1. Course Information

   Course Name : CHEM 3451 Organic Chemistry I
   Course Type : 4.000 Credit Hours Lecture and Lab
   Website : https://blackboard.angelo.edu

2. Instructor Information

   Instructor : Dr. Saravanan Ramasamy
   Office : CAV 214A
   Email : sramasamy@angelo.edu
   Phone : 325-486-6627
   Office Hours : MTRF 10:45 am – 12:00 noon or by appointment
   Student Tutor : Christopher Garcia (cgarcia77@angelo.edu)

3. Lecture Schedule

<table>
<thead>
<tr>
<th>Section</th>
<th>Days</th>
<th>Time</th>
<th>Instructor</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>010</td>
<td>MWF</td>
<td>9:00 am – 9:50 am</td>
<td>Dr. Ramasamy</td>
<td>CAV 200</td>
</tr>
<tr>
<td>020</td>
<td>TR</td>
<td>9:30 am – 10:45 am</td>
<td>Dr. Ramasamy</td>
<td>CAV 200</td>
</tr>
</tbody>
</table>

4. Lab Schedule (there is a separate syllabus for the lab)

<table>
<thead>
<tr>
<th>Section</th>
<th>Day</th>
<th>Time</th>
<th>Instructor</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>03Z</td>
<td>M</td>
<td>2:00 pm – 4:50 pm</td>
<td>Dr. Ramasamy</td>
<td>CAV 219</td>
</tr>
<tr>
<td>04Z</td>
<td>T</td>
<td>2:00 pm – 4:50 pm</td>
<td>Mr. Boudreaux</td>
<td>CAV 219</td>
</tr>
<tr>
<td>05Z</td>
<td>W</td>
<td>11:00 am – 1:50 pm</td>
<td>Dr. Ramasamy</td>
<td>CAV 219</td>
</tr>
<tr>
<td>06Z</td>
<td>W</td>
<td>2:00 pm – 4:50 pm</td>
<td>Dr. Ramasamy</td>
<td>CAV 219</td>
</tr>
<tr>
<td>07Z</td>
<td>R</td>
<td>2:00 pm – 4:50 pm</td>
<td>Mr. Boudreaux</td>
<td>CAV 219</td>
</tr>
</tbody>
</table>

5. Course Materials for the Lecture

   - Class Room Response System (Required) : TopHat subscription. (You will get an email invitation from me, so please wait for that)
6. Course Description

The CHEM 3451 Organic Chemistry-1 is the first of two organic chemistry course sequence (3451 and 3452). In this first course we will discuss both the physical properties of organic compounds as well as the chemical reactions they undergo. The course covers the concepts of structure, bonding, molecular orbitals, hybridizations, resonance, acid-base, alkane, alkene, alkyne, alcohols, ethers, substitution reaction, addition reaction, elimination reactions, reagents, mechanisms, and nomenclature with an emphasis on biological applications. The overall objective is for the student to master the structural relationships to reactivity and shape, and the reactions of the principal classes of organic compounds.

7. Course Goals

The goals will be to increase your skills in nomenclature, understanding structural properties, functional group transformation, and single-step synthesis. Having a mastery of this course material will provide students with a foundation for understanding and applying the concepts of organic chemistry. It increases the students’ knowledge of the involvement of organic chemistry in everyday life, prepare the students for biochemistry and upper-level organic courses, and involve the students in critical thinking exercises through course assignments. Specifically, a strong knowledge of organic chemistry will serve to aid succeeding in standardized examinations for professional programs.

8. Evaluation

Your grade in this course will be determined by the assignments, quizzes, midterm exams, lab reports, and the final exam. The final letter grade for the course will be as follows:

A = 90 - 100%,   B = 80 - 89.9%,   C = 70 - 79.9%,   D = 60 - 69.9%,   F = <60%.

Points distribution:

<table>
<thead>
<tr>
<th>Assignment Type</th>
<th>Points Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments / Homework</td>
<td>5 x 40 pts</td>
</tr>
<tr>
<td>200 pts</td>
<td></td>
</tr>
<tr>
<td>Quizzes (3 best scores out of 4 quizzes)</td>
<td>3 x 50 pts</td>
</tr>
<tr>
<td>150 pts</td>
<td></td>
</tr>
<tr>
<td>Midterm Exams</td>
<td>3 x 100 pts</td>
</tr>
<tr>
<td>300 pts</td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td>1 x 150 pts</td>
</tr>
<tr>
<td>150 pts</td>
<td></td>
</tr>
<tr>
<td>Laboratory</td>
<td></td>
</tr>
<tr>
<td>200 pts</td>
<td></td>
</tr>
<tr>
<td>Classroom Participation &amp; Performance</td>
<td>50 (bonus)</td>
</tr>
<tr>
<td>Total points</td>
<td>1000</td>
</tr>
</tbody>
</table>

The online assignments posted on the course website (Blackboard) can significantly contribute to your learning process. The prompt feedback of the system can have a positive impact on your learning and retention. Each online assignment may have a different format and a different number of attempts. It is recommended that students work through the practice problems in the text before attempting online assignments. It is highly recommended that you review the section of the text related to a question in the online assignment after you miss the first attempt on that question. Each student should work individually on the online assignments and give an earnest effort.

There will be a total of 4 quizzes (in the evenings, paper-based, 30 mins, 50 points each). As we will count the 3 best scored quizzes, you can drop the least scored quiz. The quizzes will consist of free responses (short answers / mechanisms) or multiple choice questions. These questions will be closely related to the practice problems from the textbook, and the laboratory problems. It’s the student’s responsibility to write the answers legibly. The quizzes will be graded by the next week and can be
picked up during the instructor’s office hours. Grades will be posted on the Blackboard site. Students will have two days time to inform the instructor of any error in grading.

There will be a total of 3 midterm exams (in the evenings, 50 mins, 100 points each). The exams will consist of mostly multiple choice questions, but the instructor reserves the right to make changes in the format. The instructor also reverses the right to make different versions of an exam with different questions that cover the same course material and concepts. It is very important that each student shows up on time during exam days. Every effort will be made by the instructor to distribute the exam materials in a timely fashion. It is very important to write your name on your exam and to bubble in your name and Campus ID number on the scantron.

The final exam will be a comprehensive one (2 hours, 150 points). It is mandatory to take the final exam to pass this course. The exams will consist of mostly multiple choice questions, but the instructor reserves the right to make changes in the format. The instructor also reverses the right to make different versions of an exam with different questions that cover the same course material and concepts. You must bring your Campus ID card, and it is very important to write your name on your exam and to bubble in your name and ID number on the scantron.

There will be TopHat classroom quizzes for bonus points during almost every lecture meeting. This classroom response system provides instant feedback to assess how well students are keeping up with the material. It also increases students’ engagement to the lecture. You must bring your own device (laptop, tablet or smartphone) with TopHat app registered to the course. It’s your responsibility to make sure that your device is in working condition and connected to the internet.

Make-up policy: No makeup TopHat bonus classroom quizzes will be offered. A grade of zero will be assigned to the missed bonus quiz. A make-up exam or paper-based quiz may be offered, if a student misses a exam or quiz for a university-excused absence (such as religious holiday, death in the family, documented illness, and for representing the university in sporting events) and with a proper documentation of the absence. The student must communicate with the instructor before the starting of the regular exam or quiz in order to request a make-up.

Grade adjustment policy: There is no curve in this course. The instructor reserves the right to make linear adjustments to exam grades in cases if an exam question was found to be in error or unreasonably difficult. Adjustments will not be made to increase the average of the class or to hike the letter grade.

9. Learning Outcomes:

At the successful completion of the course, a student will be able to:

1. Illustrate the structure, bonding and stability of a molecule
2. Identify spatial arrangement (isomer, conformation) and evaluate their energy differences
3. Identify and assess strength of good leaving groups, good nucleophiles, electrophilic centers, bases, and acidic protons
4. Provide the major products of a chemical reaction with correct regio- and stereochemistry
5. Provide the reagents necessary to accomplish a given one-step transformation
6. Provide the mechanism of a given transformation and relate to a reaction coordinate energy diagram, comparing competing pathway utilizing thermodynamic and kinetic principles
7. Propose a plausible multi-step synthesis for a given transformation

Specific learning outcomes for each chapter will be listed at the beginning of each chapter.

10. What is expected of you to enjoy success in this course?

Like in any science course you can do much better in organic chemistry when you understand the reason behind the concepts. Participating in lecture, taking notes, reading the materials, and watching the videos are essential, but not enough to enjoy the success in this course. You must involve in active learning like practicing problems, drawing out structures, making 3D models, raising question while reading, addressing your questions with detailed answers, making connections to the key concepts, frequently reviewing the fundamentals, taking the time to reflect your learning, and making a framework of concepts in your mind. Especially, you should always be familiar with the factors that contribute to the stability or instability of electrons in a given environment. Chemical reactions can generally be seen as a flow of electrons to get stable structures. So it’s often required to draw out the non-bonded electron pairs, and you should keep a count of electrons. Clarity in your drawing leads to clarity in your thinking.

Key concepts and connection will be covered in the lecture, but you should read the textbook and practice the assigned problems before the next class meeting. Failure to stay current on reading and practicing assignments will greatly affect your ability to keep up during lecture and, therefore, will affect your grade in this course.

11. Course and University Policies

Office Hours / Email Communication: Students can walk-in to the regular office hours. If you can’t make it during those hours, please make an appointment by email. Students are expected to frequently check their Angelo email account and the Blackboard course website announcements for important communication from the instructor. Use CHEM3451 in the subject line of your emails to enable proper filtering. The instructor will only answer e-mails that are sent from an ASU e-mail account. Any submitted e-mails to the instructor are expected to be written in a professional format and include your first and last name and course number and section/meeting time. The instructor will not respond to any messages that do not comply with such requirements. The instructor will respond to legitimate e-mails within 24-48 hours during the week and may not respond until after weekends or holidays if messages are received on any of such days. More general questions will be addressed in the following lecture.

Blackboard: Grades, information, handouts, homework assignments, and other course documents will be posted on Blackboard. http://blackboard.angelo.edu (or access Blackboard from RamPort).

Changes: The instructor reserves the right to change by addition and/or subtraction any and/or all materials contained in this syllabus. This includes, but is not limited to, course content, assignments, due dates, and portion(s) of the grade assigned to individual items within the course.

Copyright: All handouts, videos, quizzes, exams and lecture material are ©2017 by Saravanan Ramasamy. Free (no cost) copying and distribution of these materials among Angelo State University students is allowed. Any other distribution, including distribution for a fee (e.g., commercial note services) is not allowed without my written consent.

Policy on Academic Misconduct: All students are expected to conform to college-level standards of ethics, academic integrity, and academic honesty. By enrolling in this course, you agree to be bound by the ASU Academic Honor Code which is to be found in the Student Handbook.
(www.angelo.edu/cstudent/). The penalty for ANY sort of dishonesty, cheating or plagiarism can range from a grade of zero on the assignment to an F in the course and disciplinary action as warranted in accordance with university guidelines.

**Special Accommodations:** Persons with disabilities which may warrant academic accommodations must contact the Student Life Office, Room 112 University Center, in order to request and to implement academic accommodations.

**Behavior:** All students are expected to follow proper classroom behavior and treat other students and the instructor with respect. If the instructor deems a student’s actions or behavior disruptive to the class, the students will be asked to leave the class for that day.

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Refer ASU academic calendar for important dates related to enrollment.

To know more about the final exam schedule refer to ASU Final exam schedule

This syllabus is subject to change at any point throughout the term. Reasonable notice will be given for any changes made. Latest update: 8/27/2017
## Lecture and Exam Schedule  (Lectures are in CAV 200)

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
</table>
| 28-Aug       | **29-Aug**  
Chapter 1: Covalent Bonding and Shapes of Molecules                   | **30-Aug**                 | **31-Aug**  
Chapter 1: Covalent Bonding and Shapes of Molecules | 1-Sep      |
| 4-Sep (Labor day) | **5-Sep**  
Chapter 1: Covalent Bonding and Shapes of Molecules                   | **6-Sep**                  | **7-Sep**  
Chapter 1: Covalent Bonding and Shapes of Molecules | 8-Sep      |
| 11-Sep       | **12-Sep**  
Chapter 2: Alkanes and Cycloalkanes  
**Quiz-1** 5:30 pm CAV100                                      | **13-Sep**                 | **14-Sep**  
Chapter 2: Alkanes and Cycloalkanes                      | 15-Sep     |
| 18-Sep       | **19-Sep**  
Chapter 3: Stereoisomerism and Chirality                              | **20-Sep**                 | **21-Sep**  
Chapter 3: Stereoisomerism and Chirality                | 22-Sep     |
| 25-Sep       | **26-Sep**  
Chapter 4: Acids and Bases  
**Exam-1** 5:30 pm CAV100                                        | **27-Sep**                 | **28-Sep**  
Chapter 4: Acids and Bases                               | 29-Sep     |
| 2-Oct        | **3-Oct**  
Chapter 5: Alkenes: Bonding, Nomenclature, and Properties              | **4-Oct**                  | **5-Oct**  
Chapter 5: Alkenes: Bonding, Nomenclature, and Properties | 6-Oct      |
| 9-Oct        | **10-Oct**  
Chapter 6: Reactions of Alkenes  
**Quiz-2** 5:30 pm CAV100                                        | **11-Oct**                 | **12-Oct**  
Chapter 6: Reactions of Alkenes                          | 13-Oct     |
| 16-Oct       | **17-Oct**  
Chapter 7: Alkynes                                                      | **18-Oct**                 | **19-Oct**  
Chapter 7: Alkynes                                        | 20-Oct     |
| 23-Oct       | **24-Oct**  
Chapter 8: Haloalkanes, Halogenation, and Radicals  
**Exam-2** 5:30 pm CAV100                                    | **25-Oct**                 | **26-Oct**  
Chapter 8: Haloalkanes, Halogenation, and Radicals       | 27-Oct     |
| 30-Oct       | **31-Oct**  
Chapter 9: Nucleophilic Substitution and β-Elimination                 | **1-Nov**                  | **2-Nov**  
Chapter 9: Nucleophilic Substitution and β-Elimination   | 1-Nov      |
| 6-Nov        | **7-Nov**  
Chapter 9: Nucleophilic Substitution and β-Elimination  
**Quiz-3** 5:30 pm CAV100                                   | **8-Nov**                  | **9-Nov**  
Chapter 9: Nucleophilic Substitution and β-Elimination   | 10-Nov     |
| 13-Nov       | **14-Nov**  
Chapter 10: Alcohols                                                   | **15-Nov**                 | **16-Nov**  
Chapter 10: Alcohols                                      | 17-Nov     |
| 20-Nov       | **21-Nov**  
Chapter 10: Alcohols                                                   | **22-Nov** (Thanks Giving) | **23-Nov**  
(Thanks Giving)                                            | 24-Nov (Thanks Giving) |
| 27-Nov       | **28-Nov**  
Chapter 11: Ethers, Epoxides, and Sulfides  
**Exam-3** 5:30 pm CAV100                                     | **29-Nov**                 | **30-Nov**  
Chapter 11: Ethers, Epoxides, and Sulfides               | 1-Dec      |
| 4-Dec        | **5-Dec**  
Chapter 11: Ethers, Epoxides, and Sulfides  
**Quiz-4** 5:30 pm CAV100                                     | **6-Dec**                  | **7-Dec**  
Final Exam Review                                           | 8-Dec      |
| 11-Dec       | **12-Dec**  
-                                                            | **13-Dec**                 | **14-Dec**  
Final Exam  
8:00- 10:00 am CAV100                                       | 15-Dec     |
|              |              | **-**                      | **-**                   | **-**       |