

Graduate Program in Chemistry and Chemical Biology Master's Degrees Learning Goals and Assessment

The Graduate Program in Chemistry and Chemical Biology trains Master of Science students at an advanced level in all aspects of physical and biological sciences related to chemistry and chemical biology

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

Assessment of student achievement of 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
 - 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.

Roles 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 way
- Effective monitoring of student progress
- Evaluations of teaching effectiveness of instructors in graduate courses
 - If effectiveness is below expectations, work with instructors to improve effectiveness
- Periodic review of curricular offerings and assessment tools
 - By program faculty
 - In consultation with the office of the dean of the graduate school and/or the unit dean

Learning Goal 2a for Students: Engage in and conduct original research (for Master's degrees with thesis)

Assessment of graduate student achievement of Goal 2a:

- Assessment of quality of Master's thesis
 - Public defense of thesis
 - Critical reading of thesis by committee of graduate faculty members
 - Submission and acceptance of peer-reviewed articles and conference papers
- Achievement of students as evidenced by continuation of graduate studies or professional placement

Role of the program in helping graduate 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 Students: Develop competence in chemistry and chemical biology (for Master's degrees without thesis)

Assessment of graduate student achievement of Goal 2b:

- Assessment of quality of the capstone paper
 - Critical reading of the capstone paper by graduate faculty members
- Achievement of students as evidenced by continuation of graduate studies or professional placement.

Role of the program in helping graduate 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 get feedback
- Provide comprehensive advising and assist in the identification of mentors

Learning Goal 3 for Students: Prepare to be professionals in chemistry and chemical biology

Assessment of graduate student achievement of Goal 3:

- Participation in internships and other work tailored to career goals, assessed accordingly
- Collection of data on professional 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 achieve Goal 3:

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

The leadership of the Chemistry and Chemical Biology graduate program 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 that meet current needs for professionals in chemistry and chemical biology.