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: It is expected that completion of CHEM 3411 will enable students to learn the following specific topics of organic chemistry:

I. organic functionality
II. chemical bonding & molecular structure
III. prediction, classification, illustration and characterization of products from organic reactions
IV. understanding polar reaction mechanisms for numerous organic reactions
V. understanding the art and logic of organic syntheses

Attending class regularly, taking quizzes, three in class exams and final exam.

Required or Recommended Readings: Textbook: Organic Chemistry by John McMurry; 8th ed.; Brooks Cole Publisher (reqd.)

Major Course Requirements: Daily quizzes will be given in class. Taking these quizzes will also indicate that you are attending the class. 60% of the quiz grade is your attendance grade and 40% is for the right answer. If you answer the quiz but you do not get it right you only get 60% and if you get the answer right you will have 100%. Please come to class ready for quiz because 60% is only a D. Any missed quizzes will be counted as a grade of zero. The quizzes will be on any material that has been covered to that point (since the last exam) and on the reading assignment for that day! The two lowest quiz grades will be dropped.

- There will be NO MAKE-UP quizzes.
If a student misses a quiz, that quiz will be one of the lowest grade quizzes. If you have a medical emergency, please let me know about the situation as soon as possible.

There will also be three regular exams and a final exam. The regular exams will cover the material that has been covered in class by that time and final is comprehensive. The average of the class quizzes will be the same as one exam grade. The average of the four exam grades and the quiz grades will determine the lecture grade.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Exams</th>
<th>Quizzes</th>
<th>Final Exam</th>
<th>Total Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 @ 100</td>
<td>100</td>
<td>1 @ 100</td>
<td>500</td>
</tr>
</tbody>
</table>

Course Grade-25% of the organic chemistry grade is from organic chemistry lab. At the end of the semester, after you completed all the lab assignments and exams, you will be assigned a lab grade by your lab instructor. All complaints 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.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Lecture Grade</th>
<th>Lab Grade</th>
<th>Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lecture % X 0.75</td>
<td>Lab % X 0.25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>75</td>
<td>25</td>
<td>100</td>
</tr>
</tbody>
</table>

Final letter grading for the lecture course will be as follows: A ≥ 90%, 89% ≥ B ≥ 80%, 79% ≥ C ≥ 70%, 69% ≥ D ≥ 60%, F < 60%.

Make-up Exams: There are no make-up exams 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 exams 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.

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 WebCT ID and Password.

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

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! Beepers 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 behavior is deemed disruptive to the class by the instructor, the students 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.

Lecture Schedule: The schedule below is a preliminary outline of the semester. 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>
<thead>
<tr>
<th>Week of</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 23</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>August 29</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>September 5</td>
<td>Chapter 2</td>
</tr>
<tr>
<td>September 12</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>September 19</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>September 26</td>
<td>Review and Exam I</td>
</tr>
<tr>
<td>October 3</td>
<td>Chapter 6</td>
</tr>
<tr>
<td>October 10</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>October 17</td>
<td>Chapter 8</td>
</tr>
<tr>
<td><strong>October 24 Review and Exam II</strong></td>
<td></td>
</tr>
</tbody>
</table>
Exam Schedule
Exam I September 26
Exam II October 24
Exam III November 14
Final Exam To Be Announced

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

ACADEMIC ADVISING: The College of Science and Technology 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 Faculty Center room 178. Please choose the advisor who corresponds to your major (or potential major). Contact your advisor directly, or call Tracey Ramirez at (361) 825-6094, to schedule an appointment. Walk-in times may be available at especially busy times of the year (such as the start of a semester). Please call the Advising Center to check availability and ensure a minimal wait.

Ronnie Emanuel
phone: (361) 825-2654
ronnie.emanuel@tamucc.edu
Biology MS
Biomedical Sciences
Fisheries & Mariculture MS
Marine Biology MS & PhD

Ida Olivarez
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Electrical Engineering Technology
Geographic Info Science
Geospatial Surveying MS
Mathematics BS & M
Mechanical Engineering
Mechanical Engineering Technology

Aaryn Gerland
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Biology BS
Life Science Education 8-12

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Chemistry, Geology
Coastal & Marine Sys Sci PhD
Environmental Sci BS & MS

Computer Science
phone: (361) 825-6094
ida.olivarez@tamucc.edu
Computer Science BS & MS
(undergraduate & graduate)
Undecided S&T Students
**Grade Appeal Process.** As stated in University Rule 13.02.99.C2, Student 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 upon 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, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html). For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

*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.*
I. COURSE: CHEM 3411 – Organic Chemistry I Laboratory
Prerequisite: Enrollment in the CHEM 3411 Lecture component

II. COURSE DESCRIPTION:
This is the lab component to Organic Chemistry I. It focuses on the lecture core concepts and reactions. It is the first part of a two-semester sequence which provides the foundation you will need for Organic II. This semester you will concentrate on:
1) classical organic laboratory techniques
2) lab report writing skills
3) alkane, alkene, alkylhalide physicochemical properties
4) nucleophilic addition reaction experiments

III. COURSE OBJECTIVES: By the end of this course the student should be able to:
- Manipulate synthetic apparatus and glassware.
- Carry out computational procedures necessary in organic synthesis and analysis.
- Explain procedures and concepts of basic organic laboratory: i.e., separation, and synthetic techniques
- Verify the progress and the product of a reaction.
- Apply the principles of qualitative analysis to investigate the identity of an organic molecule.
- Analyze and interpret scientific data.

IV. LABORATORY COORDINATOR INFORMATION:
- Dr. Philip Egan
- CS-206 Center for the Sciences
- Phone: (361) 825-5701
- Email: Philip.Egan@tamucc.edu
- Office Hours: (posted)

V. TEXTBOOK AND SUPPLIES:
Laboratory Texts:
(a) Vassell, Southard, Gilbert & Martin, CER, Organic Chemistry Experiments, 2nd ed. (required)

Laboratory Supplies (required):
(a) Student Notebook with spiral binding (e.g. Hayden McNeil) that contains 50 or 100 carbonless duplicate sets.
(b) A pair of safety goggles (Note: safety glasses are not permitted).
(c) Lab coat
Laboratory Supplies (recommended):
(d) A black marker (e.g. a Sharpie®) and a set of molecular models are recommended but optional.

VI. SECTION/DAY/TIME:

<table>
<thead>
<tr>
<th>Section</th>
<th>Day/Time</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Monday 2:00-4:50 PM</td>
<td>J. Moore</td>
</tr>
<tr>
<td>102</td>
<td>Tuesday 8:00-10:50 AM</td>
<td>P. Egan</td>
</tr>
<tr>
<td>103</td>
<td>Tuesday 12:30-3:20 PM</td>
<td>P. Egan</td>
</tr>
<tr>
<td>104</td>
<td>Tuesday 4:00-6:30 PM</td>
<td>J. Moore</td>
</tr>
<tr>
<td>105</td>
<td>Wednesday 11:00-1:50 PM</td>
<td>P. Egan</td>
</tr>
<tr>
<td>106</td>
<td>Wednesday 2:30-5:20 PM</td>
<td>J. Moore</td>
</tr>
<tr>
<td>107</td>
<td>Tuesday 7:00-9:50 PM</td>
<td>J. Moore</td>
</tr>
<tr>
<td>108</td>
<td>Thursday 8:00-10:50 AM</td>
<td>P. Egan</td>
</tr>
<tr>
<td>109</td>
<td>Thursday 12:00-3:25 PM</td>
<td>J. Moore</td>
</tr>
<tr>
<td>110</td>
<td>Thursday 4:00-6:50 PM</td>
<td>J. Moore</td>
</tr>
<tr>
<td>111</td>
<td>Friday 1:00-3:50 PM</td>
<td>P. Egan</td>
</tr>
<tr>
<td>112</td>
<td>Wednesday 8:00-10:50 AM</td>
<td>P. Egan</td>
</tr>
</tbody>
</table>

VII. EVALUATION:
Your laboratory grade will be based upon lab Notebook, lab reports, a mid-term and final exams.
The lab notebook is worth 40 pts and the report is worth 60 pts per experiment. You are responsible to complete 9 experiments for the term. Thus your total experimental points are 900.
Each weekly lab report is due at the beginning of the next lab period. Late lab reports will not be accepted. If you are absent from the lab due to sickness or other reasons, you must make arrangement to turn in the report due for that week with your instructor. If you wait until the following week your lab report will be late and will not be accepted.
You are expected to use proper lab techniques. As many as 20 points may be subtracted from your report for bad techniques. Important criteria for the lab technique include:

- being well prepared,
- executing neatness in performing experiments,
- being organized in your work, and
- being safety-conscious.

Extra Credit: 20 pts will be rewarded for those lab reports (as noted in the Lab Schedule, section XIII) that includes extracurricular spectral analysis.

The mid-term and final exams will be written by the laboratory coordinator. Each version of the exam will be written at the same difficulty level. You will be examined on the material covered in the labs up to that point in the semester. The final exam will be comprehensive and will cover material from all of the experiments and safety. The questions will cover the pre-lab lecture and lab-book material, techniques, reactions, mechanisms, and interpretations of analytical data. The midterm and final exams are worth 100 points each.

Your course performance will follow the grade scale below:

**LAB GRADE:**

<table>
<thead>
<tr>
<th>Section</th>
<th>Points</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nine Lab Reports</td>
<td>9 × 100</td>
<td>900</td>
</tr>
<tr>
<td>Lab Mid-term Exam</td>
<td>1 × 100</td>
<td>100</td>
</tr>
<tr>
<td>Lab Final Exam</td>
<td>1 × 100</td>
<td>100</td>
</tr>
<tr>
<td>Maximum Points Possible</td>
<td></td>
<td>1100</td>
</tr>
</tbody>
</table>

Final lab grade is based on the following percentages: A = ≥90%, B = 89-80%, C = 79-70%, D = 69-60%, F = <60%.

**VIII. GRADING DETAIL FOR LAB REPORTS:**

The following guidelines will generally be followed in grading lab reports:

- Title/Observations 10 Notebook
- Hypothesis 10 Notebook
- DOE (procedure, pre-lab results table) 20 Notebook
- Results 40 Report
- Conclusion 20 Report
- Technique minus 1-20 anytime

*Notebook = due at start of each scheduled lab section
Report = Before start of next experiment
Note:
1) Notebook assignments must be handwritten. Any appendices can be attached to the notebook’s experimental section. Instructor must witness and approve before lab work commences.
2) Report describes the complete experimental work. This report is due before starting next experiment.
3) Do not ask to use the department laser printer! This printer is for PENS faculty and staff only.

IX. GUIDELINES FOR LAB REPORTS:

Pre-lab = Notebook (40 pts):
Investigation/discovery stage. Refer to lecture material, techniques, reactions, mechanisms, and interpret written experimental procedures.

- Your notebook must be signed by yourself and counter signed by your lab instructor before you can start the experiment. If the copy of your lab notebook that you turn in does not contain the signature of your instructor, you will be deducted the 5 point Lab Technique grade from your lab report.

In-Lab (minus 1-20 pts): Performance of the experiment/Collecting the data.
- Lab Technique: Your instructor will deduct up to 20 points from your report grade due to bad lab technique. Important criteria are noted above.

Post-Pab = Reports (60 pts)
You will write a lab report for each experiment you do. Lab reports should be written in third person in a technical report style. The full lab report should consist of a title, observations (introduction and or background), hypothesis (objective and/or purpose), design of experiment, DOE, results table and conclusions. Supporting documents such as references, spectra, etc may be appended to the report.

X. LABORATORY RULES:
Eye Safety: When in the lab, always wear your safety goggles. A first violation will result in a verbal notification. A second violation will result in a “lab technique” penalty. A third violation of the safety goggle rule will result in your removal from the lab and a zero grade for that lab. If you need a break from wearing the goggles, step out into the hallway and remove them for a few minutes, but please inform your instructor as well as your lab partner. Also, be advised that wearing contact lenses in the laboratory can be harmful to your eyes, even when you wear safety goggles over them.

Clothing: No open-toed shoes, shorts (or short dresses), or mid-drifts (short tops) are allowed in the lab.
Keep it Clean: Keeping things clean will keep any chemicals in the lab and not in your home. Always wash your hands just before leaving the lab. Never take samples or glassware out of the lab. Do not place your coats, backpacks and other personal items on the bench tops or floor in the lab. They can be placed in the cabinets under the benches. Keep in mind; anything you bring into the lab should be treated with care at home. Your notebook and lab book may be picking up chemicals you spilled on the bench or floor and did not clean up. When you take your contaminated books home you may be spreading chemicals to your room.

Disposal of Chemical Wastes: During the experiments, you will generate several types of wastes which need to be handled properly. Organic wastes should be placed in the appropriately marked bottle for organic waste. Aqueous waste (such as water layers from extractions) should be poured into the appropriately marked bottles. Solid wastes (such as drying agents and used silica gel) should be placed in an appropriately labeled solid waste bottle. NEVER PLACE CHEMICALS-ORGANIC OR INORGANIC-DOWN THE DRAIN! Broken glassware should be placed in the broken glassware box. Never put glass into the trash cans.

Ask for Assistance: If you have any questions about the safety of any procedure, please ask your teaching assistant before proceeding.

XI. GENERAL INFORMATION:
Make-up Labs: Due to time constraints, no make-up labs will be offered. However, with written permission from the Laboratory Instructor (Dr. Egan), you may be allowed to perform the lab in another lab section. Authorization will only be granted for situations beyond the control of the student. A student must be present and perform the lab to receive a grade for the lab. Reports turned in by an absent student using another student’s data will not be accepted, and will be treated as an attempt to cheat.

Assigned Laboratory Sections: Each student must attend their assigned sections. If there is a legitimate need to switch sections and the space exists in the new section, then final written approval must be obtained from the Laboratory Instructor – Dr. Egan.

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 TAMUCC STUDENT HANDBOOK. Group interactions, investigations, and studying are encouraged; however, duplicative work will be treated as cheating and will receive a grade of zero. Even though you will be asked to work in pairs in lab, each person is responsible for turning in a separate and unique lab report. 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.

Honesty in reporting results is one of the essential characteristics of your laboratory work. Products may be periodically collected and checked to see if they conform to the properties (weight, mp) that you have cited. Relatively little of your grade depends on getting “good” quantitative results and you will be more severely penalized for misrepresenting results than for honestly reporting “poor” results. Copying lab reports, receiving any type of help on an exam
from another person or any source (notes, etc.) not authorized by the instructors shall be considered academic misconduct and as a result will be penalized to the fullest extent possible.

Lab Conflicts: The instructor requests that any conflicts that may occur in the lab, concerning the material, assignments, grading, teaching assistants, or instructor be discussed with the instructor. The students are also insured that no retaliation such as lowering of a grade will occur in response to any discussions or complaints about the course or lab.

Withdrawal from the Course: If you withdraw from the course you must return to the lab to “check-out” from the locker you share with your lab partner. Failure to check-out will result in charges to your college account for missing or broken items.

XII. WEBCT SAFETY COURSE:
• You must complete the WebCT lab safety course and score 100% on all quizzes. You will NOT be allowed to proceed with the lab starting the week of Monday, September 12, 2010.
XIII. LAB SCHEDULE:
The schedule below is a **preliminary** outline of the semester. It is **your responsibility** to keep up with any changes to this schedule.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC/TASKS</th>
<th>EXPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/23</td>
<td>No lab</td>
<td>N/A</td>
</tr>
<tr>
<td>8/30</td>
<td>Safety Instruction/Check-in/Technical Writing Workshop</td>
<td></td>
</tr>
</tbody>
</table>
| 9/6  | Notebook/Report Format Review  
Melting Point Determination  
*(Monday lab section 101 is Labor Day Holiday)* | 1 |
| 9/13 | Recrystallization and Identification of Unknowns | 2 |
| 9/20 | Extraction of Lycopene and β-Carotene (Part I) | 3 |
| 9/27 | Extraction of Lycopene and β-Carotene (Part II) *(HPLC)*  
*Save product for 10/4* | 5 |
| 10/4 | Simple Distillation *(UV/visible)* | 3 |
| 10/11 | Partition Coefficient: One-Base Extraction | 6 |
| 10/18 | Midterm Exam over Experimental Techniques 1, 2, 3, 5, 6, 7 (100 Points) | |
| 10/25 | Extraction of Limonene *(Polarimeter)* | 7 |
| 11/1 | Photoisomerization of 1,2-dibenzoylethylene *(UV/visible)* | 4 |
| 11/8 | Bromination of Stilbene/synthesis *(IR/NMR)* | 9 |
| 11/15 | Kinetics of $S_N1$ Solvolysis | 10 |
| 11/22 | Thanksgiving Break | |
| 11/29 | Finals (100 points) – Check-out | |
| 12/6 | Last day of class Tuesday 6th, Reading day 7th | |
*Notice to Students with Disabilities:* Texas A&M University-Corpus Christi complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services for Students with Disabilities Office, located in Driftwood 101, at 825-5816. If you need disability accommodations in this class, please see me as soon as possible.

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