Course Information
Introduction to Research - CHEM 397
Spring 2015

LAB TIME AND LOCATION: One day a week, 2-5 pm; Room 313 of the Science Building

Instructor: Allan D. Headley
Office: Science Building, 337
Office Hours: Tuesdays, 1:00 p.m. to 2:00 p.m.; and Wednesdays 1:00 p.m. to 2:00 p.m.
Telephone: (903) 468 – 8106
E-Mail: allan.headley@tamuc.edu

COURSE DESCRIPTION: The course will provide an introduction to research in the chemical sciences. Students will gain knowledge and skills needed to conduct laboratory research, design research experiments, analyze research data, utilize instrumentation, and write research reports. Students will be introduced to the different research fields in the chemistry department at A&M-Commerce. Students will receive introductory training on a variety of instruments utilized to conduct this research, including NMR, UV/Vis, and IR spectroscopy, Mass spectrometry, Computational Chemistry techniques and the use of SciFinder, Web of Knowledge and Endnote for searching and collecting scientific literature needed to conduct scientific research and developing a bibliography. The class will be assessed by the completion of weekly summarization reports of the topics discussed each week.

STUDENT LEARNING OUTCOMES: Students will gain an introduction to the necessary skills needed to conduct chemistry-related research and computational scientific research. Part of the training will be in organic chemistry and organometallic chemistry related research. The skills introduced will include organic synthesis techniques, computational chemistry, oral presentations, report writing, critical reading of literature, chemical database searching and review of the literature. The instrumental analysis portion of the course will cover nuclear magnetic resonance spectroscopy (NMR), infrared spectroscopy (IR), ultra-violet and visible (UV-VIS) spectroscopy, polarimetry, IR spectroscopy, High Performance Liquid Chromatography (HPLC), mass spectrometry (MS), differential scanning calorimetry (DSC), Thermal Gravimetric Analysis (TGA), Gas Chromatography (GC). The computational portion of the course will use the Spartan or Gaussian software package on the computer cluster for exploring a range of chemical properties. During the course you will develop the skills and material needed for a technical research report. The database searching portion of the course will familiarize you with the software tools of Web of Science, SciFinder, and Endnote. Students will be required to complete weekly summary reports assignments over the topic covered. By the end of the course, students should have good knowledge of the research being conducted in the chemistry department and should have developed skills needed to work in a particular research group should a student decide to join a research group and become a productive independent
researcher in the group with minimal additional training.

COURSE REQUIREMENTS, ASSIGNMENTS AND GRADING:
Weekly summary reports: 100%

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

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 Student's 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 Student's 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 students must write their individual reports. Any instance of cheating will result in a grade of “F” and result in dismissal from the course. Freedom to discuss problems does not mean that you can copy other peoples’ work. You must develop individual reports of your own. Blatant plagiarism will result in a grade of “F” for the course. Proven offenders will be dismissed from the research.

NONDISCRIMINATION STATEMENT:
Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.