

LAB TIME AND LOCATION: Mon/Tues/Wed/Thurs/Fri; SCI # 325, 327, 328

INSTRUCTOR: Dr. Stephen Starnes, SCI 339 Phone: 5389, Stephen.Starnes@tamuc.edu

OFFICE HOURS: Mon-Thursday: 11:00 am-noon

COURSE DESCRIPTION: The course will provide students with the knowledge and skills needed to conduct laboratory research, design research experiments, analyze research data, and write research reports. Data analysis and report writing skills are important aspects for interpreting the laboratory research and producing technically written, scientific reports. Over the duration of the course you will be expected to apply a range of instrumental and data analysis techniques and we will develop report writing skills all of which are needed to interpret laboratory research and produce technical scientific reports. You will become familiar with NMR, UV/Vis, Computational Chemistry experimental techniques and the use of SciFinder, Web of Knowledge and Endnote for searching and collecting scientific literature related to your project 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 the completion of weekly research assignments, the submission of bi-weekly written reports, a midterm and end of semester research report, and research presentations. The class is 3 semester hours.

STUDENT LEARNING OUTCOMES: Students will gain the necessary skills involved in conducting organic chemistry-related research and computational scientific research. The skills will include organic synthesis techniques, computational chemistry, oral presentations, report writing, critical reading of literature, chemical database searching and review of the literature. 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. 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, and may include 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. Students will be required to complete weekly research assignments, to regularly present their research to the group and write bi-weekly research progress reports.

COURSE REQUIREMENTS, ASSIGNMENTS AND GRADING:

Research assignments and reports: introduction to a scientific problem, literature review, and research results. Four reports due on specified Mondays (9% each) 36%

Oral presentations: based on your lab and literature research (14%)

Midterm research report: based on literature review, research results, and bibliography (20%)

Final research report: based on literature review research results, and bibliography (30%)

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

A grade of B or higher is necessary to make satisfactory progress towards a Thesis

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 reports must be written by the student. Any instance of cheating will result in a grade of "F" and 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 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 group.