

# DOCTOR OF PHILOSOPHY IN MOLECULAR BIOCHEMISTRY AND BIOPHYSICS

The Ph.D. program in Molecular Biochemistry and Biophysics (MBB) focuses on interdisciplinary research and coursework and is flexible to fit your background and goals. MBB complements more traditional graduate programs in biology, chemistry and physics by offering an integrated, molecular-based approach.

The department has state-of-the-art computer and laboratory equipment in which to conduct research, including facilities for X-ray scattering and imaging at the Advanced Photon Source at Argonne National Laboratory.

## Curriculum

A minimum of 72 credit hours of instruction is required for the MBB Ph.D. program. Students should consult the Transfer Credit section 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 Ph.D. program. Students must complete 22 credit hours of core courses and at least three additional courses from the list of electives.

Each graduate student must take and pass the written Ph.D. qualifying examination in order to enter into candidacy for the doctorate. 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. The plan of study must include at least 36 credit hours in formal courses (exclusive of BIOL 591 and BIOL 691). All students will be required to take the following courses, or have equivalent background:

Code	Title	Credit Hours
<b>Required Courses</b>		<b>(22)</b>
BIOL 504	Biochemistry	3
BIOL 512	Advanced Biochemistry	3
BIOL 515	Molecular Biology	3
BIOL 544	Molecular Biology of Cells	3
BIOL 555	Macromolecular Structure	3
BIOL 595	Biology Colloquium (four times)	4
PHYS 410	Molecular Biophysics	3
MBB students, in consultation with their academic adviser, choose the remainder of their formal coursework from the following list of elective courses:		
<b>Elective Courses</b>		<b>(14-26)</b>
Select 14-26 credit hours		14-26
BIOL 410	Medical Microbiology	3
BIOL 415	Advanced Human Genetics	3
BIOL 426	Concepts of Cancer Biology	3
BIOL 430	Human Physiology	3
BIOL 440	Neurobiology	3
BIOL 597	Special Problems <sup>1</sup>	1-3
CHEM 538	Physical Biochemistry	3
Any 500-level biology course		3
<b>Ph.D. Research</b>		<b>(24-36)</b>
BIOL 691	Research and Thesis PHD	24-36

**Minimum degree credits required: 72**

<sup>1</sup> Student may be approved for special problems as appropriate.

Other courses may be prescribed by the adviser/thesis committee according to the student's individual needs. All research for the dissertation must be carried out under the direct supervision of a faculty research adviser who will also act as the candidate's academic adviser.