

CLINICAL GENETICS, CERTIFICATE IN (GRADUATE CERTIFICATE)

The Certificate in Clinical Genetics will train graduate students in the principles of inheritance, the basis of inheritance, how inheritance influences risk in human disease, and the technology and methods involved in testing for genetic disorders. Students who complete the certificate will be able to apply this knowledge to understand genetic conditions and the role of genetic professionals in the clinical setting, as well as calculate risk for genetic disorders. Graduates will be competitive applying for jobs, such as genetic counseling assistants, or in seeking promotions within their fields, such as nursing or technicians employed in genetic diagnostic laboratories. These graduates will also be more competitive in applying for professional training such as genetic counseling master's programs or clinical diagnostic fellowships.

Program goals

The goal of the graduate certificate program in clinical genetics is to introduce students to human genetics concepts and its methodologies, understand the roles of genetic professionals in the clinic and gain an understanding of genetic conditions and the current genetic testing methodologies.

Student learning outcomes

1. Knowledge of human genetics: Certificate candidates will demonstrate the appropriate knowledge of human genetics including patterns of inheritance, risk analysis, the molecular basis of inheritance and methods to study human genetics.
2. Knowledge of clinical genetics: Certificate candidates will demonstrate the appropriate knowledge of genetic conditions and the varying roles of genetics professionals in clinical and laboratory genetics.
3. Knowledge of genetic diagnostics: Certificate candidates will demonstrate the appropriate knowledge of current methodologies in genetic diagnostics for specific genetic conditions.

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/>)

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

Admission requirements

Degree:	Semester(s) of entry:	Deadline dates:	Test requirements:
Certificate	Fall	May 30	TOEFL or IELTS required for non-native English speakers

The admission requirements outlined below will apply to all students. All applicants to the graduate certificate program are required to meet the admission requirements of the VCU Graduate School (<http://bulletin.vcu.edu/graduate/study/admission-graduate-study/admission-requirements/>). Applicants will be required to submit the following materials to the Graduate School admissions office:

- An earned undergraduate degree related to genetics, biology or psychology
- Application form and application fee
- Three letters of recommendation, professional and/or academic
- Official undergraduate transcripts from all schools attended
- A statement of purpose outlining career goals and previous experience

A maximum of three equivalent, graduate-level transfer credit hours at the 500-level or higher may count toward the certificate. The transfer credits are evaluated on a case-by-case basis to determine course equivalency. Credits from a degree already awarded cannot be applied toward the certificate.

International students will submit an official transcript evaluation from a recognized foreign educational credentials evaluation service accredited by the National Association of Credential Evaluation Service or the American Association of Collegiate Registrars and Admissions Officers. International students must also provide proof that they can support themselves financially for the duration of the program.

Non-native English speakers will provide evidence of proficiency in English by one of the following:

- A Test of English as a Foreign Language minimum composite score of 100 for the Internet-based test or 600 for the paper-based score

- An International English Language Testing Systems minimum score of 6.5 on the academic exam
- A passing score on the VCU English Language Program compression test

The curriculum will prepare students to have a solid understanding of inheritance and the basis of inheritance as it applies to human and clinical genetics. Students will also gain an understanding of genetic conditions, modern diagnostic methodologies and their application, as well as the roles of genetic professionals in the clinic. Graduates will be prepared to work in clinical settings and genetics testing laboratories, including academic institutions, research institutions, hospitals and private diagnostic companies.

Curriculum requirements

Course	Title	Hours
Required courses		
BIOS 543	Graduate Research Methods I	3
HGEN 501	Introduction to Human Genetics	3
HGEN 502	Advanced Human Genetics	3
HGEN 606	Introduction to Clinical Genetics	1
HGEN/PATH 609	Clinical Genomics	2
Electives¹		
Select a minimum of four credits from:		4
ALHP 708	Ethics and Health Care	
ANAT 612	Human Embryology	
BIOC 503	Biochemistry, Cell and Molecular Biology	
BIOS 544	Graduate Research Methods II	
CCTR 640	Team Science: Theories and Practice	
EPID 645	Public Health Genomics	
GRAD 615	Biomedical Science Careers Seminar Series	
HADM 611	Health Care Law and Bioethics	
HADM 615	Health Care Politics and Policy	
HADM 646	Health Care Organization and Leadership	
HADM 681	Clinical Concepts and Relationships	
HCPR 601	Introduction to Health Policy	
HGEN 527	Medical Genetics	
HGEN 528	Medical Genetics	
HGEN 603	Mathematical and Statistical Genetics	
HGEN 605	Experimental Methods in Human Genetics	
HGEN 610	Current Literature in Human Molecular Genetics	
HGEN 611	Data Science I	
HGEN 612	Data Science II	
HGEN 614	Pathogenesis of Human Genetic Disease	
HGEN 620	Principles of Human Behavioral Genetics	
HGEN 631	Advanced Dental Genetics	

IDDS 600	Interdisciplinary Studies in Developmental Disabilities: Teamwork in Serving Persons with Developmental Disabilities	
NURS 772	Qualitative Research	
PATC 635	Clinical Ethics	
PHIL 602	Biomedical Ethics	
PSYC 603	Developmental Processes	
PSYC 619	Learning and Cognition	
PSYC 620	Design and Analysis of Psychological Research	
PSYC 629	Biological Basis of Behavior	
PSYC 630	Social Psychology	
PSYC 660	Health Psychology	
SBHD 611	Health Literacy	
Total Hours		16

¹

Electives must be approved by the program director; other courses can be substituted with program director approval.

The minimum total of graduate credit hours required for this certificate is 16.

Contact

Heather Creswick, M.S.G.C., C.G.C.
Department of Human and Molecular Genetics
heather.creswick@vcuhealth.org