

CHE 205 01 Summer10
SUMMER 2010 – 3 credits

Prerequisite: Chem 111 and 112

Dr. Douglas Follweiler
Office: Science Rm 125

Phone: 610 606-4660 (3542)

Email: dmfollwe@cedarcrest.edu

Home Email: dmfollweiler@enter.net

Class Meets: 9:00AM to 12:00 noon MWedFri, Miller Room 33

Office Hours: (8:30AM to 9:00AM, 12:00PM to 12:30PM, MWedFri)

Course Materials: Text: McMurray, Organic Chemistry, 8th ed., Brooks-Cole 2003
Study Guide and models set

Attendance: I expect no more than three(3) unexcused class cuts. Remember that each lecture is actually equivalent to three normal lectures. Attendance is mandatory at all scheduled exams and quizzes. Due to time constraints for the course there will be no make ups for exams or quizzes. Any student with 3 or less cuts during the semester will be allowed to drop one of the 6 hourly exam grades.

Honor Code: The college has an honor code which all Cedar Crest students have signed. If you a non-Cedar Crest student you will need to sign a copy of the honor code.

Class Protocol: Arrive on time. No conversations during lecture. No active cell phones or pagers.

Grading: Quizzes, approximately one each lecture, **20%** of course grade
6 hourly exams – last one will be the final (not cumulative), **80%** of grade

HOURLY EXAM DATES: Exam dates will be decided as the course progresses. Probably one per week with 6th hourly exam given as the final.

Make-Ups: Makeup exams are only permitted for valid reasons. These include illness, or emergency. In all cases, documentation will be necessary, and the final decision rests with the instructor. There are no makeup quizzes.

Course Description: A study of the chemistry of carbon compounds: structure, naming, reactions and synthesis involving major functional groups.

Course Objectives: This course is designed to familiarize the student with the basic structure, classification, and reactions of carbon compounds and to show the interrelation of basic organic concepts with the chemistry of living systems.

The successful student will emerge from the course with a sound knowledge of organic concepts and an ability to apply them in career situations.

Expected Course Outcomes: The course will nurture the ability to engage in scientific reasoning, develop technological competencies through the use of information sources, and further one's mastery of written communication.

More specifically, students will be able to relate organic chemistry to their specific fields and be able to interpret and communicate information pertaining to chemical naming, structure, reactivities, and properties of carbon compounds.

Sequence of Topics

- 1) History/Background
- 2) Lewis Structures
- 3) Organic Structures
- 4) Resonance
- 5) sp^3 , sp^2 , sp
- 6) Polarity
- 7) Alkanes
- 8) Conformational Analysis
- 9) Alcohols and Alkyl Halides, aside: acids and bases
- 10) Spectroscopy
- 11) Alkenes I and II
- 12) Stereochemistry
- 13) SN_1 and SN_2 – Alkyl Halides
- 14) Alkynes
- 15) Allylic Systems
- 16) Arenes
- 17) Electrophilic Aromatic Substitution
- 18) Nucleophilic Aromatic Substitution
- 18A) Organometallic Reactions
- 19) Aldehydes and Ketones I and II
- 20) Carboxylic Acids
- 21) Carboxylic Acid Derivatives
- 22) Ester Condensations
- 23) Amines
- 24) Phenols

Suggested Problems:

Chapt. 1: 1.25, 1.26, 1.27, 1.30, 1.31, 1.33, 1.34, 1.35, 1.39, 1.41, 1.49, 1.55, 1.56

Chapt. 2: 2.24, 2.26, 2.27, 2.29, 2.32, 2.33, 2.34, 2.36(4), 2.40(4), 2.41, 2.43(4), 2.54, 2.58(4)

Chapt. 3: 3.21(2), 3.22(1), 3.23(1), 3.24(1), 3.25(1), 3.26(2), 3.28(2), 3.30(1), 3.34(2), 3.38(2), 3.42(3), 3.45(3), 3.50(1), 3.51(3)

Chapt. 4: 4.26(3), 4.29(3), 4.32(3), 4.35(3), 4.42(3), 4.49(3), 4.52(3)

Chapt. 5: 5.20(4), 5.26(4), 5.28(4), 5.29(4), 5.30(4), 5.31(4), 5.33(4), 5.37(4), 5.39(4), 5.41(4)

Chapt. 6: 6.24, 6.26, 6.27, 6.29, 6.30, 6.31, 6.37, 6.39, 6.40, 6.42, 6.43, 6.45, 6.47, 6.53, 6.57, 6.58 – ALL (5)

Chapt. 7: 7.24, 7.25, 7.26, 7.27, 7.29, 7.30, 7.31, 7.33, 7.36, 7.39, 7.43, 7.46, 7.50, 7.52, 7.55, 7.57 – ALL (5) & (6)

Chapt. 8: 8.18, 8.19, 8.21, 8.22, 8.23, 8.25, 8.26, 8.27, 8.28, 8.30, 8.31, 8.33, 8.34, 8.35, 8.39, 8.41, 8.45 – ALL (9)

Chapt. 9: 9.31, 9.33, 9.35, 9.38, 9.44, 9.45, 9.47, 9.50, 9.51, 9.53, 9.55, 9.66, 9.74, 9.76, 9.81 – ALL (7)

Chapt. 10: 10.17(4), 10.18(4), 10.28

Chapt. 11: 11.25, 11.28, 11.30, 11.32, 11.36, 11.37, 11.39, 11.41, 11.47, 11.48, 11.52, 11.59, 11.62 – ALL (8)

Chapt. 12: 12.17, 12.19, 12.21, 12.23, 12.24, 12.27, 12.30, 12.32, 12.33, 12.41, 12.44, 12.47 – ALL (13)

Chapt. 13: 13.32, 13.38, 13.40, 13.41, 13.43, 13.44, 13.45, 13.50, 13.52, 13.54, 13.56, 13.57, 13.58, 13.59 – (spectra)

Chapt. 14: 14.20(10), 14.21(10), 14.24(10), 14.26(10), 14.32(10), 14.33(10), 14.40(10), 14.45(10), 14.51(13), 14.55(10)

Chapt. 15: 15.18, 15.19, 15.29, 15.36, 15.46, 15.47 – ALL (11)