CHEM 597-Advanced Research (Summer 2015)—SYLLABUS

COURSE DESCRIPTION: This course will develop your laboratory skills and knowledge. Over the course we will cover a range of instrumental and data analysis techniques. You will become familiar with NMR, UV/Vis, Computational Chemistry experimental techniques and SciFinder, Web of Knowledge and Endnote for searching scientific literature and developing a bibliography. You will also be required to develop your critical reading skills of research papers and develop your technical writing skills. The class will be assessed by written reports, research presentations, and skills demonstrations. The class is 3 semester hours.

CLASS TIME AND LOCATION: M-Th 2-4 pm, STC 308

INSTRUCTOR: Dr. Stephen Starnes, SCI 339
Phone: 903-886-5389, **Stephen.Starnes@tamuc.edu**

TEXTBOOK: none required

OFFICE HOUR: MTWR: 11:00 am-noon or by appointment. I will regularly be in the lab.

LEARNING OUTCOMES OF THE COURSE: Give the students the necessary skills involved in conducting organic chemistry related research. The skills will include organic synthesis techniques, computational chemistry, oral presentations, report writing, critical reading, chemical database searching and review of the literature. During the course you will develop the skills and material needed for a chemistry thesis and/or chemistry publication. The database searching portion of the course will familiarize you with the software tools of Web of Science, SciFinder, and Endnote. The instrumental analysis portion of the course will cover nuclear magnetic resonance spectroscopy (NMR): by the end of the course you should be able to acquire and interpret your own 1H-NMR, 13C-NMR, 19F-NMR, DEPT NMR and COSY NMR spectra. You will also be expected to record and interpret spectra from infrared spectroscopy (IR), ultra-violet and visible (UV-VIS) spectroscopy, polarimetry, and possibly fluorescence spectroscopy and circular dichroism spectroscopy. The computational portion of the course will use the Spartan software package on the computer cluster for exploring a range of chemical properties. By the end of the course you should be able to utilize the Spartan software package to model your compounds. Students will be required to regularly present their research to the group and write several research progress reports. Students will be able to explain their research with regards to synthetic accomplishments and incorporate the interpretation of the spectroscopic and computational results in all written and oral reports.

COURSE REQUIREMENTS, ASSIGNMENTS AND GRADING:

Progress towards Research Thesis and/or Manuscript: Students are required to actively pursue laboratory research, data analysis and literature reviews. (30-40-hrs per week)

Research assignments:
Initial background literature review and research bibliography (20%)
Midterm written research report (20%)
Final oral presentation based on your lab and literature research (20%)
Final poster developed based on your lab and literature research (20%)
Final written report based on your lab and literature research (20%)

A: >85.0; **B**: 75.0 ~ 84.9; **C**: 65.0 ~ 74.9; **D**: 55.0 ~64.9; **F**: <55.0

Attendance Policy: All students are expected to attend classes on a regular basis. The Department of Chemistry adheres to the attendance policy set by the University as stated in the most current Undergraduate Catalog. The attendance record is taken from a daily sign-in sheet. A student who is late by more than 5 minutes or fails to sign the sign-in sheet will be counted as missing a lecture. Excessive absence is defined as missing more than 10% of the lectures or more than 10% of the laboratory sessions without excusable reasons. Excessive absence will be reported to the Dean of the College and the Dean of Students. In addition, **according to the TAMU-Commerce Procedure 13.99.99.R0.01, if a student has excessive absences, the instructor may drop the student from the course**. The instructor will only excuse an absence if the student provides, with appropriate documentation, an excusable reason allowed by the TAMU-Commerce Procedure 13.99.99.R0.01. Good class attendance will be necessary in order to pass this course.

Student Conduct Policy: All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment (see Student¹s Guidebook, Policies and Procedures, Conduct, TAMU-Commerce Procedure 13.02.99.R0.06). Any student engaging in disruptive behavior will be dismissed from class on the first offence. A second offence may constitute dismissal from the course with a failing grade.

Cheating and other Breaches of Academic Conduct: Academic cheating, plagiarism, and other forms of academic misconduct may result in removal of the student from class with a failing grade or may in extreme cases result in suspension or expulsion from the University as described in the Code of Student Conduct section of the Student¹s Guidebook A&M-Commerce Procedure 13.99.99.R0.10.

Students with Disabilities:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:
Office of Student Disability Resources and Services, Texas A&M University-Commerce
Gee Library, Room 132, Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148, StudentDisabilityServices@tamuc.edu

Dishonesty:
The reports must be written by the student. Any instance of cheating will result in a grade of "F" for and could result in dismissal from the course. Freedom to discuss problems and your research does not mean that you can copy other people's work. You must develop your reports on your own. Blatant plagiarism will result in a grade of "F" for the assignment. Proven offenders will be dismissed from this course with a grade of "F" assigned. The offender will be reported to the Dean of the College and the Dean of Students.