SYLLABUS

CHEMISTRY 343-004, INTRODUCTORY ORGANIC CHEMISTRY, FALL 2016
HONORS and MAJORS, LECTURE SECTION 4 (BURKE)

This course will be taught as a mix of traditional lecture, Socratic inquiry, and problem solving (active learning) formats. Unifying concepts of organic chemistry and deductive reasoning skills will be developed and applied to problem solving. <u>Understanding and mastery (how and why) will be emphasized; this course is best approached NOT as an exercise in memorization of facts, but as an exploration of unifying themes and development of problem solving skills. The facts become more meaningful and easier to use and remember this way.</u>

Time: 9:55-10:45am, MWF, room 1315 Chemistry Bldg.
Instructors: Professor *Steve Burke*, Room 8132; phone 262-4941; e-mail: burke@chem.wisc.edu
          TA *Andrew Maza* (amaza@chem.wisc.edu)
Discussions: DISC 361, Mon., 4:35-5:25 pm, Room 2373
          DISC 362, Tue., 1:20-2:10 pm, Room B355
          DISC 363, Tue., 4:35-5:25 pm, Room 2311

Weekly Problem Sessions/Office hour by Prof. Burke: W, 5:30-7:00 pm, Room 1315, starting Wed. 9/14
****Sapling On-line Problem and Review Enrollment is Required****
****Piazza On-line Question and Answer Forum in Learn@UW****

Office Hours: (Steve Burke), by appointment, Room 8132, Shain Tower.
343-004 TA Office Hours: (Andrew Maza). Wed 1:20-2:25, Thur 1:20-3:30 Room B317.
Organic TA office hour schedule:
https://www.chem.wisc.edu/deptfiles/OrgLab/handouts/Organic%20TA%20Office%20Hours%20Fall%202020
16.pdf
Web Materials: All handouts, notes, old exams, keys etc. will be posted on Learn@UW
Library Reserve: Textbook, Study Guide, and alternate texts on reserve in Chemistry Library, Room 2361.
Required Course Materials:
      Text: "Organic Chemistry, 6th Edition (2016)," by Loudon and Parise, ISBN 978-1-936221-34-9
      Study Guide: "Study Guide and Solutions Manual to Accompany Organic Chemistry, 6th Edition," by Loudon and Parise (accompanies Loudon text), ISBN 978-1-936221-86-8
      Molecular Models: HGS "C" Set, Darling, Proteus Framework or equivalent. [On sale 1st two weeks of classes, Chemistry lobby, Mills and University for $16 or $30] *MODELS ARE ALLOWED IN EXAMS.*
Exam Schedule: Exam 1, Wednesday, October 5, 7:30-9:15 pm (*room 1315*)
                Exam 2, Wednesday, November 9, 7:30-9:15 pm (*room 1315*)
                Exam 3, Wednesday, December 7, 7:30-9:15 pm (*room 1315*)
                Final Exam, Monday, December 19, 12:25-2:25 pm (*room to be announced*)
Grading: Sapling On-line Problem Sets: 10% (50 pts, all or nothing for timely completion of assignments)
          Discussion Quizzes: 10% (50 pts, 5 quizzes throughout semester—best 5 of 6)
          Exams: 60% (3 exams worth 100 pts each)
          Final: 20% (cumulative, 100 pts)
          Grade determined by total points, x/500
Re-grading: Unfairly graded or wrongly totaled exams can be turned in for re-grading by stating on the exam cover <u>which problem and describe in 10 words or less you why you deserve more pts.</u> These will be carefully considered, **just return to Burke or Maza.**
Class grade is on total points (e.g. x/500) and is not on curve (*not* 10%A, 20%AB and B, 40%C, etc.; rather >80% = A, even if everyone did (unlikely)—***see previous grade distributions at end of this syllabus***
Problem Assignments: (1) Use the Sapling problems and those within the text of each chapter and the to guide your study. (2) Use the following problems at the end of each chapter to test your knowledge, hone your skills, and prepare for exams. Additional problem sets and **practice exams** will also be provided.

Exam problems will resemble those on old practice exams. Working problems is VITALLY important: exam performance relates directly. Practice your problem solving skills to do well.
Problems at end of chapters in Loudon for practice (not turned in or graded) These are more like exam problems than on-line practice problems. Actual practice exams and key will be posted on Learn@UW site.

Chapter 1: 22, 23, 25, 28, 31, 32, 41, 45, 46
Chapter 2: 26, 27, 28, 29, 30, 31, 34, 36, 39, 44, 46, 47, 47, 48, 49, 50
Chapter 3: 33, 34, 35, 37, 39, 40, 41, 48, 51, 54, 58
Chapter 12: 26, 29, 34, 35, 40, 44
Chapter 13: 36, 37, 39, 40, 43, 44, 45, 54, 57, 58, 59
Chapter 4: 40, 41, 44, 47, 49, 50, 53, 55, 56, 57, 59, 62, 65, 67
Chapter 5: 27, 29, 30, 32, 34, 36, 39, 41, 43, 47, 49, 51, 54
Chapter 6: 26, 27, 28, 31, 34, 35, 37, 39, 45, 46, 49, 51
Chapter 7: 34, 35, 37, 38, 42, 43, 45, 47, 49, 51, 55, 59, 60, 63, 66, 68, 71
Chapter 8: 28, 31, 32, 35, 38, 39, 40, 41, 42, 43, 45, 46, 48, 50, 51, 54
Chapter 9: 44, 45, 46, 48, 49, 52, 53, 66, 60, 61, 62, 64, 66, 67, 68, 71
Chapter 10: 39, 40, 41, 48, 50, 55, 57, 59, 61, 65. 68, 69
Chapter 11: 44, 45, 46, 49, 51, 54, 56, 58, 60, 61, 63, 66, 69, 71, 72, 74, 77. 70, 81
Chapter 14: 26, 27, 28, 30, 33, 34, 38, 42, 44, 45, 46, 47

LECTURE, READING, AND EXAM SCHEDULE

Unit 1: 9/7, 9/9, 9/12, 9/14, 9/16, 9/19: Chapters 1 (Bonding and Structure), 2 (Alkanes), and 3 (Acid-Base and Curved-Arrow Formalism)
Unit 2: 9/21, 9/23, 9/26, 9/28, 9/30, 10/3: Chapters 12 (Introduction to Spectroscopy) and 13 (NMR Spectroscopy)
Wednesday 10/5 Exam I
Unit 3: 10/7, 10/10,10/12, 10/14, 10/17, 10/19: Chapter 4 (Alkene Structure and Reactivity) and Chapter 5 (Addition Reactions of Alkenes)
Unit 4: 10/21, 10/24, 10/26, 10/28, 10/31, 11/2, 11/4, 11/7: Chapter 6 (Stereochemistry), Chapter 7 (Cyclic Compounds and more Stereochemistry) and Chapter 8 (Noncovalent Interactions and Intro. To Alkyl Halides, etc.
Wednesday 11/09 Exam II
Unit 5: 11/11, 11/14, 11/16, 11/18, 11/21, 11/23: Chapter 9 (Chemistry of Alkyl Halides)
Unit 6: 11/28, 11/30, 12/2, 12/5: Chapter 10 (Chemistry of Alcohols and Thiols) and Chapter 11 (Chemistry of Ethers, Epoxides, etc.)
Wednesday 12/7 Exam III
Unit 7: 12/9, 12/12, 12/14,: Chapter 14 (Chemistry of Alkynes and Introduction to Synthesis)

Monday 12/19 Final Exam (CUMULATIVE)

KEYS TO SUCCESS

- Keep up with reading and problem working. Don't let things slide.   Study organic chemistry every day.
- Study text intently--it is your primary source of factual information (it is your map on this quest, Burke and Maza are your guides).
- Practice, Practice, Practice--working problems develops and tests your knowledge.
- Make constant use of On-line Problems—it will pay off with more than 10% of your grade
- Make a stack of note cards as we go through the semester. You can study them in the many short periods of time each day that might otherwise be wasted.
- Form study groups, and participate. Rarely is everyone in a group simultaneously stumped, whereas individuals often are, with time wasted and frustration built.
- Most of your learning needs to occur outside of class—developing your problem solving (O-Chem test taking) skills requires practice, much like playing a sport or a musical instrument.

CHEM343_08	CHEM343_07	CHEM343_03	**CHEM343-Multiyear Averages**
>79% A (19) 73-78% AB (8) 61-72% B (12) 55-61% BC (1) 51-54% C (3) <50% F (2)	>79% A (13) 76-78% AB (6) 61-74% B (17) 56-59% BC (3) 41-49% C (3) <40% F (2)	>79% A (17) 74-76% AB (5) 60-73% B (16) 56-59% BC (3) <55% C (1)	**Every Year is Close to These** **>79% A** **74-78% AB** **60-73% B** **55-59% BC** **<55% C or worse**
CHEM343_09 >79% A (20) 75-78%AB(15) 61-74% B (10) 55-60% BC(3)	CHEM343_10 >79% A (13) 74-78% AB (14) 61-73% B (16) 54-60% BC (1) <55% C (1)	CHEM343-11 >80% A (10) 73-78% AB (8) 61-72% B (12) <53% C (3)	CHEM 343-12 >80% A (23) 75-78% AB (11) 62-74% B (11) 55% BC (1) 43% F (1)
CHEM343-13 >79% A (25) 76-79%AB(9) 61-75% B (28) 57-60% BC(4) <55% C (4)	CHEM343-14 >79% A (20) 74-79%AB(9) 62-73% B (21) 55-61% BC(3) 53-54% C(1) <<40% F(2)	CHEM 343-15 >79% A (17) 75-79% AB (13) 62-74% B (15) 58-62% BC (2) <55 C (1)	

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<u>****ESTABLISH EIGHT GROUPS OF FIVE****</u>

<u>Just for fun:</u>
THESE MATH AND LOGIC PUZZLES ARE NOT MAGIC, AND NEITHER IS ORGANIC CHEMISTRY; BOTH ARE LOGICAL AND SYSTEMATIC

1089!
1. Pick **any** 3-digit number where the first and third digits are different.
2. Reverse the digits, and subtract the smaller from the larger to get 2nd number.
3. Reverse the digits of 2nd number to get 3rd number; add 2nd and 3rd numbers.

GUESS THE UNSEEN DELETED NUMBER!
1. Choose any 5-digit number where the digits are not all the same.
2. Scramble the digits, and subtract the smaller from the larger.
3. Secretly delete any digit (except zero) from this number, and total the remaining digits.
4. I say the deleted number is _____!

THE MONK'S TREK
Each year a monk would climb a treacherous, winding trail up a mountain to a shrine, leaving at dawn and arriving at sunset. The next morning he would climb back down, leaving at dawn. **Is there any spot on the trail that the monk passes at the same time of day going up and going down?**