HUMAN MEDICAL GENETICS & GENOMICS (PHD)

Overview

The Human Medical Genetics and Genomics Graduate Program (HMGGP) at CU Anschutz is an interdisciplinary, interdepartmental program designed to coordinate outstanding graduate training and research opportunities in all aspects of Human and Medical Genetics. I and the HMGGP faculty are committed to a dynamic and outstanding program that provides training and mentorship to the next generation of leaders in the fields of human and medical genetics and genomics.

The Human Genome Project and a diverse group of technological advances have brought about a revolution in almost all fields of medicine and biomedical research. The availability of genomic DNA sequences of humans and other species has enabled discovery of genes critical to development and disease and genetic variations that predispose to common debilitating diseases. Furthermore, tests to rapidly identify genetically susceptible individuals are being developed, and new technologies to treat or even prevent these diseases are being brought on line. Genetics and genomics provides the foundation for “Precision” or "Personalized" medicine which will bring about improved health, longevity, and quality of life.

It is the mission of the Human Medical Genetics and Genomics Graduate Program to be at the forefront of this revolution. The Human Medical Genetics and Genomics Graduate Program builds on close engagement with our students, who are integral to our ongoing mission to build towards the future. The Program is continually adding new Training Faculty, providing students with an outstanding group of scientists from whom to select as Thesis Advisors and mentors. Our goal is to provide students a world-class graduate training experience in an interactive and collaborative environment that allows for an individualized learning experience.

Admission Requirements

Admission Philosophy

Students are selected on the basis of past academic performance, previous laboratory research experience, and, where possible, individual interviews. We select students who show high intellectual achievement, creativity, independence, and strong motivation to become successful scientists. Our Program recognizes that students who are attracted to a career in genetics and genomics can have highly varied backgrounds.

Admissions Requirements

Coursework | Although there are no formal undergraduate course requirements, students with a solid undergraduate foundation in mathematics and biological and chemical sciences have performed best in the Program. It is suggested that applicants have completed courses in biology, chemistry (general and organic), physics, genetics, calculus, and statistics before entering the Program.

Graduate Record Exam (GRE) | The GRE General Test and Subject Test are not required for application to HMGGP but will be considered if submitted. To send scores directly to HMGGP, please designate GRE code 4875.

How to Apply

APPLICATION WILL OPEN ON SEPTEMBER 1ST.

DEADLINE FOR APPLICATIONS IS DECEMBER 1ST.

PRIORITY DEADLINE FOR INTERNATIONAL APPLICANTS IS NOVEMBER 1st.

To apply for admission applicants must submit the following:

- Online Graduate School application (included in the application is the Research Statement, Professional Background, and Future Goals Statement, and Colorado residency form).
- A $50.00 domestic and $75.00 international non-refundable application fee. No application will be processed unless this fee is paid.
- Three (3) letters of recommendation.
- GRE test scores (optional). Use GRE code 4875 (optional)
- TOEFL or IELTS scores and financial support verification (international students only).
- One (1) official transcript of all academic work completed to date. To be considered "official", the transcripts must come from the issuing institution directly to the University of Colorado Denver Anschutz Medical Campus graduate program. Use the following address:

Electronic Transcripts should be sent to: graduateadmissions@ucdenver.edu

If sending a physical transcript, please mail to:

Graduate School
Campus Box 163
PO Box 173364
1380 Lawrence Street Suite 1250
Denver, CO 80205-3364

Degree Requirements

First Year Students

Course	Title	Hours
First Year		
Fall		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science	1-6
HMGP 7610	Topics in Human Genetics	1-3
HMGP 7650	Research in Human Medical Genetics (Sections 001 AND 002)	1-10
	Hours	9-25
	Total Hours	9-25

Course	Title	Hours
First Year		
Spring		
HMGP 7600	Survey of Human Genetics	3-4
HMGP 7610	Topics in Human Genetics	1-3
HMGP 7650	Research in Human Medical Genetics	1-10
	Hours	5-17
	Total Hours	5-17

Course	Title	Hours
First Year		
Summer		
HMGP 8990	Doctoral Thesis	1-10
	Hours	1-10
	Total Hours	1-10

Second Year Students

Course	Title	Hours
Second Year		
Fall		
HMGP 7610	Topics in Human Genetics	1-3
HMGP 7650	Research in Human Medical Genetics (Section 0V3)	1-10
	Hours	2-13
	Total Hours	2-13

Course	Title	Hours
Second Year		
Spring		
HMGP 7610	Topics in Human Genetics	1-3
HMGP 7650	Research in Human Medical Genetics (Section 0V3)	1-10
	Hours	2-13
	Total Hours	2-13

Course	Title	Hours
Second Year		
Summer		
HMGP 8990	Doctoral Thesis	1-10
	Hours	1-10
	Total Hours	1-10

Third Year Students

Course	Title	Hours
Third Year		
Fall		
HMGP 7610	Topics in Human Genetics	1-3
HMGP 8990	Doctoral Thesis	1-10
	Hours	2-13
	Total Hours	2-13

Course	Title	Hours
Year 3		
Spring		
HMGP 7610	Topics in Human Genetics	1-3
HMGP 8990	Doctoral Thesis	1-10
	Hours	2-13
	Total Hours	2-13

Course	Title	Hours
Third Year		
Summer		
HMGP 8990	Doctoral Thesis	1-10
	Hours	1-10
	Total Hours	1-10

Fourth Year Students & Beyond

Course	Title	Hours
Year 4		
Fall		
HMGP 8990	Doctoral Thesis	1-10
	Hours	1-10
	Total Hours	1-10

Course	Title	Hours
Year 4		
Spring		
HMGP 8990	Doctoral Thesis	1-10
	Hours	1-10
	Total Hours	1-10

Course	Title	Hours
Year 3		
Summer		
HMGP 8990	Doctoral Thesis	1-10
	Hours	1-10
	Total Hours	1-10

Learning Objectives

The PhD program in Human Medical Genetics trains graduate students to become proficient and successful investigators who are able to:

- Demonstrate a basic knowledge of central concepts in the biomedical sciences.
- Understand current concepts in human genetics and genomics.
- Read and critically evaluate the scientific literature.
- Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.
- Present research results in peer-reviewed publications and in a dissertation.
- Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
- Write a competitive application for research funding.
- Develop ancillary skills, where necessary, to obtain positions outside of scientific research.

Courses

BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)
Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806
Grading Basis: Letter Grade
Repeatable. Max Credits: 6.
Typically Offered: Fall.

BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)
Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.
Grading Basis: Letter Grade
Repeatable. Max Credits: 20.
AMC-PHD PhD Students only
Typically Offered: Fall.

HMGP 7600 - Survey of Human Genetics (3-4 Credits)
Survey of human genetics, including Mendelian and other types of inheritance, chromosomes and cytogenetics, molecular and biochemical basis of genetic disease, quantitative genetics and gene mapping, developmental and cancer genetics, clinical genetics, and genetic screening and prenatal diagnosis.
Grading Basis: Letter Grade
Repeatable. Max Credits: 4.
A-GRAD Restricted to graduate students only.
Typically Offered: Spring.

HMGP 7610 - Topics in Human Genetics (1-3 Credits)
Two-semester course based on weekly HMGP seminar series. Students meet with speakers and discuss seminar or related topics and arranged readings. Grade based on class participation and required paper and presentation. Required for 1st , 2nd and 3rd year HMGP students.
Prerequisite: Graduate standing.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 3.
A-GRAD Restricted to graduate students only.
Typically Offered: Fall, Spring.

HMGP 7630 - Independent Study in Human Medical Genetics (1-2 Credits)
Independent study is intended to permit students to carry out directed reading and discussion with a specific faculty member other than their thesis advisor. Consent of the faculty member offering the independent study and the program director are required.
Grading Basis: Letter Grade
A-GRAD Restricted to graduate students only.
Typically Offered: Fall, Spring, Summer.

HMGP 7650 - Research in Human Medical Genetics (1-10 Credits)
Research work in human medical genetics. Prereq: Consent of the instructor.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 99.
A-GRAD Restricted to graduate students only.
Typically Offered: Fall, Spring, Summer.

HMGP 8990 - Doctoral Thesis (1-10 Credits)
Doctoral thesis work in human medical genetics. Prereq: Consent of the instructor.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 99.
A-GRAD Restricted to graduate students only.
Additional Information: Report as Full Time.
Typically Offered: Fall, Spring, Summer.

Policies

Please refer to the Graduate School Policies page (http://catalog.ucdenver.edu/cu-anschutz/schools-colleges-programs/graduate-school/#policiestext).

Contact Us

Tamim Shaikh, PhD, Program Director
Tamim.Shaikh@cuanschutz.edu | 303.724.5399

Maia Evans, MLIS, Program Administrator
maia.evans@cuanschutz.edu | 303.724.3102
University of Colorado Anschutz Medical Campus
Mailstop 8300
12800 E. 19th Ave
Aurora, CO 80045