



# Chem 342 • Organic Chemistry II

Syllabus - Spring 2009

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**Office Hours:** Monday and Wednesday, 9:00 am - 10:00 am, and by appointment - please do contact me!

**Required Text:** "Organic Chemistry" Seventh Edition, J. McMurry bundled with "Study Guide and Solutions Manual for McMurry's Organic Chemistry" Seventh Edition, S. McMurry.

**Optional:** Darling Molecular Models available in the Varsity Mart - Highly Recommended!

**PRS:** We will be using the PRS system in class this year. Please make sure yours is registered on blackboard for the course.

**INTRODUCTION:** This course is designed to explore in more details the specifics of the reactivity of various functional groups. The concepts learned in Chem 341 will be reiterated throughout the course. We will learn spectroscopic techniques for characterization of organic functional groups. The reactivity of conjugated alkenes and aromatic compounds will be discussed. The chemistry of alcohols, carbonyl compounds, carboxylic acid derivatives, and biomolecules will be a large part of the class. We will also learn more about strategies to plan multistep syntheses using reactions we have learned.

**GRADING:** Grading will be based on 3 midterm exams (60% of your grade) a comprehensive final exam (30% of your grade) and daily in-class PRS quizzes (10% of your grade). Letter grades will be assigned according to the following percentiles (subject to change):

**A** 85-100      **B** 75-84      **C** 60-74      **D** 45-59

**HOMEWORK:** Homework is not required for this course. However, suggested problems will be announced for each chapter. You are strongly urged to work through the suggested problems as many times as it takes to become proficient with the material. This will take a lot of work on your part, but it will be key to your success in this class.

**EXAMS:** Three hourly exams and a comprehensive final exam will be given on the dates specified in the attached schedule. There will be no make-up exams without prior approval of the instructor and *only for official university sanctioned absences or emergencies*. If you must miss an exam due to a scheduled university function (athletic event, etc.), the instructor must be notified at least one week before the exam date. An alternative exam will only be given *prior* to the scheduled exam date. *Absolutely no make up exams will be given after a scheduled exam date*. Extraordinary circumstances (death, hospitalization, etc.) will be evaluated on a case by case basis. Exams are short answer and will not use computer scantron sheets. **Please note:** Hats, Cell Phones, Calculators and PDA's or any other device capable of storing electronic notes are prohibited during examinations. *Please bring a picture ID to the exam.*

**QUIZZES:** 10% of your grade will be based on the cumulative total of a daily quiz question. Quizzes will use the PRS system for recording your answers. The daily quiz will be placed up on the screen a few minutes prior to the start of class and you will be able to submit your answer up to a few minutes after class starts. Please be on time to class as you will not have an opportunity to answer the quiz question if you are late. Each daily quiz will be assigned 2 pts for a correct answer, 1 pt for an incorrect answer and 0 pts for no answer.

**LEARNING TIPS:** Organic chemistry is not hard, but it does *take a lot of work*. The most important thing you can do to be successful in this class is to attend every class, stay current and keep up. Unfortunately, Organic Chemistry is a broad field with lots of new concepts for you to learn. The material comes very fast and there's really not much I can do other than try to explain the material in a simple and understandable a fashion. It just isn't possible to cram for organic chemistry on the night before an exam. Believe me when I tell you that studying an hour or two everyday will be much better than studying for 12 hours on a weekend. It is not easy to absorb all the material in one sitting, and a daily dose will make comprehension much easier. It will take effort on your part to learn organic chemistry.

Learning organic chemistry is very much like learning a foreign language. You need to learn the vocabulary in terms of names, structures, and types of functional groups. You also need to learn the rules of grammar. For example, how an alcohol will react with a halide, etc. Once you learn certain rules, they can be applied to many different reactions. Thus you can construct chemical sentences. There will be a certain amount of memorization required, however, because of the vastness of the subject, learning general trends and rules will be most helpful.

Homework is not required for this course. However, suggested problems will be announced for each chapter. You are **strongly urged** to work through the suggested problems as many times as it takes to become proficient with the material. This will take a lot of work on your part, but it will be key to your success in this class.

Here are some suggestions:

- ✓ Read the chapter ahead before coming to class.
- ✓ Ask questions.
- ✓ Rewrite your notes after every class.
- ✓ Do the suggested problems as many times as it takes to understand the material, then try the other problems in your text.
- ✓ Use the Study Guide and Solutions Manual - but try to understand the problems without looking at the answers first.
- ✓ Use flash cards to help learn structures, names, and reactions.
- ✓ Find a friend or group of students to study with..
- ✓ Buy a set of molecular models.
- ✓ Utilize instructor and TA office hours.

**Special Needs:** All students have the right to an environment that is conducive for learning. Any students who need special accommodations for learning or who have special needs are invited to share these concerns or requests with the instructor as soon as possible.

**Academic Responsibility:** It is assumed that students at NDSU have the integrity to complete examinations on their own. I will provide an examination environment that discourages temptation otherwise. Any student who is found to have acted dishonestly on an exam will receive an F for that exam or depending on the circumstances, an F for the course. A second infraction will result in an automatic F for the course and the student will be reported to the Dean of Science and Mathematics for further action. Please note that a single infraction of academic responsibility could be grounds for expulsion from the university. The policy applied is that of the Code of Academic Responsibility and Conduct as outlined in NDSU University Senate Policy, Section 335: Code of Academic Responsibility and Conduct (<http://www.ndsu.nodak.edu/policy/335.htm>).

# Course Outline

## Tentative Class Schedule (subject to change)

<b>Chapter 13:</b>	Structure Determination: Nuclear Magnetic Resonance Spectroscopy
<b>Chapter 14:</b>	Conjugated Compounds and UV Spectroscopy
<b>Chapter 15:</b>	Benzene and Aromaticity
<b>Chapter 16:</b>	Chemistry of Benzene: Electrophilic Aromatic Substitution
<b>EXAM 1</b>	<b>Friday, Feb 13</b> Chapters 13-16
<b>Chapter 17:</b>	Alcohols and Phenols
<b>Chapter 18:</b>	Ethers and Epoxides; Thiols and Sulfides
<b>Chapter 19:</b>	Aldehydes and Ketones: Nucleophilic Addition Reactions
<b>EXAM 2</b>	<b>Friday, Mar 13</b> Chapters 17-19
<b>Chapter 20:</b>	Carboxylic Acids and Nitriles
<b>Chapter 21:</b>	Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions
<b>Chapter 22:</b>	Carbonyl Alpha-Substitution Reactions
<b>EXAM 2</b>	<b>Friday, Apr 17</b> Chapters 20-22
<b>Chapter 23:</b>	Carbonyl Condensation Reactions
<b>Chapter 24:</b>	Amines and Heterocycles
<b>Chapters 25-28:</b>	Biomolecules (We will briefly survey these topics)
<b>FINAL EXAM</b>	<b>Wednesday, May 13, 8:00-10:00 am</b> Comprehensive

### EXAMS

Feb 13	Exam 1
Mar 13	Exam 2
Apr 17	Exam 3
May 13	Final Exam 8:00-10:00 am

### HOLIDAYS

Jan 19	Martin Luther King Jr. Holiday
Feb 16	President's Day Holiday
Mar 16-20	Spring Break
Apr 10-13	Spring Holiday