

Chemistry 2353 MWF 11:00 – 11:50
Fundamentals of Organic Chemistry
Spring 2022
Dr. Janet Maxwell

janet.maxwell@angelo.edu
Office Hours (on Collaborate):
MWF 9:00 – 10:00 am
TR 9:30 – 10:30 am
or by appointment

Required Text:

S. L. Seager & M. R. Slabaugh, *Organic and Biochemistry for Today*, 8th ed (2014)

Also Required:

Web cam and required software for Respondus Lock-down Browser and monitor.

Course Description:

A brief survey of organic chemistry. Structural theory and the influence of structure on properties of organic compounds are emphasized. (Credit may not be received for both this course and Chemistry 3451.) May not be applied to a major or minor in chemistry. **Prerequisite Courses:** Chemistry 1305/1105 or 1311.

Student Learning Outcomes: Upon completion of this course, students will be able to:

- A. Understand the differences between organic molecules and inorganic compounds.
- B. Recognize and understand the differences among different organic functional groups.
- C. Be able to name simple organic compounds and draw their structural formulas.
- D. Be able to predict the shape and hybridization of carbon-containing compounds.
- E. Be able to correlate the structure, shape, and polarity of an organic molecule with its physical properties, such as boiling point and solubility.
- F. Be able to predict the products of some simple organic reactions.

Student Learning Outcomes will be evaluated using exam questions.

Grading:

Three One-Hour Exams (Each one hour exam will be worth 16.67 % of the overall grade)	3 x 100 = 300 pts
One Two-Hour Final Exam (comprehensive) (The Final Exam will be worth 33.3 % of the final grade)	1 x 200 = 200 pts
Quizzes (11 quizzes will be given and the lowest quiz grade will be dropped – the sum of the quiz grades will be worth 16.67 % of the final grade)	<u>10 x 10 = 100 pts</u> Total = 600 pts

Students are responsible for monitoring their own grades on Blackboard. The category in Blackboard that accurately reports the current grade is the "Weighted Average". This column does not always appear on cell phones, but it does appear on a computer.

Total averages within the following ranges at the end of the semester guarantee the student at least the indicated letter grade:

- A 90% of the total or better
- B 80-89% of the total
- C 70-79% of the total
- D 60-69% of the total
- F less than 60% of the total

Lab Course:

The lab course (CHEM 2153) is a separate course from the lecture. You will need lab goggles for the lab course, taught by Mr. Rilling. The lab course will be live, person to person. See your schedule to determine which lab to attend.

Communication:

Check your e-mail and the Blackboard page for this course frequently for announcements and policy changes. I will be sending out regular announcements via Blackboard; I usually send these announcements out via e-mail as well, but you should also be able to view these messages on the "Announcements" section on Blackboard.

One Hour Exams:

The schedule for the one hour exams can be found on the schedule page for your section in this syllabus. Exams will be administered using the Respondus Lockdown Browser and monitored via Respondus Monitor during class. The one hour online exams will open at 11:00 am on the day of the test and will close at 1:00 pm the same day. Each one hour exam will consist of 25 multiple choice questions worth 4 points each. Questions will be in a random, scrambled order. The problems from the textbook and the quizzes will be a good preparation for these exams.

Final Exam:

See the schedule for the date and time of your final exam. The final exam will consist of 50 questions worth 4 points each. Half the final exam will consist of problems covered in the class after Exam 3. The other half of the exam will consist of problems from the material covered before Exam 3. Questions will be in a random, scrambled order.

Deadline:

Last Day to drop the course: Thursday, April 28

Persons with disabilities which may warrant academic accommodations must contact the Student Life Office, Room 112, University Center, in order to request and to implement academic accommodations.

Quizzes:

Quizzes will be given every week, usually on Fridays. They will be based on material presented since the previous quiz, and will be taken primarily from the problems in the textbook. The online quizzes using the lockdown browser and monitor will be made available on Blackboard after the class at 12:00, and will be due by 11:59 pm. The time limit for each quiz is either 15 or 20 minutes, depending on Dr. Maxwell's discretion. You must answer the questions in order, and you cannot backtrack. Eleven quizzes will be given and the lowest quiz grade will be dropped. If you miss the deadline for taking a quiz, make-up quizzes or late quizzes will not be given for any reason.

Attendance Policy:

Roll will be automatically recorded by collaborate.

Homework

Suggested homework problems from the textbook will be assigned regularly. These problems will not be graded, but they are a good preparation for the quizzes and exams

Policy on Academic Dishonesty:

Students are expected to work independently on quizzes, exams and lab reports. See the ASU Student Handbook for definitions of cheating and plagiarism. Any student who is caught cheating or plagiarizing in this class will be subject to failure in the course and possible suspension from the University. Cheating and/or plagiarism will not be tolerated! Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code, which is contained in both print and web versions of the Student Handbook.

Make-up Exam Policy:

Students will only be allowed to take one make-up exam if there is an illness or emergency which is documented in writing. In order for a student to be eligible to take a make-up exam, the student must notify Dr. Maxwell before the exam is missed by telephone, voice mail or email. When a student returns to class after missing an exam, he or she must present a document such as a doctor's note or funeral notice in order for Dr. Maxwell to give permission for a make-up exam. All make-up exams will be given on Friday, May 6 at 1:00 pm. Students will not be given a second chance for a make-up exam. Each student may take no more than one make-up exam for any reason whatsoever.

Modifications to the Syllabus

This syllabus, including grade evaluation and course schedules, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content of the lab course on potentially short notice. The lecture course online will not be affected by COVID-19 since all students can participate online.

The answers to the learning checks start on p. C-1 in the appendix
The answers to the even-numbered problems start on p. B-1 in the appendix.

CHEMISTRY 2353.D10 COURSE SCHEDULE**Spring 2022****Meets MWF 11:00 – 11:50 am in your Blackboard Collaborate Platform.****We will cover Chapters 1-6 in your textbook.**

Week	Dates: Class Meetings the week of:	Sections Covered	Topics
1	1/18	Sections 1.1 -1.5 Quiz 1 Friday, 1/21 Available noon- 11:59 pm	What is Organic Chemistry?. "What's So Great About Carbon?" Organic vs. inorganic compounds. Covalent bonding. sp^3 hybridization. Isomers. Structural isomers. Functional groups. Drawing organic molecules. Hydrocarbons. Some common alkanes
			For Quiz 1: Study Learning Checks 1.1 and 1.2 (p 6), 1.3 (p 8), 1,4 (p 11), 1.5 (p 15) Examples 1.1 (p 7), 1.2 (p 9), 22) and Problems 1.1-1.28 (p 33-35)
2	1/24	Sections 1.6 - 1.11 Quiz 2 Friday, 1/28 Available noon- 11:59 pm	Conformations of alkanes. Structural isomers. Rules of IUPAC nomenclature. Nomenclature of alkanes. Cycloalkanes and nomenclature Geometric isomers. Physical properties of alkanes. Combustion. Alkyl halides. Petroleum
			For Quiz 2: Study Learning Checks 1.6 (p 16), 1.7 (p 19), 1.8 (p 20), 1.9 (p 21), 1.10 (p 22), 1.11 (p 22), 1.12 (p 25), 1.13 (p 27) Examples 1.3 (p 16), 1.4 (p 22), 1.5 (p 24), 1.6 (p. 27) and Problems 1.29-1.63 (p 35-38)
3	1/31	Section 2.1-2.2 Quiz 3 Friday, 2/4 Available noon- 11:59 pm	Alkenes. Nomenclature of alkenes. Hybridization in alkenes. Geometric isomers. Common alkenes.
			For Quiz 3: Study Learning Checks 2.1 (p 43), 2.2 (p.45), 2.3 (p 49), Examples 2.1 (p 42), 2.2 (p. 44), 2.3 (p 48), and Problems 2.1-2.21 (p 69-70)
4	2/7	Sections 2.3-2.5 Quiz 4 Friday, 2/11 Available noon- 11:59 pm	Physical properties of alkenes. Addition reactions: Halogenation, Hydrogenation, Addition of acids, Hydration. Markovnikov's rule. Addition polymers. Alkyne nomenclature, Alkyne reactions. Hybridization in alkynes, Alkyne nomenclature.
			For Quiz 4: Learning Checks 2.4 (p 50), 2.5 (p. 21), 2.6 (p 52), 2.7 (p 54), 2.8 (p 57), 2.9 (p 58) Example 2.4 (p 52) and Problems 2.32-2.44

Week	Dates: Class Meetings the week of:	Sections Covered	Topics
5	2/14	Sections 2.6-2.8 Feb 18 - Exam I (Chs 1 & 2) Administered during Class Time	Aromatic compounds, Resonance structures in benzene, Nomenclature of aromatic compounds. Physical and chemical properties of aromatic compounds. Important aromatics nomenclature of aromatic compounds. Physical and chemical properties of aromatic compounds. Important aromatics.
			Before Exam 1: Study Learning Check 2.10 (p 63), Example 2.5 (p 63) and Problems 2.45-2.66
6	2/21	Sections 3.1 – 3.3 Quiz 5 Friday, 2/25 Available noon- 11:59 pm	Alcohols, phenols and ethers. Nomenclature and classification of alcohols. Physical properties and hydrogen bonding. Boiling points.
			For Quiz 5: Learning Checks 3.1(p 77), 3.2 and 3.3 (p 78), 3.4 (p 79), 3.5 (p 80), 3.6 (p 81) Examples 3.1 (p 77), 3.2 (p 78) and Problems 3.1-3.21 (p 102-103)
7	2/28	Sections 3.4- 3.6 Quiz 6 Friday, 3/4 Available noon- 11:59 pm	Dehydration reactions that produce alkenes. Dehydrations that produce ethers. Oxidation of primary, secondary, and tertiary alcohols. Multi-step reactions. Some important alcohols. Phenols.
			For Quiz 6: Learning Checks 3.7 (p 82), 3.8 (p 83), 3.9 (p 84), 3.10 and 3.11 (p 85), 3.12 (p 86), 3.13 (p 90), 3.14 (p 92), Example 3.3 (p 86) and Problems 3.22-3.38 (p 103-104)
8	3/7	Sections 3.7-3.10 March 11 Exam 2 (Ch 3) Administered during Class Time	Nomenclature of ethers. Properties of ethers. Polyfunctional compounds. Thiols
			Before Exam 2: Learning Checks 3.15 and 3.16 (p 94), 3.17 (p 95), 3.18, 3.19 & 3.20 (p 97), 3.21 (p 99), Example 3.4 (p 98) and Problems 3.39-3.56 (p 105-106)
	3/14		SPRING BREAK
9	3/21	Sections 4.1-4.2 Quiz 7 Friday, 3/25 Available noon- 11:59 pm	The carbonyl group. Nomenclature of aldehydes & ketones. Physical properties of aldehydes and ketones. Common aldehydes and ketones.
			For Quiz 7: Learning Checks 4.1 (p 112), 4.2 (p 113), Examples 4.1 (p 111), 4.2 (p 112) and Problems 4.1-4.20 (p 132-133)

Week	Dates: Class Meetings the week of:	Sections Covered	Topics
10	3/28	Sections 4.3-4.4 Quiz 8 Friday, 4/1 Available noon- 11:59 pm	Oxidation of aldehydes and ketones. Hydrogenation. Addition of alcohols. Acetals, hemiacetals, ketals, and hemiketals. Hydrolysis of acetals and ketals.
			For Quiz 8: Learning Checks 4.3 (p 116), 4.4 (p 119), 4.5 (p 122), 4.6 (p 124), 4.7 (p 126) Examples 4.3 (p 121), 4.4 (p 123), 4.5 (p 126) and Problems 4.21-4.57 (p 133-136)
11	4/4	Sections 5.1-5.3 April 8 Exam 3 (Ch 4 & Secs 5.1- 5.3) Administered during Class Time	Nomenclature of carboxylic acids. Physical properties of carboxylic acids. Important carboxylic acids. Acidity of carboxylic acids.
			Before Exam 3: Learning Checks 5.1 (p 141), 5.2 and 5.3 (p 145), Example 5.1 (p 141), and Problems 5.1-5.26 (p 162-163)
12	4/11	Sections 5.4-5.6 Quiz 9 Friday, 4/15 Available noon- 11:59 pm	Carboxylate salts. Reactions of carboxylic acids. Esters. Nomenclature of esters. Important esters. Synthesis of esters. Polyesters.
			For Quiz 9: Learning Checks 5.4 (p 146), 5.5 (p 149), 5.6 (p 151), 5.7 (153), Examples 5.2 (p 146), 5.3 (p 148), 5.4 (p 151), 5.5 (p 152) and Problems 5.27-5.50 (p 163-165)
13	4/18	Sections 5.7- 5.8 Quiz 10 Friday, 4/22 Available noon- 11:59 pm	Hydrolysis and saponification of esters. Triglycerides and soaps. Phosphate esters. Polyesters.
			For Quiz 10: Learning Checks 5.7 (p 153), 5.8 (p 155), 5.9 (p 157), Example 5.5 (p 152) and Problems 5.51-5.57 (p 165-166)
14	4/25	Sections 6.1-6.5 Quiz 11 Friday, 4/29 Available noon- 11:59 pm	Classification and nomenclature of amines. Physical properties of amines. Important alkaloids. Basicity of amines. Alkylammonium salts. Quaternary ammonium salts. Reactions of amines. Amines as neurotransmitters.

Week	Dates: Class Meetings the week of:	Sections Covered	Topics
			For Quiz 11: Learning Checks 6.1 (p 170), 6.2, 6.3 & 6.4 (p 171), 6.5 (p 174), 6.6 and 6.7 (p 175), 6.8 (p 178), Example 6.1 (p 175) and Problems 6.1-6.32 (p 194-197)
15	5/2	Sections 6.6—6.9 No Quiz	Nomenclature of amides. Physical properties of amides. Important amides. Formation of amides. Reactions of amides. Polyamides. Neurotransmitters. Amino acids and proteins
			Before the Final Exam: Learning Checks 6.9 and 6.10 (p 188), 6.11 (p 189), 6.12 (p 191) and Problems 6.39-6.55
Final		Wednesday. May 11 at 10:30 am	Comprehensive Final Exam, including Sections 5.4-5.8 and Chapter 6

The final exam for Section D10 will be held on Wednesday, May 11 at 10:30 am – 12:30 pm

Happy Summer!