



Bioengineering Graduate Programs

About us

We are a dual campus department located on the CU Anschutz Medical Campus in Aurora, CO.

Visit Us:

Bioscience 2, Suite 100
12705 E. Montview Blvd.
Aurora, CO 80045

The office is open during normal business hours, Monday through Friday. We follow the CU Denver campus academic calendar.

For MS/PhD questions, please contact the department at 303-724-9972.



Bioengineering is one of the fastest growing job markets this decade, according to the Bureau of Labor Statistics. An advanced degree in this area provides numerous opportunities to work in health care, biomedical industry, government regulatory agencies and academia. At CU Denver, you'll work with top faculty and researchers in the field, with a choice of training pathways in basic research, clinical applications or commercialization of medical technologies.

Through the Department of Bioengineering you'll have access to interdisciplinary training for **Master of Science** and **Doctor of Philosophy** degrees. You'll acquire high-quality training that is both flexible and multidisciplinary.

Our training program is uniquely integrated with the University of Colorado Anschutz Medical Campus. Our students learn from both clinicians and engineers and perform research

or medical device design in world-class hospitals and clinical research labs.

A design-based focus permeates every aspect of our training philosophy, which can be summarized by the following question: What does the user want, and how can I best utilize my bioengineering training to achieve this need?

Our academic instruction focuses on developing core competencies in life sciences,

quantitative methods, technology and research methods. All graduate students begin the program with intensive study of the bioengineering core. In consultation with an advisor, each student chooses elective courses, training pathways and research to fit talents, preparation and career plans.

Learn more about the department, faculty, research opportunities and more at ucdenver.edu/bioengineering.

303.724.9972

ucdenver.edu/bioengineering

bioengineering@ucdenver.edu



Current Research

- Cardiovascular Biomechanics and Hemodynamics
- Diabetes
- Imaging and Biophotonics
- Neuroscience Engineering
- Ophthalmology
- Orthopedic Biomechanics
- Surgical Specialties
- Translational Biomaterials

Master of Science (MS)

Our MS program is offered to students with a bachelor's degree in engineering or life sciences. Students typically complete the degree in one to two years.

MS degree requirements

Core coursework (21 hours)
 Elective coursework (3-6 hours)
 Thesis or project* (3-6 hours)
 Total: 30 hours

RESEARCH TRACKS

BASIC RESEARCH

Students will emphasize traditional research with a focus on scientific discovery. Basic research is best for students interested in pursuing research careers in academia or industry.

TRANSLATIONAL BIOENGINEERING

Students will work on projects that bridge the gap between clinical and laboratory settings. This track is best for students interested in academic and industry research as well as

students interested in careers at regulatory agencies such as the FDA.

ENTREPRENEURSHIP

Students will choose their electives from the Business School's Certificate in Entrepreneurship curriculum. Entrepreneurship is best for students interested in start-up biomedical technology. All aspects of the process required to commercialize a novel biomedical technology, device or application may be studied.

Doctor of Philosophy

Our PhD program is offered to students with a bachelor or master's degree in engineering or life sciences. Students typically complete the degree in five to seven years.

PhD degree requirements

Year 1: Core coursework (21 credit hours); begin research; preliminary exam.
 Year 2: Elective coursework (15 credit hours); finalize research mentor; comprehensive exam.
 Year 3+: Dissertation research.*

*Students may work with industry partners.

Dual Degree Programs

Students can earn a dual MS-MBA in collaboration with the CU Denver Business School, or a dual MD-MS or MD-PhD in collaboration with the CU School

of Medicine. Please contact the bioengineering graduate program manager for more details.

Core Coursework

LIFE SCIENCES CORE (6 credit hours)

BIOE 5010	Cell & Molec. Biology for Bioengineers
-----------	--

CHOOSE ONE:

BIOE 5011	Systems Physiology for Bioengineering
-----------	---------------------------------------

BIOE 5073	Neural Interfaces & Bionic Limbs
-----------	----------------------------------

CANB 7600	Cancer Biology
-----------	----------------

NRSC 7600	Cellular and Molecular Biology
-----------	--------------------------------

NRSC 7610	Fund. of Neuroscience
-----------	-----------------------

QUANTITATIVE METHODS CORE (6 credit hours)

BIOE 5020	Analytic Methods for Eng. Analysis
-----------	------------------------------------

BIOE 5021	Numerical Methods for Eng. Analysis
-----------	-------------------------------------

TECHNOLOGY CORE (6 credit hours)

Choose six credits from courses such as:

BIOE 5053	Optics & Microscopy in Biomedical Research
-----------	--

BIOE 5063	3D Modeling for Bioengineers
-----------	------------------------------

BIOE 5064	Adv. MatLab for Bioengineers & Life Scientists
-----------	--

BIOE 5065	Intro. to iOS Applications
-----------	----------------------------

BIOE 5068	Imaging for Bioengineering
-----------	----------------------------

BIOE 5069	Adv. Biomechanics
-----------	-------------------

BIOE 5073	Neural Interfaces & Bionic Limbs
-----------	----------------------------------

BIOE 5083	Polymers in Biomedical Applications
-----------	-------------------------------------

BIOE 5420	Special Topics in Bioengineering: choose from three
-----------	---

RESEARCH & CLINICAL CORE (3 credit hours)

BIOE 5040	Research Methods for Bioengineers
-----------	-----------------------------------

BIOE 5041	Clinical Experiences for Bioengineers
-----------	---------------------------------------

ADMISSIONS REQUIREMENTS**

Prior GPA in most recent degree of 3.0 (B) or higher

Completion of a bachelor's degree in engineering from an accredited United States institution or comparable international institution, **or**,

Completion of a bachelor's degree in a Bioscience-related field with:

- three semesters of calculus
- one semester of differential equations and linear algebra
- one semester of statistics
- one semester of mechanics
- one semester of circuits
- one semester of computer programming (i.e. MatLab)

Students with a life science undergraduate degree who do not meet the eligible math, engineering, or computer programming coursework, please check in with us about taking these courses while or before submitting your application.

Students may be admitted to our program with the provision that they take any missing courses at CU Denver in addition to the required courses for our program.

GRE preferred minimum scores: 156 verbal, 160 quantitative, 4.5 analytical

TOEFL preferred minimum scores: 213 CBT/550 PBT/79 iBT

DEADLINES

PhD Program: December 1

MS Program:
 Priority Deadline February 1
 Final Deadline March 15

International students: Please apply as soon as possible, and no later than January 15 for the MS program

**Please visit ucdenver.edu/bioengineering for full details on the application process.

303.724.9972

ucdenver.edu/bioengineering

bioengineering@ucdenver.edu