

2nd Semester (Winter)

BIOL 112	Cell and Molecular Biology
BREE 301	Biothermodynamics
COMP 208	Computers in Engineering
CS	Complimentary Studies - Group B (HSSML)
EC	Elective - 1
FACC 100	Introduction to the Engineering Profession

16 credits Prerequisites/Co-requisites

3	-
3	-
3	P - MATH 140, MATH 141
3	-
3	-
1	-

3rd Semester (Fall)

BIEN 290	Bioengineering Measurement Laboratory
BIOL 200	Molecular Biology
TC STREAM 1 (BIEN 320)	Molecular, Cellular, and Tissue Biomechanics
TC STREAM 1 (CIVE 207)	Solid Mechanics
TC STREAM 1 (MIME 261)	Structure of Materials

17 credits Prerequisites/Co-requisites

4	P - BIEN 200, PHYS 142
3	P - BIOL 112 / C - CHEM212
3	P - Permission of Instructor
4	P - CIVE 205 or MECH 210
3	-

4th Semester (Winter)

BIEN 210	Electrical and Optical Properties of Biological Systems
BIOC 212	Molecular Mechanisms of Cell Function
CHEE 310	Physical Chemistry for Engineers
MATH 264	Advanced Calculus for Engineers
PHYS 319	Introduction to Biophysics

15 credits Prerequisites/Co-requisites

3	P - BIEN 200, BIOL 112
3	P - BIOL 200
3	P - CHEE 220 or MIME 212 or BREE 301
3	P - MATH 262 or MATH 151 or MATH 152 / C - MATH 263
3	P - BIOL 200; MATH 222/MATH 262; PHYS 230 and (PHYS 232 or PHYS 253), or Permission of Instructor.

5th Semester (Fall)

BIEN 390	Bioengineering Laboratory
CCOM 206	Communication in Engineering
EC	Elective - 2
TC STREAM 1 (CHEE 314)	Fluid Mechanics
TC STREAM 1 (MIME 470)	Engineering Biomaterials

15 credits Prerequisites/Co-requisites

3	P - BIEN 290
3	-
3	-
3	P - CHEE 204 or BIEN 200 / C - MATH 264
3	P - MIME 261 or Permission of Instructor

6th Semester (Winter)

BIEN 340	Transport Processes in Biological Systems
CS	Complimentary Studies - Group A (Impact)
EC	Elective - 3
FACC 300	Engineering Economy
TC STREAM 1 (BIEN 462)	Engineering Principles in Physiological Systems

15 credits Prerequisites/Co-requisites

3	P - Permission of Instructor
3	-
3	-
3	-
3	-

7th Semester (Fall)

BIEN 470	Bioengineering Design Project (first half)
FACC 400	Engineering Professional Practice
TC STREAM 1 (BIEN 510)	Nanoparticles in Biological Environments
TC STREAM 1 (BIEN 570)	Active Mechanics in Biology
TC STREAM 1 (BMDE 504)	Biomaterials and Bioperformance

13 credits Prerequisites/Co-requisites

3	P - BIEN 390
1	P - FACC 100 or BREE 205, 60 program credits
3	P - Permission of Instructor
3	-
3	-

8th Semester (Winter)

BIEN 470	Bioengineering Design Project (second half)
BIEN 471	Bioengineering Research Project
TC STREAM 1 (BMDE 505)	Cell and Tissue Engineering
TC STREAM 1 (CHEE 563)	Biofluids and Cardiovascular Mechanics
TC STREAM 1 (MECH 547)	Mechanics of Biological Materials

14 credits Prerequisites/Co-requisites

3	P - BIEN 390
2	P - Permission of Instructor
3	-
3	P - CHEE 314 or MECH 331 or Permission of Instructor
3	P - MECH 210, MIME 260 or MIME 261, or Permission of Instructor

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Technical Complementary courses are selected from an approved list given on the next page.

Elective courses (EC) may be chosen from any course at the 200-level or higher in the Desautels Faculty of Management, Faculty of Agricultural and Environmental Sciences, Faculty of Arts, Faculty of Engineering, Faculty of Religious Studies, Faculty of Science, and/or Schulich School of Music.

Technical Complementary Courses - Bioengineering

		Credits	Prerequisites/Co-requisites
BIEN 320	Molecular, Cellular, and Tissue Biomechanics	3	P - Permission of Instructor
BIEN 462	Engineering Principles in Physiological Systems	3	-
BIEN 510	Applications of Nanoparticles in the Biomedical Sciences	3	P - Permission of Instructor
BIEN 570	Active Mechanics in Biology	3	-
BMDE 504	Biomaterials and Bioperformance	3	-
BMDE 505	Cell and Tissue Engineering	3	-
CHEE 314	Fluid Mechanics	3	P - CHEE 204 or BIEN 200 / C - MATH 264
CHEE 563	Biofluids and Cardiovascular Mechanics	3	P - CHEE 314 or MECH 331 or Permission of Instructor
CIVE 207	Solid Mechanics	4	P - Permission of Instructor
MECH 547	Mechanics of Biological Materials	3	P - MECH 210, MIME 260 or MIME 261, or Permission of Instructor
MIME 261	Structure of Materials	3	-
MIME 470	Engineering Biomaterials	3	P - MIME 261 or equivalent; Permission of Instructor

Last update: July 2016