Undergraduate Program Handbook
2018 - 2019

The year of this guide corresponds to the year of regular entry into the program as a BS-Bioengineering Major on the Anschutz Medical Campus (the year in which a student enters full major status). This date is also the “catalog year” for the student’s major.

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This handbook does not constitute a contract, either expressed or implied, with the Bachelor of Science in Bioengineering Program or the University of Colorado Denver, College of Engineering and Applied Sciences, and the University reserves the right at any time to change, delete or add to any of the provisions at its sole discretion. Furthermore, the provisions of this document are designed by the University to serve as guidelines rather than absolute rules, and exceptions may be made on the basis of particular circumstances. August 2018.
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How to use this Handbook

This document is intended to provide information, policies, and procedures for students enrolled in the Bioengineering Undergraduate Degree Program at the at the College of Engineering and Applied Sciences (CEAS), and the University of Colorado Denver | Anschutz and the CU School of Medicine. It is recommended that students interested in pursuing the BS-Bioengineering (BS-BIOE) degree meet with the Undergraduate Program Manager for advising.

A copy of the Undergraduate Handbook is provided to each student as they enter the BS-BIOE Major on the Anschutz Medical Campus (AMC) and it is also available on the Department of Bioengineering Website (ucdenver.edu/bioengineering). Students are responsible for reading, understanding, and complying with the policies covered in this document. Students are expected to be familiar with and abide by the practices and policies outlined herein.

A revised copy of this document is provided annually to all enrolled students. The Department of Bioengineering, with consultation from other University staff and administration, will address issues not explicitly covered in this document as needed.

The University of Colorado Denver | Anschutz, the College of Engineering and Applied Sciences, and the BS-BIOE program reserve the right to revise information, requirements, policies, rules, and regulations at any time. Whenever changes occur, every effort will be made to notify students who may be impacted.

Important Acronyms

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<th>Acronym</th>
<th>Description</th>
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<tr>
<td>AMC</td>
<td>Anschutz Medical Campus</td>
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<td>AY</td>
<td>Academic Year</td>
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<td>BIOE</td>
<td>Bioengineering</td>
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<td>BS</td>
<td>Bachelor of Science</td>
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<td>DC</td>
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Forms and Policy Documents

Throughout this document you will be directed to forms required to meet the intended outcomes. All forms are available online and from the Bioengineering Undergraduate Program Manager.

What is Bioengineering?

Bioengineering is a highly interdisciplinary field that combines the mathematical and physical sciences with engineering principles to study biology, physiology, medicine, behavior and health. Bioengineering is emerging as the leading discipline at the interface of clinical sciences, basic research, and engineering and maintains focus on catalyzing technology to cure and prevent disease.

The undergraduate program at the University of Colorado Denver | Anschutz Medical Campus emphasizes the professional competencies of *leadership, communication, presentation and critical problem solving*. In this program students will have the opportunity to learn:

- how to design new medical devices and technologies.
- how the body responds to implanted medical devices.
- how to generate solutions for current clinical and research problems using engineering principles.
- how to discuss and present their research and design to a variety of audiences.
- how to convey these results in a precise clinical, academic, or entrepreneurial context.
Program Description

The Department of Bioengineering at CU is the only state university offering a stand-alone degree in Bioengineering. If you choose to study the discipline of bioengineering, it may be because you want to improve human health through the application of engineering principles, ideas, methods, and inventions in order to solve important clinical problems.

The program’s dual-campus model, with locations on both the Downtown Denver Campus (DC) and the Anschutz Medical Campus (AMC) provides unprecedented instructional resources in bioengineering and research opportunities in health sciences. Students will have the opportunity to learn from clinicians and engineers on both campuses and perform research and/or medical device design in world-class teaching hospitals (UCHealth, Children’s Hospital Colorado, National Jewish) and clinical research labs funded by the National Institute of Health, the National Science Foundation, and others.

Student Learning Goals

The BS-BIOE degree and CU Denver | Anschutz will prepare students for careers in the biomedical industry, hospital, government, academic research labs, regulatory agencies, and for further education in graduate school or advanced health science programs. The BS-BIOE curriculum is designed so that students planning to apply to medical school can fulfill pre-med requirements with few additional courses.

The program’s student learning goals are derived from the “Criteria for Accrediting Engineering Programs, 2016-2017” established by the Accreditation Board for Engineering and Technology (ABET) http://www.abet.org. Our program documents the eleven student outcomes that define what students should know and be able to do by the time they graduate and we have passed ABET accreditation. Below is a description of the outcomes you will gain through your BS-BIOE training at CU Denver | Anschutz:

(a) an ability to apply knowledge of mathematics, science, and engineering

(b) an ability to design and conduct experiments, as well as to analyze and interpret data

(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) an ability to function on multidisciplinary teams

(e) an ability to identify, formulate, and solve engineering problems

(f) an understanding of professional and ethical responsibility

(g) an ability to communicate effectively

(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) a recognition of the need for, and an ability to engage in life-long learning

(j) a knowledge of contemporary issues

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Students achieve all learning goals accumulatively and repeatedly as they progress through BS-BIOE program curricula. By experiencing a genuine, reiterative progression from basic proficiency in the pre-major portion of study, to advanced proficiency in the upper-division major courses, graduates will demonstrate a broad range of understanding in mathematics, life science, and engineering, as well as the specific mastery of bioengineering competencies.

**Fundamentals of Engineering Exam**

Licensure is not required to work in the field of bioengineering, but some students may want to demonstrate a standardized competency to prospective employers. The process for licensure begins with taking the Fundamentals of Engineering exam (FE) and graduating from an ABET accredited engineering program. The FE exam consists of two parts, the morning exam which is the same for everyone and the afternoon specialized exam where the student selects the Chemical, Civil, Electrical, Environmental, Industrial, Mechanical, or the Other Disciplines (formerly the General) exam. Biomedical Engineering students will be most qualified to take the Other Disciplines exam, but you can take the one of your choosing. Students interested in taking the Fundamentals of Engineering Exam may want to consider registering for relevant review coursework through the College of Engineering Extension Program (CEEP).

**One Department – Two Campuses**

The BS-BIOE offers a unique dual-campus training model. As bioengineering pre-majors (PRBE) students will complete their pre-major coursework on the vibrant Downtown Denver Campus before progressing to the major. Once a student transitions into full major status their training will continue at the renowned Anschutz Medical Campus.

The Department of Bioengineering is housed in Bioscience 2. This state of the art facility offers specialized teaching spaces including a Biomechanics and Bioinstrumentation Lab, a Biophotonics Lab, a Design and Prototyping Lab, a Light Machine Shop, a Biomaterials with Cell/Tissue Culture Lab, and a Clinical Simulation and Assistive Technology suite. The building also offers students several community spaces to meet, collaborate, study, and socialize.

The combination of technical learning, immersive experiences in the clinical and biomedical enterprise beyond the classroom, and out-of-classroom opportunities to learn about cutting-edge patient care and research, is provided by only a handful of universities across the United States. CU Denver |Anschutz is the only place in Colorado to receive such unique training and a standalone bachelor’s degree in Bioengineering.

**Expectations**

The Bioengineering program strives to create an atmosphere that is respectful and inclusive, with an emphasis on student growth and learning. To create such an environment, it is critical that all members of the bioengineering community and degree program understand and aim to meet clearly defined expectations.

**Faculty and Staff**

All faculty and staff have open-door policies and will communicate office hours. Students unable to meet with departmental representatives during scheduled office hours are encouraged to contact the representative directly to make alternate arrangements. Scheduling a one-on-one meeting is highly recommended to ensure that appropriate time and consideration is given to students’ questions and concerns.
**Students**

The University’s Student Code of Conduct binds all University of Colorado Denver | Anschutz students. In addition, the Department of Bioengineering expects students to conduct themselves with integrity and professionalism in academics, research, service and outreach. Mutual respect and understanding is critical as students regularly work in a collaborative team environment.

Regular class attendance and participation is expected, along with classroom engagement and open lines of communication. The Department of Bioengineering hosts several on-campus and off-campus events and we expect our students to maintain a high degree of professionalism in learning, research settings, and when they interact with peers/faculty/staff/patients. Students are expected to become an active part of the bioengineering community by participating in out-of-classroom activities and events. These include research and internship opportunities as well as department and college-wide events.

Students who have issues or concerns regarding a class, faculty, staff or another student in the program may address such concerns with the persons involved. If an issue cannot be resolved and/or such an approach is inappropriate or uncomfortable, students may also contact the Undergraduate Program Manager, the Department Chair, or a representative on the Bioengineering Undergraduate Affairs Committee (BUAC) for assistance.

**Email**

Email is the official platform for communication at the university. *Students must use their CU Denver email address for all correspondence with university officials including faculty, staff, and administration.* Students can expect department faculty and staff to respond to email within 2-3 working days, after which they are encouraged to send a respectful reminder.

**Time Commitment**

Bioengineering is a rigorous academic program. Previous students report that a full course load results in 40+ hours of class, homework, and study time each week. In addition, many students regularly seek the support of the Learning Resources Center, tutors, and academic mentors throughout the semester. More information regarding the Learning Resources Center can be found at: [www.ucdenver.edu/life/services/LRC](http://www.ucdenver.edu/life/services/LRC). Students are strongly encouraged to develop course specific study groups and space is available on both the DC and AMC campuses.

Students are encouraged to consider the academic rigor of the program when scheduling off-campus activities such as work, family and personal obligations and keep in mind the majority of the major specific courses will only be taught on the AMC campus, during regular business hours, during the traditional academic year (fall and spring terms).

**Tuition and Funding**

**Bioengineering Tuition and Student Fees**

Bioengineering pre-majors (PRBE) will pay downtown Denver tuition and appropriate Auraria (DC) fees. Unless you participate in undergraduate research or clinical experiences as a PRBE, this portion of your training does not require health insurance coverage or proof of immunization.

Once students transition to the AMC they continue to pay downtown tuition but they are required to pay AMC student fees. When students move into the AMC portion of their training they are required to carry medical insurance, either their own private insurance or through the Student Health Insurance Office. Once on the medical campus, Bioengineering majors (BIOE-BS) must meet the medical campus’ health insurance
requirement. Please note that if you carry private health insurance you must waive enrollment in the Student Health Insurance Plan. Rates and coverage details for the Student Health Insurance Plan can be found at [www.ucdenver.edu/life/services/student-health](http://www.ucdenver.edu/life/services/student-health) or on the AMC campus in Education II, North Room #3213, phone 303-724-7674, CUAnschutzStudentInsurance@ucdenver.edu.

**Medical Services and Health Education**

The university provides medical and mental health services and health education to students, faculty and staff at an affordable cost, outside of the AMC Student Health Insurance Plan. Students are encouraged to explore [www.ucdenver.edu/life/Pages/Health-and-Well-being](http://www.ucdenver.edu/life/Pages/Health-and-Well-being) for more information about the services available (please note that these services are on the Denver Campus and bioengineering students are considered “Denver Campus Students” even when they are in their junior and senior years on the AMC campus). For more information regarding the CU Denver Downtown Counseling Center, please go to [www.ucdenver.edu/life/services/counseling-center](http://www.ucdenver.edu/life/services/counseling-center).

**Scholarships**

The Scholarship Resources Office provides information about scholarships and offers guidance in the scholarship application process. Students may visit the Scholarship Resources Office located in the Academic Building on the Downtown Campus or at [www.ucdenver.edu/student-services/Scholarships](http://www.ucdenver.edu/student-services/Scholarships).

**PRBE Admission (DC) and the transition to the BS-BIOE (AMC)**

Successful completion of the PRBE requirements on the Downtown Denver Campus will lead to the successful transition to the BS-BIOE Major on the Anschutz Medical Campus. There is no direct admission directly into the BS-BIOE portion of training. When applying to the University of Colorado Denver | Anschutz, prospective applicants should select PRBE-pre-bioengineering as their program. Our students enter the PRBE portion of their training through the following pathways:

- through acceptance to the College of Engineering and Applied Science at the time of admission, as new Freshman or transfer students from another institution.
- by the Intra-University Transfer (IUT) process from another college or school at CU Denver.
- by a Change of Major from another discipline in CEAS.

More details about each of these processes and related procedures can be found below.

**Admission to the University of Colorado Denver**

The University of Colorado Denver's Office of Admissions will receive and review new applications to the College of Engineering and Applied Science, including those who indicate an interest in the bioengineering pre-major. Successful applicants will present a HEAR or MAPS Index Score of 103 or higher (for example a 3.0 GPA with a 24 composite ACT score or 1150 SAT score).

More information about admissions to CU Denver, including the admission requirements for both high school and transfer applicants can be found at [www.ucdenver.edu/admissions](http://www.ucdenver.edu/admissions). Prospective international students should contact the Office of International Affairs at [www.ucdenver.edu/academics/InternationalPrograms/OIA/admissions](http://www.ucdenver.edu/academics/InternationalPrograms/OIA/admissions).

The Office of Admissions will make admit-deny decisions for PRBE applicants. Please contact the Bioengineering Undergraduate Program Manager to discuss your qualifications for this program. Students who successfully complete the PRBE portion of their training will progress to the BS-BIOE and Anschutz after a secondary, internal application is submitted in the spring of their sophomore year. Admission to CU Denver's CEAS pre-bioengineering does not guarantee that a student will successfully progress to the BS-BIOE portion of the program. Application to the BS-BIOE at Anschutz and eligibility requirements can be
found in the *Major Status in the BS-BIOE in Bioengineering* section of this document. Eligibility requirements are subject to change and pre-majors are bound by the major application guidelines established the year they apply.

**Intra-University Transfer**

Students in other schools or colleges at the University of Colorado Denver may not enroll in *BIOE 1010, 1020, 2010 or 2020* until they have been admitted to the College of Engineering and Applied Science as a bioengineering pre-major (PRBE).

CU Denver students interested in a BS-BIOE in Bioengineering, but not actively enrolled as a CEAS student must request an intra-university transfer (IUT). The IUT process provides the Department of Bioengineering a means for assessing a CU Denver student’s likelihood of success in advanced math, science and engineering coursework.

To enter the bioengineering pre-major through the IUT process, students must have earned:

- A 2.75 (or higher) cumulative CU Denver GPA
- A 2.5 (or higher) GPA in *Calculus I, Calculus II*, and *Calculus-based Physics I* and the corresponding Lab and no lower than a C- in any one of these courses.
- A C- or higher in all other bioengineering pre-major requirements taken prior to or at the time of the request.

**IUT Early Review Option**

Students with a 3.0 GPA, who have earned a B or better in Calculus I, may be considered for early admission to the Bioengineering Pre-major. Exceptions may also be made for students pursuing a second degree who have already earned significant credit in Math and Science.

Students who think they may qualify for the early review option may contact the Undergraduate Program Manager s for more information.

Those approved for an IUT will be entered into the PRBE program and must complete the PRBE coursework before applying for full major status. Admission to the PRBE does not guarantee admission to full-major status. The major application process and requirements will correspond with the guidelines established the year the student will transition to major status at AMC, not the year the IUT is requested.

All prospective students should contact the Undergraduate Program Manager to discuss the IUT process. Eligibility requirements for IUTs into pre-bioengineering are subject to change.

**Change of Major within the College of Engineering and Applied Science**

Students currently enrolled in another major within the College of Engineering and Applied Science, including those listed as undecided, may submit a Change of Major Form to the Undergraduate Program Manager. Only those requesting a change to PRBE will be considered, so that pre-bioengineering coursework is completed before transitioning to the BS-BIOE. In addition, students must have a 2.75 cumulative CU Denver GPA and no less than a C- in any PRBE course taken prior to or at the time of request.

Students with an approved Change of Major Form will enter into the PRBE portion of their training and must complete the PRBE coursework before applying for full major status. Admission to PRBE does not guarantee successful transition to the BS-BIOE on the Anschutz Medical Campus. The BS-BIOE application process and requirements will correspond with the guidelines established the year the student will transition to major status at AMC, not the year the Change of Major is requested.
Transfer Credit Evaluation

The Department of Bioengineering will adhere to the University of Colorado Denver’s policies and articulation agreements when reviewing transfer credit. Students transferring from a Colorado Community College may see the current Transfer Advising Plan at www.ucdenver.edu/admissions/Documents/ENGR.pdf. At present there are no courses taught in the Colorado Community College system that are equivalent to the PRBE courses (BIOE 1010, 1020, 2010, 2020). All required PRBE coursework must be completed at CU Denver.

Upon a student’s admission to CU Denver, the Registrar will review transcripts from other institutions for credit and initial course equivalencies. As credit is awarded and at the student’s request, the CU Denver home department may also review transfer credit for course equivalencies (for example the Biology department may review a Biology course). Students should speak with the Bioengineering Undergraduate Program Manager for additional information. The Bioengineering Undergraduate Affairs Committee (BUAC) will make final decisions regarding transfer credit applicability toward their degree.

The Department of Bioengineering will not automatically apply credit older than five years toward the PRBE and/or BS-BIOE requirements. Students receiving CU Denver credit and course equivalents for transfer courses older than five years (at the time of matriculation) may submit a Petition for Exception to Policy to the BUAC for further consideration. Please inquire with the Undergraduate Program Manager for more information.

Major Status in the BS-BIOE

Pre-major Status (PRBE)

All prospective students must select “Bioengineering Pre-major (PRBE)” as their intended program of study.

Students admitted as pre-majors and who have met any course pre-requisites are permitted to enroll in BIOE 1010, 1020, 2010 and 2020. Please note, BIOE 1010 and BIOE 2010 are offered in the fall semester, BIOE 1020 and BIOE 2020 are offered in the spring semester. Given the PRBE required coursework, all students, regardless of earned credit, should expect to graduate no sooner than six to eight academic (fall/spring) semesters from the time they enroll in BIOE 1010.

Students bringing the PRBE with substantial transfer credit may enroll in BIOE 1010 and BIOE 2010 concurrently, thereby reducing the time to complete PRBE coursework. This is not a viable option for many students, therefore it is important to meet with the Undergraduate Program Manager to determine the best pathway forward with PRBE coursework. Bioengineering third and fourth year courses (3000 and 4000-level) are only open to students who have successfully transitioned to the BS-BIOE portion of their training at Anschutz Medical Campus.
PRBE students are strongly encouraged to meet with the Undergraduate Program Manager one semester prior to enrollment to outline a course of study that will prepare them to successfully transition to the BS-BIOE training at the AMC.

**Major Status (BS-BIOE)**

Admission to the PRBE program does not guarantee successful transition to full-major status at Anschutz. Admission to the BS-BIOE is granted after successful completion of PRBE coursework and a supplemental application that is reviewed by the BUAC. The BUAC begins accepting applications to the major each spring. One semester of PRBE coursework may be in progress at the time of application and students with one pre-major course remaining after the completion of the spring semester may submit an application in the summer. In this situation the course must be taken during the summer semester and must meet grade requirements prior to approval of the transition to the major.

**Application for Admission to the Major – Fall 2019**

*The Department of Bioengineering will only accept applications in the spring term. Those not yet eligible to apply for major status in Spring or Summer 2019 must wait to apply the following year. Note that all requirements, including minimum grade and GPA requirements, are subject to change.*

The Fall 2019 application to the major will begin in Spring 2019. Successful transition to the BS-BIOE major status requires the following:

- No more than one semester of PRBE coursework in progress at the time of application
- Earned a 2.0 cumulative CU Denver GPA*
- Earned a C- or higher in all required PRBE coursework*

Eligible students should also be prepared to demonstrate their proficiency in PRBE competencies and be able to articulate their interest in specific bioengineering fields.

*Transfer GPAs will not be taken into consideration; however, individual grades will be reviewed if transferred courses are used toward the pre-major requirements.

*Repeated Courses and the Application to the Major: If students take a pre-major course more than once, the bioengineering faculty will consider the highest grade earned for the purpose of the major application. The University, however, considers all repeated courses (taken at CU Denver) when calculating the GPA.*

**BS-BIOE Requirements**

The BS-BIOE in Bioengineering will provide students a rigorous multi-disciplinary education through a curriculum that integrates the three foundational disciplines of bioengineering:

1. Biological, Chemical, and Physical Sciences
2. Engineering, Science, and Math
3. Clinical Medicine

Graduates of this program are expected to become leaders and innovators in the bioengineering profession.

A bachelor’s degree in bioengineering is granted upon successful completion of a minimum of 128 semester hours to include the following requirements:
Students are encouraged to track their progress using the Degree Audit (found via the CU Portal). Questions, concerns or discrepancies on the audit should be brought to the immediate attention of the Undergraduate Program Manager. Note that the Degree Audit is meant to serve as an advising tool. Requirements will be confirmed prior to degree conferral.

**CU Denver Core Curriculum Requirements**

The University of Colorado Denver faculty has established a core curriculum for undergraduate students. Bioengineering students must satisfy the College of Engineering and Applied Science’s **Core Curriculum Requirements** by taking **8 courses (24 credits) distinct from Math and Science**. These courses will be selected from the Intellectual Competencies, Knowledge, International Perspectives, and Cultural Diversity Areas found in the CU Denver Catalog at catalog.ucdenver.edu.

Though students are not required to have completed their CU Denver Core Curriculum requirements when applying for full major status, it is highly recommended that students satisfy the majority of these requirements prior to beginning upper-division coursework. At this time, CU Denver Core Curriculum courses are not taught at Anschutz Medical Campus.

**PRBE Requirements**

Students will complete all PRBE courses prior to progression to the BS-BIOE at Anschutz when they begin their upper-division coursework. Credit for some pre-major coursework may be achieved through Advanced Placement (AP) and International Baccalaureate (IB) coursework and exams or transferred from other institutions. However, it is important that students intending to use AP, IB or transfer credit toward these requirements speak with the Undergraduate Program Manager before moving forward. In some cases, it may be beneficial for students (i.e. those intending to apply to medical school) to re-take certain courses in the college setting. Additional information about how CU Denver awards credit for Advanced Placement (AP) and International Baccalaureate (IB) coursework can be found at: [http://catalog.ucdenver.edu/](http://catalog.ucdenver.edu/).

Though the required math, biology, chemistry and physics courses below are open to all CU Denver students who have met course pre-requisites, only those students admitted to the College of Engineering and Applied Science as bioengineering pre-majors (PRBE) may enroll in the bioengineering courses seen below. No exceptions are being made at this time.

**Mathematics (16 credit hours)**

- MATH 1401: Calculus I
- MATH 2411: Calculus II
- MATH 2421: Calculus III
- MATH 3195: Linear Algebra and Differential Equations
- *MATH 3191 (Applied Linear Algebra) AND MATH 3200 (Elementary Differential Equations) may substitute for MATH 3195.*
Biology (8 credit hours)*
BIOL 2051: General Biology I
BIOL 2071: General Biology Laboratory I
BIOL 2061: General Biology II
BIOL 2081: General Biology Laboratory II
*CU Denver’s Biology Honors Sequence may also be used toward these requirements. Please see the Biology department for placement information.

Chemistry (14 credit hours)*
CHEM 2031: General Chemistry I
CHEM 2038: General Chemistry Laboratory I
CHEM 2061: General Chemistry II
CHEM 2068: General Chemistry Laboratory II
CHEM 3411: Organic Chemistry I
CHEM 3418: Organic Chemistry Laboratory I
*CU Denver’s Chemistry Honors Sequence may also be used toward these requirements. Please see the Chemistry department for placement information.

Physics (10 credit hours)
PHYS 2311: General Physics I (calculus-based)
PHYS 2321: General Physics I Laboratory
PHYS 2331: General Physics II (calculus-based)
PHYS 2341: General Physics Laboratory II

Bioengineering (8 credit hours)
BIOE 1010: Bioengineering Prototyping and Design I
BIOE 1020: Bioengineering Prototyping and Design II
BIOE 2010: Introduction to Programming for Bioengineers
BIOE 2020: Introduction to Computational Methods for Bioengineers

Students applying for full-major status in Spring 2019 must have earned a C- or higher in all pre-major courses. Those not yet eligible to transition to major status when the supplemental application is required must refer to the Undergraduate Handbook for the year they will begin BS-BIOE coursework on Anschutz. Application requirements (including minimum grade and GPA requirements) are subject to change.

Pre-major Coursework (A sample plan)

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<td>MATH 1401</td>
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<td>BIOE 1010</td>
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The above plan is an example of how bioengineering pre-majors might complete their PRBE coursework. This sample plan is followed by only a few students but it can serve as a useful starting point for planning
your coursework. The best order of classes will depend on the individual needs of the student. Please review the following notes for additional considerations.

**Notes regarding the Sample Plan**

1. This plan only includes the bioengineering PRBE coursework. It does not include the CU Denver Core Curriculum or BS-BIOE upper division course requirements.

2. Though it is not required that students complete their CU Denver Core Curriculum requirements when applying to the major, it is highly recommended that the majority of the CU Denver Core Curriculum is completed prior to taking BIOE upper-division courses at the Anschutz Medical Campus. **CU Denver Core Curriculum courses are not offered at Anschutz.**

3. BIOE 1010 and 2010 are taught only in the Fall term. BIOE 1020 and 2020 are taught only in the Spring term.

4. Students may not register for MATH 1401 (Calculus I) without having first met the pre-requisite and/or taken a placement exam. Newly admitted students should reach out to the Undergraduate Program Manager to discuss math placement.

5. Students that do not place into Calculus I in the first semester will need to take math during the summer terms in order to transition to BS-BIOE status in a timely fashion.

6. Students desiring a lighter course-load are encouraged to take courses during the summer. Many of the math, science and CU Denver Core Curriculum courses are taught during the summer term.

7. Once students have successfully transitioned to the BS-BIOE portion of their training they will work with their faculty advisor and the Undergraduate Program Manager to design a plan to complete their degree.

**Upper-division BS-BIOE Requirements**

Students who successfully transition into the BS-BIOE portion of their training will take **36 credit hours of required upper-division coursework in BIOE.** These courses include:

- BIOE 3010: Bioinstrumentation
- BIOE 3020: Introduction to Biomechanical Analysis
- BIOE 3030: Introduction to Biomaterials
- BIOE 3040: Physiology for Bioengineering
- BIOE 3050: Cell and Molecular Bioengineering
- BIOE 3051: Cell and Molecular Bioengineering Lab
- BIOE 3060: Biostatistics
- BIOE 3070: Bioengineering Lab I
- BIOE 3071: Bioengineering Lab II
- BIOE 3090: Introduction to BioDesign
- BIOE 4035: BioDesign II
- BIOE 4045: BioDesign III

Upper-division courses will be taught at AMC and will culminate in a Senior Design Project.
Track Electives

In addition to the required upper-division courses, all BS-BIOE students must complete at least 12 Elective Course Credits. Elective Course credits shall be selected in accordance with established coursework for distinct Bioengineering Tracks. Each track offers students advanced understanding of specialized areas in bioengineering and students will complete a minimum of 12 credit hours in their selected Bioengineering Track. At least 6 of 12 required elective credits must be offered by the Department of Bioengineering and designated as upper-division (3000 or 4000-level course). The BUAC will review and approve the student’s proposed track selection prior to course registration.

BS/MS Program

Students interested in pursuing a Master’s degree in bioengineering may apply to the BS/MS program the spring semester before their senior year. The BS/MS program allows BS-BIOE students to take BIOE graduate courses to satisfy 6 of the required 12 elective credits for conferring their bachelor’s degree. These 6 credits will be applied to the student’s Master’s degree coursework thereby decreasing the time to complete a Master’s degree (30 credit hours).

To apply to the BS/MS program in bioengineering, students must have a minimum cumulative GPA of 3.2. The BS/MS applications are reviewed by the Department of Bioengineering Graduate Admissions Committee. Upon acceptance into the Master’s degree program students will work with both the Undergraduate Program Manager for matters related to completion of the BS-BIOE degree, as well as the Graduate Program Manager for matters related to matriculation into the Master’s degree program. For information related to MS-BIOE program requirements and the application process students are required to meet with both the Undergraduate Program Manager and the Graduate Program Manager.

Academic Policies

Pre-requisites

A pre-requisite is any course that must be completed prior to taking a subsequent course. CEAS requires that all students receive a C- or higher in engineering courses to progress to the next course. Students must repeat a pre-requisite course in which a grade of D+ or lower is earned before moving on to the subsequent course. If students do not receive a C- or higher in an engineering class on the second attempt, they must obtain written approval from their major department to enroll in the course for a third time.

Academic Performance

The Department of Bioengineering will adhere to University probation and suspension policies. Visit http://catalog.ucdenver.edu/content.php?catoid=22&navoid=5884 for more information regarding these policies.

Expectations of the bioengineering pre-major

In addition to remaining in good academic standing at the University of Colorado Denver, bioengineering pre-majors should receive no less than C- or above in all pre-major coursework and stay abreast of changing processes and guidelines for transitioning to the BS-BIO at Anschutz.

Students who (as a result of their grades) are not eligible to submit their supplemental application to the BS-BIOE portion of their training may wish to consult with the Undergraduate Program Manager regarding alternatives. Some students may need to extend their time of study to successfully complete this degree or an alternate baccalaureate degree.
**Expectations of the bioengineering major**

Once a student has successfully transitioned to the BS-BIOE portion of their academic career, we expect students to maintain a CU Denver cumulative GPA of a 2.0 and a 2.0 average GPA in all coursework. Although this is not a requirement for maintaining enrollment, it is a self-assessment to ascertain your preparedness in the discipline of bioengineering. Maintaining this standard as your minimum will position you well for consideration for internships and for paid/unpaid research opportunities.

**Attendance Regulations**

Successful work in CEAS is dependent upon regular attendance in all classes. Students should always refer to their course syllabi for individual instructors’ policies regarding attendance and missed work.

**Repeat and Withdrawal Policies**

Undergraduate students may not register for credit in a course in which they have already received a grade of C- or higher. An F grade in a required course necessitates subsequent satisfactory completion of the course. Students must repeat a prerequisite course to another required course in which a grade of D+ or lower was earned before moving on to the subsequent course. If students do not receive a C- or higher in an engineering class on the second attempt, they must obtain written approval from the BUAC to enroll for the course for the third time. Re-enrollment approval will be subject to the discretion of the CEAS, even if the BUAC approves. When a course is retaken because of a D or F grade, both grades will appear on the transcript and both will be averaged into the GPA.

**Academic Misconduct**

**Student Honor Code**

The Honor Code outlined below is the College of Engineering and Applied Science statement on academic integrity. The Code articulates the College’s expectations of its students and faculty in establishing and maintaining the highest standards in academic work.

**Honor Code Text**

The Honor Code of the College of Engineering and Applied Science is a statement of its students, individually and collectively:

- Students will not give or receive aid during examinations.
- Students will not use any prohibited electronic devices during examinations.
- Students will not give or receive unpermitted aid in class work, in the preparation of reports, or in any other work that is to be used by the instructor as the basis of grading.
- Students will uphold the spirit and letter of the Honor Code and they will take an active role to ensure that others uphold the Honor Code and if they observe violations of the Honor Code they must report violations to their Department Chair.
- The Faculty of the College will do its part to ensure its confidence in the honor of its students. Faculty must ensure that precautions are in place to prevent the forms of dishonesty mentioned above. Faculty will also avoid, as far as practical, academic procedures that create temptations to violate the Honor Code. Faculty alone has the right and obligation to set academic requirements. However, the students and faculty will work together to establish optimal conditions for honorable academic work.
Violations of the Honor Code
Examples of conduct that will be regarded as being in violation of the Honor Code include:
- Copying from another’s examination paper or allowing another to copy from one’s own paper.
- Plagiarism in any shape or form. Plagiarism is defined as the use, without giving reasonable and appropriate credit to or acknowledging the author or source, of another person’s original work, whether such work is made up of code, formulas, ideas, language, research, strategies, writing or other form(s).
- Giving or receiving unpermitted aid either in person or via electronic devices.
- Engaging in unauthorized collaboration on academic assignments or examinations.
- Representing as one’s own work the work of another.

Penalties for Violating the Honor Code
Most student disciplinary cases have involved Honor Code violations. Of these, most cases arise when a student submits another’s work as his or her own, gives or receives unpermitted aid, or engages in unauthorized collaboration. If a violation occurs during a quiz or on a homework assignment, the student will receive a zero for that quiz or assignment. If a violation occurs on an examination, the student will receive a failing grade for the course. The standard penalty for a first offense may include suspension from the College of Engineering and Applied Science for a severe infraction of the Honor Code. The penalty for a second violation will be expulsion from the College of Engineering and Applied Science.

It is the responsibility of the student to seek clarification from the instructor when in doubt about these guidelines.

College of Engineering and Applied Science Student Grievance Procedure

Introduction
The College of Engineering and Applied Science (CEAS) of the University of Colorado Denver Student Grievance Procedure is intended to provide a process for the resolution of disputes between students and faculty of the College, as well as procedures for handling student disciplinary matters. The following categories of disputes or disciplinary matters are provided for in the sections indicated below. Any question about these procedures should be directed to the Assistant Dean for Academic Program Development.

Procedure
The objective of this Student Grievance Policy and Procedure is to provide students with a mechanism to request a review of decisions and actions within the CEAS. There are a number of policies within the College and the University of Colorado Denver that address specific concerns and it is important that those matters are referred to the appropriate office or individual. For example, sexual harassment and gender or age discrimination are thoroughly addressed in the Equal Opportunity/Affirmative Action Policy, while other concerns may relate to the Academic Honor and Conduct Code or the Academic Progression policy. The Student Grievance Policy outlined below is designed to cover those issues that fall outside of existing policies in the College.

As part of their professional education, students sometimes must engage in and thus learn conflict resolution skills whenever they perceive a problem with a faculty member. These problems can be quite varied and range from a grade received or from the attitude of their instructors towards them. The first step for students in dealing with a perceived problem is to talk with the involved faculty member about the problem. The discussion should be done privately, for example, in the faculty member’s office or in some other agreed upon location. This dialogue, which should occur within 30 calendar days of the incident, may shed light on the issue or provide the student with an adequate rationale for the event involving the faculty member. This type of informal dialogue between the parties involved can often resolve the issue. If students are hesitant to bring an issue to the attention of a faculty member, the College recommends that the student...
ask their advisor to be present when meeting with the faculty member. The Ombuds Office, a University resource available to all members of the University community to provide impartial and confidential discussion for individuals seeking to review options for informal resolutions of differences, is available to assist with this step if requested by the student.

If the issue between the faculty member and student cannot be resolved, the student may escalate the issue to the Chair of the Department where the faculty member resides. The conflict resolution meeting between the student and the faculty member and the Department Chair should occur as expeditiously as possible, but no later than 30 calendar days after the initial meeting with the faculty member.

In the event that either party is unavailable to meet within the 30-day requirement, the Assistant Dean for Academic Program Development may be contacted by the Department Chair to facilitate the scheduling of the meeting. If the problem is resolved through informal discussion, no further action is required. If the student, faculty member and Chair do not resolve the problem presented, the student then may wish to file a formal grievance. A formal grievance consists of two steps: Step I is the Grievance/Formal Review Request and Step II consists of the Formal Resolution of the Grievance.

**STEP I: Statement of Grievance/Formal Review Request**
If the student and faculty member and Department Chair are unable to achieve a satisfactory resolution, the student may wish to initiate a formal review of the complaint. If that is the case, the student should complete the Grievance/Formal Review Request Form and submit it to the Assistant Dean for Academic Program Development in the Office of the Dean of CEAS.

The submission of a Grievance/Formal Request Form initiates the formal grievance process. The student shall submit the written request to the Assistant Dean for Academic Program Development to initiate a formal review. The statement must include the course name and catalog number, the student(s)/faculty involved, a summary stating the specific policies or procedures involved and the specific actions upon which the grievance is based. The College recommends that this summary be kept to one typewritten page. Supplemental materials relevant to the complaint may be attached to support the grievance.

Students may obtain the Grievance/Formal Request Form from the Office of the Dean of CEAS or from the Department in which the student is housed.

**STEP II: Formal Resolution of Grievance**
During the formal review process, all parties involved may have a peer colleague of their choice present with them if any meetings are called. While that colleague may not formally participate in the meetings, they may provide advice and support.

The written grievance must be submitted within 10 calendar days after the informal meeting between the student, faculty member and the Department Chair has occurred. The Assistant Dean for Academic Program Development will then form a faculty committee that will be composed of two faculty members chosen from the five academic departments within CEAS and the Assistant Dean for Academic Program Development. No faculty member from the grieved department shall serve on the Grievance Committee. The Assistant Dean or his/her designee and the Grievance Committee will conduct an appropriate investigation into the matter and take whatever steps are appropriate.

The Assistant Dean for Academic Program Development or his/her designee will issue a written statement of resolution within 10 calendar days of close of the investigation. The decision of the Assistant Dean for Academic Program Development shall be final.
Preparation for Graduation

To become eligible for a Bachelor of Science (BS-BIOE) in Bioengineering in CEAS a student, in addition to being in good standing in the university, must meet the following minimum requirements:

- **Courses:** The prescribed and elective BIOE, PRBE, and Core Curriculum credits must be satisfactorily completed.
- **Hours:** A minimum of 128 semester hours.
- **Hours in Residence:** At least 30 semester hours of course work applicable to a Bachelor of Science degree in engineering must be taken at CU Denver while a declared student in good standing at the College of Engineering and Applied Science. Students must be enrolled in the college for at least the final two semesters of the degree prior to graduation.
- **Transfer Credit:** All requests for consideration of transfer credit and its application toward a degree in Engineering and Applied Science must be submitted prior to the student’s last two semesters at the Denver campus.
- **Grade Point Average (GPA):**
  1. Students must maintain a minimum 2.0 cumulative GPA in all hours attempted at the University of Colorado (all campuses), AND
  2. Students must maintain a minimum 2.0 cumulative GPA in all hours attempted at the University of Colorado (all campuses) in engineering, math, physics, chemistry, and biology.
- **Faculty Recommendation:** The recommendation of the faculty of the department offering the degree and the approval of the faculty of the College of Engineering and Applied Science is required.
- **Incompletes and Correspondence Courses:** It is the student’s responsibility to ensure that all incompletes and correspondence courses are officially completed before the 10th week of the student’s final semester in school.
- **Simultaneous Conferring of Degrees:** For any double degree program, both bachelor’s degrees must be conferred at the same commencement.
- **Commencement Exercises:** Commencement exercises are held in December and May. A student finishing in August is encouraged to attend commencement the following December.
- **Applying for Graduation:** All undergraduate and graduate students who intend to graduate in a given semester must go online and complete the “Online Application to Graduate” form before the posted deadline. If a student applies to graduate in a given semester and for some reason fails to or chooses not to graduate in that semester, he/she must reapply by completing the form again.

Please note that completing the “Online Intent to Graduate” form online DOES NOT indicate to the college you automatically wish to graduate in a subsequent semester if you fail to graduate in the semester you originally applied for. Knowing and following the deadline to complete the “Online Intent to Graduate” form is solely the responsibility of the student and failure to follow the deadline will prevent a student from graduating.

In addition to the above requirement, all students in the College of Engineering and Applied Science must also meet with their department’s faculty advisor and the assistant dean of student affairs prior to the beginning of the semester in which they wish to apply for graduation to ensure all academic and administrative requirements are met. Failure to do so may interfere with a student’s ability to graduate.

Failure to understand and follow the policies, procedures, dates and deadlines of the CU Denver campus and the College of Engineering and Applied Science may result in your ability to graduate and is solely your responsibility.

Complete the Online Intent to Graduate form on the Registrar’s website: [www.ucdenver.edu/student-services/resources/Registrar-dev/PlanYourDegree/Pages/ApplyforGraduation](http://www.ucdenver.edu/student-services/resources/Registrar-dev/PlanYourDegree/Pages/ApplyforGraduation). Students that have questions about this process should contact the Undergraduate Program Manager.
• **Commencement Ceremony:** All bioengineering undergraduate students will take part in the commencement ceremony on the downtown campus alongside the rest of the College of Engineering and Applied Science students.

## Resources for Students

### The Office of Student Conduct and Community Standards

The Office of Student Conduct and Community Standards serves as a resource to the entire University community through its efforts to meet the developmental and educational needs of students related to community expectations, civility and respect for self and others. A list of resources can be obtained at the Tivoli Student Union, Suite #277 or at [http://www.ucdenver.edu/life/services/standards](http://www.ucdenver.edu/life/services/standards). University of Colorado Denver students must adhere to the Code of Student Conduct. The Code serves to outline student rights and responsibilities as well as behavioral expectations. The Code of Student Conduct can be found at the Office of Student Conduct and Community Standards.

### Police and Campus Safety

The University of Colorado Denver and the Anschutz Medical Campus is committed to the safety and security of our students, faculty, staff and visitors. Emergency personnel are available on both the downtown Denver Campus and Anschutz Medical Campus. Contact information is below.

**Denver Campus:**
Auraria Campus Police Department  
1201 5th Street, Auraria Campus Administration Building (1st floor)  
From Cell Phone: 303-556-5000  
From Campus Phone: 9-1-1

**The Phoenix Center of Auraria**
The Phoenix Center at Auraria (PCA) serves the Auraria Campus. The Center provides free and confidential resources and assistance to survivors of interpersonal violence and their friends and families. Visit [www.thepca.org](http://www.thepca.org) for more information.

**Anschutz Medical Campus:**
The University Police Department, Anschutz Medical Campus  
Building U-09, 12454 E. 19th Place.  
For an emergency, dial 911.  
For police dispatch and non-emergencies, dial 303-724-4444.

### Notice of Non-Discrimination

The University of Colorado Denver | Anschutz Medical Campus does not discriminate on the basis of race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy in admission and access to, and treatment and employment in, its educational programs and activities. The University takes affirmative action to increase ethnic, cultural, and gender diversity; to employ qualified disabled individuals; and to provide equal opportunity to all students and employees.

Students may report allegations of discrimination or harassment to the Office of Equity at [equity.ucdenver.edu](http://equity.ucdenver.edu)
**Title IX Notice of Non-Discrimination**

The University of Colorado does not discriminate on the basis of sex, gender or sexual orientation in its education programs or activities. Title IX of the Education Amendments of 1972, and certain other federal and state laws, prohibit discrimination on the basis of sex in all education programs and activities operated by the university (both on and off campus). Title IX protects all people regardless of their gender or gender identity from sex discrimination, which includes sexual harassment and sexual assault.

Title IX requires the university to designate a Title IX Coordinator to monitor and oversee overall Title IX compliance. Your campus Title IX Coordinator is available to explain and discuss: your right to file a criminal complaint; the university's complaint process, including the investigation process; how confidentiality is handled; available resources, both on and off campus; and other related matters.

Campus Title IX Information:
[equity.ucdenver.edu/sexual-misconduct-title-ix](equity.ucdenver.edu/sexual-misconduct-title-ix)
Phone: 303-315-2567
Email: equity@ucdenver.edu

**Title IX Office Locations:**

**Denver Campus**
Lawrence Street Center
1380 Lawrence Street, 12th floor
Denver, CO 80204

**Anschutz Medical Campus**
Education 2 North
13120 E. 19th Ave. Room 5221
Aurora, CO 80045

Additional information regarding Title IX and the University's notice of nondiscrimination is available at:
[equity.ucdenver.edu/sexual-misconduct-title-ix](equity.ucdenver.edu/sexual-misconduct-title-ix)

**Disability Resources**

It is the policy of the University and the Department of Bioengineering to provide reasonable accommodations to qualified students with a disability so they are able to meet their program requirements. Whether an accommodation is reasonable is determined by the University's Disability Resources and Services Office for eligibility and accommodation determinations. More information may be found on the Disability Resources and Services website located at: [www.ucdenver.edu/student-services/resources/disability-resources-services](www.ucdenver.edu/student-services/resources/disability-resources-services).

**The Department of Bioengineering**

The Department of Bioengineering's faculty and staff are committed to student success both in and out of the classroom and as such welcome student feedback.

**Bioengineering Undergraduate Affairs Committee**

The Bioengineering Undergraduate Affairs Committee (BUAC) is responsible for developing undergraduate procedures within the Department of Bioengineering. Students may speak with the undergraduate advisor regarding the BUAC's agenda.
Biomedical Engineering Society (BMES) Student Chapter

The CU Denver BMES Student Chapter strives to develop understanding and promote integration of bioengineering through discussion amongst students, faculty, and guest lecturers from industry and academia. More information about the University of Colorado Denver | Anschutz Medical Campus’ chapter can be found at www.ucdenver.edu/academics/colleges/Engineering/get-involved.

Student Services

The Department of Bioengineering is committed to providing excellent and personalized undergraduate advising and student support. The role of Student Services is to:

- Assist students in identifying their short and long-term academic and career goals and create an educational plan that supports those goals.
- Facilitate appropriate course selection and registration.
- Help students navigate the dual-campus environment and refer to appropriate resources as needed.
- Facilitate faculty, student, industry and community networking opportunities.
- Help students engage in department and university-wide undergraduate experiences that will enhance their in-classroom work.
- Create “high-impact” out-of-classroom activities to support student engagement and success.

In addition to working with Bioengineering Student Services, both PRBE and BS-BIOE students are encouraged to consult with faculty and academic mentors to develop academic and career plans that meet their personal goals.

Academic Mentoring

The Department of Bioengineering makes a concerted effort to ensure that the undergraduate student body has the support and guidance they need to reach their academic potential. To this end, the majority of undergraduate courses have accomplished Teaching Assistants who help faculty with grading and instruction and provide guidance and mentorship to enrolled students. In addition, mentoring opportunities exist in various labs and other settings. Students interested in identifying a student or faculty mentor are advised to speak with the Undergraduate Program Manager regarding their options.

Internships and Career Planning

The Department of Bioengineering strongly encourages students to participate in internships during their course of study. CU Denver’s Experiential Learning Center is available to support such efforts, offering students workshops and activities to prepare them for both the job search and ‘on the job’ experiences. In addition, the Department of Bioengineering is actively developing partnerships with local and national industry professionals, in an effort to create a network of internship and mentoring opportunities for undergraduates. Students interested in pursuing internships should begin a conversation with the Undergraduate Program Manager early in their college career.

Research Opportunities

Students interested in research experience should consider applying to the University of Colorado Denver’s Undergraduate Research Opportunity Program (UROP). Information about UROP can be found at www.ucdenver.edu/student-services/resources/ue/urca/Pages/UROP. The Department of Bioengineering faculty is highly supportive of students applying for UROP and welcome student requests for mentorship and advising. Interested students should speak with the Undergraduate Program Manager for more information.
Anschutz Medical Campus’ Student Affairs

The Office of Campus Student Services’ mission is to enhance student life at the Anschutz Medical Campus of the University of Colorado Denver by providing excellence in specific non-academic and academic student services. They are located on the Anschutz Medical Campus in Education II North – Third Floor Suite, 3123.

University-wide Student Affairs

The University of Colorado Denver supports students in all aspects of their personal and academic lives. The Office of Student Life, The Learning Resources Center and the Student and Community Counseling Center are just a few of such resources. Student Services within the Department of Bioengineering is prepared to help students navigate the university environment and identify the services best suited to meet their needs.

Department Events

To foster a sense of community, the department holds several events each year.

Orientation

This campus-wide event is required for undergraduate students admitted as new freshmen. In addition to learning more about CU Denver, students will have an opportunity to meet with the Undergraduate Program Manager or another representative of the bioengineering program to discuss course selection and registration.

Anschutz Medical Campus Orientation

The week before fall classes begin, all new majors are invited to an Anschutz Medical Campus Orientation. The orientation introduces students to AMC department staff and resources and is important to attend so student’s can get their AMC ID badge.

Recruitment and Community Events

As part of the bioengineering community, students may be asked to participate in recruitment and community events sponsored by the department. These may include open houses, high school visits, laboratory tours, conferences etc.

Other Department Events

The Department hosts numerous events for current students throughout the year. Students are encouraged to attend a research seminars, Lunch and Learns with industry partners, and workshops to improve professional development skills.

BMES Events

The university chapter of BMES, Biomedical Engineering Society, hosts numerous events throughout the year. In the fall semester, they coordinate Pitch Night, with the goal of connecting current students to projects in research and industry. In the spring semester, BMES hosts a symposium focused on career paths, networking, and professional development. Current students are encouraged to contact the BMES officers for information about chapter membership.
Bioengineering Staff

Shaun Boulier, Undergraduate Program Manager
Phone: 303-315-7576 | North Classroom 2516B
shaun.boulier@ucdenver.edu
Go to for: all things related to the bioengineering undergraduate program

Allison Ferreri, Student Services and Administrative Coordinator
Phone: 303-724-5893 · Email: Allison.ferreri@ucdenver.edu
Go to for: student support and advocacy, scheduling (especially for meetings with Dr. Shandas), general HR questions, AMC badging

Natalie Kersten, Graduate Program Manager
Phone: 303-724-303-724-9972 Email: Natalie.Kersten@ucdenver.edu
Go to for: Go to for: all things related to the bioengineering graduate program

Karen Gilbert, Grants Manager
Phone: 303.724.7296 · Email: karen.gilbert@ucdenver.edu
Go to for: undergraduate research support

Kate Hoch, Director of Finance and Administration
Phone: 303.724.6280 · Email: kate.hoch@ucdenver.edu
Go to for: budget, administration, concerns/complaints

Bioengineering Faculty

Dr. Robin Shandas, Professor, Department Chair & Program Director
Phone: 303.724.4196 · Email: robin.shandas@ucdenver.edu · Office: Y18-1307K
Go to for: director approval, feedback on program, significant grievances

Dr. Richard KP Benninger, Associate Professor
Phone: 303.724.6388 · Email: richard.benninger@ucdenver.edu · Office: Barbara Davis Center 4306-D
Go to for: imaging questions, tech questions, diabetes questions, rotation questions, curriculum concerns

Dr. Cathy Bodine, Associate Professor
Phone: 303.315.1281 · Email: cathy.bodine@ucdenver.edu · Office: Assistive Technology Partners
601 East 18th Avenue, Suite 130, Denver CO 80203
Go to for: assistive technology questions, rehabilitation questions

Dr. Emily Gibson, Assistant Professor
Phone: 303.724.3678 · Email: emily.gibson@ucdenver.edu · Office: RC2 8112
Go to for: quantitative questions, imaging questions, cellular biophysics questions

Casey Howard, Instructor
Phone: 303-724-9385 Email: Cassandra.howard@ucdenver.edu Office Y18-1307P
Go to for: International service questions, design questions
Dr. Kendall Hunter, Associate Professor  
Phone: 303.724.4197 · Email: kendall.hunter@ucdenver.edu · Office: RC2 6018  
*Go to for:* quantitative modeling questions, admissions questions

Dr. Jeffrey Jacot, Associate Professor  
Phone: 303-724-8696 · Email: jeffrey.jacot@ucdenver.edu · Office: Y18-1307M  
*Go to for:* tissue engineering questions, department seminars, admissions questions

Dr. Vitaly Kheyfets, Assistant Research Professor  
Phone: 303-724-6280 Email: vitally.kheyfets@ucdenver.edu · Office: RC2 6111  
*Go to for:* biomechanics questions, MatLab questions

Dr. Steve Lammers, Instructor  
Phone: 303-724-9549 Email: steve.lammers@ucdenver.edu · Office: Y18 1307G  
*Go to Steve for:* Bioprinting questions, design project questions

Craig Lanning, Instructor  
Phone: 303.777.8472 · Email: craig.lanning@ucdenver.edu · Classroom: North Classroom 2206  
*Go to for:* 3D modeling questions, MatLab questions, 3D printing questions

Dr. Daewon Park, Associate Professor  
Phone: 303.724.6947 · Email: daewon.park@ucdenver.edu · Office: RC1 North 4118  
*Go to for:* polymer questions, drug delivery questions, Graduate Committee questions

Dr. Bradford Smith, Assistant Professor  
Email: Bradford.smith@ucdenver.edu · Office: RC2 6015  
*Go to for:* pulmonary questions, service questions

Jennifer Wagner, Instructor  
email: Jennifer.wagner@ucdenver.edu · Office: RC2 6015  
*Go to for:* Research questions, lab questions, design project questions

Dr. Richard Weir, Associate Research Professor  
Cell: 847.912.1032 · Email: richard.weir@ucdenver.edu · Office: Y18-1307H  
*Go to for:* prosthetic questions, 3D printing questions

Dr. Michael Yeager, Associate Clinical Professor  
Phone: 303-724-4193 · Email: Michael.yeager@ucdenver.edu · Office: RC2 4004  
*Go to for:* Biology questions, Physiology questions
Additional Resources

Please contact the Undergraduate Program Manager with questions related to the documents below.

Advising Sheet

This form is intended to assist students in their academic planning. All courses listed on the first page, in years 1 and 2, are premajor courses. All courses listed on the back, years 3 and 4, are major courses. Reviewing this sheet, as well as your degree audit found in the student portal, can be a useful exercise before advising meetings.

Petition for Exception to Policy

As referenced in the handbook, this form, along with supporting documents, is used to address the issue of course exceptions and substitutions within the department.

BIOE 4929/4840 Proposal

If a student intends to enroll in either an Undergraduate Research Project or Independent Study experience, a student must first gain approval from the department. For the department to evaluate a student proposal, the attached form must be completed with the assistance of the faculty sponsor. Student will also submit a Special Processing Form available online from the registrar. Both forms are to be submitted to Student Services before the start of the semester. The proposal is viewed by Dr. Shandas for feedback and final approval.
# Bachelor of Science Degree Program | 2017-2018 Catalog

For Years 1 and 2, students will take courses on the CU Denver downtown campus. While enrolled in the final semester of pre-major courses, students will apply for the bioengineering major. Once accepted, students will begin bioengineering major coursework at the Anschutz Medical Campus. It is advised that students finish as much core curriculum as possible before transitioning to the Anschutz Medical Campus.

## Year 1 Fall – 17 hours

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
<th>Prerequisite</th>
<th>Corequisite</th>
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<tbody>
<tr>
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<td>MATH 1401</td>
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<td>4</td>
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## Year 1 Spring – 18 hours

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## Year 2 Fall – 16 hours

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<tbody>
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<td>PHYS 2311</td>
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## Year 2 Spring – 17 hours

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<td>MATH 3195</td>
<td>Linear Alg. &amp; Diff. Equations</td>
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**Year 3 Spring – 15 hours**

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<th>Course #</th>
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<td>BIOE 3090</td>
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**Year 4 Fall – 15 hours**

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**Year 4 Spring – 15 hours**

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*Establishing math proficiency*

Student can demonstrate proficiency 1) by having a SAT math score of 620 or an ACT math score of 27, taken within the last three years, or 2) by having taken AP Calculus (AB or BC) and received an AP test score of at least a 3, or 3) by earning a score of 70% or higher on the prerequisite exam administered through the MERC lab.

**Transferring into the College of Engineering and Applied Science**

One full year of calculus (Calculus I & II) and one semester of calculus-based physics I must be completed and the cumulative GPA must be at least 2.75. The Math and Science GPA relating to the above three courses must be 2.5 or higher and the last attempt in each individual course must be C- or better.

Early admittance into the College of Engineering and Applied Science (CEAS) can occur when a student has completed Calculus I with a B or better and has a cumulative GPA of 3.0 or higher. All additional math and science courses taken by the time of application into CEAS must also be a B or better.
Petition for an Exception to Policy – BS

This petition is intended for students requesting an exception to Department of Bioengineering Policy. Petitions will be reviewed by the Bioengineering Undergraduate Affairs Committee (BUAC) but with the advisement of other committees, departments or faculty as the BUAC deems appropriate. Should a student change their major, they should not expect the BUAC’s decisions to be honored by other departments, schools, or colleges.

To be completed by the students

Date: __________________________
Name: ______________________________
Student ID: __________________________
CU Denver Email: _______________________________
Brief description of request (3 sentences or less)

___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________

In a separate document, clearly state your request and why you feel an exception to policy should be made. Please provide relevant supporting documents that will help the committee make an appropriate decision.

To be completed by BUAC

Approved Not Approved

BUAC Committee Representative: ____________________________ / / 
Representative Signature: ____________________________ / / 
Department Chair Signature: ____________________________ / / 

Department of Bioengineering
UNIVERSITY OF COLORADO
DENVER | ANSCHUTZ MEDICAL CAMPUS
Department of Bioengineering

UNIVERSITY OF COLORADO
DENVER | ANSCHUTZ MEDICAL CAMPUS

Name: ___________________________ Email: ___________________________
ID: ___________________________ Phone: ___________________________

Semester:( ) Choose course:( )
Fall!!!!!!Spring! ! BIOE4929! Undergraduate!Research!Project!
Year!: ! BIOE4840! Independent!Study!(undergraduate)!
! ! BIOE5840! Independent!Study!(graduate)!

Course Description:
Please provide a 2-3 sentence description of the course.

Course Description:
Please provide a 2-3 sentence description of the course.

Knowledge Competencies:
Please provide a bulleted list of the learning objectives and outcomes for this course.