Catalog Description: One to four semester hours. May be repeated for a total of four hours credit. Undergraduates only. Individual study and/or laboratory research. Prerequisite: Consent of the instructor. Pass-Fail grading.

Prerequisites: Permission of instructor

Required Texts and Other Materials:
- Lab notebook (see me for guidelines)
- A USB “thumb drive” for data storage & transfer
- Approved safety glasses or safety goggles

Required Supplementary Reading: Handouts and journal articles will be provided as needed.

Student Learning Outcomes: Upon completion of CHEM 4176, students will be able to:
- apply the chemistry knowledge obtained during the college career.
- analyze experimental results based upon trends in data.
- practice the safe use/handling of chemicals and their proper storage

Course Requirements:
You will work in the lab ~4 hours per day for each hour of credit that you are enrolled. At the beginning of the semester, we will decide on a mutually-agreeable time for you to come to lab and work. We will also meet individually to discuss your results and plan what is to be done next in the lab. Officially this is listed as an 8-week class. The 8-week Fall I semester ends on Oct. 15th. You will be given a grade of WH at this time. Once you successfully complete the research requirements (i.e. submit your completed research report) by the end of the regular 16-week Fall semester, your grade will be changed from WH to P.

Attendance Policy:
If you cannot make it to work at your scheduled time, please let me know. We can arrange a mutually convenient time to "make-up" the lab work.

Academic Integrity Policy:
All students are urged to acquaint themselves 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).

Semester Withdrawals:
Please note: The last day to drop this course without receiving a WP or WF on your transcript is Thursday, Sept. 24th.

Academic Disabilities Policy:
Stephen F. Austin State University is committed to providing reasonable accommodations 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 the Human Services Bldg., Room 325, (936) 468-3004 or (936) 468-1004 (TDD).
Course Syllabus: CHEM 4176-032—Adv Biofuel Res II—Fall 2020

I reserve 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 I need to make such changes, I will inform you of the changes in writing. This syllabus in no way constitutes a legally-binding contract on my part.

**Formal Research Report (FRR):** (Due to me by 12:00 noon Monday, Dec. 14th, 2020)

The FRR is a means for you to improve your scientific writing through multiple feedback/editing/revision cycles throughout your undergraduate career. The proposal that you completed at the beginning of research will serve as a basis for the FRR. As you progress and collect more data, you will add these to your FRR. The FRR will be a “living document” that will be revised and improved during your research work. The FRR, and the results contained therein, will ultimately form the bulk of the Capstone paper that is part of the curriculum requirements for Senior Seminar (CHEM 4170). All drafts must be submitted electronically. The FRR must consist of the following sections, in the order listed:

- Title
- Abstract
- Introduction & background
- Methodology
- Results
- Discussion
- Conclusions & Future Work
- References (all references must be provided in ACS format)

**Lab Notebook:** (Carbon-copies are due to me by Monday, Dec. 14th, 2020)

- You will use and maintain a notebook on your research (including library and literature work) during the course of the semester.
- **You MUST bring your notebook to lab ANYTIME you come to the lab to work.**
- If you don’t have your notebook, you are not ready for lab and will be sent home to get your notebook.
- Check with me (before buying anything) to find out what constitutes an acceptable lab notebook.
- All notebook records are to be kept in **black ink.**
- Keep meticulous experimental details in your lab notebook.
- Make sure you date everything clearly in your lab notebook.
- Your notebook should be neat, legible, and easy-to-follow.
- Bring your notebook and any other data (e.g. spectra, etc.) you have collected when you come to meet with me to discuss your progress.
  Please provide me both hard copies & electronic copies of any spectra (IR or NMR) that you have collected over the semester

**General Policies:**

- You are expected to come ready to work in the lab at the times you have agreed to work. If you are not able to come, please contact me (phone or email) and let me know that you won’t be in. We will discuss making up the missed time if the need should arise.
- You should come and check in with me before beginning lab work. Please don’t carry out lab work while I am not around (this is for your safety).
- You are expected to follow all departmental safety rules while working in the lab.
  - Specifically, you are expected to wear approved safety glasses, proper shoes, and long trousers while in lab.
- You will be assigned a drawer in the lab for you to store your lab notebook and other personal items.
- All glassware and equipment in the lab is communal. Be courteous to your fellow labmates. If you need something, use it. After you are done, clean it up and return it to its proper place.
- I expect you to use departmental equipment responsibly. You will not be allowed to use departmental instruments on your own until you have been suitably trained (by me) and I feel confident that you are able to use the instrument safely. Please see me if you are unsure of how to perform a particular procedure or how to use equipment.
- Masks (cloth face coverings) must be worn over the nose and mouth at all times in this class and appropriate physical distancing must be observe. Students not wearing a mask and/or not observing appropriate physical distancing will be asked to leave the class. All incidents of not wearing a mask and/or not observing appropriate physical distancing will be reported to the Office of Community Standards. Students who are reported for multiple infractions of not wearing a mask and/or not observing appropriate physical distancing may be subject to disciplinary actions.