UAB DEPARTMENT OF CHEMISTRY UNDERGRADUATE AND HONORS RESEARCH

Chemistry is an experimental science. The laws and theories you learn in your chemistry courses are based upon research. To truly understand chemistry, it is necessary to appreciate how research is carried out. Many chemistry majors go on to careers that involve or are based on research. Participation in research allows you to decide whether you enjoy research and thus to make more informed career choices. Strong, professional relationships with research mentors provide you with important insights into career choices, and enable faculty members to write stronger recommendation letters for you for graduate and professional schools. Research may also qualify you for certain scholarship and award competitions, consideration for publication of research results in scientific journals, and presentation of research results at scientific meetings. Any or all of these are impressive on applications and during interviews for graduate/professional schools or employment.

There are three types of undergraduate research credit available in the UAB Chemistry Department.

CH 297 (1 SH): This credit requires about four research lab hours per week in fall or spring, or five hours per week in summer (50 hours total for one semester), although the research mentor may require more. The proposal form must have written approval from the faculty mentor (who may require prior completion of certain courses with certain grades, and determines the criteria and schedule for successful completion of the work), the chemistry dept. advisor, and the chemistry dept. chairman, and the GPA (a 2.5 or higher GPA in chemistry) must be verified at the end of the term prior to beginning the research credit, before the student may register for CH 297. GPA and mentor approval are re-verified at the end of each term before the student can register for subsequent CH 297 credit.

CH 497 (3 SH): This ideally includes a minimum of six credit hours (two semesters, preferably consecutive) under the supervision of a faculty member mentor, who determines the criteria and schedule for successful completion of the work. These criteria include an average of about 11 research lab hours per week in the fall or spring, or 15 hours per week in the summer (always 150 hours total per semester), although the mentor may require more. The schedule should be discussed by the mentor and student prior to registering for credit. The chemistry department and/or the mentor will require the student to write an abstract/report on the research progress, and guidelines for the report are provided after the semester begins (or earlier upon request). The student must have at least a 2.5 overall GPA and at least a 3.00 overall GPA in chemistry courses, and may need to have completed certain courses with certain grades (as determined by the mentor) before signing up for CH 497. The proposal form must be signed by the mentor, the chemistry dept. advisor, and the chemistry dept. chairman, and GPAs must be verified at the end of the term prior to beginning the research credit, before the student may register for CH 497. GPAs and mentor approval are re-verified at the end of each term before the student registers for subsequent research credit.

CH 499 ~ Honors Research (3 SH): Students normally take CH 497 (usually two or more consecutive semesters) and then CH 499 under the supervision of the mentor. The student must have an overall GPA of 3.0, a 3.25 GPA in Chemistry, and sufficient progress in research (as determined by the mentor) to participate in Honors Research. The student then meets with Dr. Gary Gray to apply before registering. The application form includes a one page abstract describing the content of the student’s proposed Honors Thesis, and must be signed by the student’s research mentor, two faculty advisors (honors thesis committee), and the Honors Director PRIOR TO registration for CH 499. During CH 499 the student writes an Honors thesis, of chemistry research journal quality, which is submitted in written form and presented orally to the committee.

(FORENSICS research may begin or end with CH 297, a one-credit, ideally full-time internship in a local, state, or federal crime lab. This will normally occur during summer, and may have prerequisites specified by the individual lab. The remaining semester of CH 497 and optional CH 499 can be completed at the same lab or at UAB.)

ALL OF THESE REQUIRE A WRITTEN PROPOSAL APPROVED BY VARIOUS PEOPLE BEFORE YOU CAN BE REGISTER for the credit. The earlier you start the process, the more likely it will be approved in time! TO BEGIN THE PROCESS, contact Mr. Grimes at chemadvise@uab.edu and/or chemistry professors for referrals to potential mentors. After a mentor agrees to allow you to participate in research in his or her lab, EMAIL MR. GRIMES A PROPOSAL (usually a paragraph or two) INCLUDING ALL OF THE FOLLOWING (which you learn about from the mentor) items. Show your proposal to the mentor first if practical.

- THE NAME AND DEPARTMENT OF THE FACULTY MENTOR
- AN OVERVIEW OF THE RESEARCH PROJECT AND YOUR ROLE IN IT
- THE SPECIFIC PROCEDURES YOU WILL CARRY OUT (two or more examples)
- THE EQUIPMENT YOU WILL USE (two or more examples)
- THE TIMELINE OF WHEN YOU WILL LEARN WHAT (brief, not comprehensive)
- HOW MANY HOURS YOU PLAN TO WORK, ON AVERAGE, IN THAT LAB
- WHICH SEMESTERS YOU PLAN TO CARRY OUT THE RESEARCH (tentatively)