

M.S. Students: Learning Goals and Assessments

The Department of Chemistry & Chemical Biology trains Master of Science students at an advanced level of all aspects of biological and physical sciences that address questions and issues related to chemistry and chemical biology.

Learning Goal #1 for M.S. Students: Attain mastery of the essential aspects of practice and research in chemistry and chemical biology

⇒ Assessment of student achievements in goal #1:

- Grades in graduate courses
- Qualifying examinations assessing depth and breadth of knowledge
- Review by faculty of student progress with close advising and mentoring
- Comprehensive examinations assessing depth and breadth of knowledge and a capstone paper or a research thesis, including assessment of student's performance by committee of graduate faculty members
- Continuation of graduate studies or placement in a professional position that requires an understanding of theoretical and practical aspects of chemistry and chemical biology.

⇒ Role of the program in helping students to achieve goal #1:

- Close advising to assure that students are being prepared in a coherent and academically rigorous fashion
- Effective monitoring of student progress
- Evaluations of teaching effectiveness of instructors in graduate courses, and if effectiveness is below expectations, work with instructors to improve effectiveness
- Periodic review of curricular offerings and assessment tools by program faculty, and in consultation with the Office of the Dean of the School of Graduate Studies and/or the unit dean

Learning Goal #2a for M.S. Students: Engage in and conduct original research (degrees with thesis)

⇒ Assessment of student achievements in goal #2a:

- Assessment of Master's thesis quality:
 - Public defense of dissertation



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- Critical reading of dissertation by departmental graduate faculty committee members
- Submission and acceptance of peer-reviewed articles and conference papers
- Achievement of students as evidenced by continuation of graduate studies or professional placements

⇒ Role of the program in helping students to achieve goal #2a:

- Provide early introduction to research methods and opportunities for research
- Provide opportunities to present research and receive feedback
- Provide comprehensive advising and assist in the identification of mentors

Learning Goal #2b for M.S. Students: Develop competence in chemistry and chemical biology (degrees without thesis)

⇒ Assessment of student achievements in goal #2b:

- Assessment of capstone paper quality, including critical reading of paper by departmental graduate faculty members
- Achievement of students as evidenced by continuation of graduate studies or professional placements

⇒ Role of the program in helping students to achieve goal #2b:

- Provide early introduction to literature search methods and help with identifying essay topics
- Provide opportunities to develop writing skills and receive feedback
- Provide comprehensive advising and assist in the identification of mentors

Learning Goal #3 for M.S. Students: Prepare to be professionals in chemistry and chemical biology

⇒ Assessment of student achievements in goal #3:

- Participation in internships and other work tailored to career goals, assessed accordingly
- Collection of placement data or continuation of graduate studies
- Review by external advisory committees, both inside of and external to the University

⇒ Role of the program in helping students to achieve goal #3:



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- Host professional development and career exploration activities
- Develop internship opportunities
- Host external advisory committees

The leadership of the Department of Chemistry & Chemical Biology will regularly review the structure and content of the program and the feedback received from assessments and surveys. These reviews will be used to provide the best possible education to students in order to meet the needs for professionals in chemistry and chemical biology.