DUAL DEGREE PROGRAM: BIOMEDICAL ENGINEERING COMBINED WITH COMPUTER ENGINEERING

Major Completion Map

Distinctive Requirements for Degree Program:

TO PREPARE FOR FIRST SEMESTER: The curriculum for this major assumes students enter college prepared to take calculus.

The undergraduate programs in Biomedical Engineering synergize with our partner major undergraduate degrees by providing additional coursework in biology, chemistry, physiology, statics, dynamics and biomedical engineering to synthesize robust dual degree programs.

In order to maintain professional standards required of practicing engineers, the Department of Electrical and Computer Engineering requires a cumulative grade point average of at least 2.000 in Electrical Engineering courses as a graduation requirement. It is the responsibility of any student who fails to maintain a 2.000 average to work with their advisor to correct grade point deficiencies. In addition, it is required that students retake any Electrical Engineering course at the 300-level or below in which they receive a grade below C (2.000).

Freshman

Semester 1		**Critical**	**Recommended**	**AUCC**	**Credits**
BIOM 100	Overview of Biomedical Engineering	X			1
CO 150	College Composition (GT-CO2)		X	1A	3
Select from the following groups:		X			3-4
Group A					
CS 150B	Culture and Coding: Python (GT-AH3)			3B	
Group B					
CS 152	Python for STEM				
CS 162	CS1--Introduction to Java Programming				
Group C					
CS 163	CS1---No Prior Programming Experience				
ECE 102	Digital Circuit Logic	X			4
MATH 160	Calculus for Physical Scientists I (GT-MA1)	X		1B	4
	Total Credits				**15**

Semester 2		**Critical**	**Recommended**	**AUCC**	**Credits**
Select final course to complete Group sequence below:		X			3-4
Group A					
CS 164	CS1--Computational Thinking with Java				
Group B					
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)				3B	
Group C					
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)				3B	
ECE 251	Introduction to Microcontrollers and IoT	X			4
LIFE 102	Attributes of Living Systems (GT-SC1)	X		3A	4
MATH 161	Calculus for Physical Scientists II (GT-MA1)	X		1B	4
	Total Credits				**16**

Sophomore

Semester 3		**Critical**	**Recommended**	**AUCC**	**Credits**
BIOM 200	Fundamentals of Biomedical Engineering	X			2
CS 165	CS2--Data Structures	X			4
ECE 103	DC Circuit Analysis	X			3
MATH 261	Calculus for Physical Scientists III	X			4
PH 141	Physics for Scientists and Engineers I (GT-SC1)	X		3A	5
	Total Credits				**18**

Semester 4		**Critical**	**Recommended**	**AUCC**	**Credits**
ECE 202	Circuit Theory Applications	X			4
ECE 232	Introduction to Project Practices	X			1
ECE 303/ STAT 303	**Introduction to Communications Principles**	**X**			**3**
MATH 340	Intro to Ordinary Differential Equations	X			4
MECH 262	Engineering Mechanics	X			4
	Total Credits				**16**
Junior					
Semester 5		**Critical**	**Recommended**	**AUCC**	**Credits**
CS 220	Discrete Structures and their Applications	X			4
ECE 311	Linear System Analysis I	X			3
PH 142	Physics for Scientists and Engineers II (GT-SC1)	X		3A	5
CpE Electives (See list on Program Requirements tab)			X		4
	Total Credits				**16**
Semester 6		**Critical**	**Recommended**	**AUCC**	**Credits**
BIOM 300	Problem-Based Learning Biomedical Engr Lab	X			4
CHEM 111	General Chemistry I (GT-SC2)	X		3A	4
CHEM 112	General Chemistry Lab I (GT-SC1)	X		3A	1
CS 214	Software Development	X			3
Select one course from the following:		X			3-4
DSCI 369	Linear Algebra for Data Science				
MATH 369	Linear Algebra I				
	Total Credits				**15-16**
Senior					
Semester 7		**Critical**	**Recommended**	**AUCC**	**Credits**
BMS 300	Principles of Human Physiology		X		4
CHEM 113	General Chemistry II		X		3
CT 301	C++ Fundamentals	X			2
MECH 337	Thermodynamics		X		4
CpE Electives (see list on Program Requirements tab)		X			4
	Total Credits				**17**
Semester 8		**Critical**	**Recommended**	**AUCC**	**Credits**
BIOM 431/ ECE 431	**Biomedical Signal and Image Processing**	**X**			**3**
CHEM 245	Fundamentals of Organic Chemistry		X		4
ECON 202	Principles of Microeconomics (GT-SS1)		X	3C	3
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)			X	1C	3
CpE Electives (See list on Program Requirements tab)			X		3-4
	Total Credits				**16-17**
Fifth Year					
Semester 9		**Critical**	**Recommended**	**AUCC**	**Credits**
BIOM 486A	Biomedical Design Practicum: Capstone Design I	X		4A,4B,4C	4
Select one course from the following:			X		3
CO 301B	Writing in the Disciplines: Sciences (GT-CO3)			2	
JTC 300	Strategic Writing and Communication (GT-CO3)			2	
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)			X	3D	3
CpE Electives (See list on Program Requirements tab)			X		0-3
	Total Credits				**13**
Semester 10		**Critical**	**Recommended**	**AUCC**	**Credits**
BIOM 486B	Biomedical Design Practicum: Capstone Design II	X		4A,4B,4C	4

CpE Electives (See list on Program Requirements tab)	X			0-3
Technical Electives (See list in Program Requirements tab)	X			1-8
BME Technical Elective (See list on Program Requirements tab)	X			3
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		X	3B	3
Total Credits				**14-15**
Program Total Credits:				**157-158**