Updated 3/2020

# Community College of Aurora (CCA) to CU-Denver
# Transfer Advising Guide for Bioengineering (B.S.)

College of Engineering, Design and Computing
Bioengineering Department Website

**Program Overview:**

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 bioengineering program provides training at both the Denver campus and the Anschutz Medical Campus.

The BS Bioengineering program emphasizes the professional competencies of leadership, communication, presentation and critical problem solving. These learning goals and the dual-campus model provide robust training for a variety of careers in the fast-growing biomedical and biotechnology industry. Graduates will also have an excellent foundation for continued education in science, engineering and medicine.

**Admission Requirements:**
Please see this website for more information regarding CU Engineering admission criteria.

**CCA Course Summary:** (the following courses will apply directly to the degree)

| Core Curriculum: (Please consult CU Denver Core Curriculum and Transferology) | | CCA Credits |
|---|---|---|
| ENG 121 | English Composition 1 | (3 credits) |
| ENG 122 | English Composition 2 | (3 credits) |
| Arts & Humanities | Two Courses (GT-AH1, AH2, AH3, or AH4) | (6 credits) |
| Social & Behavior Science | Two courses (GT-SS1, GT-SS2, or GT-SS3) | (6 credits) |
| History | GT-HI1 | (3 credits) |
| | | |
| Mathematics: | | |
| MAT 201 | Calculus 1 | (5 credits) |
| MAT 202 | Calculus 2 | (5 credits) |
| MAT 203 | Calculus 3 | (4 credits) |
| MAT 204 | Calculus 3 with Engineering Applications | (5 credits) |
| MAT 255 | Linear Algebra | (3 credits) |
| MAT 265 | Differential Equations | (3 credits) |
| MAT 266 | Differential Equations with Linear Algebra | (4 credits) |
| | | |
| Science: | | |
| CHE 111 | General Chemistry I | (5 credits) |
| CHE 112 | General Chemistry 2 | (5 credits) |
| CHE 211 | Organic Chemistry 1 | (5 credits) |
| PHY 211 | Calculus Based Physics 1 | (5 credits) |
| PHY 212 | Calculus Based Physics 2 | (5 credits) |
| BIO 111 | General College Biology 1 | (5 credits) |
| BIO 112 | General College Biology 2 | (5 credits) |

# Suggested Five-Year Course Plan for Bioengineering

Updated 3/2020

**This is a suggested guide of coursework only and is subject to change. Students should consult with a CU Denver academic advisor as soon as possible prior to transferring. CU Denver courses may be reverse transferred to count toward a community college associate degree. Course credits shown below reflect those awarded by the institution offering the course.**

* denotes courses that do not apply to the B.S. degree

## Community College of Aurora (CCA) first two years

### Fall Semester 1

| Course | Course Title | Credits |
|---|---|---|
| MAT 122 or 166 | Trigonometry or Pre-Calculus* | 3-5 |
| ENG 121 | English Composition 1 | 3 |
| BIO 111 | General College Biology 1 | 5 |
| PHY 101 | General Psychology I recommended | 3 |
| | **Total Credits** | **14-16** |

### Spring Semester 1

| Course | Course Title | Credits |
|---|---|---|
| MAT 201 | Calculus 1 | 5 |
| CHE 111 | College Chemistry 1 (with lab) | 5 |
| ENG 122 | English Composition 2 | 3 |
| BIO 112 | General College Biology 2 | 5 |
| | **Total Credits** | **18** |

### Fall Semester 2

| Course | Course Title | Credits |
|---|---|---|
| MAT 202 | Calculus 2 | 5 |
| CHE 112 | College Chemistry 2 (with lab) | 5 |
| PHY 211 | Physics: Calc-based I | 5 |
| | **Total Credits** | **15** |

### Spring Semester 2

| Course | Course Title | Credits |
|---|---|---|
| MAT 203 | Calculus 3 | 4 |
| PHY 212 | Physics: Calc based II | 5 |
| CHE 211 | Organic Chemistry I | 5 |
| | **Total Credits** | **14** |

## CU-Denver (last three years)

### Fall Semester 3 (Downtown Campus)

| Course | Course Title | Credits |
|---|---|---|
| BIOE 1010 | Bioengineering Design & Prototyping I | 3 |
| BIOE 2010 | Intro to Programming for Bioengineers | 2 |
| MATH 3195 | Linear Algebra and Differential Equations | 4 |
| | CU Denver Core Arts | 3 |
| | **Total Credits** | **12** |

## CU-Denver (last three years)…continued

### Spring Semester 3 (Downtown Campus)

| Course | Course Title | Credits |
|---|---|---|
| BIOE 1020 | Bioengineering Design & Prototyping II | **3** |
| BIOE 2020 | Intro to Comp Methods for Bioengineers | **2** |
| SOCY 1001 | Intro to Sociology | **3** |
| | CU Denver Core Cultural Diversity | **3** |
| | CU Denver Core International Perspectives | **3** |
| | **Total Credits** | **14** |

### Fall Semester 4 (Anschutz Medical Campus)

| Course | Course Title | Credits |
|---|---|---|
| BIOE 3010 | Bioinstrumentation | 3 |
| BIOE 3020 | Intro to Biomechanical Analysis | 3 |
| BIOE 3030 | Intro to Biomaterials | 3 |
| BIOE 3040 | Physiology for Bioengineering | 3 |
| BIOE 3070 | Bioengineering Lab I | 3 |
| | **Total Credits** | **15** |

### Spring Semester 4 (Anschutz Medical Campus)

| Course | Course Title | Credits |
|---|---|---|
| BIOE 3050 | Cell & Molecular Bioengineering | 3 |
| BIOE 3051 | Cell & Molecular Bioengineering Lab | 1 |
| BIOE 3060 | Biostatistics, Measurement, and Analysis | 3 |
| BIOE 3071 | Bioengineering Lab II | 3 |
| BIOE 3090 | Introduction to BioDesign | 3 |
| | **Total Credits** | **13** |

### Fall Semester 5 (Anschutz Medical Campus)

| Course | Course Title | Credits |
|---|---|---|
| BIOE 4035 | Undergraduate BioDesign II | 3 |
| BIOE | Technical Elective | 3 |
| BIOE | Technical Elective | 3 |
| BIOE | Technical Elective | 3 |
| | **Total Credits** | **12** |

### Spring Semester 5 (Anschutz Medical Campus)

| Course | Course Title | Credits |
|---|---|---|
| BIOE 4045 | BioDesign III | 3 |
| BIOE | Technical Elective | 3 |
| | CU Denver Core Humanities | 3 |
| | **Total Credits** | **9** |