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

The undergraduate program is designed to prepare students for the following overall career and professional accomplishments:

- A thorough understanding of the life sciences.
- A thorough preparation for advanced training in medical or health sciences; graduate school; and law or business school.
- Mastery of advanced engineering tools and approaches.
- Familiarity with the unique challenges of making and interpreting quantitative measurements in living systems.
- The ability to use modeling techniques as a tool for integrating knowledge.
- The ability to formulate and solve problems with medical relevance, including the design of devices, systems and processes to improve human health.

To learn more about the department, degree programs, faculty and research interests, visit the department website at ucdenver.edu/bioengineering or follow us on Facebook at facebook.com/CUDenverBIOE.
The Department of Bioengineering offers high-quality training that is flexible and multidisciplinary. A design-based focus permeates every aspect of our training philosophy, and our dual-campus program provides a unique opportunity for students to gain hands-on experience in both the basic and clinical sciences. Training for the program will take place at both the CU Denver campus (years 1 and 2) and the CU Anschutz Medical Campus (years 3 and 4). Students who graduate from this program are expected to be leaders and innovators in their chosen professions.

The Bachelor of Science in bioengineering degree program (BS-BIOE) at CU Denver is highly rigorous. Our desired student will have graduated in the top 10 percent of their high school class.

**Curriculum**

The BS-BIOE degree is a 128-credit-hour program that includes:

- pre-major courses (56 credit hours),
- upper-division bioengineering courses (48 credit hours), and
- CU Denver core curriculum courses (24 credit hours)

### Pre-Major Courses

Students must complete all pre-major courses before applying for bioengineering major status. Credit for some of these courses may be achieved through high school Advanced Placement (AP) or international baccalaureate (IB) coursework and exams.

### Upper-Division Bioengineering Courses

All bioengineering major core classes will be taught at the Anschutz Medical Campus.

**Students must apply for bioengineering major status between their sophomore and junior years.**

### Freshman Year

**Fall Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 1010</td>
<td>Prototyping &amp; Design I*</td>
</tr>
<tr>
<td>MATH 1401</td>
<td>Calculus I</td>
</tr>
<tr>
<td>BIOL 2051</td>
<td>Gen. Biology I</td>
</tr>
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<td>BIOL 2071</td>
<td>Gen. Biology I Lab</td>
</tr>
<tr>
<td>CHEM 2031</td>
<td>Gen. Chemistry I</td>
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<td>Gen. Chemistry I Lab</td>
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<td>Core Curriculum Course (FY seminar)**</td>
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**Total Credits: 17**

**Spring Semester**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIOE 1020</td>
<td>Prototyping &amp; Design II*</td>
</tr>
<tr>
<td>MATH 2411</td>
<td>Calculus II</td>
</tr>
<tr>
<td>BIOL 2061</td>
<td>Gen. Biology II</td>
</tr>
<tr>
<td>BIOL 2081</td>
<td>Gen. Biology II Lab</td>
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<tr>
<td>CHEM 2061</td>
<td>Gen. Chemistry II</td>
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<td>CHEM 2068</td>
<td>Gen. Chemistry II Lab</td>
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<tr>
<td>ENGL 1020</td>
<td>English Comp. II</td>
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**Total Credits: 18**

### Sophomore Year

**Fall Semester**

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<th>Course Code</th>
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<tbody>
<tr>
<td>BIOE 2010</td>
<td>Intro to Programming*</td>
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<tr>
<td>MATH 2421</td>
<td>Calculus III</td>
</tr>
<tr>
<td>CHEM 3411</td>
<td>Organic Chem. I</td>
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<td>CHEM 3418</td>
<td>Organic Chem. I Lab</td>
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<tr>
<td>PHYS 2311</td>
<td>Gen. Physics I (calculus-based)</td>
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<td>PHYS 2321</td>
<td>Gen. Physics I Lab</td>
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**Total Credits: 16**

**Spring Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>BIOE 2020</td>
<td>Intro to Computational Methods*</td>
</tr>
<tr>
<td>MATH 3195</td>
<td>Linear Algebra &amp; Diff. Equations</td>
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<tr>
<td>PHYS 2331</td>
<td>Gen. Physics II (calculus-based)</td>
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<td>PHYS 2341</td>
<td>Gen. Physics II Lab</td>
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<tr>
<td>ENGL 2030</td>
<td>English Comp. II</td>
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<td>Core Curriculum Course **</td>
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**Total Credits: 17**

### Junior Year

**Fall Semester**

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<tbody>
<tr>
<td>BIOE 3010</td>
<td>Bioinstrumentation</td>
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<tr>
<td>BIOE 3020</td>
<td>Intro. to Biomech. Analysis</td>
</tr>
<tr>
<td>BIOE 3030</td>
<td>Intro. to Biomaterials</td>
</tr>
<tr>
<td>BIOE 3040</td>
<td>Physiology for Bioengineering</td>
</tr>
<tr>
<td>BIOE 3070</td>
<td>Bioengineering Lab I</td>
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**Total Credits: 15**

**Spring Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIOE 3050</td>
<td>Cell &amp; Molecular Bioengineering</td>
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<tr>
<td>BIOE 3051</td>
<td>Cell &amp; Molecular Bioengineering Lab</td>
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<tr>
<td>BIOE 3060</td>
<td>Biostatistics</td>
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<tr>
<td>BIOE 3071</td>
<td>Bioengineering Lab II</td>
</tr>
<tr>
<td>BIOE 3090</td>
<td>Intro. to BioDesign</td>
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**Total Credits: 15**

### Senior Year

**Fall Semester**

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<tbody>
<tr>
<td>BIOE 4035</td>
<td>BioDesign II</td>
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<td></td>
<td>Track Elective</td>
</tr>
<tr>
<td></td>
<td>Core Curriculum Course **</td>
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**Total Credits: 15**

**Spring Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 4545</td>
<td>BioDesign III</td>
</tr>
<tr>
<td></td>
<td>Track Elective</td>
</tr>
<tr>
<td></td>
<td>Core Curriculum Course **</td>
</tr>
</tbody>
</table>

**Total Credits: 15**

**NOTES:**

* Restricted to students admitted as Bioengineering Pre-majors in the College of Engineering and Applied Science.

**The Core Curriculum includes courses in English composition, humanities, social sciences, behavioral sciences, art, cultural diversity and international perspectives. The BS program requires 24 credits for general education, not including math and science requirements. More information regarding the core curriculum can be found in the CU Denver catalog.**

All interested students are strongly encouraged to contact undergraduate advising at bioengineering@ucdenver.edu or at 303-556-5838.

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303.556.5838  ucdenver.edu/bioengineering  bioengineering@ucdenver.edu