

# DOCTOR OF PHILOSOPHY IN BIOLOGY

The Biology department offers graduate programs leading to Ph.D. degrees in biology, concentrating educational and research activities in the areas of biochemistry, bioinformatics, cell and molecular biology, and microbiology. Our Ph.D. program is highly flexible and is tailored to fit the individual students background and goals.

A career with a Ph.D. in biology will depend on the thesis's focus. Positions are available in academia, healthcare, industry, and government facilities.

## Curriculum

A minimum of 72 credit hours is required for the Ph.D. degree in biology. Students should consult the Transfer Credit section in this bulletin for rules on how many credit hours may be transferred from another institution. Completion of an M.S. degree is not normally required for admission to the full-time program for the Ph.D. degree but may be required of part-time students. Students must pass the Ph.D. written qualifying examination in their respective areas of specialization: biochemistry, cell and molecular biology, or microbiology (see Departmental Graduation Examinations).

Each student, in addition, will be required to pass a comprehensive examination taken prior to performing the major portion of the dissertation research, and in any event, prior to the sixth semester of study and at least one year before oral defense of the thesis. The final examination for the Ph.D. degree consists of an oral presentation and defense of the dissertation.

The Ph.D. program is tailored to fit the student's background and goals and is subject to approval by the department. Plans of study may be designed in any of the three areas of concentration. However, all programs of study must include at least 36 credit hours in formal courses (exclusive of BIOL 591 and BIOL 691). Formal courses must include the core courses listed below:

Code	Title	Credit Hours
<b>Required Courses</b>		<b>(13)</b>
BIOL 504	Biochemistry	3
BIOL 515	Molecular Biology	3
BIOL 544	Molecular Biology of Cells	3
BIOL 595	Biology Colloquium (4 times)	4
<b>Elective Courses</b>		<b>(23-35)</b>
Select 23 to 35 hours		23-35
BIOL 410	Medical Microbiology	3
BIOL 426	Concepts of Cancer Biology	3
BIOL 430	Human Physiology	3
BIOL 503	Virology	3
BIOL 514	Toxicology	3
BIOL 520	Laboratory Rotation	3
BIOL 526	Developmental Biology	3
BIOL 527	Immunology and Immunochemistry	3
BIOL 542	Advanced Microbiology	3
BIOL 545	Advanced Cell Biology	3
BIOL 550	Bioinformatics	3
BIOL 555	Macromolecular Structure	3
BIOL 562	Current Topics in Functional Genomics	3
BIOL 597	Special Problems	1-3
PHYS 410	Molecular Biophysics	3
<b>Ph.D. Research</b>		<b>(24-36)</b>
BIOL 691	Research and Thesis PHD	24-36

**Minimum degree credits required: 72**

All research for the dissertation must be carried out under the direct supervision of a faculty research adviser. The faculty research adviser will also act as the candidate's academic adviser. Students must have passed the written qualifying examination before registering for BIOL 691. Students may complete all formal course requirements for the Ph.D. degree as either full-time or part-time students.