CHEM 597 section 003-Advanced Research Techniques and Design I (Fall 2015)

CLASS TIME AND LOCATION: Class: M/T/W/R/F flexible; SCI # 306/328/351.
INSTRUCTOR: Dr. Bukuo Ni, SCI 303
Phone: 903-886-5382, Bukuo.Ni@tamuc.edu
Office hour: Tuesday, Wednesday, and Thursday: 9:30-11:30am or by appointment.

COURSE DESCRIPTION: The course will provide students with the knowledge and skills needed to conduct laboratory research and design experiments. Data analysis and report writing skills will also be developed which are needed to interpret laboratory research and produce technical scientific reports. Over the course we will cover a range of organic and/or organometallic research experiments and their results analysis. You will become familiar with asymmetric chemistry and its data analysis. You will also be required to develop critical reading skills of research papers and develop your technical writing skills. The class will be assessed by weekly written reports and research presentations.

STUDENT LEARNING OUTCOMES: Students will gain the necessary skills involved in conducting organic and/or organometallic scientific research. The skills will include conducting experiments by the procedures, monitoring the reaction progress, purification of products by flash chromatography, identification of products’ structure by instruments, such as NMR and HPLC. 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 and SciFinder Scholar. The instrumental analysis portion of the course will cover proton and carbon nuclear magnetic resonance (NMR), high performance liquid chromatography (HPLC), infrared spectroscopy (IR), and polarimetry. 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 toward Research Thesis and /or Manuscript: Students are required to actively pursue laboratory research, data analysis and literature reviews (20 hours per week).
Research assignments: introduction to a scientific problem, literature review, and biweekly research report with next biweekly research plan (60%). Midterm research report: based on research results, literature review (15%). Final research report (Oral presentation): based on research results and literature review (25%)
A: >85; B: 75-84; C: 65 -74; D: 55-64; F: <54

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, Halladay Student Services Building, Room 303 A/D, Phone (903) 886-5150 or (903) 886-5835, Fax (903) 468-8148. StudentDisabilityServices@tamuc.edu

ATTENDANCE POLICY:
All students are expected to attend lab and 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 kept by roll check. Being more than 5 minutes late to class is equivalent to missing a class. Excessive absence is defined as missing more than 10% of the classes 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 A13.02, 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 documents an excusable reason allowed by the TAMU-Commerce Procedure A13.02. Regular class attendance is necessary in order to pass this course.

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 peoples 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.