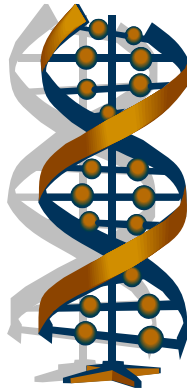


GRADUATE PROGRAMS

DEPARTMENT OF BIOLOGY

**SCHOOL OF SCIENCE
INDIANA UNIVERSITY-PURDUE UNIVERSITY
INDIANAPOLIS**



- ❖ M.S. and Ph.D. degrees
- ❖ Outstanding Research Opportunities
- ❖ Great City
- ❖ Financial Support
- ❖ Great Job Placement

<http://www.biology.iupui.edu>

E-mail: biograd@iupui.edu

The Department of Biology offers thesis graduate study leading to the Doctor of Philosophy (Ph.D.) and Master of Science (M.S.) degrees. In addition, there are non-thesis M.S. degree options that do not involve research. All degrees are granted through the Purdue University Graduate School. The thesis M.S. and the Ph.D. degrees are driven by research and the Department of Biology offers a wide variety of research experiences. Students may work with faculty members on research projects in genetics, eye development, ecology and the environment, biology teaching methods, forensic biology, spinal cord regeneration, yeast molecular biology, membrane biochemistry and biophysics, oncology, renal physiology, molecular development, DNA repair, plant molecular biology, plant cell biology, bone cell biology, and regenerative biology.

Ph.D. Degree

The degree of Doctor of Philosophy can be pursued in the Department of Biology through the Purdue University Graduate School. The Ph.D. requires a total of 90 credit hours of registration. All requirements for the degree can be fulfilled in Indianapolis. Written Qualifying Examinations are administered at the end of the first year of study in the area most relevant to the student's research interests. By the end of the second year of study, the student must have passed the Qualifying Exam. For Indianapolis students, the examinations are available in the following four areas: (1) Immunobiology, (2) Biochemistry & Molecular Biology, (3) Cell and Developmental Biology, and (4) Membrane Biology. These areas are unique to Indianapolis and reflect the strengths and interests of the IUPUI faculty. Within a year of completing the Qualifying Exam, students are required to write and defend a dissertation research proposal (Preliminary Exam) before a Ph.D. advisory committee. Upon successful completion of the Preliminary Exam, students are admitted to candidacy for the Ph.D.

The Department of Biology offers several options for the completion of the M.S. degree. All versions require a minimum of 30 hours of registration.

M.S. Thesis

This degree option is a research degree leading to a formal thesis. Students take a minimum of 9 credit hours of graduate level course work. Students may be required to take more than 9 credit hours of course work if there is research area or undergraduate course work deficiencies. The remainder of the 30 credit hours of registration is taken as Thesis Research (BIOL 698) and Seminar (BIOL 696), a one credit hour registration during which the student presents the results of the research prior to the thesis defense. This degree option is available primarily to full-time students and, in most cases, comes with a support package (see Financial Support). Students should plan on spending two full years to complete this degree option.

M. S. Non-Thesis

The standard 30 hour non-thesis degree is comprised of 27 hours of course work and an independent project (BIOL 595, Special Assignments) and Seminar (BIOL 696), during which the project results are presented in a public forum. This option is most frequently chosen by students who hold full-time positions elsewhere. This option can be pursued on a part-time or full-time basis.

Pre-Professional Non-Thesis

The pre-professional non-thesis degree is designed for students who must take additional course work or raise their academic credentials for application to medical, dental, or other professional schools. Because 30 hours of graduate level course work must be completed in two semesters, this program is very challenging. There is no creative project or seminar requirement for this degree. Applicants should have a minimum of 16 credit hours in coursework toward a Biology major plus Chemistry and Physics coursework expected by professional schools.

The pre-professional option welcomes applicants from a variety of undergraduate degree programs provided the science background stipulations listed above have been met. The sixteen credit hours of Biology are required to facilitate the transition to graduate level coursework in Biology. This required experience would include a freshmen year of Biology followed by two upper level courses, all offered for biology majors. The preference ranking for upper level courses, in descending order, is genetics, cell biology, molecular biology, and biochemistry with physiology, development and immunology also acceptable. Courses in fieldwork or courses for future health care practitioners are not considered.

Application Outcomes for M.S. Programs:

Students who meet the minimal expectations in all areas and are recommended for admission will be informed by email and letter. For those admitted students who have an undergraduate GPA below 3.0, admission will be conditional upon the earning minimal grades (e. g. no grade below B) or GPA (e. g. 3.0) during their first semester. Admission to the M.S. programs with a GPA below 3.0 is rare especially for those seeking admission to the one-year pre-professional option. Students who are admitted with this background must have demonstrated significant improvement over their final undergraduate semesters, retaken key undergraduate science courses with strong grades, completed a graduate degree in a related area, or in other ways demonstrated that their potential exceeds their previous performance. For students who have a GRE total of less than 1000, or whose verbal GRE is below 400, a retake of the exam will be required in order to be reconsidered.

For students who were denied admission, two types of outcomes are possible. First, denied students with borderline credentials or those who appear to have as yet unmet potential, will be asked to complete one or more graduate courses as a non-degree student and earn a grade of B or better in each class during the following semester. If this condition is met, the students will be admitted to the M.S. the next semester and the probationary coursework will be transferred into the degree programs. For those originally seeking admission to the one-year pre-professional M.S., four non-degree courses will constitute the probationary enrollment in order to permit the

students to ultimately complete the M.S. (non-thesis option) within 1 calendar year (fall, spring, summer). Non-degree registration of this type is eligible for federal financial aid. Second, for students whose records do not appear to have the potential to be competitive, a simple letter of denial will be sent. Such students can take coursework as non-degree students to improve their credentials but there is no guarantee of program acceptance or transferability of the coursework taken.

Placement Success

Students graduating from the Department of Biology with Ph.D. degrees have been successful in obtaining post-doctoral research experience and have gone on to secure faculty positions at accredited institutions of higher learning or research positions in industry or government. Students graduating with M.S. Thesis degrees are highly successful in obtaining employment on campus or in local industry. Indianapolis is the major population center of Indiana and is home to several large pharmaceutical and biotechnology companies, including Eli Lilly & Co., Roche Diagnostics Corporation, and Dow AgroSciences. These companies have provided high-paying jobs for many of our graduates. Students from non-thesis M.S. programs have been able to secure higher level positions within their current employment and have shown a high success rate in gaining admission to professional schools.

Admission Requirements

1. Students must hold a baccalaureate degree from an accredited institution of higher learning and demonstrate good preparation in the following subjects: Biological Sciences, Organic Chemistry, Physics, and Mathematics.
2. Graduate Record Examination (GRE; general test only). MCAT scores and scores from other professional exams ***do not*** substitute for the GRE score. A cumulative GRE score of 1000, with a minimum score of 400 in the verbal section, is the minimum required for admission. The average verbal plus quantitative total in recent years are 1170 for M.S. programs and 1200 for the Ph.D.
3. Test of English as a Foreign Language (TOEFL) with a minimum score of 600 (foreign students only) or 250 on the computer-based test.
4. Three letters of recommendation: at least 2 letters should come from professors in previous science courses and should address the applicant's aptitude and potential in a science program at the graduate level.
5. A minimum graduation grade-point index of 3.0 or equivalent is required for unconditional admission. An undergraduate GPA of 3.0 does not guarantee admission. Applicants with GPAs of 3.0 or slightly above will be expected to have a science course GPA of 3.0
6. To be eligible for Teaching Assistantships, foreign applicants must pass the English Language Proficiency screening administered by the IUPUI ESL Program.

Transfer of Credit

Transfer credits from other institutions of higher learning cannot be used to replace the minimum of 9 hours of Biology Department course work required for the M.S. thesis degree. Up to 12 hours of Biology graduate credits taken at IUPUI by graduate non-degree students may be transferred to the non-thesis option. At least half of the coursework hours in a Ph.D. program of study must be taken while enrolled at IUPUI.

Grades

Only grades of A, B, or C are acceptable, although performance higher than C may be required. Pass/fail grades are unacceptable.

Financial Support

Full-time *thesis* students are eligible for a variety of University and Department support packages.

Full-time M.S. Thesis students are eligible for Department support packages. Teaching Assistantships (TA) are available at a calendar year stipend level of \$16,000 (2007-08 rate). In addition to the stipend, tuition remission and payment of the student health insurance premium is included in the support package. Research Assistantships (RA) are sometimes available through individual faculty who hold external funds for this purpose. RA support includes tuition remission and health insurance in addition to a stipend of \$16,000. Stipends are paid out over 12 months. Support is available for two years providing that student is making satisfactory progress in research and is discharging all program and responsibilities in an acceptable manner.

Ph.D. students are eligible to apply for first-year University or Departmental Fellowships that pay minimum stipends of \$22,000 per year and include the standard allowances for tuition remission and health insurance. Teaching Assistantships (TA) for Ph.D. students include stipends of \$20,000. Research Assistantships (RA) may also be available with a minimum annual stipend of \$20,000. Tuition remission and health insurance coverage are also provided for TAs and RAs. Stipends are paid on a 12 month basis.

Application Procedure

The application is completed online: <http://www.biology.iupui.edu/onlineform.html>

Application Deadlines

Ph. D. ----- March 1

M.S. Thesis (full time with support)

Fall entry----- May 1

Spring entry----- October 1

Pre-Professional Non-Thesis and M.S. Non-Thesis

Fall entry-----July 1

Spring entry-----December 1

For Further Information:

Biology Department Secretary

Phone: (317) 274-0577

E-mail: biograd@iupui.edu

Dr. N.D. Lees, Chairman and Director of Graduate Programs

Phone: (317) 274-0577

E-mail: nlees@iupui.edu

or visit our website at:

<http://www.biology.iupui.edu/>

RESEARCH FACULTY

- ❖ **BARD, MARTIN, Ph.D.**
Molecular Genetics
- ❖ **BELECKY-ADAMS, TERI, Ph.D.**
Developmental Biology
- ❖ **BLAZER-YOST, BONNIE, Ph.D.**
Physiology
- ❖ **CHERNOFF, ELLEN A., Ph.D.**
Developmental Biology
- ❖ **CLACK, JAMES W., Ph.D.**
Visual Transduction and Adaptation, IUPU-Columbus, Department of Biology
- ❖ **CROWELL, DRING N., Ph.D.**
Plant Molecular Biology
- ❖ **CROWELL, PAMELA L., Ph.D.**
Oncology
- ❖ **LEES, N. DOUGLAS, Ph.D.**
Microbiology/Molecular Biology
- ❖ **LI, JILIANG, Ph.D.**
Cell Biology/Bioengineering
- ❖ **LI, RICHARD, Ph.D.**
Forensic Biology
- ❖ **MALKOVA, ANNA, Ph.D.**
Yeast Genetics
- ❖ **MARRS, KATHLEEN, Ph.D.**
Biology Education
- ❖ **RANDALL, STEPHEN K., Ph.D.**
Cellular Biochemistry
- ❖ **ROPER, RANDALL J., Ph.D.**
Genetics
- ❖ **STILLWELL, WILLIAM H., Ph.D.**
Membrane Biochemistry/Biophysics
- ❖ **STOCUM, DAVID L., Ph.D.**
Cell and Developmental Biology
- ❖ **WANG, XIANZHONG, Ph.D.**
Ecology
- ❖ **WATSON, JOHN C., Ph.D.**
Molecular and Cellular Biology

ADJUNCT FACULTY

- ❖ **BARMAN, CHARLES, Ph.D.** (Department of Education, IUPUI)
Biology Education
- ❖ **CHINTALACHARUVU, SUBBA, Ph.D.** (Eli Lilly and Company)
Immunology
- ❖ **HEIMAN, MARK, Ph.D.** (Eli Lilly and Company)
Neuroendocrinology/Physiology
- ❖ **KRISHNAN, GARY, Ph.D.** (Eli Lilly and Company)
Bone Development/Hormone Action
- ❖ **MCINTYRE, JOHN, Ph.D.** (Clarian Health Care Partners)
Histocompatibility
- ❖ **PETOLINO, JOSEPH, Ph.D.** (Dow AgroSciences)
Plant Cell Biology
- ❖ **RHODES, SIMON J., Ph.D.** (Indiana University School of Medicine)
Molecular Development/ Endocrinology
- ❖ **SCHILD, JOHN, Ph.D.** (Biomedical Engineering, IUPUI)
Sensory Neuron Electrophysiology/Computational Neuroscience
- ❖ **SEN, STEPHANIE, Ph.D.** (Chemistry, IUPUI)
Organic and Bioorganic Chemistry
- ❖ **SIDDIQUI, RAFAT, Ph.D.** (Clarian Health Care Partners)
Signal Transduction
- ❖ **SLOOP, KYLE, Ph.D.** (Eli Lilly)
Endocrinology
- ❖ **SMITH II, CHARLES K., Ph.D.** (Eli Lilly and Company)
Molecular Parasitology
- ❖ **SMITH, ROSAMUND, Ph.D.** (Eli Lilly and Company)
Developmental Biology
- ❖ **SROUR, EDWARD, Ph.D.** (Micro/Immunology, Indiana University School of Medicine)
Stem Cell Biology
- ❖ **VLAHOS, CHRIS, Ph.D.** (Eli Lilly and Company)
Signal Transduction
- ❖ **WITZMANN, FRANK, Ph.D.** (Physiology, Indiana University School of Medicine)
Proteomics
- ❖ **ZUCKERMAN, STEVE, Ph.D.** (Eli Lilly and Company)
Macrophage Biology