Organic Chemistry 345 (Fall 2018)

Time & Location: MWF 12:00 pm-12:50 pm, Room CHM 180; Attendance is required.
Instructor: Dr. Jian Chen, CHM 631, 229-6464, jianchen@uwm.edu (email is best)
Office Hours: By appointment (Put CHEM 345 in the subject line of all emails and suggest 2-3 dates and times)
Course Description: CHEM 345 is the second part of a two-part introduction to the organic chemistry, the chemistry of the compounds of carbon. The material will build upon the knowledge you have retained from CHEM 343. The content can be classified as structure, properties, synthesis, reactivity, mechanism, and characterization. You will learn how atoms are joined together in organic compounds, how their structures affect their bulk properties, how we can gain information about the structures of unknown organic compounds, and how organic compounds are transformed into other organic compounds.

Prerequisite: Grade of C or better in Chem 343 (P); conc reg Chem 344 (R)
Website: http://d2l.uwm.edu/ (Find CHEM 345 once you have logged into D2L)

Tentative Schedule:
- September 5, 7, 10, 12: Chap. 17 Alcohols & Phenols
- September 14, 17, 19: Chap. 18 Ethers & Epoxides; Thiols & Sulfides
- September 21, 24: Chap. 12 Mass Spectrometry & Infrared Spectroscopy
- September 26, 28, October 1: Chap. 13 Nuclear Magnetic Resonance Spectroscopy
  - October 3: Exam Review
  - October 5: EXAM 1
- October 8, 10: Chap. 14 Conjugated Compounds & Ultraviolet Spectroscopy
- October 12, 15, 17, 19: Chap. 19 Aldehydes & Ketones: Nucleophilic Addition Reactions
- October 22, 24: Chap. 20 Carboxylic Acids & Nitriles
- October 26, 29: Chap. 21 Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions
  - October 31: Exam Review
- November 2: EXAM 2
- November 5, 7: Chap. 21 Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution (continued)
- November 9, 12, 14: Chap. 22 Carbonyl Alpha-Substitution Reactions
- November 16, 19: Chap. 23 Carbonyl Condensation Reactions
- November 21-23: Thanksgiving Recess (no class)
- November 26: Chap. 23 Carbonyl Condensation Reactions (continued)
- November 28: Exam Review
- November 30: EXAM 3
- December 3, 5, 7: Chap. 24 Amines & Heterocycles
- December 10, 12: Final Exam Review

FINAL EXAM will be on Wednesday, December 19th, 3:00-5:00 pm.

Examinations and Grading
There will be three 50-minute exams (100 points each), and one two-hour final exam (150 points). All materials covered in class up to an exam will be included. Each of three 50-minute exams will be based largely on materials covered since the previous exam. The two-hour final exam will cover all materials. The lowest of three 100 point scores will be dropped and the sum of the remaining two 100 point scores will be scaled by a factor of 1.50 to a 300 point score. Your final grade is based on a 450 point total score (300 point score + 150 point final exam score). There is no make-up exam. If you miss a 50-minute exam, with or without a prearranged excuse, your missed exam will be considered the lowest 100 point score to be dropped. You are only allowed to have ONE 100 point score to be dropped under any circumstances. Answer keys will be posted on the course website and you are strongly advised to check the answer keys after each 50-minute exam.
The university policies for students with disabilities, religious observances, incompletes, academic misconduct, grade appeal procedures, and final examination policy can be found in this link: http://www4.uwm.edu/secu/SyllabusLinks.pdf. The syllabus may be modified and any changes will be announced either in class or on D2L or by email to your uwm email address.

**Homework**

Problems from the book will be assigned. Work all of assigned problems. You are also encouraged to work as many non-assigned problems as you can. Don't look up the answers in the solutions manual until you have made the best effort to solve the problem yourself. If you cannot work problems, you should consult your text, notes, or problems earlier in the chapter before you look at the answers in the study guide. In addition, weekly self-test problems and answer keys will be posted on D2L approximately every week (except the exam week), which allow you to test your understanding of basic concepts every week without consulting your text, notes, or answer keys. Please note, however, that the exam problems could be more difficult than weekly self-test problems. Therefore working **all** of assigned homework problems **proficiently** with **very good understanding** without looking at the solution manual/text book/notes is **crucial** if you want to do well in exams.

**Tips for Success**

1. **Read and think about each chapter before the lecture.** If you know what to expect when you come to class, you will absorb it much more easily.
2. **Attend every lecture.** A large amount of materials will be covered in this course. It is extremely important that you keep up with the course. Falling behind will start a snowball effect.
3. **Rewrite your lecture notes the evening after the lecture.** When you do, you will realize that there are some points that you don't understand. Make note of these points, and consult your text or make an appointment to see me. Your rewritten notes will also be much more useful to you when you study for exams.
4. **Write as you read.** Draw out structures and reactions as you read about them in the book or your notes. Any term or concept that is less than completely clear should be reviewed immediately, before going further. Be sure you can translate 2D drawings into 3D structures. Practice drawing common organic structures and be sure you can interpret your own drawings.
5. **Work all of the assigned problems in the book.** Working problems is the best way to master the material. Don't look up the answers in the solutions manual until you have made the best effort to solve the problem by yourself. After you have looked up the answer and you think you have understood it, set aside the problem for a few days and then work it again. Knowing the answer to a problem is NOT the same as being able to solve a problem by yourself! Before each exam, be sure that you can **correctly** complete lots of problems **proficiently** with **very good understanding** without looking at the solution manual/text book/notes.
6. **Mastering organic chemistry requires a synergistic combination of LOGIC REASONING and memorization.** If you do only one or the other, you may have a very difficult time. Organic chemistry involves learning a lot of new material. Memorizing material is unavoidable, but a key to this course is to understand the recurring themes. Understand why compounds behave in the way they do, and you will be able to apply the same logic to compounds that you haven't seen before.
7. **Get help if you don't understand something.** I am available to answer questions in my office by appointment. I encourage you to make an appointment to visit with me. Don't be intimidated from coming to ask me for help.
8. **You cannot cram organic chemistry!** If you do not keep up with the material throughout the semester, and then you try to cram the night before an exam, you will be courting disaster. You are recommended to allocate at least six hours outside of class every week (that's two hours out of class for every hour in class) to study the material and work problems.
9. **Join a study group!** You are urged to form a study group of 2-6 students with your classmates. Group members will meet regularly to discuss the week’s materials and prepare for exams. The peer-led group study has proven to be one of the most efficient ways to learn organic chemistry!