Graduate Program in Cellular and Molecular Pharmacology
Learning Goals and Assessment

The doctoral program in Pharmacology trains students to perform independent research in the biological sciences to prepare them for positions of leadership in research, teaching and service in academic, industrial and government settings.

The program has defined three learning goals for students, as well as measures to assess progress toward these goals.

**Learning Goal 1:** To develop a strong foundation of scientific knowledge, including high proficiency in the scientific method and critical analysis of biological research.

**Assessment of achievement of Goal 1:**
- Grades in graduate level courses.
- Evaluation of a written qualifying examination that assesses depth and breadth of biological scientific knowledge.
- Continual evaluation and feedback by the primary faculty mentor.
- Yearly review of progress by a research advisory committee composed of faculty.

**Role of the program in helping students achieve Goal 1:**
- Close advising by the primary faculty mentor to assure that each student is developing in a coherent and academically rigorous fashion.
- Yearly meetings of the research advisory committee for each student to monitor intellectual growth.
- A graduate student seminar series for each student to present his or her research progress yearly.
- If effectiveness is below expectations, work with faculty mentor and/or course instructors to improve effectiveness.

**Learning Goal 2:** To conduct and independent research and publish on a novel problem of interest to both student and faculty member.

**Assessment of achievement of Goal 2:**
- Continual evaluation and feedback by the primary faculty mentor.
- Evaluation of the PhD thesis proposal by an oral qualifying examination committee.
- Yearly assessment of research progress by a research advisory committee.
- Public presentation of research progress by the student at a graduate seminar series.
- Submission and acceptance of peer-reviewed articles and conference papers based on the student’s dissertation research.
- Public defense of a PhD dissertation based on original research.
- Critical reading and assessment of the dissertation by a thesis committee.
- Placement in professional positions that require scholarship and capability in this field.

**Role of the program in helping students achieve Goal 2:**
- To assemble a diverse set of program faculty members with active research labs that provide opportunities for independent and original research.
- To assemble a collaborative set of program faculty to serve as active members on various committees that provide assessment and feedback on the development and progress of each student.
- To develop an active and collaborative research environment where research tools, methods, knowledge and opportunities to learn are shared.
- To provide courses that augment the research interests of our students and faculty.
- To provide a forum where yearly research progress is presented and evaluated (graduate student research seminars).
Learning Goal 3: To abide by standard and current ethical principles of citing sources, using animal and human subjects, and working with colleagues.

Assessment of achievement of Goal 3:
• Participation in an Ethics course that covers responsible scientific conduct.
• Assessment of quality of each student’s course work and Ph.D. dissertation.

Role of the program in helping students achieve Goal 3:
• Require that all students in the program take the Ethics course in the first academic year.
• To assemble a set of program faculty members that teach through example by adhering to the ethical principles listed above.

The leadership of the Pharmacology graduate program will regularly review and revise the structure and content of the program based on experience acquired from running the program, student and faculty feedback and changing trends in scientific education and discovery. Feedback received from assessments and surveys from beyond the program structure will be included in assessment of the program’s integrity. The leadership of the Pharmacology Graduate Program aims to provide the best possible education to students in order to meet the needs for highly trained individuals in the biological sciences.