Course Syllabus: CHEM 3131-020/021/024/025—Organic Chemistry I Laboratory—Fall 2020

Class Times: Class will meet on Zoom at the scheduled time (12:30-4:20 pm T for sections 020 & 021; 12:30-) Zoom links will be posted on D2L

Instructor: Russell J. Franks, Ph.D.
Office: M-114  Email: rjfranks@sfasu.edu

You may also send me a message on Facebook.
Phone: (936) 468—2199

Office Hours: I will not be doing in-person office hours this semester. I am happy to help you by other means including:

- via email
- via Zoom during the scheduled class periods
- via an individual Zoom meeting (please email me to arrange a meeting)

Catalog Description: Organic Laboratory –synthesis and characterization of organic compounds

Prerequisite: A grade of C in CHE 134/CHEM 1312 & CHEM 134L/CHEM 1112 (or their equivalents)

Corequisite: You must be currently enrolled in CHEM 3331 or have already had CHEM 331/CHEM 3331

Required Materials:

- Access to an organic chemistry lecture text (Brown, Klein, Wade, etc.)
- Notebook paper & pencils

Required Supplementary Readings:

Video lectures & other materials will be posted on D2L throughout the semester. It is your responsibility to review and study these resources, and bring questions to the scheduled Zoom meetings

Course Objectives:

Students will learn principles of organic chemistry in the laboratory. In the process, they will familiarize themselves with a broad range of techniques and procedures important to the successful practice of experimental organic chemistry. Special emphasis will be placed on:

- the safe handling of chemicals
- the proper manipulation of labware and instrumentation specific to the organic chemistry laboratory
- the maintenance of proper laboratory experimental records
- the use of basic MS, IR, and NMR spectroscopic methods of structural elucidation
- the use of scientific report writing as a means of communicating experimental results and as a means of demonstrating an overall understanding of the chemical principles and concepts used during laboratory activities.

Student Learning Outcomes: By the end of the semester, the student should be able to:

- Follow a published procedure to:
  - Perform an organic reaction successfully
  - Isolate and purify the product of an organic reaction
- Analyze spectroscopic data (MS, IR, 1H-NMR) in order to:
  - Elucidate the correct structure of a molecule
  - Assign correctly various spectral attributes and features to a particular portion of a molecule’s structure
- Write a good laboratory report including:
  - Recording his/her procedure, data, and observations in the laboratory notebook
  - Demonstrating in writing that he/she understood the chemical & physical principles involved in laboratory techniques & manipulations
  - Following established principles & conventions for communicating laboratory data & results
Course Requirements:
Your grade will be determined by evaluating your performance in lab activities. A list of these activities and their weight in the overall semester grade is shown below:

<table>
<thead>
<tr>
<th>Lab Activity</th>
<th>% of Semester Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab reports</td>
<td>60</td>
</tr>
<tr>
<td>Lab quizzes</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Method of Evaluation:

The purpose of this lab is to teach you the common techniques used in the synthesis and isolation of organic compounds. O-Chem lab is an experiential course. You are expected to learn from participating in the experiment using the knowledge you have gained from the lecture portion of the class to improve your laboratory results. You will **NOT** be given all of the information you will need! You are expected to be resourceful and learn to find information on your own. **While the instructors will do their best to ensure your safety, each student is responsible for his/her own learning from the laboratory activities.**

Spectroscopy:
Spectroscopy is how we determine the structure of an organic molecule, and is one of the most important skills in organic chemistry. We will practice these skills early so we can utilize these skills in CHEM 3131 as well as in CHEM 3132. You should become very familiar with the spectroscopy chapters from your lecture text while also using chapters 32 & 33 from Zubrick’s *The Organic Chem Lab Survival Manual*. Along with the examples done in class, you must practice spectroscopy problem-solving techniques using a lecture text. Your professor will let you know what to expect for each quiz.

Lab Quizzes:
Quizzes will be given on D2L during the course of the semester. Your lowest two quiz grades will be dropped. Quiz grades count for 40% of your overall semester grade. Topics for each quiz will be announced during Zoom class meetings as well as on D2L. In addition, the time window for each day’s lab sections will be posted on D2L. It is your responsibility to make sure that you complete quizzes within the allotted time window. Extensions will only be granted at the instructor’s discretion, and even then only under extraordinary circumstances.
Lab Reports:

- We will be doing virtual lab activities this semester.
- You will be provided with written instructions of how to set up and access the virtual lab activities.
- You will also be provided with detailed instruction sheets of how you are to perform each virtual lab activity as well as instructions for the lab report that you are to turn in.
- You are free to complete the virtual lab activities at any time prior to the deadline for report submission. You are welcome to do them immediately following our lab discussion on Zoom (highly recommended) or you may do them outside of class time.
- Lab reports for the virtual lab activities must be submitted electronically using the Dropbox tool on D2L.
- Please pay attention to due dates for submission of lab reports on D2L. Reports not submitted using the Dropbox tool on D2L by the specified deadline will incur a substantial penalty (see below).

Please pay careful attention to due dates for lab reports. Reports that are turned in after the due date are subject to a 15-POINT PENALTY PER DAY (including weekends and holidays). Turn your lab reports in on time!

Attendance Policy: You cannot do the lab if you are not present (obviously)

- All students enrolled in the lab section must log into the Zoom class discussion at the specified lab time (Zoom links will be provided on D2L).
  - Lab sections (020 & 021) will have lab from 12:30-4:20 pm on Tuesdays
  - Lab sections (022 & 023) will have lab from 1:00-4:50 pm on Wednesdays
  - Lab sections (024 & 025) will have lab from 12:30-4:20 pm on Thursdays
- Students are expected to be prepared for discussion of the day's scheduled activities, ask questions, and participate in the class discussion.
- Attendance will be recorded at the beginning of the class period. You are responsible for making sure that you are counted present during the Zoom class meeting.

Semester Withdrawals:

Please note: The last day to drop this course without receiving a WP or WF on your transcript is Wednesday, Oct. 21st.

Academic Integrity Policy:

Each student should acquaint him/herself with the University's codes, policies, and procedures involving academic misconduct, grievances, sexual and ethnic harassment, and discrimination based on disability. Copies of the SFA Policies and Procedures Manual can be obtained in print or online from the Office of Academic Affairs (http://www.sfasu.edu/upp/pap/academic_affairs.html)

Students engaging in academic misconduct (including cheating, plagiarism, or any other action that can improperly affect evaluation) will be subject to sanctions in accordance with SFA Academic Integrity Policies. A grade of "F" for the course and expulsion from the University will be recommended for any such violations.

Academic Disabilities Policy:

Stephen F. Austin State University is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodations in this course are requested to speak with me as early in the semester as possible. Students with disabilities must be registered with the Office of Disability Services prior to receiving accommodations in this course. The Office of Disability Services is located in Human Services Bldg., Room 325, (936) 468-3004, or (936) 468-1004 (TDD).

Your professor reserves the right to change any items contained in this syllabus. This includes, but is not limited to: course content, scheduled dates, grade cutoffs, and fraction(s) of final grade assigned to individual components of the course. If such changes need to be made, you will be informed of the changes in writing. This syllabus in no way constitutes a legally-binding contract on the part of your professor.
Classroom Behavior Policy:

- As SFA, and many other universities, learned during the Spring 2020 COVID crisis, some individuals engaged in "zoombombing" during Zoom meetings in which individuals yelled inappropriate things or displayed obscene images, etc.
- Our Zoom class meetings are to be treated as though we were in a face-to-face classroom. I expect you to conduct yourselves as responsible adults during class time as well as on D2L discussion forums, etc.
- Individuals who engage in any form of inappropriate behavior can be subject to disciplinary action from the university. Frankly, this course is challenging enough that you shouldn’t have time to engage in any of that sort of tomfoolery.
- Basically, when it comes to D2L Discussion Forums, which we will have throughout the semester, I want you to keep the Golden Rule in mind, i.e. Do unto others as you would have them do unto you. I want you to ask questions, solve problems, and to interact with me and with your classmates in a healthy, positive, and professional manner. If you can’t respond to someone’s question or comment in a manner that is positive and professional, then it would be best for you not to reply at all.

A few other things to cover:

- The COVID pandemic, and the academic problems associated therewith, that we all experienced in the Spring 2020 semester were hard on all of us.
- Unfortunately, nobody knows when the situation is likely to get better. I think we all hope that this will happen soon, but nobody knows when that is likely to be.
- The COVID crisis also has placed a lot of strain on many other aspects of society.
- One thing that I found during the spring is that communication is of the utmost importance. Stuff happens and, unfortunately, it’s not always good stuff that happens.
- I would ask that you maintain good communication with me this semester. If you, or someone around you, tests positive for COVID, or becomes ill with COVID, please let me know as soon as possible. If you are having trouble academically, please let me know. I’m not a counselor, but I am not bereft of compassion either. I will do what I can to help you get through these tough times, but I can’t help you if I don’t know that you are struggling. I’ll be honest with you, I have also struggled at maintaining my own personal motivation and morale during the past several months. I can relate probably a lot more than you realize.

Required COVID statements:

- I am required by the university to include a statement on masks and social distancing.
- Since we are not ever going to meet face-to-face as a class, these don’t really apply. You are not required to wear a mask during our Zoom class meetings unless you feel the need to or if you are in a place in which wearing a mask is required.
- If you are on the SFA campus, then you are expected to follow the SFA guidelines on wearing facial coverings and social distancing. If you don’t, you can get into trouble from the university.
- As for me, I will not be wearing a mask during our Zoom classes because I’ll be safely in my office. When I leave my office, I do wear a mask. I also wear a mask when I go out in public to Kroger and Wal-Mart and what not. I don’t like wearing a mask because it fogs up my glasses, but I do it anyway for my own safety and the safety of others with whom I come into contact.
- I’ll add this about wearing masks and other COVID-related precautions: It’s a shame that COVID precautions have become a political issue in the US, but they certainly have. I can tell you this much. I have a lot of former students from SFA and from when I taught at OU who are doctors, nurses, dentists, pharmacists, veterinarians, and other medical professionals. I keep up with them on Facebook and Instagram. These folks cover a wide range of political beliefs and values. Some are liberal, some are conservative, and some are moderate. Despite this, these folks are ALL strong advocates of wearing masks and taking reasonable COVID precautions. As far as I’m concerned, if these folks are in favor of masks, then that’s good enough for me. That’s all that I’ll say about the issue.)
## Tentative Lab Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Scheduled Activity</th>
<th>Reminders</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/25-08/27</td>
<td>Lab DOES NOT meet</td>
<td></td>
</tr>
<tr>
<td>09/01-09/03</td>
<td>Syllabus, Policies, etc</td>
<td></td>
</tr>
<tr>
<td>09/08-09/10</td>
<td>Mass Spectrometry</td>
<td>Handout posted on D2L</td>
</tr>
<tr>
<td>09/15-09/17</td>
<td>Infrared Spectroscopy</td>
<td>Handout posted on D2L</td>
</tr>
<tr>
<td>09/22-09/24</td>
<td>$^1$H-NMR Spectroscopy-Part 1</td>
<td>Handout posted on D2L</td>
</tr>
<tr>
<td>09/29-10/01</td>
<td>$^1$H-NMR Spectroscopy-Part 2</td>
<td>Handout posted on D2L</td>
</tr>
<tr>
<td>10/06-10/08</td>
<td>$^{13}$C-NMR Spectroscopy &amp; DEPT</td>
<td>Handout posted on D2L</td>
</tr>
<tr>
<td>10/13-10/15</td>
<td>Spectral Problem Solving</td>
<td>Handout posted on D2L</td>
</tr>
<tr>
<td>10/20-10/22</td>
<td>TLC Lab Simulation</td>
<td>Handout posted on D2L, Virtual lab activities &amp; report</td>
</tr>
<tr>
<td>10/27-10/29</td>
<td>Alkyl halide solvolysis lab</td>
<td>Handout posted on D2L, Virtual lab activities &amp; report</td>
</tr>
<tr>
<td></td>
<td>Nucleophilic substitution lab-1</td>
<td></td>
</tr>
<tr>
<td>11/03-11/05</td>
<td>Alkene Rxns-I</td>
<td>Handout posted on D2L, Virtual lab activities &amp; report</td>
</tr>
<tr>
<td>11/10-11/12</td>
<td>Alkene Rxns-II</td>
<td>Handout posted on D2L, Virtual lab activities &amp; report</td>
</tr>
<tr>
<td>11/17-11/19</td>
<td>Alkene Rxns-III</td>
<td>Handout posted on D2L, Virtual lab activities &amp; report</td>
</tr>
<tr>
<td>11/24-11/26</td>
<td>Thanksgiving holiday</td>
<td>No lab activities scheduled</td>
</tr>
<tr>
<td>12/01-12/03</td>
<td>Dead Week</td>
<td>No lab activities scheduled</td>
</tr>
<tr>
<td>12/07-12/10</td>
<td>Finals Week</td>
<td>Lab DOES NOT meet</td>
</tr>
</tbody>
</table>