

<b>Couse</b>	<b>Couse title</b>	<b>Credits</b>	<b>Description</b>
<a href="#"><u>Genetics Courses</u></a>			
Genetics 466	Principles of Genetics	3	Genetics in eukaryotes and prokaryotes. Includes transmission genetics, molecular genetics, evolutionary genetics, genetic engineering, and societal issues associated with genetics. Illustrative material includes bacteria, plants, insects, and vertebrates.
Genetics 467	General Genetics I	3	Genetics of eukaryotes and prokaryotes. Includes Mendelian genetics, probability and hypothesis testing, genetic mapping, molecular genetics, gene expression and genetic engineering. Illustrative material includes viruses, bacteria, plants, fungi, insects, and humans.
Genetics 468	General Genetics II	3	Genetic analysis, population genetics, evolution and quantitative genetics. Includes mutant screens, pathway analysis, mosaic analysis, reverse genetics, genomics, Hardy-Weinberg linkage equilibrium, inbreeding, genetic drift, natural selection, population structure, inheritance of complex traits, domestication and human evolution.
Genetics 565	Human Genetics	3	Principles, problems, and methods of human genetics. Surveys aspects of medical genetics, biochemical genetics, molecular genetics, cytogenetics, quantitative genetics, and variation as applied to humans.
Genetics 615	Genetic Mapping	3	Computing-intensive course to prepare students for genetic mapping research; linkage analysis and QTL mapping in designed crosses; linkage disequilibrium and association analysis (GWAS). Enroll Info: Recommended preparation is undergraduate courses in genetics and statistics and prior experience writing R scripts
Genetics 620	Eukaryotic Molecular Biology	3	Focuses on the basic molecular mechanisms that regulate DNA, RNA, and protein metabolism in eukaryotic organisms.
Genetics 626	Genomic Science	2	Brings cutting-edge topics in the genomic sciences into the reach of those in chemistry, biology, engineering, computer science statistics fields. Enables biologically-oriented students to deal with advances in analytical science so that they may incorporate new genomic science concepts into their own scientific repertoires.
Genetics 633	Population Genetics	3	Population genetics, aimed at preparing students to initiate research in this field. Explore how genetic variation is influenced by mutation and recombination, population size changes and migration, and natural selection for or against new mutations.
Genetics 662	Cancer Genetics	3	Cancer remains one of the most difficult health issues facing our society. There is hope in the horizon due to an increasing understanding of both genetic and epigenetic alterations in cancer. In particular, DNA sequencing of human cancers is becoming more common in major health care centers, and there is expectation that this technology will allow for personalized medicine. Thus, there has been a rapid increase in this knowledge over the last decade. Become aware of the current major issues in cancer research and critically evaluate the cancer genetics literature.
Genetics 677	Advanced Topics in Genetics	1-3	Contents vary; consideration of subjects not included in the curriculum.

Genetics 849	Genetic Epidemiology	3	This course will provide an introduction to genetic epidemiology. Topics will include a general overview of genetics and Mendelian and complex inheritance, as well as various elements of study design, including participant ascertainment; phenotype definition; biologic sample selection; genotyping, sequencing, and quality control; measurement of covariates, and choice of analytic methods. We will briefly discuss some of the original study designs and then focus on current study designs for the remainder of the class. Additional emerging topics will be briefly touched upon. Students will complete short homework assignments to enforce concepts learned during lectures, discuss journal articles, and prepare a very short grant application for the mid-term project. In the final weeks of class, students will work together to analyze data from a real genetic study, prepare tables, interpret the findings, and present their project to their peers.
--------------	----------------------	---	--

### Population Health Courses

PopHlth 552	Regression Methods in Pop Health	3	Introduction to the primary statistical tools used in epidemiology and health services research; multiple linear regression, logistic regression and survival analysis.
PopHlth 750	Cancer Epidemiology	3	Covers current knowledge on cancer occurrence and control in human populations. Design and analysis approaches appropriate for cancer epidemiology will also be discussed. Familiarity with basic biological and epidemiologic concepts is desirable.
PopHlth 795	Principles of Population Health Sciences	1-3	Introduction to multiple determinants of health including medical care, socioeconomic status, the physical environment and individual behavior, and their interactions. Also covered will be the definition and measurement of population health, economic concepts in population health, and ethical and managerial issues in population health improvement.
PopHlth 797	Introduction to Epidemiology	3	Design, implementation and interpretation of epidemiologic studies; emphasis on methodologic problems in the measurement of disease frequency, natural history and risk factors.
PopHlth 805	Advanced Epidemiology : Causal Inference	3	Focuses on the use of viewpoints and design/analytical tools to render possible the estimation of causal effects in epidemiologic studies. Students learn about the rationale and use of study designs/analytic tools that build upon but are substantially different from the most common approaches used in epidemiologic research (experimental studies, case-control studies, and cohort studies).

### Microbiology courses

Microbiology 303	Biology of Microorganisms	3	Basic biology of microorganisms, including structure, function, physiology, genetics, ecology, diversity, and evolution
Microbiology 450	Diversity, Ecology and Evolution of Microorganisms	3	Fundamental concepts relating to the phylogenetic diversity, ecology and evolution of microbes. Active learning methods applying these concepts will promote a deeper understanding of microbiology.
Microbiology 526	Physiology of Microorganisms	3	Biochemistry of microbial processes.

## [Biochemistry Courses](#)

Biochem 501	Introduction to Biochemistry	3	Chemistry, nutrition, and metabolism of biological systems.
-------------	------------------------------	---	---