

# PERSONALIZED & GENOMIC MEDICINE (CERTIFICATE)

## Overview

The Personalized & Genomic Medicine certificate program provides an opportunity for current and future healthcare professionals, researchers, and recent graduates of scientific programs to acquire knowledge and skills in the emerging field of personalized medicine.

Personalized medicine is an evolving scientific and clinical reality with the potential to transform healthcare and improve health outcomes. Personalized medicine requires the integration of numerous data sources, including clinical observations and imaging, -omics datasets (e.g., genomic, transcriptomic, epigenomic, metabolomic, and proteomic data), and electronic health records. This online certificate program focuses on genomics, including the genetic underpinnings of disease and treatment response as well as integration of genetic data with other -omics and electronic health data.

After completion of the certificate program, students will have the skills and knowledge to incorporate the principles of personalized medicine into their research, clinical, and industry careers.

## Admissions Requirements

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Resume/CV: The applicant's current resume or curriculum vitae, including professional work/practice experience since graduating with a bachelor's degree (or equivalent).
  - Statement of Purpose (2 page maximum) addressing these questions:
    1. Why are you interested in obtaining a Graduate Certificate in Personalized and Genomic Medicine from the University of Colorado Anschutz Medical Campus?
    2. How will the Graduate Certificate in Personalized and Genomic Medicine help you reach your professional and career goals?
    3. Briefly describe your plan for completing the coursework online in regard to the time commitment for study and maintaining work/life balance.
    4. Briefly describe your previous experience with online courses and learning.
- Driver's License: A copy of the applicant's driver's license or state-issued ID.
- Application Fee: A nonrefundable application fee of \$50.00 (U.S. dollars). Checks or money orders should be made out to the University of Colorado.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

Electronic Transcripts (preferred) should be sent to: [graduate.school@cuanschutz.edu](mailto:graduate.school@cuanschutz.edu)

If sending a physical transcript, please mail to:

University of Colorado Anschutz Medical Campus Graduate School

Mail Stop C296  
Fitzsimons Building, W5107  
13001 E. 17th Place  
Aurora, CO 80045

International students must meet ALL of the requirements above and those required by International Admissions.

## Certificate Requirements

Year 1		
Fall		Hours
PMED 6010	Foundations in Personalized Health	3
PMED 6110	Pharmacogenomics	3
	<b>Hours</b>	<b>6</b>
Spring		
PMED 6210	Multi-Omic Approaches in Personalized Medicine	3
PMED 6410 or PMED 6910	METHODS AND CHALLENGES IN OBSERVATIONAL HEALTH DATA ANALYSIS or Applications and Challenges in Personalized Medicine	3
	<b>Hours</b>	<b>6</b>
	<b>Total Hours</b>	<b>12</b>

1. Synthesize the knowledge base in personalized medicine, pharmacogenetics, and omic disciplines.
2. Apply the methods of personalized medicine to clinical and research problems.
3. Develop critical thinking skills to be able to examine issues and ideas, and to identify good and bad reasoning in a variety of fields with differing assumptions, contents and methods.

## Courses

PMED 6010 - Foundations in Personalized Health (3 Credits)  
PMED6010 introduces students to the field of personalized medicine and prepares students to integrate this field into a variety of health-related professions. Students will gain the foundational knowledge to successfully apply personalized medicine approaches to scientific research and clinical care.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

PMED 6110 - Pharmacogenomics (3 Credits)

PMED6110 introduces students to pharmacogenetics, which refers to how genetic factors influence drug metabolism and dosing. Students will gain the foundational knowledge to use pharmacogenetics in scientific research and clinical care. Co-Requisite - PMED 6010.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PMED 6210 - Multi-Omic Approaches in Personalized Medicine (3 Credits)**

PMED6210 introduces students to cutting-edge concepts, technologies, analytic methods, and databases for a wide-range of 'omics approaches that form the foundation of personalized medicine. Critical evaluation of literature utilizing 'omics methods for personalized medicine will also be emphasized. Requisite: PMED 6010.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PMED 6410 - METHODS AND CHALLENGES IN OBSERVATIONAL HEALTH DATA ANALYSIS (3 Credits)**

In this hands-on course students will analyze real EHR data to answer COVID-19-related questions. There are no pre-requisites, and students will be introduced to coding and methods (including machine learning) via synchronous lectures, weekly assignments, and a course project.

Prerequisites: PMED6010 and PMED6210

Grading Basis: Letter Grade

Typically Offered: Spring.

**PMED 6910 - Applications and Challenges in Personalized Medicine (3 Credits)**

PMED6910 is the capstone experience for students enrolled in the Personalized and Genomic Medicine Graduate Certificate. Students will expand their knowledge of personalized medicine through exposure to real-world applications and in-depth research into the field. Requisite: PMED 6010.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

## **Policies**

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

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## **Contact Us**

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Program Co-Directors

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