**Quantitative Biomedicine Student Learning Goals**

The doctoral program in Quantitative Biomedicine trains students to assume leadership roles in the interdisciplinary sciences at the interface of the biological and medical sciences with the quantitative sciences.

**Learning Goal 1 for Students: Attain marked ability, scholarship, research, and leadership skills at the interface of the biological and medical sciences with the quantitative sciences.**

Assessment of student achievement of Goal 1:

* Grades in graduate courses
* Attendance of seminars and lunches with the speakers in the interdisciplinary series provided by Proteomics/The Institute for Quantitative Biomedicine/The Center for Advanced Biotechnology and Medicine
* Attendance at least once of the annual Interdisciplinary Quantitative Biology Boot Camp provided by the Institute for Quantitative Biomedicine as a student and/or instructor, with evolving areas of focus consisting of lectures, hands-on workshops, collaborative exercises, a student-organized final presentation, and daily career-training sessions
* Qualifying examinations assessing depth and breadth of knowledge
* Review by faculty of student progress with close advising and mentoring
* Publications in peer-reviewed journals (with at least one first-authorship publication expected)
* Placement in positions and careers that benefit from ability and scholarship in those aspects of the biological sciences that can be enhanced through the application of techniques and concepts from the quantitative sciences

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
* Annual review of academic performance and progress toward a degree in the program by a three-member faculty committee
* Evaluations of effectiveness of assistant teaching
  + Student evaluation of overall effectiveness in teaching
  + If effectiveness is below expectations, the student is to work with instructors to improve her/his effectiveness
* Periodic review of curricular offerings, degree requirements and assessment tools
  + By program faculty, graduate program director, and associate program director
  + In consultation with the office of the dean of the graduate school and/or the unit dean

**Learning Goal 2 for Students: Engage in and conduct original research**

Assessment of graduate student achievement of Goal 2:

* Preparation of and defense of Ph.D. dissertation proposal
* Assessment of quality of Ph.D. dissertation:
  + Critical reading of dissertation by student’s thesis advisory committee
  + Public defense of dissertation
* Submission and acceptance of peer-reviewed articles and conference papers and posters
* Achievement of professional placements and recognition
* Individual attainment of grants, fellowships, or scholarships, if applicable

Role of the graduate program in helping students achieve Goal 2:

* Provide comprehensive advising and assist in the identification of mentors
* Provide early introduction to opportunities for research and exposure to research topics and methods
* Announce opportunities for grants and fellowships
* Provide opportunities to present research and receive feedback
* Help to provide or identify alternative funding mechanisms when necessary

**Learning Goal 3 for Students: Prepare to be professional in careers that require training at the highest levels of the interdisciplinary field of quantitative biology and biomedicine**

Assessment of graduate student achievement of Goal 3:

* Evidence of talks presented, publications, and professional networking
* Evaluations of teaching effectiveness as a graduate student instructor
* Placement data

Role of the program in helping students achieve Goal 3:

* Develop, enhance, and announce programs related to job and networking skills, including activity in professional societies and preparation for necessary certifications
* Acquaint students with non-academic career opportunities

The leadership of the Quantitative Biomedicine graduate program will regularly review the structure and content of the graduate 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 highly trained individuals at the interface of biology with the quantitative sciences.