BIOMEDICAL SCIENCE (CERTIFICATE)

Overview

The one-year Graduate Certificate Program in Biomedical Sciences (BiSC) is composed of 12 graduate credits that will have to be earned through four required courses plus two elective credits. The courses cover topics in the biomedical sciences, statistics, R programming, plus an elective science course. Furthermore, students will be required to attend a course on Case Studies in Responsible Conduct of Research.

These courses are an integral part of the Master's Program in Biomedical Sciences and Biotechnology; therefore, if a graduate certificate student would later like to enter the Master's Program in Biomedical Sciences and Biotechnology, all certificate credits can be transferred into that program.

Admissions Requirements

- A bachelor's degree with a minimum GPA of 3.0
- Complete transcripts of undergraduate work and any previous graduate work
- A completed application to Graduate Studies
- Two academic letters of recommendation
- Prior training in biochemistry, molecular biology and genetics

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Personal Statement: A one-page personal statement describing the applicant's career goals and purpose for studying biomedical sciences and biotechnology
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Personal statement.
  - Three recommendation letters from people who know your professional, academic and/or personal achievements or qualities well.
- Application Fee: A nonrefundable application fee of $75.00 (U.S. dollars). Checks or money orders should be made payable to the University of Colorado.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:
  - Electronic Transcripts should be sent to: graduate.school@cuanschutz.edu (preferred)
  - If sending a physical transcript, please mail to:

University of Colorado Anschutz Medical Campus
Graduate School
Mail Stop C296
Fitzsimons Building, C5000
13001 E. 17th Place
Aurora, CO 80045

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

Certificate Requirements

Code	Title	Hours
BSBT 6072	Foundations in Biochemistry	1.5
BSBT 6073	Foundations in Molecular Biology	1.5
BSBT 6074	Foundations in Cell Biology	1.5
BSBT 6075	Foundations in Genetics	1.5
The above 4 courses are taught sequentially one after the other, and students should enroll in all 4 courses in the Fall semester.		
BSBT 6065	Case Studies in Responsible Conduct of Research	1
BSBT 6067	Statistics for Biomedical Sciences	2
BSBT 6071	Introduction to R Programming	1
Science Elective (from selected list) [Any semester]		2
Total Hours		**12**

Electives

Code	Title	Hours
BMSC 7810	Core Topics in Biomedical Science (Select from approved topics)	2
BIOL 6764	Biological Data Analysis	4
BIOE 5074	Introduction to Laboratory Animal Research	3
CANB 7610	Pathobiology of Cancer Mini-Course	1
CANB 7620	Histophysiology	3
CSDV 7605	Stem Cells and Development: An Integrated Approach	3-4
EPID 6630	Epidemiology	3
HMGP 7600	Survey of Human Genetics	3-4
NRSC 7610	Fundamentals of Neurobiology	3
PHSC 7345	Nanotechnology & Drug Delivery	2
PHSC 7651	Pharmaceutical Biotechnology	3
STBB 7609	Biophysics & Spectroscopy	1.5
TXCL 7751	Neurotoxicology	2
BIOL 5144	Medical Microbiology	3

Learning Objectives

Upon successful completion of their studies, students enrolled in the Biomedical Sciences Graduate Certificate program will be able to:

1. Apply principles of experimental design and problem solving in four focus areas of biomedical sciences.
2. Employ basic tools of R programming.
3. Classify data and use statistical tools to test hypotheses.
4. Recognize and manage ethical challenges related to the responsible conduct of research.

Courses

BSBT 6065 - Case Studies in Responsible Conduct of Research (1 Credit)
Anyone conducting research using federal funding must study RCR. You'll learn expectations and regulations that permeate science. You'll understand consequences of violations to individuals and society. We'll explore misconduct through interactive video, written and video case studies, and other engaging activities.
Grading Basis: Letter Grade
Typically Offered: Fall, Spring, Summer.

BSBT 6067 - Statistics for Biomedical Sciences (2 Credits)
Learn how and when to apply statistical procedures to answer scientific questions relevant to biomedicine, and how to critically assess statistical data for validity.
Grading Basis: Letter Grade
Typically Offered: Fall, Spring, Summer.

BSBT 6071 - Introduction to R Programming (1 Credit)
Introduction to the statistical programming language R geared primarily to biomedical science students with little to no previous programming experience. Basic features of R as a programming language and as scientific computing platform. Basics of data cleaning, visualization, and analysis.
Grading Basis: Letter Grade
Typically Offered: Spring.

BSBT 6072 - Foundations in Biochemistry (1.5 Credits)
This short course provides a condensed and fast-paced overview of the fundamentals in biochemistry including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.
Grading Basis: Letter Grade
Typically Offered: Fall.

BSBT 6073 - Foundations in Molecular Biology (1.5 Credits)
This short course provides a condensed and fast-paced overview of the fundamentals in molecular biology including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.
Grading Basis: Letter Grade
Typically Offered: Fall.

BSBT 6074 - Foundations in Cell Biology (1.5 Credits)
This short course provides a condensed and fast-paced overview of the fundamentals in cell biology including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.
Grading Basis: Letter Grade
Typically Offered: Fall.

BSBT 6075 - Foundations in Genetics (1.5 Credits)
This short course provides a condensed and fast-paced overview of the fundamentals in genetics including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.
Grading Basis: Letter Grade
Typically Offered: Fall.

Policies

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

Contact Us

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