

## Course Summary

**MSUM Bulletin Course Description: CHEM 350. Organic Chemistry I. 3 Credits.** Introduction to the classification, structure, reactions, and reaction mechanisms of carbon compounds. Prerequisites: CHEM 210 (General Chemistry II).

**Instructor Description:** The course is the first semester of a fairly standard two-semester lecture course in organic chemistry, designed for science majors, including those preparing for health professions. Coverage includes nomenclature, structure, properties, and the synthesis, reactions, and reaction mechanisms of alkanes, alkyl halides, alkenes, aromatics, and conjugated systems. Stereochemistry is covered. Reaction types covered include radical halogenation,  $S_N2$  and  $S_N1$  substitutions, E2 and E1 eliminations, addition reactions to simple alkenes and conjugated dienes, Diels-Alder reactions, and aromatic substitution reactions. Reaction mechanisms are emphasized. Synthesis design/retrosynthesis is emphasized. Structure, stability, stability-reactivity principles, acid-base chemistry, nomenclature, resonance, conjugation, and aromaticity among many other topics, are addressed. ONLINE LAB IS NOT POSSIBLE.

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 not 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 ( $\geq 4$  per test); 3. Practice Tests ( $\geq 3$  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  $>15\%$ .