



FRCC to CU-Boulder Transfer Advising Guide for Biomedical Engineering (B.S.)

College of Engineering and Applied Science
[Biomedical Engineering Department Website](#)

Program Overview:

Biomedical engineers use engineering principles to analyze and solve problems in biology and medicine, providing an overall enhancement to healthcare. Biomedical engineers create technology to save lives and improve the quality of life. Much of the equipment in hospitals and clinics across the globe was designed, built and tested by biomedical engineers. At the same time, biomedical engineers employ concepts learned from biology and medicine to generate new biomimetic engineering designs in fields such as robotics and artificial intelligence.

Admission Requirements:

[Please see this website for more information regarding CU Engineering admission criteria](#)

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

***BOLD** denotes admission requirement courses

**Denotes recommended course before transfer

Mathematics:

MAT 2410*	Calculus 1	(5 credits)
MAT 2420*	Calculus 2	(5 credits)
MAT 2431	Calculus 3 with Engineering Applications	(5 credits)
MAT 2562	Differential Equations/Linear Algebra	(4 credits)

Science:

CHE 1111*	General Chemistry 1	(5 credits)
CHE 1112**	General Chemistry 2	(5 credits)
PHY 2111	Calc-based Physics 1	(5 credits)
PHY 2112	Calc-based Physics 2	(5 credits)
BIO 1111 + 1112	General Biology 1+2 (need both, or take at CU)	(10 credits combined)

Engineering/Computer Science:

EGG 1060 (preferred)	Introduction to Engineering Computing	(4 credits)
<u>OR</u> CSC 1060 (C++)	Computer Science 1	(4 credits)
CAD 2455-2456	Solid Works (<i>choose one course</i>)	(3 credits)
EGG 1040	Engineering Projects	(4 credits)
EGG 2030	Solid Mechanics	(3 credits)
EGG 2011	Statics	(3 credits)

Humanities and Social Sciences (H/SS):

- Up to nine (9) credit hours at the lower division (1000-2000) level
 - Six (6) credit hours the upper-division level – *typically taken at CU Boulder*
- Please consult our [CCCS humanities and social science list](#) when selecting these classes

Suggested Five-Year Course Plan for Biomedical Engineering

This is a suggested guide of coursework only and is subject to change. Always consult with your academic advisor for graduation planning purposes.

*denotes courses that do not apply directly to degree, other than as free electives

Front Range Community College (first two years)

Fall Semester 1

Course	Course Title	Credits
MAT 1440	Pre-Calculus*	5
ENG 1021	English Composition 1 (H/SS)	3
EGG 1000	Intro to Engineering*	1
BIO 1111	General Biology 1	5
	Total Credits	14

Spring Semester 1

Course	Course Title	Credits
MAT 2410	Calculus 1	5
CHE 1111	College Chemistry 1 (with lab)	5
BIO 1112	General Biology 2	5
	Total Credits	15

*if credit load is too high per semester, take BIO at CU

Fall Semester 2

Course	Course Title	Credits
MAT 2420	Calculus 2	5
CAD 2455	Solid Works 3D Modeling	3
CHE 1112	General Chemistry 2	5
EGG 1040	Engineering Projects	3
	Total Credits	16

Spring Semester 2

Course	Course Title	Credits
MAT 2431	Calculus 3 (Engr. Applications)	5
PHY 2111	Physics 1	5
ENG 1022	English Composition 2 (H/SS)	3
EGG 1060	Engineering Computing	4
	Total Credits	17

CU-Boulder (last three years)

Fall Semester 3

Course	Course Title	Credits
APPM 2360	Differential Eq./Linear Alg.	4
PHYS 1120	Physics 2	4
PHYS 1140	Experimental Physics	1
BMEN 2000	Intro to Biomedical Eng.	3
MCDB 1150	Cellular and Molecular Bio*	3
	Total Credits	15

*if BIO 111+112 already taken, no need for MCDB 1150

Spring Semester 3

Course	Course Title	Credits
BMEN 2010	Biomaterials	3
MCEN 2023	Statics and Structures	3
ECEN 2250	Intro to Circuits	3
	Technical Elective (LD)	3
	Total Credits	12

CU-Boulder (last three years)...continued

Fall Semester 4

Course	Course Title	Credits
BMEN 3010	Biotransport	3
MCEN 2063	Mechanics of Solids	3
ECEN 2260	Circuits as Systems	3
ECEN 2270	Electronics Design Lab	3
	Humanities/Social Science	3
	Total Credits	15

Spring Semester 4

Course	Course Title	Credits
BMEN 3030	Bioinstrumentation	3
MCEN 4133	Biomechanics	3
ECEN 3300	Linear Systems	3
	Engineering Writing Course	3
	UD Humanities/Social Science	3
	Total Credits	15

Fall Semester 5

Course	Course Title	Credits
BMEN 4010	BME Design 1	3
BMEN 4117	A&P for Engineers	3
	Technical Elective	3
	Technical Elective	3
CHEN 3010	Applied Data Analysis	3
	Total Credits	15

Spring Semester 5

Course	Course Title	Credits
BMEN 4020	BME Design 2	3
	Technical Elective	3
	Technical Elective	3
	UD Humanities/Social Science	3
	Total Credits	12