PHD IN BIOLOGY - CELL AND MOLECULAR BIOLOGY CONCENTRATION

Cell/Molecular Biology Concentration

The doctoral degree in biology (cell/molecular biology concentration) is awarded to a student who has demonstrated mastery in the field of biology and a distinct and superior ability to make substantial contributions to the field. It is not awarded merely as a result of courses taken, nor for years spent in studying or research. The quality of work and the resourcefulness of the student must be such that the faculty can expect a continuing effort toward the advancement of knowledge and significant achievement in research and related activities.

The doctoral degree in biology prepares students to enter research careers in academic and industrial settings, and non-research careers in a variety of areas including public policy, science communication, intellectual property law, and science education.

The doctoral degree provides a foundation in molecular and cellular biology, research methodologies and practices, rigorous hypothesis-driven scientific investigation, and the dissemination of research results and ideas.

In general, work for the Ph.D. takes five years of study beyond the bachelor's degree. A substantial portion of this time is spent in independent research leading to a dissertation. Up to 30 hours toward a master's degree may apply as part of the student's doctoral program. Normally 90 credit hours of study beyond the bachelor's degree are required for the Ph.D.

Each student must complete an individualized program of study in the area of cell/molecular biology approved by the student's advisory committee and the department. This course of study must include:

Code	Title	Hours
BIOL 8000	Introduction To Scientific Thought And Expression	3
BIOL 8090	Advanced Cell Biology	3
BIOL 8030	Introduction to Graduate Studies	2
BIOL 8040	Introduction to Graduate Cell and Molecular Biology and Methods	3
BIOL 8010	Advanced Molecular Biology	3
BIOL 8100	Research Methodology: Cell And Molecular Biology	3
BIOL 8200	Advanced Signal Transduction	3
BIOL 8930	Seminar In Biology (take 3 times)	3
BIOL 8960	Doctoral Dissertation Research (At least 60 hours)	60
Select additional courses and research credits (at the 7000/8000 level) up to a total of 7 hours		
Total Hours		90

- PLO 1. Students will demonstrate an in-depth understanding of and the ability to communicate scientific information within an area of specialized study within the biological sciences.
- PLO 2. Students will demonstrate an understanding of how to conduct experiments, collect and interpret data, and disseminate those data in written and verbal modalities.
- PLO 3. Students will demonstrate the ability to conduct experiments, collect and interpret data, and disseminate those data in written and verbal modalities.
- PLO 4. Students will demonstrate knowledge of their ethical responsibility when conducting research in terms of proper scientific conduct and the rights of human subjects.