

Learning Outcomes for Genetic Counseling M.S. Program

1A. Graduate Education in General:

Graduate education in a healthcare field provides the advanced knowledge and skills needed for students to establish careers as competent professionals in patient care, clinical research, and related settings. Foundational knowledge is gained through didactic coursework while experience is built and competencies are mastered in applied settings including clinics and laboratories.

1B. Graduate Education in Genetic Counseling:

Masters level education in Genetic Counseling prepares students for professional practice in healthcare, laboratory, research, government and other settings. Genetic counseling graduates are in great demand locally and nationally as genomic medicine expands. Genetic counselors work in clinical, teaching, administrative, commercial, government, private practice and consulting environments. As members of health care teams, they provide information and support to individuals and families affected with or at risk for birth defects, genetic conditions, or genetic predispositions to diseases such as cancer. They investigate the concerns about traits present in the family, interpret information about these conditions, analyze inheritance patterns and risks of recurrence, review available testing and management options with the family, provide supportive counseling, identify community and support group resources, and act as patient advocates. Genetic counselors may serve as professional liaisons for laboratories to ensure that health care providers order and interpret genetic tests appropriately. They may also serve as educators and resource people for other health care professionals and for the general public. Many genetic counselors facilitate support groups, participate in health care policy development regarding genetic services and related issues, and engage in research activities related to the field of medical genetics and genetic counseling.

2A. Program/Student Learning Outcomes: The Genetic Counseling M.S. Program trains graduate students to become competent and effective health professionals. The Accreditation Council for Genetic Counseling (ACGC) accredits genetic counseling graduate programs in North America. ACGC defines the following *Practice-Based Competencies (PBCs)* that an entry level genetic counselor must demonstrate.

The PBCs (2023 revision) are categorized into the following seven competencies: 1) Genetics and Genomics Expertise, 2) Risk Assessment, 3) Counseling, 4) Communication, 5) Research, 6) Healthcare Systems, and 7) Professional Identity. Embedded within the seven competencies are 27 sub-competencies that support the attainment of the practice-based competencies. These competencies and skills, as defined by the sub-competencies, describe the minimal skill set of a genetic counselor which should be applicable across practice settings.

PRACTICE-BASED COMPETENCIES – 2023 - FOR GENETIC COUNSELORS

Genetics and Genomics Expertise

1. Apply knowledge of genetics and genomics principles, genetic conditions, and testing technologies to the practice of genetic counseling.

1.a. Demonstrate knowledge of genetics and genomics principles and concepts.

1.b. Apply knowledge of genetic conditions to the delivery of genetics services.

1.c. Demonstrate knowledge of genetic testing methodologies and variant interpretation.

Risk Assessment

2. Evaluate personalized genetic risk.

- 2.a. Analyze family history to estimate genetic risk.
- 2.b. Calculate risk using probability methods and risk models.
- 2.c. Integrate clinical and laboratory data into risk assessment.
- 2.d. Order genetic tests guided by client-centered risk assessment.

Counseling

3. Promote integration of psychosocial needs and client-centered decision-making into genetic counseling interactions.

- 3.a. Use applicable counseling skills and theories.
- 3.b. Establish a working alliance with client.
- 3.c. Promote psychosocial adaptation.
- 3.d. Facilitate client's decision-making process.

Communication

4. Communicate genetics and genomics information to clients, colleagues, and other community partners.

- 4.a. Tailor communication to specific individuals and audiences.
- 4.b. Use a variety of approaches to communicate genetics and genomic information.
- 4.c. Convey probabilities based on client's risk perception and numeracy.

Research

5. Synthesize the evidence base relevant to genetic counseling.

- 5.a. Critically interpret data and literature.
- 5.b. Apply data and literature considering its strengths, weaknesses, and limitations.
- 5.c. Demonstrate knowledge of how genetic counselors engage and contribute to the research process.

Healthcare Systems

6. Demonstrate how genetic counselors fit within the larger healthcare system.

- 6.a. Demonstrate how disparities, inequities, and systemic bias affect access to healthcare for diverse populations.
- 6.b. Describe the financial considerations in the delivery of genetic services.
- 6.c. Advocate for continuity of care.
- 6.d. Collaborate with members of the Care Team, clients, and other Community Partners.

Professional Identity

7. Embody the values of the genetic counseling profession.

- 7.a. Adhere to the genetic counselor scope of practice.
- 7.b. Follow applicable professional ethical codes.
- 7.c. Exhibit behaviors that promote an inclusive, just, equitable, and safe environment for all individuals and communities.
- 7.d. Engage in self-reflective practice to promote ongoing growth and development.

The Genetic Counseling M.S. Program supports the development of these competencies in students through an integrated 21 month (5 semester) curriculum. The components of this curriculum include:

Coursework, completed during both years of the program, in the principles of human genetics, clinical genetics, cytogenetics, molecular genetics, biochemical/metabolic genetics, cancer genetics, risk calculation; psychosocial, interviewing and counseling theories and techniques; and ethical, legal, social and professional issues in genetic counseling practice. Coursework is completed during both years of the graduate program.

Laboratory Experience obtained via an integrated cytogenetics and molecular genetics laboratory course, as well as an applied rotation experience with laboratory-based genetic counselors, all taken in year one of the program. Additional laboratory experiences can be arranged for the interested student.

Clinical Training in the General Genetics Clinic, Prenatal Genetics Clinic, Metabolic Clinic, Regional Outreach Telemedicine Clinics, Pediatric and Adult Specialty Clinics, Adult Medical Genetics and Neurology Clinics, and Hereditary Cancer Clinics (Adult Oncology, Pediatric Oncology). Students assume responsibility under the supervision of their board certified clinical supervisors in each setting for appropriate care of all clients to whom they are assigned.

Research/Scholarship training in the classroom and practical experience through completion of a required capstone project. Students work with faculty and genetic counselor mentors to develop and execute these projects, which culminate in the writing of a paper (journal manuscript style) and a formal presentation to departmental faculty and trainees. Students are encouraged to submit abstracts of their projects to national meetings for poster or platform presentation and to consider publication of their findings.

Additional Required Activities, which include attendance at relevant clinical case conferences, Genetics Grand rounds, departmental education meetings, tumor board meetings and family care conferences, and participation in Genetic Counseling Journal Club.

A *Comprehensive Examination* is required of all students during their final semester in the program. This is a two-part examination comprised of a four hour comprehensive written examination and a two hour oral examination administered by a graduate faculty committee.