

# Chem 342 Organic Chem II

Spring 2002

**Instructor:** Professor Gregory R. Cook  
**Office:** Dunbar Hall 360A  
**Telephone:** 231-7413  
**Email:** Gregory.Cook@ndsu.nodak.edu  
**World Wide Web:** <http://www.ndsu.nodak.edu/instruct/grcook/chem342/>  
**Office Hours:** Monday and Wednesday, 9:00 am - 10:00 am, or by appointment

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

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

**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 how to carry out multistep organic syntheses.

**GRADING:** Grading will be based on a 500 point scale (3 - 100 point exams *or* 2 - 100 point exams and 5 - 20 point quizzes, and a 200 point comprehensive final exam). Letter grades will be assigned according to the following percentiles (subject to change):

<b>A</b>	85 - 100	<b>C</b>	60 - 74
<b>B</b>	75 - 84	<b>D</b>	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 (100 points) and a comprehensive final exam (200 points) will be given on the dates specified in the attached schedule. There will be no make-up exams without prior approval of the instructor. If you must miss an exam due to a scheduled university function (athletic event, etc.), the instructor must be notified at least two weeks 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.

---

**QUIZZES:** Six short quizzes (20 points) will be given throughout the semester. These quizzes will be unannounced and can occur at any time. They are not directly added to your grade total for this course, however, they can be beneficial. Quizzes can only help your grade, not hurt it. The best 5 quizzes out of the 6 will be totaled. This total will replace your lowest hourly exam score if it is higher. *Under no circumstances will there be any makeup quizzes.* Quiz answers will be posted on the class web page.

**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 stay current and keep up. 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.

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.

Here are some suggestions:

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

**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. Any student who is found to have acted dishonestly on an exam will receive an F for that exam. A second infraction will result in an F for the course. The policy applied is that of the Code of Academic Responsibility and Conduct as outlined on pp. 29-30 of "A Code of Student Conduct" (Office of the Vice President for Student Affairs, July, 1993).

# Course Outline

## Tentative Class Schedule (subject to change)

Jan 9 to Jan 11	<b>Chapter 12:</b>	Structure Determination: Mass Spectrometry and Infrared Spectroscopy
Jan 14 to Jan 18	<b>Chapter 14:</b>	Conjugated Dienes and UV Spectroscopy
Jan 21	<b>No class</b>	Martin Luther King Jr. Holiday
Jan 23 to Jan 28	<b>Chapter 15:</b>	Benzene and Aromaticity
Jan 30 to Feb 4	<b>Chapter 16:</b>	Chemistry of Benzene: Electrophilic Aromatic Substitution
Feb 7	<b>Review</b>	Optional evening review session for exam 1 - 6:30 pm, Ladd 107
Feb 8	<b>EXAM 1</b>	Chapters 12, 14-16
Feb 6 to Feb 20	<b>Chapter 17:</b>	Alcohols and Phenols
Feb 18	<b>No class</b>	President's Day Holiday
Feb 22 to Feb 25	<b>Chapter 18:</b>	Ethers and Epoxides; Thiols and Sulfides
Feb 27 to Mar 4	<b>Chapter 19:</b>	Aldehydes and Ketones: Nucleophilic Addition Reactions
Mar 7	<b>Review</b>	Optional evening review session for exam 2 - 6:30 PM , Ladd 107
Mar 8	<b>EXAM 2</b>	Chapters 17-19
Mar 12 to Mar 16	<b>No class</b>	S P R I N G B R E A K
Mar 6 to Mar 18	<b>Chapter 20:</b>	Carboxylic Acids
Mar 20 to Mar 27	<b>Chapter 21:</b>	Carboxylic Acid Derivatives and Nucleophilic Acyl Substitution Reactions
Mar 29 to Apr 1	<b>No class</b>	Spring Holiday
Apr 3 to Apr 8	<b>Chapter 22:</b>	Carbonyl Alpha-Substitution Reactions
Apr 11	<b>Review</b>	Optional evening review session for exam 2 - 6:30 PM , Ladd 107
Apr 12	<b>EXAM 2</b>	Chapters 20-22
Apr 10 to Apr 17	<b>Chapter 23:</b>	Carbonyl Condensation Reactions
Apr 19 to Apr 24	<b>Chapter 24:</b>	Amines
Apr 26 to May 3	<b>Chapter 25-28:</b>	Survey of Biomolecules: Carbohydrates, Amino Acids, Peptides, Lipids, DNA
May 4	<b>Review</b>	Optional review session for final exam. 10:00 am, Ladd 107
	<b>FINAL EXAM</b>	Comprehensive -