

GENETIC COUNSELING, MASTER OF SCIENCE (M.S.)

Program accreditation

Accreditation Council for Genetic Counseling

Program goals

1. Competency in genetic counseling
2. Eligibility for certification by the American Board of Genetic Counseling
3. Preparation for careers in genetic counseling and human genetics and genomics

Successful candidates will demonstrate competency in all four genetic counseling domains: I – genetic expertise and analysis, II – interpersonal, psychosocial, and counseling skills, III – education and IV – professional development and practice.

Program objectives

1. Demonstrate knowledge of the principles of human, medical and public health genetics and genomics and their related sciences
2. Apply knowledge of genetic principles and understand how they contribute to etiology, pathophysiology, clinical features, disease expression, natural history recurrence risk, clinical management and disease prevention
3. Apply knowledge of genetic principles to understanding of differential diagnosis, genetic testing, genetic test report interpretation and population screening

Student learning outcomes

1. Competency in practice: The candidate should demonstrate development of competency in the responsible practice of genetic counseling. This will be assessed in the clinical setting by certified genetic counselors and medical geneticists. The assessment is based upon the core clinical competencies established by the Accreditation Council for Genetic Counseling. These competencies are documented with written and oral evaluations at the completion of each of the clinical rotations by the rotation supervisor.
2. General knowledge of sciences: The candidate should demonstrate a general knowledge of the elements of the sciences as related to genetic molecular/cellular bioscience and a detailed knowledge of his or her area of research, including an appropriate familiarity with the research literature. The student is evaluated by academic performance, face-to-face and written evaluation of clinical performance in multiple rotations by multiple supervisors and annual written and oral exams.
3. Communication skills: The candidate should demonstrate that an appropriate level of oral, written and visual communication skills have been acquired. This is achieved by evaluations of clinical rotations both written and verbal that are based on the competencies established by the Accreditation Council for Genetic Counseling and the scope of practice as set forth by the National Society of Genetic Counselors.
4. Education skills: Effectively educate clients, orally and in writing, about a wide range of genetics and genomics information based on their needs, their characteristics and the circumstances of the encounter.

VCU Graduate Bulletin, VCU Graduate School and general academic policies and regulations for all graduate students in all graduate programs

The VCU Graduate Bulletin website documents the official admission and academic rules and regulations that govern graduate education for all graduate programs at the university. These policies are established by the graduate faculty of the university through their elected representatives to the University Graduate Council.

It is the responsibility of all graduate students, both on- and off-campus, to be familiar with the VCU Graduate Bulletin as well as the Graduate School website (<http://www.graduate.vcu.edu/>) and academic regulations in individual school and department publications and on program websites. However, in all cases, the official policies and procedures of the University Graduate Council, as published on the VCU Graduate Bulletin and Graduate School websites, take precedence over individual program policies and guidelines.

Visit the **academic regulations section** for additional information on academic regulations for graduate students. (<http://bulletin.vcu.edu/academic-regs/>)

Graduation requirements

As graduate students approach the end of their academic programs and the final semester of matriculation, they must make formal application to graduate. No degrees will be conferred until the application to graduate has been finalized.

Graduate students and program directors should refer to the following graduation requirements as published in the Graduate Bulletin for a complete list of instructions and a graduation checklist.

Visit the **academic regulations section** for additional information on graduation requirements. (<http://bulletin.vcu.edu/academic-regs/grad/graduation-info/>)

Other information

School of Medicine graduate program policies

The School of Medicine provides policies applicable to all programs administratively housed in the school. Information on **master's programs** is available elsewhere in this chapter of the Graduate Bulletin.

Apply online today. (<https://www.vcu.edu/admissions/apply/graduate/>)

Admission requirements

Degree:	Semester(s) of entry:	Deadline dates:	Test requirements:
M.S.	Fall	Applications received prior to Jan 15 given priority consideration	GRE within five years of application; international applicants must score 100 or greater on the TOEFL.

In addition to the general admission requirements of the VCU Graduate School (<http://bulletin.vcu.edu/graduate/study/admission-graduate-study/admission-requirements/>):

1. Applicants must have successfully completed undergraduate training and hold a baccalaureate degree from an accredited university or college.
2. Applicants must write a personal essay, no longer than two pages, indicating their interest and suitability to the field of genetic counseling.
3. Prerequisites for admission include six credit hours each of biology, chemistry and behavioral science (psychology, anthropology, sociology, religion or philosophy) and three credit hours each of biochemistry, statistics and genetics. It is recommended that all prerequisite courses have been completed within 10 years of application. A prerequisite may be in process at the time of application. A minimum grade of a B must be obtained prior to admission if the course is in progress at the time of acceptance.
4. Students accepted to the program are generally drawn from applicants with a minimum undergraduate grade-point average of 3.0 (on a 4.0 scale or equivalent), with an average GPA of 3.3 to 3.5 for matriculating students.
5. The Graduate Record Examination is required for admission; there is no MCAT substitution. The GRE should be taken within five years of application submission. Matriculating students generally have GRE verbal scores at or above 153, quantitative scores at or above 144 and a writing performance above a score of 3.5 on the analytical section.
6. Applicants holding an undergraduate degree from foreign institutions must display an acceptable level of English proficiency by achieving a score of 250 on the computer-based TOEFL examination or 600 on the written version.
7. Additionally, successful applicants often have experience with shadowing genetic counselors and medical geneticists, interviewing genetic counselors and exposure to individuals with physical and cognitive disabilities. Exposure to crisis hotlines, support groups and community activities related to individuals with disability and genetic conditions is also helpful.

Note: The department receives an average of 200 applications annually. Of those, about 50 are invited for an onsite interview, and eight to 10 students matriculate. The on-site interview is required for all North American applicants.

The program participates in the Association of Genetic Counseling Program Directors program match. Prospective students may see the National Society of Genetic Counselors (<http://www.nsgc.org/p/cm/ld/fid=44%23accept/>) website and the American Board of Genetic Counseling (<http://www.abgc.net/ABGC/AmericanBoardofGeneticCounselors.asp>) website for additional information.

Matriculating genetic counseling students are eligible for selection in the VA-LEND certificate in neurodevelopmental disabilities. Information is available at wp.vcu.edu/virginialend (<https://rampages.us/virginialend1/>).

Degree requirements

In addition to the general VCU Graduate School graduation requirements (<http://bulletin.vcu.edu/academic-regs/grad/graduation-info/>), students must complete a minimum of 60 credit hours. The program is a full-time,

on-campus program. (Part-time on-campus options may exist at the discretion of the program director.) There is no online option for degree completion. Students are expected to complete their course work in four semesters (21 consecutive months). To be considered full-time, the VCU School of Medicine requires students to register for 15 credit hours in the fall and spring semesters. Occasionally special circumstances may occur that could require a temporary leave of absence. The VCU Graduate School requires that master's degrees be completed in a maximum of six years.

In order to be considered in good academic standing, a student must maintain a 3.0 GPA. Students who fail to maintain a 3.0 average are permitted one semester to bring their averages up to the required level.

As part of their course work, students begin clinical rotations in the spring semester of the first year and continue through the summer and both semesters of the second year. Students are required to engage in clinical experiences during the intervening summer. Options exist for summer experiences to occur outside the city of Richmond.

Students must pass a written comprehensive exam at the conclusion of the first two semesters of study and a written and oral comprehensive exam prior to graduation. The oral examination covers clinical competency and research competency.

Students are required to complete a capstone project during their course of study. The capstone project is similar to a thesis in that it is a culminating, synthesizing experience that may involve hypothesis-based research; however, capstone projects may also represent a more applied genetic counseling project.

Students are strongly recommended to select a primary adviser and the members of their advisory committee by the conclusion of the second semester. There should be at least two full committee meetings prior to the student's oral exam. The committee must include at least three members, at least two of whom are from the department and at least one of whom is from outside of the department.

In addition to participating in course work, the capstone project and counseling rotations, students in the department also participate in a number of community and education programs. These opportunities may include lectures and presentations to local schools and community events, participation in health fairs, School of Medicine-sponsored activities, state of Virginia Genetics Advisory Board meetings, and DNA Day on the Hill in Washington, D.C.

The straddling of the student and professional roles is a lifelong process in the changing field of human genetics and genetic counseling. Graduates of this program will be contributing members of the clinical genetics team of counselors, physicians and basic scientists and contributing members of commercial genetic testing laboratories and the developing field of human genomic medicine.

Course requirements

Course	Title	Hours
Required core courses		
ANAT 612	Human Embryology	2
HGEN 501	Introduction to Human Genetics	3
HGEN 502	Advanced Human Genetics	3
HGEN 510	Classic Papers in Human Genetics	1
HGEN 525	Practice of Genetic Counseling	3
HGEN 526	Practice of Genetic Counseling	3

HGEN 527	Medical Genetics	3
HGEN 528	Medical Genetics	3
HGEN 600	Clinical Genetics (repeated three times)	9
HGEN 601	Research in Genetic Counseling	2
HGEN 607	Processes in Genetic Counseling I	1
HGEN 608	Processes in Genetic Counseling II	1
HGEN 615	Techniques in Genetic Counseling	3
HGEN 622	Cancer Genetic Counseling	3
HGEN 690	Genetics Research Seminar (repeated for four credits)	4
HGEN 697	Directed Research in Genetics (repeated for a minimum of eight credits) ¹	8
PATH 691	Special Topics in Modern Instrumental Methods (diagnostic genetic testing)	2
Required additional courses		
OVPR 601	Scientific Integrity	1
or OVPR 602	Responsible Scientific Conduct	
or OVPR 603	Responsible Conduct of Research	
Elective courses		
As approved by the program director		5
Total Hours		60

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One credit to be taken in the summer semester as noted in the plan of study.

The minimum total of graduate credit hours required for this degree is 60.

Typical plan of study

Many students may take more than the minimum number of hours required for a degree program. The total number of hours may vary depending upon the program, nature of research being conducted by a study or in the enrollment or funding status of the student. Students should refer to their program websites and talk with their graduate program directors or advisers for information about typical plans of study and registration requirements.

Contact

Rachel B. Gannaway, LCGC
Assistant professor, Department of Human and Molecular Genetics, and program co-director
rachel.gannaway@vcuhealth.org
(804) 628-3507

Tahnee Causey, LCGC
Assistant professor, Department of Human and Molecular Genetics, and program co-director
tahnee.causey@vcuhealth.org
(804) 628-4078

Additional contact

John M. Quillin, Ph.D. LCGC
Associate professor, Department of Human and Molecular Genetics, and director, dual-degree program (M.S. in Genetic Counseling/Ph.D. in Human Genetics)
john.quillin@vcuhealth.org
(804) 628-1925

Program website: gen.vcu.edu (<https://gen.vcu.edu/>)

Note: Email is the preferred method of contact. On-site informational meetings with faculty and students may be available depending on the time of the year and faculty/student availability. If applicants desire this opportunity, requests should be made at least six weeks in advance.