ME.710 (HUMAN GENETICS)

ME.710.300. Research in Genetic Medicine (Undergraduate). 1 Credit. N/A

ME.710.699. Human Genetics Elective. 0 Credits.

ME.710.700. Advanced Topics in Human Genetics. 1.5 Credits.
Lectures and readings on major areas of research in contemporary human genetics

ME.710.702. Molecular Mechanisms Of Disease. 1 Credit.
Presentations of literature and concepts related to disease mechanisms

ME.710.723. Molecular Genetic Dissection of Complex Diseases. 1.5 Credits.

ME.710.734. Evolution of Ideas in Human Genetics. 0 Credits.
Presentations of literature starting with Mendel through the present.

ME.710.735. Human Genetics Core Discussion. 0 Credits.
Introduction to human genetics research opportunities

ME.710.736. Introduction to Programming for DNA Analysis. 0 Credits.

ME.710.737. Introduction to Computational Genetics. 1 Credit.
practical training on the use of computers to analyze large-scale genetic data including both family- and population based study designs

ME.710.738. Human Genetics: Consequences of Mendelian Transmission. 0 Credits.
Human Genetics: Consequences of Mendelian Transmission

ME.710.739. Population Genetics: Consequences of Mendelian Transmission. 0.5 Credits.

ME.710.740. Understanding Genetic Disease. 0 Credits. N/A

ME.710.741. Genes, Chromosomes, Meiosis and Segregation. 1 Credit.
Principles of gene segregation, meiosis and crossing over in mammals. Genetic linkage and genetic association analysis in gene mapping.

ME.710.742. Core Topics in Human Genetics and Genomics. 1 Credit.
The course covers fundamental topics in human genetics and genomics, including human genome structure and analysis, mechanisms of inheritance, gene structure and function, identifying genetic basis of diseases, molecular basis of genetic disorders, genetic therapies, and ethics in human genetics. Graduate students, residents, and fellows from medical genetics and other specialties who wish to acquire fundamental knowledge in human genetics and genomics and genetic basis of diseases are encouraged to attend this course.

ME.710.743. Coronavirus: Biology, Genetics, and Pathogenesis. 1 Credit.
This graduate course will focus on the biology of coronavirus infection, viral and host genetics, and what is known about pathogenesis with emphasis on vulnerabilities that could be exploited for treatment.

ME.710.744. Genomic Technologies: Tools for Illuminating Biology and Dissecting Disease. 1.5 Credits.
The course addresses the methodology, design, analysis, and application of pivotal technologies whose use and power in genetics is at this time essential for students to understand, including examples from the published literature.

ME.710.745. Evolving Concepts of the Gene. 5 Credits.
We focus on classical papers - starting with Darwin and Mendel and working forward through the rediscovery of Mendelism, Morgan and the fly room, the foundations of population genetics, the modern synthesis, the foundations of molecular biology, the extent of variation, through to the discoveries of unanticipated and overlooked aspects of molecular biology including exons/introns, alternative splicing, and microRNAs

ME.710.746. Human Genetics Boot Camp. 2 Credits.
Project based, hands-on workshop frames an introduction to the baseline computational and statistical needs for HG students. It presents the students with exposure to unix scripting, GitHub, python, R, Basic Statistics / Data Analysis, bioinformatics, data processing for genomics among other topics

ME.710.800. Independent Research. 3 Credits.
Thesis lab work

ME.710.802. Research Rotations. 1 Credit.
Students will learn hands-on methods of experimentation. Includes face-to-face interactions with faculty each week.