

MOLECULAR GENETICS AND GENOMICS (PH.D.)

Ph.D. in Molecular Genetics and Genomics

The PhD In Molecular Genetics and Genomics is a research-intensive graduate program that prepares students for careers in academia or industry. Molecular Genetics and Genomics graduate students receive broad training in genetics, molecular and cellular biology, genomics, functional genomics, systems biology, bioinformatics, and computational and statistical methods. A major component of their training is conducting dissertation research (<https://www.genetics.wayne.edu/node/399/>) in one of the focus areas of Center faculty. Doctoral candidates receive intensive laboratory training, working closely with faculty on projects at the forefront of biomedical genetics and genomics research. Students can apply to the PhD program or to the combined MD-PhD program. A focus on Computational Biology is also offered within the PhD program. Additional details about the curriculum (<https://www.genetics.wayne.edu/education/phd-curriculum/>) can be found here.

FAQ (<https://www.genetics.wayne.edu/education/phd-ms-applicant-faqs/>) • How to apply (<https://www.genetics.wayne.edu/node/402/>)

Admission Standards

Applicants must have at least a bachelor's degree with major preparation in the sciences. We look for strong enthusiasm and aptitude for scientific research and evidence of ability. Applicants should have a minimum grade point average of 3.0 majoring in biological or chemical sciences and in most cases will also have experience in a working laboratory environment.

How to Apply

You must complete an application at <https://gradschool.wayne.edu/admissions> (<https://gradschool.wayne.edu/admissions/>). Admissions are granted for Fall term starts only and the application deadline is generally the first of the previous December. Applicants should provide a statement describing their motivation for pursuing a PhD, research experience, interest in genetics and genomics, any specific interests in Center research, and future and career plans. Applicants must also provide official academic transcripts and have three letters of recommendation sent from faculty who can evaluate the research and academic potential of the student. The Graduate Record Examination is not required. International applicants must be proficient in English and demonstrate above-average performance on the TOEFL English proficiency examination (for specific requirements and exemptions see the Graduate School's English requirements (<https://gradschool.wayne.edu/admissions/english-proficiency/>)). All admission materials should be submitted to Graduate Admissions utilizing their online portal (<http://wayne.edu/admissions/graduate/>). Applicants meeting admissions criteria will be selected for interview.

Financial Support

All Ph.D. students are funded by a Graduate Research Assistantship (GRA) that includes a competitive stipend, paid tuition, and subsidized medical insurance. No separate application for financial support is required.

Program Requirements

Ph.D. students in the graduate program in molecular genetics and genomics enroll in the School of Medicine's Interdisciplinary Biomedical

Sciences (IBS) curriculum during their first year. The IBS curriculum includes:

Code	Title	Credits
Required IBS courses		
IBS 7015	Interdisciplinary Cell and Molecular Biology	6
GS 0900	Essential Research Practices: Responsible Conduct of Research	0
Required courses in Molecular Genetics and Genomics		
FPH 7015	Biostatistics I	3
MGG 7015	Introduction to Genetics	2
MGG/IBS 7030	Functional Genomics and Systems Biology	2
MGG 7050	Bioinformatics: theory and practice	3
MGG 7091	Scientific Communication	2
MGG 7460	Research Training in Molecular Biology and Genetics	1-8
MGG 7600	Advanced Human Genetics	3
Elective courses in Molecular Genetics and Genomics		
MGG 7020	Metabolism and Disease	2
MGG 7400	Molecular Biology of Cellular Signalling	2
MGG 8010	Quantitative Data Analysis for Biological and Medical Sciences	2
MGG 8680	Advanced Topics in Molecular Genetics and Genomics	1-3
MGG 8770	Molecular Biology of Mitochondrial Disease	2

Elective and advanced topics courses will be selected to meet student needs. The program will enable the student to demonstrate a basic understanding of molecular genetics and genomics, in order to pass a general examination for candidacy for the Ph.D. degree.

Dissertation: Thirty credits in dissertation research are required in the Ph.D. program. This requirement is fulfilled by registering for the courses MGG 9991, MGG 9992, MGG 9993, and MGG 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. Students must write an original research dissertation, have it approved by a dissertation committee, and present it in a public defense.

Academic Scholarship: All course work must be completed in accordance with the regulations of the Graduate School (<http://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the School of Medicine (<http://bulletins.wayne.edu/graduate/school-medicine/programs/>) governing graduate scholarship and degrees.