CHEM 3412.001 - Organic Chemistry II
Department of Physical and Environmental Sciences - Summer 2014
TEXAS A&M UNIVERSITY - CORPUS CHRISTI
Prerequisite: CHEM 3411 - Time: MTWR 10:00-11:55 AM - Location: EN-107

Instructor: Dr. Cesar A. Marquez  
Office: 206 Center for Science  
Telephone: 825-5701  
E-mail: cesar.marquez@tamucc.edu  
Office Hours: By appointment

Course Description. The structure, nomenclature, synthesis, reactions and reaction mechanisms of the principal classes of organic compounds. Stereochemistry and spectroscopy of organic compounds. Designed for the science major.

Student Learning Outcome. At the completion of CHEM 3412 the student will be able to demonstrate proficiency in the following specific topics of organic chemistry:

- Molecular spectroscopy for the identification and characterization of organic compounds (Nuclear Magnetic Resonance Spectroscopy, Mass Spectrometry, Infrared Spectroscopy, and & UV-Vis Absorption Spectroscopy)
- Molecular functionality
- Rational design of synthetic protocols
- The chemistry of aromatic systems, ethers, aldehydes, ketones, carboxylic acids, carboxylic acid derivatives, nitrogen containing functional groups, and heterocycles
- Prediction of synthesis products
- Reaction mechanisms
- Multi-step molecular synthesis and retrosynthesis

Textbook. Organic Chemistry by John McMurry; 8th ed.; Brooks Cole Publisher (reqd.) and Study Guide

Course Tutoring. You can find information regarding the Tutoring at: http://casa.tamucc.edu.

Class Website. Most announcements, forms, handouts, lecture notes, learning materials etc. are either posted, or will be posted on blackboard. You will be able to login using your student ID and Password.
Students with Disabilities. The Students With Disabilities Center is located in the Student Services Center (round building: 825-5816). Should you need special consideration for exams and/or class activities (special microphones, additional time for exams, enlarged exams, etc.), please contact this center. The university will provide assistance as needed, but you must contact the center to make arrangements. The instructor cannot make modifications without the center’s involvement. Should you have mobility problems, please notify the instructor and TA so that they may seek assistance for you in the case of fire drills or emergencies.

Class Standards. The student is expected to be on time and attend every class. If absent, it is the responsibility of the student to obtain missed information from a classmate. Missed information includes not only lecture notes, but also any possible information regarding syllabus changes. The student is expected to arrive on time prepared to take notes, i.e., with pen, paper, and colored markers/pencils. Before you enter the lecture hall turn OFF your cellular phone! Beeper must also be turned off or put on silent mode. Electronic interruptions absolutely will NOT be tolerated!

Class Conduct. All students are expected to follow proper classroom behavior and treat the other students and the instructor with respect. If a student’s actions or his/her behavior are deemed disruptive to the class by the instructor, the student will be asked to leave the class for that day.

Academic Integrity and Honesty. 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 Regulations and Procedures published in the TAMU-CC STUDENT HANDBOOK. Group interactions, investigations, and studying are encouraged; however, duplicative work will be treated as cheating and will receive a grade of zero. Anything that is viewed as cheating on an exam will be given the most severe penalty possible, most likely an "F" for the course, but may include more severe punishments.

Academic Advising. The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair.

The College's Academic Advising Center is located in Center for Instruction room 350. Please choose the advisor who corresponds to your major (or potential major). Contact your advisor directly, or call the front desk at (361) 825-5777, to schedule an appointment.

Meetings are by appointment only; advisors do not take walk-ins. Please call the Advising Center to check availability and ensure a minimal wait.
Ms. Ronnie Emanuel  
Phone: (361) 825-2654  
ronnie.emanuel@tamucc.edu  
Biomedical Sciences PreClinical BS, Biology MS, Chemistry BS, Fisheries & Mariculture MS, Marine Biology MS & PhD, Mathematics BS & MS

Ms. Frances Jordan  
Phone: (361) 825-5797  
frances.jordan@tamucc.edu  
Electrical Engineering Technology BS, Geographic Information Science BS, Geospatial Surveying MS, Mechanical Engineering BS, Mechanical Engineering Technology BS, Undecided S&E BS

Ms. Rebecca McPherson  
Phone: (361) 825-2351  
rebecca.mcpherson@tamucc.edu  
Biology BS  
Ecology, Marine, Cell/Molecular, Micro, Animal, Plant, Integrative, General, Education Certification (8-12)

Mr. Kyle Fuehrer  
Phone: (361) 825-5723  
kyle.fuehrer@tamucc.edu  
Biomedical Sciences Pre-Professional BS, Forensic Sciences, Pre-Medical, Dental, Veterinary, Optometry, Pharmacy, Physical Assistant, Physical Therapy, Chiropractic, Occupational Therapy

Ms. Martha Simcik  
Phone: (361) 825-3721  
martha.simcik@tamucc.edu  
Coastal & Marine System Science PhD  
Computer Science BS & MS  
Environmental Science BS & MS  
Geology BS

Lecture Schedule. The schedule below is a preliminary outline of the course. It is your responsibility to keep up with changes to this schedule. The reading and problems assignments that will be assigned in class should be completed before the next class meeting. Failure to stay current on reading and problem assignments will greatly affect your ability to keep up during lecture and, therefore, will have an indirect affect on your grade in this course.

Table 1. Preliminary outline of the course
<table>
<thead>
<tr>
<th>Day</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 07/07</td>
<td>Structure Determination: Mass Spectrometry and Infrared Spectroscopy</td>
</tr>
<tr>
<td>2 - 07/08</td>
<td>Structure Determination: Nuclear Magnetic Resonance Spectroscopy</td>
</tr>
<tr>
<td>3 - 07/09</td>
<td>Conjugated Compounds and Ultraviolet Spectroscopy</td>
</tr>
<tr>
<td>4 - 07/10</td>
<td>Exercises</td>
</tr>
<tr>
<td>5 - 07/14</td>
<td>Benzene and Aromaticity</td>
</tr>
<tr>
<td>6 - 07/15</td>
<td>Chemistry of Benzene: Electrophilic Aromatic Substitution</td>
</tr>
<tr>
<td>7 - 07/16</td>
<td>Alcohols and Phenols</td>
</tr>
<tr>
<td>8 - 07/17</td>
<td>Exercises</td>
</tr>
<tr>
<td>9 - 07/21</td>
<td>Ethers and Epoxides; Thiols and Sulfides</td>
</tr>
<tr>
<td>10 - 07/22</td>
<td>Aldehydes and Ketones: Nucleophilic Addition Reactions</td>
</tr>
<tr>
<td>11 - 07/23</td>
<td>Carboxylic Acids and Nitriles</td>
</tr>
<tr>
<td>12 - 07/24</td>
<td>Exercises</td>
</tr>
<tr>
<td>13 - 07/28</td>
<td>Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions</td>
</tr>
<tr>
<td>14 - 07/29</td>
<td>Carbonyl Alpha-Substitution Reactions</td>
</tr>
<tr>
<td>15 - 07/30</td>
<td>Carbonyl Condensation Reactions</td>
</tr>
<tr>
<td>16 - 07/31</td>
<td>Exercises</td>
</tr>
<tr>
<td>17 - 08/04</td>
<td>Amines and Heterocycles</td>
</tr>
<tr>
<td>18 - 08/05</td>
<td>Reaction Mechanisms</td>
</tr>
<tr>
<td>19 - 08/06</td>
<td>Multi-step Molecular Synthesis and Retrosynthesis</td>
</tr>
<tr>
<td>20 - 08/07</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>

**Exam Schedule.** August 07, 2014

No student is admitted to the exam after the first exam-taker has left

**Use of Electronic Devices during Exam.** Any use of an electronic device (PDA, Cell Phone, MP3 player, CD player, computer ..) during an exam is strictly prohibited. Any use of such a device will be considered an attempt to cheat on the exam and will result in a 0 on the exam although more severe actions may be considered. Calculators may be allowed on exams when needed, but only
for mathematical operations. The use of programmable calculators to store or retrieve information during an exam will be considered an attempt to cheat on the exam. Also, if a calculator is discovered to have saved programs or information that could be used as an unfair advantage on the exam, this will be considered an attempt to cheat on the exam.

Grading. The course includes lectures and laboratories. They will be graded separately, and the final course grade (100pts) will consider the following distribution:

- **Lecture (75pt):** There will be a final exam and it is comprehensive. Weekly tests will cover the material that has been covered in class by that time. These tests are voluntary and self-corrected, and will be not graded. Attendance grade will only help your overall average and you may choose not to attend class and only take the final exam.

- **Laboratory (25pt):** After completed all lab assignments and exam, you will be assigned a lab grade by your lab instructor. All complains and concerns about the lab grade should be directed to the lab instructor. You will receive more information about the organic chemistry lab in the lab syllabus.

Final letter grading for the course will be as follows:

- A > 90%, B > 80%, C > 70%, D > 60%, F < 60%

**Make-up Exam.** There is no make-up exam for this class. Students with a university approved scheduled absence (athletics, military duty, etc.) MUST contact the instructor well in advance of the scheduled absence. Exams may be taken early in those specific cases. Students who do not arrange to take the exam ahead of time will not be eligible for this special consideration. A written excuse from the university department involved or the Office of the Dean of Students is required.

**Grade Appeals.** A student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is on the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details on the process, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, consult Texas A&M University-Corpus Christi University Procedure 13.02.99.C2.01 Student Grade Appeal Procedures (http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage (http://sci.tamucc.edu/students/GradeAppeal.html).
assistance and/or guidance in the grade appeal process, students may contact the chair or
director of the appropriate department or school or the College of Science and Engineering
Dean's Office.

In choosing to take this course, you are agreeing to abide by the course rules, regulations, and
standards. This includes agreeing to be respectful to your instructor and fellow students.
Conduct that is disruptive or disrespectful will not be tolerated and is grounds for dismissal from the class. Should you have concerns or questions, you are to discuss them with the instructor as soon as possible. However, you are bound by these rules, regulations, and standards from the first day of class through the duration of the course.