lecture 13		Lecture 14
Week 6	February 15	President’s Day		Review	Test 1	no lecture
Week 7	February 22	Lecture 15		Lecture 16		Lecture 17
Week 8	February 29	Lecture 18		Lecture 19		Lecture 20
Week 9	March 7	Lecture 21		Lecture 22		Lecture 23
Week 10	March 14	spring break				
Week 11	March 21	Lecture 24		Lecture 25		Lecture 26
Week 12	March 28	Lecture 27		Review	Test 2	no lecture
Week 13	April 4	Lecture 28		Lecture 29		Lecture 30
	April 11	Lecture 31		Lecture 32		Lecture 33
Week 14	April 18	Lecture 34		Lecture 35		Lecture 36
Week 15	April 25	Course Review		Course Review		Course Review
Finals	May 2			Final Exam 7-10 pm		

**Lecture Topics:** Given that we will only cover selected sections in the required textbook, lecture notes and slides will be available in advance of lecture on the course website. You may use these to orient lecture with readings from the textbook.

**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.