

**Florida Atlantic University
Department of Chemistry & Biochemistry**

COURSE:

Location and time: To be arranged with the course instructor.

INSTRUCTOR:

Any full-time faculty member with research experience in the Department of Chemistry & Biochemistry may assume responsibility for guiding a CHM 4972 research project.

COURSE WEB-SITE

The Blackboard site for this course, where students can obtain course information, can be reached using the address <http://blackboard.fau.edu>. Your user name is the same as your FAUNET ID (go to <http://accounts.fau.edu> if you do not know this).

It is the student's responsibility to read the entire syllabus and understand the contents herein. This syllabus forms the rules and regulations by which the student must abide. In addition, it is the student's responsibility to monitor, read and understand all emails, announcements and course documents that are posted on the course Blackboard site. Any corrections or additions to the syllabus will be posted at the course Blackboard site and are understood to be part of the syllabus.

PREREQUISITE

Students must have completed 2 semesters of Honors Direct Independent studies (CHM 4905) with a minimum grade of B+ and have maintained overall major (Chemistry) GPA of 3.3 (B+).

COURSE DESCRIPTION

This course is intended to provide the opportunity for in-depth, independent, undergraduate research. This includes all aspects of the research process: development of a research question, and the methods and/or experimental procedures to study that question, how to conduct scientific experiments, data analysis and interpretation, including scientific technical writing. Students will gain experience communicating the results of their research project in the form of an undergraduate thesis.

NOTE OF HONORS DISTINCTION:

CHM 4972 Honors Thesis in Chemistry is a course that is only offered to students in the Honors in Chemistry Program. Students admitted to this course will develop close relationship with faculty members through involvement in the independent research project. Students will be exposed to a real-life scientific research problems, taught to solve complex problems by applying interdisciplinary approaches, and will have hands-on access to research-grade equipment and application-based laboratory experiences. Through this high quality educational experience these students may appear as co-authors of publications in scientific journals and/or presentations at professional meetings. The writing component of the Honors Thesis course involves refinement of writing, graphic and oral presentation skills, and systematic work with regular deadline and ongoing feedback from the instructor. These students will receive more personalized letters of recommendation from their faculty mentors, giving them an advantage when applying to graduate and professional school or applying for jobs after graduation.

COURSE OBJECTIVES AND LEARNING OUTCOMES

The main objective of this course is to train students to conduct research in a chemistry laboratory and produce an honors thesis. Through understanding of scientific method, students will be able to develop hypotheses, design experiments, and critically analyze results to create a scientific report. Over the duration of the thesis work, students will be expected to apply a range of research techniques, demonstrate the ability to organize and document laboratory procedures and to refine report writing and oral presentations skills for the general scientific audience. Upon completion of this course, students are expected to have a good understanding of the safe laboratory practices, gain experience in critical analysis of their research to determine if it appropriately tested

their hypothesis, and gain analytical and communication skills that are necessary skills for successful continuation of their education in a graduate program and/or for a highly competitive STEM job market.

COURSE TEXTBOOKS

There is no assigned textbook for this course. Background information will be largely derived from reviews and the primary scientific literature.

COURSE REQUIREMENTS

Statement of Intent written by student and signed by two Faculty Advisors has to be submitted to the Honors Director in Chemistry for approval during the second week of the semester. The first progress report should be submitted mid-semester, and the final thesis for faculty review is due 3 weeks in advance of graduation date. The thesis need not be limited to description of research during the semester, but may also include research from previous 2 semesters of Honors Direct Independent studies (CHM 4905). Length of senior thesis must be at least 15 pages (double-spaced). This page limit includes figures and their legends, but not the Literature Cited. The font type must be 11 point Arial. All margins of the paper must be one inch wide.

An honors thesis must contain the following sections:

I. Introduction

The introduction should include a description of the scientific background of the project and the significance of the project.

II. Experimental Design

This section should describe the experiments performed in sufficient detail to allow others to repeat the original experiments and reproduce the results.

III. Results

This section should state the rationale for each experiment and its design. The outcome of the experiments should be explicitly described.

IV. Discussion

This section should focus on the meaning and the broader context of the experimental results.

It should include analysis of whether the experiments supported or disproved the working model and hypothesis.

V. Conclusions and Opportunities for Future Research

This section should provide a brief description of where the research has led.

VI. Literature Cited

When referring to the work of others, it is important to cite their research with a suitable reference. A document of this size will typically cite 20-50 references in ACS style.

ASSESSMENT AND GRADING SCALE

The course grade will be based on both research and oral presentation components. Research component will reflect the priorities and expectations of the supervising Faculty Member (200 points). The oral presentation component will be based on the quality of the thesis defense presentation and will be given by a Thesis Committee, consisting of two Faculty Advisors (100 points). The grade will be calculated as a percentage of the total points earned (300).

The "A" range is 90-100%, "A-" range is 85-89% "B+" range 80-84%, "B" range 75-79%. A minimum grade of B+ is required for honors credit.

INCOMPLETE GRADE

Incompletes will not be given unless a) a student is passing the course and b) a student encounters severe and unexpected problems and was not able to complete some portion of the work assigned to all students as a regular part of the course. Incompletes are given only by arrangement with the instructor. Students are expected to make up incompletes as soon as reasonably possible. Incompletes are not given because a student is doing poorly in the course.

CLASSROOM ETIQUETTE POLICY

In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions.

CLASSROOM ATTENDANCE POLICY

Students are expected to meet with the Faculty Advisor at least once per week to satisfy all academic objectives as outlined by the Advisor.

Although this is a 2 credit hour course, a minimum of 10 hours per week of work will be required. In general, students should strive to commit to large blocks of time in the lab (>3 hours) to increase productivity.

DISABILITY POLICY STATEMENT

In compliance with the Americans with Disabilities Act (ADA), students who, due to a disability, require special accommodation to properly execute course work must register with the Office for Students with Disabilities (OSD) -- in Boca Raton, SU 133 (561-297-3880); in Davie, LA 240 (954-236-1222); in Jupiter, SR 110 (561-799-8010) -- and follow all OSD procedures.

CODE OF ACADEMIC INTEGRITY POLICY STATEMENT

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including plagiarism, is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see the Code of Academic Integrity in the University Regulations:

http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf