

Course Summary

MSUM Bulletin Course Description: CHEM 360. Organic Chemistry 2. 3 Credits. The structure, nomenclature, reactions, reaction mechanisms, and synthesis of carbon compounds that contain oxygen and nitrogen. Prerequisites: CHEM 350 (Organic Chemistry I).

Instructor Description: The course is the second semester of a fairly standard two-semester lecture course in organic chemistry, designed for science majors, including those preparing for health professions. (No online lab.) Coverage includes nomenclature, structure, properties, and the synthesis, reactions, and reaction mechanisms of organometallics, alcohols, aldehydes, ketones, amines, carboxylic acids, and carboxylic acid derivatives. Spectroscopy is covered. Reactions covered include redox reactions; Grignard and organometallic reactions; cationic and anionic addition, elimination, and substitution reactions; Wittig reactions; aldol, Claisen and other enolate reactions; and hydrolysis reactions among others. Reaction mechanisms are emphasized. Product prediction, synthesis design, and retrosynthesis skills are emphasized. Structure, stability, relative reactivity, and acid-base chemistry are included.

Required work includes tests, online homework, and some “quizzes”. Multiple self-assessment tools are available (sample problems in lecture; online homework problems; textbook problems; extra practice sets; and practice tests.) While this is an online course, it is similar to a traditional course in that videos of actual face-to-face lectures are used (with the advantage of pause-and-rewind). Answers and video explanation of all problems on the practice sets and practice tests are provided. Tests are NOT taken online; hand-written on-paper tests must be taken either at MSUM or using a proctor. The course is go-at-your-own-pace; there are no fixed test dates, and it can be started early.

Instructional Materials: Detailed class notes; video lectures; in-lecture practice/application problems; supporting supplemental videos; videos talking/teaching through the process for processing/answering each practice problem in the practice sets; feedback and tutorials within Sapling online homework; videos talking through the process for processing/answering each of the practice test case study problems; textbook readings; textbook problems; solutions manual explaining/teaching the process for processing/answering practice problem in the book homework.

Activities/Practice: The course includes an extensive and diverse range of activities (“practice problems”) to enable students to apply what they are learning, to practice the types of skills they will need, and to effectively prepare for the tests. These activities include: 1. Extensive in-lecture in-notes practice problems; 2. Practice sets online (≥ 4 per test); 3. Practice Tests (≥ 3 per test); 4. Sapling online homework problems; 5. “Quizzes” (open notes, take-home); and 6. Textbook practice problems. Of these the Sapling online homework and the “quizzes” are required and graded. All of the others have answer keys available. For practice sets and practice tests, online videos are provided walking through each problem. Of these, the Sapling online homework and the quizzes will be required and count towards your grade.

Self-Assessment: How do you know if you’re mastering the material, and are eventually going to be prepared to score well on the tests? See whether you are consistently understanding and correctly answering the problems in the:

1. In-lecture problems; 2. Practice sets online; 3. Practice Tests; 4. Sapling online homework problems; and 5. Book practice problems.

Graded Assessment (Required Work): 1. Sapling online homework 2. Quizzes. 3. Tests. The test scores will make up $>80\%$ of the class points. Sapling and the quizzes will combine for the other $>15\%$.