

UNDERGRADUATE
RESEARCH
IN CHEMISTRY
AT MISSOURI STATE
UNIVERSITY

(Revised August, 2016)

UNDERGRADUATE RESEARCH IN CHEMISTRY AT MISSOURI STATE UNIVERSITY

An education in chemistry usually begins with a high school course that introduces elements, ions and inorganic compounds and continues with general chemistry courses in college. These experiences are followed by the study of organic compounds, analytical methods, physical chemistry, and more inorganic compounds. The undergraduate program may also include biochemistry, polymer or environmental chemistry.

As time progresses, your knowledge of chemistry grows. But as graduation approaches, uncertainty may remain as to what can be done with this vast amount of chemical information.

The Chemistry Department at Missouri State University has provided a solution to this problem. Each semester two special courses are offered in which you may apply your knowledge of chemical theories and laboratory skills toward the solution of a specific chemical problem. You can join one of our faculty members in a search for new chemical knowledge and/or the solution of a real life concern. Called *research*, you will find this activity listed in the University catalog and the class schedule as CHM 399 (no course prerequisite) and CHM 499. These research courses are available for 1-3 hours credit per semester, and each may be repeated to a total of 5 hours.

Starting a research project is a little more involved than registering for other courses, so you may need some additional information on how to proceed.

1. The first step is to decide that you want to do research. You must also decide when. We suggest that you wait at least until your second year of college, but you may enroll for research in any semester or summer term with the permission of the instructor or advisor. Research courses are listed with an “arranged” time, so you and your research advisor will develop a schedule for you to carry out your work. Usually, this will be between 8:00 and 5:00 Monday through Friday, so you may want to keep some blocks of time available as you arrange your semester’s activities.
2. The second thing you need to do is to select a research area and an advisor. When you are ready, you should read the Research Packet available in the Chemistry Office, TEM 423, to direct you in this process. Select an area of chemistry that interests you; this does not necessarily mean that you have had a course in this specific area. However, you will need to discuss your background and interests with chemistry faculty members as you consider your options. You will be instructed to visit with at least five research advisors to discuss the types of problems they would be willing to direct.
3. You must be enrolled in the Research Portfolio Blackboard site, have completed the Safety Training and passed the safety quiz prior to enrolling in the class. Please have the Safety Coordinator sign and date the Undergraduate Research Request form (last page of this packet) to verify you have completed this.
4. After meeting with the faculty advisors and completing the safety training, return the appropriate Research Request Form to the chemistry Office with your preferences

listed one through three. The Chemistry Department Head will assign research advisors to ensure that students are able to work in an area of interest and to avoid overloading a few research directors.

After you have been assigned an advisor, you will be granted online permission to enroll in the course. The departmental secretary will send you an email notifying you that permission has been granted by your advisor. The enrollment for research will cover one semester or summer term but may be repeated until the maximum of 5 hours is reached. Each credit hour requires a minimum of 48 hours of documented laboratory work. The exact number of documented hours per week is up to the individual research advisor, but the minimum number is 3 hours per week per credit hour. This is a MINIMUM amount, and some research advisors expect more, and an average value is 3-6 hours per week per credit hour.

6. When your project begins, your advisor will assign you an appropriate space in a laboratory. You should keep careful records of your research work and a log of the time spent on the project. This must be in the form of a formal laboratory notebook, containing detailed records and notes on your research progress.
5. At the end of the semester a written report must be submitted to your research advisor. A grade of Incomplete, 'I' will be assigned until the final draft of the paper has been submitted to the research advisor by the grade deadline. The advisor will provide the grade based on performance in the lab as well as the technical aspects of the paper.
6. Students enrolled in CHM499 will be required to present their results in some type of public forum. The possibilities include a poster or oral session at a regional or national meeting/conference (ACS, MAS, Sigma Xi, etc) or a local conference (such as the CNAS Undergraduate Research Day, 700/701 seminars, meetings of the Chemistry Advisory Board, etc). The research advisor will help to determine the appropriate venue. An appropriate person (additional faculty member, recruiter, session coordinator) will need to sign off on a student's presentation if the advisor will not be present.
7. Students who are repeating the course need to complete the appropriate page at the back of this packet only and turn it into the Chemistry office.

If the student is taking 399/499 for the first time, this page needs to be completed.

DEPARTMENT OF CHEMISTRY - Undergraduate Research Request Form

Name _____ M Number _____ Email _____

Semester: Fall _____ Spring _____ Summer _____ Year _____

CHM 399 _____ CHM 499 _____ Hours: _____

Please discuss research opportunities with at least five faculty members and obtain signatures.

Faculty Signature

Date

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Rank the above faculty members as to your preferences for a research advisor.

First Choice _____

Second Choice _____

Third Choice _____

You must be enrolled in the Research Portfolio Blackboard site, have completed the Safety Training and passed the safety quiz prior to enrolling in the class. Please have the Safety Coordinator sign and date to verify you have completed this.

Student has passed quiz _____

Student has signed waiver _____

Bb records are updated _____

Safety Coordinator

Date

After obtaining the Safety Coordinator's signature, please return this form to the Chemistry Department office.

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Assignment of Undergraduate Research Advisor

Student: _____ Advisor: _____

Semester: _____ Course: _____ Hours: _____

Department Head

Date

If the student is repeating 399/499, this page needs to be completed.

DEPARTMENT OF CHEMISTRY - Undergraduate Research Request Form

Name _____ M Number _____ Email _____

Semester: Fall _____ Spring _____ Summer _____ Year _____

CHM 399 _____ CHM 499 _____ Hours: _____

The current research advisor must 1) sign his/her name below and 2) circle yes or no that the student may repeat 399/499 for another semester.

Research Advisor	Yes	No
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You must be enrolled in the Research Portfolio Blackboard site, have completed the Safety Training and passed the safety quiz prior to enrolling in the class. Please have the Safety Coordinator sign and date to verify you have completed this.

Student has passed quiz _____

Student has signed waiver _____

Bb records are updated _____

Safety Coordinator	Date
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After obtaining the Safety Coordinator's signature, please return this form to the Chemistry Department office.

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Assignment of Undergraduate Research Advisor

Student: _____ Advisor: _____

Semester: _____ Course: _____ Hours: _____

Department Head	Date
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