

PhD in Genetics Area Program

Degree Requirements

Prerequisites include the following courses or their equivalents:
 BIO_SC 2200 General Genetics, BIOCHM 4270 Biochemistry,
 STAT 1400 Elementary Statistics for Life Sciences.

In general, the minimum requirements for the PhD degree, beyond the requirements of the Graduate School, are outlined below. Others are determined in consultation between the student and faculty advisor.

- advanced courses in genetics, biochemistry and molecular biology
- regular participation in the genetics area seminar program
- successful completion of a comprehensive examination
- at least one semester of teaching in a genetics course
- 3 seminar presentations
- research, dissertation and oral defense

BIO_SC 8060	Ethical Conduct of Research	1
BIO_SC 8050	Professional Survival Skills	2

Core Courses - select one from each of 2 areas

At least one must be graduate level, and you must receive a grade of B or better.

Molecular Genetics

BIO_SC 4976	Molecular Biology
CHEM 8085	Topics in Chemistry (Bioorganic Chemistry of Nucleic Acids)
MICROB 9432 or BIOCHM 9432	Molecular Biology II
V_PBIO 8448	Molecular Methods in Nucleic Acids

Developmental Genetics

BIO_SC 8320	Developmental Genetics
BIO_SC 9468	Molecular Biology of Plant Growth and Development

Population and Quantitative Genetics

PLNT SCI 7325	Advanced Plant Breeding
PLNT SCI 9440	Applied Quantitative and Statistical Genetics
AN SCI 7323	Applied Livestock Genetics
AN SCI 9423	Genetics of Populations

Specialty Courses - pick any two

At least one must be graduate level, and you must receive a grade of B or better.

Genetics of Particular Organisms

BIO_SC 4600	Evolution
BIO_SC 4982	Human Inherited Diseases
BIO_SC 8300	Advanced Plant Genetics
BIO_SC 8720	Speciation
CMP_SC 7001	Topics in Computer Science (Bioinformatics)
MICROB 8404	Foundations in Bacterial Pathogenesis
PLNT SCI 9540	Genetics of Plant-Microorganism Interaction

Immunogenetics

MICROB 8304	Immunology
MICROB 9407	Advanced Immunology

Electives

One elective approved by student's committee in life science, including genetics or ancillary subjects such as statistics, computer science, etc. Must be 3000 level or above with at least 3 credit hours.

GAP Seminar

All students must be enrolled every semester.

Student Seminars

Students are required to present 3 research seminars during their tenure. At least 1 must be given in the GAP seminar after the student's second year in the program. Other acceptable presentations, with approval of the student's committee, include a 15 minute talk or an in-person poster presentation at a national or international meeting, or in a public, advertised forum.

Financial Aid from the Program

To be considered for internal assistantships, fellowships or other funding packages, application should include a current CV and a summary of research experience in addition to a personal statement.

Application Deadline

Fall deadline: January 15

Admission Criteria

- Minimum GPA: 3.0 in last 60 hours
- Bachelor's degree
- One or more courses in each of the following areas: organic chemistry, biochemistry, mathematics (calculus and statistics), physics, introductory genetics
- Required language test scores for international applicants. Requirement may be found on the Graduate School website (<https://gradschool.missouri.edu/admissions/eligibility-process/international-applicants/>).
- Broad background in biology
- Scientific Research is very important

Note: Deficiencies in the subjects listed can be remedied after admission.

Required Application Materials

The following required application materials must be submitted to the Graduate School via the Slate application system:

- Copy of all postsecondary education transcripts
- 3 letters of recommendation
- Personal Statement
- Current CV
- Summary of research experience