

Department of Human Genetics

Program Requirements

Individuals who demonstrate mastery of knowledge in human genetics and contribute substantial and original scientific knowledge to the field will earn a Doctoral (Ph.D.) degree in Human Genetics. The program of study leading to the Ph.D. degree normally requires 4-6 years beyond a Bachelor of Science (B.S.) degree. The first two years of the program are occupied with course work and 'hands-on' research experiences. Once a student passes the Preliminary Examinations and successfully completes course work and research rotations, he or she will become a Candidate for the Ph.D. degree in Human Genetics. The final 2-4 years of the Doctoral program are spent primarily on original scientific research. In the normal course of events, a student will choose both a research mentor at the end of the first year and a full Doctoral thesis committee by the end of the second year. To receive the Ph.D. degree, each Doctoral student is required to write a thesis, representing a substantial and original contribution to the field of human genetics, and defend the thesis before their committee.

Teaching Experience

A semester of teaching is a valuable part of our Ph.D. program experience. It is recommended that students obtain one semester of teaching experience, if possible. Most often, students find it to be convenient to teach during the fall semester of the second year, but the timing is flexible. A variety of teaching opportunities are available in the Department of Human Genetics core graduate courses and in the Department of Biology undergraduate courses and laboratory sections.

Course Requirements

Ph.D. students usually complete three major (3 credit) courses each semester during their first year, and one major course each semester during their second year. Additionally, there are several seminar courses (1 or 2 credit) each of the first two years.

Specific course requirements are flexible. Students should select courses based on their interests and previous educational experiences. Since students will have diverse interests and career goals, it is expected and encouraged that they diversify their course elections.

Preliminary Exam

The Preliminary Examination is an oral exam given in early May after the second year. The purpose of the oral examination is to allow students to demonstrate their ability to think critically and to design experiments that will test hypotheses and contribute to the understanding of basic genetic principles. Each student is expected to choose a topic for a grant proposal in an area of research that is unrelated to both the research program of their mentor's laboratory and their own anticipated Ph.D. thesis research. Each student will prepare a 10 page written research proposal according to standard grant format: Abstract, Specific Aims, Biological Significance, and Experimental Design. In order to help students recognize the level of detail and type of material that is appropriate to include in each of these grant sections, a few examples of successful Postdoctoral Research Applications will be available for review. The emphasis of the oral examination that follows the submission of the written proposal is on logical experimental design. In order to successfully defend their proposal, students need not to be familiar with all of the experimental details of the techniques they have proposed to use, but to be familiar with the limitations and potential pitfalls of the techniques they have proposed to use. Students who have successfully passed the Preliminary Examination, will be reviewed by the Department faculty for a decision on their advancement to Candidacy for the Ph.D. degree. Advancement to Candidacy is required for a student to continue their doctoral work. All relevant data will be considered, including the student's academic performance in courses, performance on the Preliminary Examination, and performance in laboratory rotations.

Length of education

Typically the students complete their Ph.D. within 5 – 6 years.

Careers students pursue Upon completion of the Ph.D. degree, students usually pursue a postdoctoral position and go to academia, or industry.

Special Department Events

The Department Picnic for all students, employees and their families is in June at Delhi Park with a catered picnic dinner, Colors the Clown, games and prizes and of course the famous tug-of-war.

The Student Picnic to welcome new students is in September and begins with canoeing and then a picnic lunch at Dexter-Huron Park.

The Department Retreat is in September or October for students, faculty, and postdocs with a poster session, scientific talks, and a workshop for students.