Day and time of weekly meetings and seminars: **Thursday 12:15 - 1:05 PM, NCF 105**

**Research hours**: By arrangement with research advisor (see below)

**Course Director**: Dr. Gloria Thomas; Office: 337 NCF; Phone: 520-7380; gthomas5@xula.edu

**Office hours**: Mon & Wed 11 am – noon; Tues & Thurs 9 – 11 am

**COURSE DESCRIPTION AND OBJECTIVES:**

**CHEM 4080.** Introduction to Research – Students are paired with research mentors who prepare them for their research projects through literature searches and studies, as well as research training. Students are required to attend lectures on lab safety, research ethics, and the weekly-scheduled chemistry department seminars. All 4080 students are also required to submit a research prospectus before the end of the semester. Prerequisites: CHEM2220/2220D/2240L.

**CHEM 4083/4093.** Undergraduate Research – Students participate in an independent and original laboratory research project under the close supervision of a faculty advisor. This entails familiarization with relevant chemical literature, laboratory work, preparation of an abstract and a written report, and presentation of a departmental seminar. Students who complete the course learn to search and critically review the literature, develop specialized laboratory skills, evaluate experimental data, prepare a formal and detailed written research report, and present a seminar for constructive review by their peers and the faculty. Students desiring credit for research performed off-campus must obtain approval of their project from the course coordinator, register for this course, and present the required written and oral reports and a letter of evaluation from their off-campus research mentor. Prerequisites: CHEM 2220/2220DR/2240LB, and CHEM4080 or permission of the course coordinator.

**TEXTS:** No text is assigned. References and research journals will be used as required by the individual research mentors. Each student in the course must keep a laboratory notebook.

**COURSE REQUIREMENTS FOR ON-CAMPUS RESEARCH:**

- Students are required to attend all chemistry department lectures and seminars scheduled on Thursdays from 12:15 to 1:05 PM. Swipe in and out of the card readers each time, and check the blackboard, e-mails, and flyers on the third floor of the science building regularly for the seminar dates and topics.

- Seminar Dates are listed at: http://www.xula.edu/chemistry/documents/seminarSchedule.pdf

- 4083/4093 students must perform at least 9 **hours of research per week**, according to a schedule arranged with their research mentors. 4080 students must meet with their mentors regularly and prepare for their research projects as directed.

- Students are required to keep an updated and complete laboratory notebook according to the guidelines provided by their mentor; the notebook must be turned in to the mentor at the end of the semester.

- **4080 students are required to:**
  - attend all seminars,
  - participate in all journal clubs, and
prepare an annotated bibliography (due on or before the last class meeting of the semester) and submit a draft abstract on the research to be conducted.

- **4083/4093 students are required to:**
  - attend all seminars,
  - participate in all journal clubs,
  - write a final report (due on or before the last class meeting of the semester),
  - make a fifteen-minute oral presentation on their work at a session of the Chemistry Departmental Seminar series. An abstract of the presentation must be presented to the mentor at least two weeks before the scheduled seminar date for reviewing and corrections and then turned in to the course coordinator a week before the seminar is scheduled.

- Guidelines to writing abstracts and final reports can be found on:
  
  http://www.xula.edu/chemistry/now/Courseweb.html

**COURSE REQUIREMENTS FOR OFF-CAMPUS RESEARCH WITH AN OUTSIDE MENTOR:**

- Students must have worked at least the same number of total hours as a student within the department. The project must have a strong chemical component, and must be approved by the course coordinator.
- Students may register for CHEM 4080 concurrently with their research course. They are required to attend the regular sessions of the Chemistry Departmental Seminar series, which meets on Thursdays from 12:15 to 1:05 pm.
- Students are required to turn in a letter of evaluation from the off-campus supervisor of their research project.
- Students are required to make a **fifteen-minute oral presentation** on their work at a session of the Chemistry Department Seminar series. An **abstract** must be turned in to the course coordinator for review well in advance of the seminar presentation; a final version must be turned in **one week before the seminar is scheduled**.
- Students are required to write a **final report**. The final version of this report **must be turned in on or before the last day of class**.

**COURSE EVALUATION:** The final grade is based on completed laboratory work, attendance at seminars, quality of the seminar presentation, and the quality of the final report submitted. No written examinations are given.

<table>
<thead>
<tr>
<th>4080 Participation Rating**</th>
<th>4083/4093</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance: 20%</td>
<td>Attendance: 10%</td>
</tr>
<tr>
<td>Journal Club Assignments: 20%</td>
<td>Journal Club Participation: 20%</td>
</tr>
<tr>
<td>Bibliography &amp; Abstract: 10%</td>
<td>Research Presentation: 20% (avg faculty eval)</td>
</tr>
<tr>
<td>Laboratory Performance: 50%</td>
<td>Final Report: 20% (avg faculty eval)</td>
</tr>
<tr>
<td>Laboratory Performance: 30%</td>
<td></td>
</tr>
</tbody>
</table>

** 4080 Students must receive 70% or higher to be permitted to take 4083 in a subsequent semester**
Academic Misconduct

The CAS Academic Integrity Policy will be followed in this course. According to the policy, academic misconduct includes, but is not limited to, the following:

1. Using unauthorized materials in completion of an exam, quiz, or assignment.
2. Assisting or gaining assistance from an unauthorized source during an exam, quiz, or assignment.
3. Providing assistance to another student in a manner not authorized by the instructor.
4. Obtaining an examination or assignment in an unauthorized manner.
5. Using material from a source without giving proper citation.
6. Fabricating or altering data.
7. Submitting work to one class that is substantially similar to work submitted for another class without prior approval from the instructors involved.
8. Submitting written work that is not completely one’s own or allowing others to submit one’s work.
9. Destroying or altering the work of another student.
10. Committing any other violation of academic integrity as described in this syllabus.

Specific examples of academic misconduct include:

- the use of a cell phone during an exam or quiz for any reason (even as a calculator);
- talking during an exam or quiz;
- using anything other than explicitly authorized materials on a quiz or exam;
- attempting to read from another student's quiz or exam;
- copying class assignments, including sharing files to analyze or present data;
- using data that you did not collect in a report without proper attribution;
- working with others on any assignments (in or out of class) when not authorized.

You are responsible for arriving on time for all quizzes or exams, as you will not be permitted to begin after any other student has left the room. You are responsible for all written materials on, under, and near your seat during quizzes and exams, so it is in your best interest to ensure that the desk surface is clear of writing and that no extraneous papers are within your line of sight (both when you begin and finish). Cell phones should always be off and inside a bag during a quiz or exam; your instructor will not give you the benefit of the doubt if a cell phone is used or visible. The CAS policy makes no distinction between the person receiving unauthorized assistance (copying an assignment) and the person providing the assistance (allowing work to be copied); both actions are academic misconduct.

All cases of academic misconduct will be reported to the CAS Dean's Office per Xavier's Academic Integrity Policy. Any case of academic misconduct on assignments will result in a grade of zero for the assignment and may result in a grade of F for the entire course.