

# GENOMIC MEDICINE (GNM)

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**GNM 602. Clinical Applications of Genomic Medicine II. 3 Credit Hours.**

The Clinical Applications of Genomic Medicine series provides genomic medicine case studies and systems-based learning. Topics covered in the fall include cardiovascular, respiratory, renal/urinary, gastrointestinal/nutritional systems.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Fall.

**GNM 605. Research Ethics. 1 Credit Hour.**

This course introduces foundational concepts in research ethics in preparation for conducting the genomic medicine practicum. Online Human Subjects Research and Responsible Conduct of Research training through the CITI program website will be supplemented with three hours of in-person discussion sessions.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Fall.

**GNM 610. Clinical Applications of Genomic Medicine I. 3 Credit Hours.**

This course provides introductory background for understanding genomics, genomic techniques as well as provides genomic medicine case studies and systems-based learning. Initial topics include basic concepts of genomic medicine, genomic techniques involved in clinical applications, integration of genomic medicine into clinical setting, importance of translational research, benefits for patient and physician, transitioning with the medical curriculum into case studies. This course is focused on complex genetic disorders, and use of web-based tools to use in clinical work.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Spring.

**GNM 630. Clinical Applications of Genomic Medicine III. 4 Credit Hours.**

The primary objective of this course is to prepare students to evaluate the clinical utility of a genetic test and apply that information in a clinical setting. Illustrations of these concepts are drawn from the systems-based curriculum spanning December (ophthalmology and dermatology) and spring (rheumatology, infection & immunity, hematology & oncology, diabetes & metabolism, endocrinology & reproductive medicine). The class will meet once each week (2 hours each session), for literature-based discussion sessions and case-based learning.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Spring.

**GNM 631. Genomic Medicine Laboratory. 3 Credit Hours.**

Students will rotate in the molecular genetics and biochemical genetics diagnostic laboratories, gaining experience with genomic testing in a clinical setting and interpretation and communication of results.

**Components:** LAB.

**Grading:** CNC.

**Typically Offered:** Spring.

**GNM 660. Computational Methods for Genomic Medicine. 3 Credit Hours.**

The objective of this course is to gain a working knowledge of computational methods utilized in primary and secondary analysis of genomic technologies and apply these to a clinical setting. This will prepare students to perform practical data analysis in the GNM 631 course offered in Spring.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Fall.

**GNM 680. Genomic Ethics and Public Policy. 3 Credit Hours.**

This course provides an introduction to the scientific, socio-ethical and policy issues arising in the context of genomic medicine. It is designed to improve your critical thinking and give you the tools to evaluate the wide range of challenges that genomic medicine brings to individuals and societies alike. We will cover a broad spectrum of topics, from the history of eugenics, to genetic testing and screening through the life cycle (i.e. pre-implantation and pre-natal testing, newborn, population and carrier screening, direct-to-consumer genetic testing), as well as bioethical (i.e., informed consent, privacy, confidentiality, etc.), policy (i.e., professional duties, patents, discrimination, etc.), and societal issues (i.e. health disparities).

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Spring.

**GNM 690. MSGM Capstone. 6-12 Credit Hours.**

The purpose of the Capstone Segment is to provide the research and clinical application aspects of training. It can be initiated at any point after admission to the MSGM Program, and results in 6 credits earned in Spring of Year 4. All components (case reports, mentored research project, genomic medicine education) will be summarized in a portfolio of work and presented at the end of the Capstone.

**Components:** LAB.

**Grading:** SUS.

**Typically Offered:** Spring.