RRCC to CU-Boulder Transfer Advising Guide for Chemical & Biological Engineering (B.S.)

College of Engineering and Applied Science

Chemical & Biological Engineering Department Website

Program Overview:

In Chemical and Biological Engineering, concepts from the biological sciences are used to inspire and guide the development and production of chemicals, pharmaceuticals, and advanced materials. Efficient, economical manufacture of these items requires engineers who are well versed not only in chemical engineering but also in the fundamentals of biology.

Admission Requirements:

Please see this website for more information regarding CU Engineering admission criteria

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

BOLD *denotes admission requirement courses (only ONE science course needed for admission)*

Mathematics:

MAT 201*	**Calculus 1**	**(5 credits)**
MAT 202*	**Calculus 2**	**(5 credits)**
MAT 204	Calculus 3 with Engineering Applications	(5 credits)
MAT 261	Differential Equations	(4 credits)
MAT 255	Linear Algebra	(3 credits)

Science:

CHE 111*	**General Chemistry 1**	**(5 credits)**
CHE 112**	General Chemistry 2	(5 credits)
***CU strongly recommends CHE 111 **AND** CHE 112 before you transfer to this major*		
CHE 211	Organic Chemistry 1	(5 credits)
CHE 212	Organic Chemistry 2	(5 credits)
PHY 211	Calc-based Physics 1	(5 credits)
PHY 212	Calc-based Physics 2	(5 credits)

Additional Science Courses:

BIO 111	General College Biology 1	(5 credits)
BIO 112	General College Biology 2	(5 credits)

Humanities and Social Sciences (H/SS):

- Up to nine (9) credit hours at the lower division (100-200) level
  - Six (6) credit hours at 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 Chemical & Biological 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

Red Rocks Community College (first two years)

Fall Semester 1

Course	Course Title	Credits
MAT 121	College Algebra*	4
CHE 101	Intro to Chemistry (with Lab)*	5
	Humanities/Social Science	3
	Humanities/Social Science	3
	Total Credits	**15**

Spring Semester 1

Course	Course Title	Credits
MAT 122	Trigonometry*	3
CHE 111	College Chemistry 1 (with lab)	5
BIO 111	General College Biology 1	5
	Total Credits	**13**

Fall Semester 2

Course	Course Title	Credits
MAT 201	Calculus 1	5
CHE 112	College Chemistry 2 (with lab)	5
BIO 112	General College Biology 2	5
	Total Credits	**15**

Spring Semester 2

Course	Course Title	Credits
MAT 202	Calculus 2	5
PHY 211	Physics 1	5
CHE 211	Organic Chemistry 1	5
	Total Credits	**13**

CU-Boulder (last three years)

Fall Semester 3

Course	Course Title	Credits
APPM 2350	Calculus 3	4
PHYS 1120	Physics 2	4
PHYS 1140	Experimental Physics	1
CHEN 2120	Material & Energy Balances	3
CHEN 1310	Intro to Engr. Computing	3
	Total Credits	**15**

Spring Semester 3

Course	Course Title	Credits
APPM 2360	Differential Eq./Lin. Algebra	4
CHEM 3331	Organic Chemistry 2	4
CHEM 3341	Organic Chemistry 2 Lab	1
CHEN 4521	Physical Chem for Engr.	3
CHEN 3200	Fluid Mechanics	3
	Total Credits	**15**

CU-Boulder (last three years)…continued

Fall Semester 4

Course	Course Title	Credits
CHEN 3010	Applied Data Analysis	3
CHEN 3210	ChE Heat Transfer	3
CHEN 3320	ChE Thermodynamics	3
	Humanities/Social Science	3
	Engineering Writing Course	3
	Total Credits	**15**

Spring Semester 4

Course	Course Title	Credits
CHEM 4611	Survey of Biochemistry	3
CHEN 4090	ChE Seminar	1
CHEN 3220	Separations & Mass Transfer	3
CHEN 4805	Biomaterials	3
CHEN 4830	Biokinetics	3
	UD Humanities/Social Science	3
	Total Credits	**16**

Fall Semester 5

Course	Course Title	Credits
CHEN 4810	Biological Engr. Lab	2
CHEN 4520	Design 1	3
CHEN 4820	Biochemical Separations	3
	Technical Elective	3
	Technical Elective	3
	Total Credits	**14**

Spring Semester 5

Course	Course Title	Credits
CHEN 4530	Design 2	2
CHEN 4570	Process Control	4
	Focus Technical Elective	3
	Technical Elective	3
	UD Humanities/Social Science	3
	Total Credits	**15**