

# BIOMEDICAL SCIENCES AND BIOTECHNOLOGY (BSBT)

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## BSBT 6060 - Special Topics in Biomedical Science & Biotech (1-3 Credits)

Special topics of interest to graduate students in the biomedical sciences and biotechnology fields.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

Typically Offered: Fall, Spring, Summer.

## BSBT 6061 - Project Management (2 Credits)

Provides training in initiating, executing & closing a project, including the management of scope, time, cost, human resources, communication, risk and more. Highly interactive intensive course prepares students for Certified Project Management exam (internationally recognized certification). Taught by Project Management Professional.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

## BSBT 6062 - Principles & Strategies of Effective Teaching (1 Credit)

Introduces students to research-based, student-centered pedagogies and instructional design techniques. Encourages students to view teaching as an intellectual endeavor. Learn about useful resources for future teaching and formally document pedagogical knowledge and skills for employability. Intensive 1-credit course.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

## BSBT 6063 - Speaking & Presenting for Scientists & Educators (1 Credit)

Science Communication in the form of speeches and presentations is essential to the research endeavor. The course will increase your effectiveness to deliver scientific, medical, or educational presentations in an audience-centered and impactful way; to respond to audience questions; and to facilitate audience engagement & discussion.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

## BSBT 6064 - Scientific Writing (1 Credit)

Taught by a biomedical researcher and a professional writing instructor, this 15-hour (3-week) course focuses on developing a framework for successful scientific writing practices, including how to effectively structure arguments, how to write grant proposals and more.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

## 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 6066 - Independent Study (1-3 Credits)

The Course BSBT 6066, Independent Study, with allow graduate students to explore independently new avenues and opportunities that complement their education and training in a way that is otherwise not offered in required or elective courses of the BSBT Program. Enrollment with permission only. Requisite: With permission only

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring.

## 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 6068 - Laboratory Research in Structural Biology (1-6 Credits)

The Course BSBT 6068, Laboratory Research, with allow graduate students to engage in laboratory research training in the biomedical sciences with focus on structural biology.

Grading Basis: Letter Grade

Repeatable. Max Credits: 15.

Typically Offered: Fall, Spring, Summer.

## BSBT 6069 - Laboratory Research in Immunology and Microbiology (1-6 Credits)

The Course BSBT 6069, Laboratory Research, with allow graduate students to engage in laboratory research training in the biomedical sciences with focus on immunology and microbiology.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

## BSBT 6070 - Mini-Research Rotations (1-3 Credits)

The Course BSBT 6070, Mini-Research Rotations, with allow graduate students to learn in three different laboratories about research in immunology and microbiology.

Grading Basis: Letter Grade with IP

Typically Offered: Fall, Spring.

## 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.

**BSBT 6076 - Research Explorations (1 Credit)**

This course allows for exploration of SBB research labs in a "mini-rotation" format, through meeting faculty, reading literature and participating in lab group meetings and research in order to choose a research lab and prepare a short research proposal.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**BSBT 6078 - Seminar in Immunology and Microbiology (1 Credit)**

This course provides students in the Bioinformatics in Immunology/Microbiology program an integration of didactic knowledge with research approaches to outstanding questions in the field. Students will attend department weekly seminar followed by structured discussion.

Prerequisites - IDPT 7810 & IMMU 7630

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**BSBT 6079 - Leadership in a Global Environment (3 Credits)**

The Leadership in a Global Environment course seeks to offer students a foundation for understanding the intricate and complex relationship between language, culture, communicative practices, and the role we play as individuals in the globalized work environment of today. In particular, this course is geared to emerging and developing global leaders. Today's leaders must be incredibly versatile. In fact, the entire management team needs to be able to link their industry science with value in the marketplace and tell a compelling story about what makes not just the innovation but also the company itself, special. Sometimes investors are very focused on the science of the products, and sometimes on the finance, so company leaders have to be prepared to talk about either or both. Today's leaders must be transversal: highly strategic and operational while able to understand and connect clinical, market access, commercial, finance, and strategy. The Leadership in a Global Environment course seeks to offer students a foundation for understanding the intricate and complex relationship between language, culture, communicative practices, and the role we play as individuals in the globalized work environment of today. In particular, this course is geared to emerging and developing global leaders. Today's leaders must be incredibly versatile. In fact, the entire management team needs to be able to link their industry science with value in the marketplace and tell a compelling story about what makes not just the innovation but also the company itself, special. Sometimes investors are very focused on the science of the products, and sometimes on the finance, so company leaders have to be prepared to talk about either or both. Today's leaders must be transversal: highly strategic and operational while able to understand and connect clinical, market access, commercial, finance, and strategy.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6110 - Introduction to Biocomputing (3 Credits)**

This course provides students with hands on experience in basic computation, database, and programming skills set as a pre-requisite for a higher level data analysis course. The students will use example in the context of biomedical and genomic data set. Prerequisite: Undergraduate degree in science, technology, business, engineering or math.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**BSBT 6111 - Introduction to Biomedical Data Practices (2 Credits)**

This course provides students with advance knowledge and topics in every aspects of data science.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**BSBT 6112 - Introduction to Biocomputing (2 Credits)**

This course provides students with hands on experience in basic computation, database, and programming skills set as a pre-requisite for a higher level data analysis course. The students will use example in the context of biomedical and genomic dataset. Requisite: Must be simultaneously enrolled in BSBT 6113.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6113 - Data Science with R (1 Credit)**

In this 4 weeks semi-independent study course, you will learn how to use the “tidyverse” programming paradigm to perform data science operation using the programming language R. At the end of the course, you will learn the basic understanding of the fundamental elements of data science, including; wrangling, exploration, visualization and modeling.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6310 - Practical Clinical Research Informatics (3 Credits)**

This course provides students with hands on experience in clinical research informatics involving secondary use of electronic health record (EHR) data, clinical informatics databases, and basic clinical data science as preparation for more advanced informatics or data science coursework. Requisite: 008754 A-GRAD

Grading Basis: Letter Grade

Typically Offered: Spring.

**BSBT 6801 - Biomedical Entrepreneurship (3 Credits)**

The course addresses the essential elements of bioscience and health innovation and entrepreneurship. Prerequisites: An undergraduate degree in science, technology, business, engineering or math. Cross-listed with ENTP 6801

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**BSBT 6802 - Reg Env of Life Science Innovation - Drug Discovery (1.5 Credits)**

This course is designed to familiarize biomedical scientists and those interested in the business of science with the fundamentals of U.S. and international regulatory affairs regarding drug development. Focus is the development of products, such as drugs, devices, diagnostic tests, and health information software, to receive U.S. and international regulatory clearance or approval for commercialization.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**BSBT 6804 - Bioinnovation Regulations (3 Credits)**

This course is designed to familiarize biomedical scientists and those interested in the business of science with the fundamentals of U.S. and international regulatory affairs regarding drug discovery and medical devices. Focus is the development of products, such as drugs, devices, diagnostic tests, and health information software, to receive U.S. and international regulatory clearance or approval for commercialization.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6939 - Internship - Technology and Innovation (3-6 Credits)**

The internship provides hands-on learning opportunities for graduate students in institutions related to technology/biotechnology, computer science, engineering, innovation and entrepreneurship. Requisite: (Formerly IDPT 6939) Enrollment with permission only, contact [inge.wefes@ucdenver.edu](mailto:inge.wefes@ucdenver.edu). Instructor Consent required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**BSBT 6950 - Laboratory Thesis Research (1-6 Credits)**

Laboratory Thesis Research with allow graduate students to engage in laboratory research training in the biomedical science.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**BSBT 7646 - Tissue Biology and Disease Mechanism (1 Credit)**

This course provides an overview of organ systems and through 1) a survey of the major systems, including the cellular and molecular mechanisms underlying their function and repair, integrated with 2) common diseases, current therapies, and their mechanistic basis. Prereq: IDPT 7811, 7812, 7813, 7814, 7815 (BIOM Sci Core Courses).

Grading Basis: Letter Grade

Typically Offered: Fall.