Genetic Counseling

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Courses

Introduction to Genetic Counseling I
This course is a seminar focusing on the process of genetic counseling, awareness of related health professions, the health care system, important terminology, and an awareness of understanding how one’s differences can affect their health care choices and belief systems. Students who complete this course successfully will be able to construct a pedigree, describe the importance of the NSGC Code of Ethics, and describe the genetic counseling process.

Human Embryology (online course via University of Cincinnati)
This course helps students understand normal human development and to use this knowledge to explain the anatomy of the newborn and adult. This course also provides a basis for explaining the process of and possible cures for developmental anomalies. Finally, this course provides an introduction to the treatment of patients with congenital anomalies as well as counseling options for the families of affected individuals.

Current Topics in Human and Mammalian Genetics (BIO 5285)
This graduate-level course provides an overview of current topics in human genetics and a common background in mammalian molecular genetics, especially as it pertains to human diseases. This is a required first-year course in the Human and Statistical Genetics PhD program and the Program in Genetic Counseling (MS).

Laboratory Genetic Counseling
This course is a weekly three-hour class designed for genetic counseling students, focusing on a variety of areas related to genetic counseling in the laboratory. Students will become familiar with various laboratory testing methodologies, data interpretation, and report writing in addition to professional and regulatory scenarios encountered in the lab.

Genetic Counseling Journal Club
The journal club is a monthly, two-hour discussion of a relevant topic in clinical genetics. Research articles are selected from the literature and presented by attendees (one article per attendee). Summaries of the articles include a critical appraisal of the study, the methodology, the results, the potential implications of the results for clinical practice (if any), the limitations of the conclusions that can be drawn from the study, and any biases or conflicts of interests that could have affected the study results.

Introduction to Genetic Counseling II
This course is a seminar focusing on preparing students for their clinical rotations and learning and practicing basic counseling skills. Students who complete this course successfully will be able to describe and demonstrate a genetic counseling session, demonstrate basic counseling skills, calculate risks using Bayes theorem and Hardy-Weinberg, adapt presentation styles to the audience, and outline basic human development.

Clinical Genetics Specialties
This course is a seminar focusing on a variety of specialty areas in clinical genetics. Students who complete this course successfully will be able to demonstrate an understanding of the many specialties that involve genetics and critically evaluate family histories to recommend appropriate genetic testing.

Genetic Counseling Research Design & Ethics
This course will provide the foundation for the development and execution of the research project required for successful completion of the genetic counseling MS degree. Through a series of interactive lectures, class discussions, student presentations, guest presentations, and outside reading, students will learn about common genetic counseling-relevant research methods; areas of active genetic counseling research on both the local and national levels; and ethical guidelines for the conduct of responsible human subjects research. By the end of the course, students will select a topic for their research project and submit a research proposal. Students will register for Research Project I, II, and III to complete their research projects with faculty mentorship and peer support.

Elective Course (to be approved by Program Director)

Research Project I, II, III
The primary objective of this course series is to ensure the timely completion of student research projects. This course series provides research project scaffolding, mentorship, and opportunities for peer feedback. Research Project I is an eight-week course taken remotely or in person during the summer between the first and second years; Research Project II is taken during the fall semester of the second year; and Research Project III is taken during the spring semester of the second year.

Clinical Fieldwork Rotations I, II, III
This course covers clinical fieldwork rotations. Participation as requested by supervisors is required. Clinical Fieldwork Rotations I is a 28-day clinical rotation over the summer between the first and second years; Clinical Fieldwork Rotations II involves two 14-day clinical rotations during the fall semester of the second year; and Clinical Fieldwork Rotations III includes two 14-day clinical rotations during the spring semester of the second year. Students who complete this course successfully will be able to demonstrate management of a genetic counseling case from contracting to follow-up and successfully use psychosocial counseling skills with patients.
Advanced Genetic Counseling I
This course is a seminar focusing on starting to build advanced genetic counseling skills. Students will become familiar with unique aspects of various genetic counseling specialties, with a focus on prenatal genetics. Students will also learn about counseling theories, psychosocial assessment, psychosocial counseling techniques, and professional development skills. Attendance and active participation are expected and required.

Genetics and Genomics of Disease (BIOL 5487)
Precision medicine (also called personalized or genomic medicine) utilizes the genetic/genomic changes as key elements in defining disease and determining treatment. For many diseases, significant challenges prevent the routine practice of precision medicine, including the following: determining whether sequence variation is medically relevant (pathogenic); achieving comprehensive phenotypic characterization; developing therapeutic approaches specific to pathogenic variation while minimizing unwanted side effects; determining whether genetic/genomic information affects overall patient outcomes; and resolving policy and ethical issues related to the reporting and delivery of genomic information to patients and clinicians. This course will prepare students to be at the forefront of meeting the challenges in defining and implementing precision medicine by introducing students to the use of genomic and genetic information in the diagnosis and treatment of disease.

Advanced Genetic Counseling II
This course is a seminar focusing on building and honing advanced genetic counseling skills. Students will learn about complex issues such as family dynamics, crisis intervention, and implicit biases, and they will use this knowledge to increase their psychosocial assessment and counseling skills. This course will also help prepare students for graduation with a focus on ABGC Board Examination readiness and learning how to use self-care techniques to assist with stress management.

Teratology
This course is a weekly seminar focusing on human teratogens. Students will become familiar with the mechanisms by which exposures affect human development, learn about known and potential teratogens, and understand the methods by which exposures are studied to understand their potential effects. Finally, students will learn how to incorporate data available in the medical literature and databases to provide information about teratogens to patients and providers.