

ARIZONA WESTERN COLLEGE  
SYLLABUS

## CHM 235 ORGANIC CHEMISTRY I

Credit Hours: 5 Lec 3 Lab 4

PREREQUISITE: CHM 152

NOTE: Recommended for chemistry and pre-professional majors

COURSE DESCRIPTION

Properties and reactions of saturated and unsaturated organic compounds, including aromatic derivatives. Emphasis is placed on organic chemical nomenclature, reaction chemistry (including predicting products formed) and mechanisms, stereochemistry, structure determination from spectroscopic data, and physical and chemical properties related to molecular structure and bonding.

1. COURSE GOALS

- 1.1 Comprehend the underlying principles of organic reactions and properties in order to minimize the number of facts to be learned.
- 1.2 Acquire laboratory skills required for successful synthetic, analytical, and purification procedures.
- 1.3 Provide a foundation for students in medical fields and science majors who will need to study biology, chemistry, biochemistry or pharmacology.

2. OUTCOMES

Upon satisfactory completion of the course, students will be able to:

- 2.1 name organic compounds using systematic nomenclature methodology.
- 2.2 distinguish among the unique chemical reactivity between different functional groups and predict the product outcomes of organic chemical reactions involving namely alkanes, alkyl halides, alkenes, alcohols, alkynes, and ethers and others, time permitting.
- 2.3 explain the principles of chirality and determine the relative stereo chemical configuration about a chiral center.
- 2.4 recognize chemical reactions that proceed via substitution ( $S_N2$  and  $S_N1$ ), addition, elimination ( $E2$  and  $E1$ ), and oxidation/reduction mechanistic pathways.
- 2.5 plan the synthesis of organic compounds using specific reactions of functional groups and reagents and predict the products of a reaction.
- 2.6 interpret spectroscopic (infrared and  $^1H$  and  $^{13}C$  NMR) data in terms of molecular structure.
- 2.7 predict the relative stabilities of alkenes based on heats of hydrogenation and combustion and geometry surrounding the carbon-carbon double bond.
- 2.8 draw accurate structural representations of saturated and unsaturated organic molecules.
- 2.9 distinguish between stereo and geometrical isomers.
- 2.10 carry out basic laboratory techniques and synthesize and then purify organic compounds in the laboratory.

3. METHODS OF INSTRUCTION

- 3.1 Lecture
- 3.2 Demonstrations
- 3.3 Appropriate audio-visual and multi-media aids
- 3.4 Student group activities when applicable
- 3.5 Laboratory exercises

4. LEARNING ACTIVITIES

- 4.1 Laboratory exercises
  - 4.2 Group activities
  - 4.3 Lectures
  - 4.4 Classroom demonstrations
5. EVALUATION
- 5.1 In-class examinations
  - 5.2 Final examination
  - 5.3 Periodic quizzes
  - 5.4 Laboratory exercises
  - 5.5 Class assignments (when applicable)
6. STUDENT RESPONSIBILITIES
- 6.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
  - 6.2 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.
  - 6.3 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through AccessABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.
  - 6.4 Academic Integrity: Any student participating in acts of academic dishonesty—including, but not limited to, copying the work of other students, using unauthorized “crib notes”, plagiarism, stealing tests, or forging an instructor’s signature—will be subject to the procedures and consequences outlined in AWC’s Student Code of Conduct.
  - 6.5 Texts and Notebooks: Students are required to obtain the class materials for the course.
  - 6.6 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for “No Show” reporting during the first 10 days of each semester.  
Students who have enrolled but have never attended class may be issued a “No Show” (NS) grade by the professor or instructor and receive a final grade of “NS” on their official academic record. An NS grade may result in a student losing their federal financial aid.  
For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):
    - Submitting an academic assignment
    - Taking an exam, an interactive tutorial or computer-assisted instruction
    - Attending a study group that is assigned by the school
    - Participating in an online discussion about academic matters
    - Initiating contact with a faculty member to ask a question about the academic subject studied in the course