BIOMEDICAL ENGINEERING - Catalog Year 2019

Total Credits = 120- 121

Freshman Year *Fall* Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
ECN 201	Principles of Microeconomics (A2)	3	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141 +	Calculus I (A1, B3)	4	
	General Education Outcome(s)*	3	
		15	

Freshman Year *Spring* Semester

Course Code	Description	Cr	
BME 181	Biomedical Engineering Seminar I	1	
CHM 124 +	Intro to Organic Chemistry	3	
EGR 106	Foundations of Engineering II (A4)	2	
MTH 142 +	Calculus II (A1, B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
		14	

Sophomore Year *Fall* Semester

Course Code	Description	Cr	
BIO 220	Fund of Hum Anatomy & Physiology I	3	
BIO 221	Fund of Hum Anatomy & Physiology I Lab	1	
BME 281	Biomedical Engineering Seminar II	1	
ELE 201	Digital Circuits Design	3	
ELE 202	Digital Circuits Design Lab	1	
MTH 362	Advanced Engineering Mathematics I	3	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics Lab II (A1)	1	
		16	

Sophomore Year *Spring* Semester

Course Code	Description	Cr	
BIO 222	Fund of Hum Anatomy & Physiology II	3	
BIO 223	Fund of Hum Anatomy & Physiology II Lab	1	
BME 207	Introduction to Biomechanics	3	
ELE 212 +	Linear Circuit Theory	4	
ELE 215	Linear Circuits Lab	1	
MTH 243 +	Calculus for Functions of Several Vars (A1, B3)	3	
		15	

Admission to the COE required for enrollment in "300" level and higher COE courses. Admission requires at least a 2.0 cumulative GPA and a C- or higher in each of the following; EGR 105 & 106, CHM 101/102, MTH 141 & 142, PHY 203/273, and either PHY 204/274 *or* CHM 112/114

Junior Year *Fall* Semester

Course Code	Description	Cr	
BIO 341	Principles of Cell Biology	3	
BME 307	Bioelectricity	3	
ELE 313 +	Linear Systems	3	
BME 360	Biomeasurement	3	
BME 361	Biomeasurement Lab	1	
	General Education Outcome(s)*	3	
		16	

Junior Year *Spring* Semester

Course Code	Description	Cr	
BME 362	Biomedical Instrumentation Design	3	
BME 363	Biomedical Instrumentation Design Lab	1	
ELE 314	Linear Systems and Signals	3	
ISE 311 *or* STA 409	Probability and Statistics for Engineers *or* Statistical Methods in Research I	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		16	

Senior Year *Fall* Semester

Course Code	Description	Cr	
BME 461	Physiological Modeling and Control	3	
BME 464	Medical Imaging	3	
BME 465	Medical Image Processing Lab	1	
BME 484	BME Capstone Design I (D1)	3	
ELE 400	Intro to Professional Practice	1	
	Professional Elective**	3-4	
		14 -15	

Senior Year *Spring* Semester

Course Code	Description	Cr	
BME 466	Biomaterials	3	
BME 468	Neural Engineering	3	
BME 485	BME Capstone Design II (D1)	2	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		14	

***General Education Outcomes:** if all Outcomes are satisfied in fewer spaces than provided, you must complete additional coursework of your choice (Free Elective) to ensure you have earned at least 120 credits as required to earn a BS degree. See the "General Education Outcomes" section at the bottom of page two for more information on satisfying these requirements.

****Professional Elective:** *One* (1) course from the following: CHE 333, 347, 574; CSC 522; ELE 322, 338/339, 343/344, 435/436, 437, 438, 447/448, 458/459, 470, 501, 506; ISE 304, 312; MCE 341, 354, 372; MTH 442, 451, 462, 471; *with prior approval* of the ECBE department chairperson any other 300-, 400-, or 500- level College of Engineering course not required by the BME major.

+ Course prerequsites include grade requirements in previous coursework, see catalog or eCampus course description for details

Name _____   ID # _____

BIOMEDICAL ENGINEERING - Catalog Year 2019   120-121 Credits

SPECIFIED MATH, SCIENCE, AND ENGINEERING COURSES

	INTRODUCTORY ENGINEERING						ENGINEERING SCIENCE AND DESIGN (MAJOR)				
Sem	**Course**	**Cr**	**Grade**	**QP**	**Note**	**Sem**	**Course**	**Cr**	**Grade**	**QP**	**Note**
	EGR 105 (A4)	1					BME 181	1			
	EGR 106 (A4)	2					BME 207	3			
		3					BME 281	1			
	SUPPORTING ENGINEERING						BME 307	3			
	ELE 201	3					BME 360	3			
	ELE 202	1					BME 361	1			
	ELE 212	4					BME 362	3			
	ELE 215	1					BME 363	1			
	ELE 313	3					BME 461	3			
	ELE 314	3					BME 464	3			
	ELE 400	1					BME 465	1			
							BME 466	3			
		16					BME 468	3			
	NATURAL SCIENCES						BME 484 [capstone] (D1)	3			
	BIO 220	3					BME 485 [capstone] (D1)	2			
	BIO 221	1									
	BIO 222	3									
	BIO 223	1						**34**			
	BIO 341	3					****PROFESSIONAL ELECTIVE**				
	CHM 101 (A1)	3						**3-4**			
	CHM 102	1					**MATHEMATICS**				
	CHM 124	3					MTH 141 (A1 & B3)	4			
	PHY 203 (A1)	3					MTH 142 (A1 & B3)	4			
	PHY 273 (A1)	1					MTH 243 (A1 & B3)	3			
	PHY 204 (A1)	3					MTH 362	3			
	PHY 274 (A1)	1					STA 409 *or* ISE 311	3			
		26						**17**			

*GENERAL EDUCATION OUTCOMES

Sem	**Course**	**Cr**	**Grade**	**QP**	**Note**	**Sem**	**Course**	**Cr**	**Grade**	**QP**	**Note**
	Science, Technology, Engineering, and Math (STEM) (A1)						**Civic Knowledge & Responsibilities (C1)**				
---	CHM & PHY (see above)	11	---	---	---						
	Social and Behaviorial Sciences (A2)						**Global Responsibilities (C2)**				
	ECN 201	3									
	Humanities (A3)						**Diversity & Inclusion (C3)**				
	Arts & Design (A4)						**Ability to Synthesize (D1)**				
---	EGR 105 & 106 (see above)	3	---	---	---	---	BME 484 & 485 (see above)	5	---	---	---
	Write Effectively (B1)						**Grand Challenge (at least one course must be coded with a "G")**				
	Communicate Effectively (B2)						**Free Elective**				
							If you fulfill all Outcomes in fewer spaces than indicated on page one, you can use those				
	Mathematical, Statistical, or Computational Strategies (B3)						*additional spaces to take a course(s) of your choice to ensure you reach at least 120 earned credits*				
---	MTH (see above)	11	---	---	---						
	Information Literacy (B4)										

   * General Education Outcomes: at least 40 credits must be completed. (A1-D1) must be met by at least three credits. A single
   course may satisfy one or two outcomes, and at least one course must be a "Grand Challenge". No more than twelve credits can
   be from the same course code except HPR. General education courses may also be used to meet requirements of your major(s)
   or minor(s) when appropriate.

   ** Professional Elective - *One (1)* course from the following: CHE 333, 347, 574; CSC 522; ELE 322, 338/339, 343/344,
   435/436, 437, 438, 447/448, 458/459, 470, 501, 506; ISE 304, 312; MCE 341, 354, 372; MTH 442, 451, 462, 471;
   with prior approval of the ECBE department chairperson any other 300-, 400-, or 500- level College of Engineering course not
   required by the BME major.