Genetics

Chair
• Daniel Eberl (Biology)

Graduate degree: Ph.D. in genetics
Faculty: https://genetics.grad.uiowa.edu/faculty-and-research/directory
Website: https://genetics.grad.uiowa.edu

Prospective doctoral students in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, biochemistry, introductory physics, and mathematics, as well as a strong commitment to genetic research and teaching. Students are able to make up deficiencies in a particular area during their first year of graduate study.

Programs

Graduate Program of Study

Major
• Doctor of Philosophy in Genetics

Courses

Genetics Courses

**GENE:4213 Bioinformatics** 4 s.h.
Overview of bioinformatics topics, including access to sequence data, pairwise and multiple sequence alignment algorithms, molecular phylogeny, microarray data analysis, protein analysis, proteomics and protein structure analysis; emphasis on each topic includes biological motivation, computational approach (practical and theoretical), and interpretation of output. Prerequisites: BIOC:3120 or MICR:3170 or BIOL:2512. Recommendations: grade of B+ or higher in BIOL:2512 or BIOL:3120, or graduate standing. Same as BIOL:4213, IGI:4213.

**GENE:5173 Computational Genomics** 3 s.h.
Introduction to computational methods used in genome analysis and functional genomics; biological sequence analysis, sequence database search, microarray data analysis, biological network analysis; in-depth coverage of principal genome science challenges and recent solutions. Prerequisites: (BIOS:4120 or STAT:3510) and BME:5320 and (CS:5110 or ENGR:1300). Same as BIOL:5320, BME:5330, ECE:5220, IGI:5330.

**GENE:6150 Genetic Analysis of Biological Systems** 3 s.h.
Genetic techniques and approaches for analysis of biological processes; comparison of strengths, weaknesses of a variety of experimental systems.

**GENE:6200 Special Topics in Genetics** 1 s.h.
Current research in a selected field of genetics; different topic each year. Companion to a genetics seminar series. Same as ACB:6200.

**GENE:6234 Basic Biostatistical Methods with Genetics Applications** 1 s.h.
Introduction to terminology, fundamental concepts, and methods of biostatistics as applied to genetic research; genetic investigation examples used to illustrate statistical approaches.