

BIOMEDICAL ENGINEERING (GIEP) - CLASS OF 2020

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	Intro Calculus with Analytical Geometry (A1, B3)	4	
GER 111	Intensive Beginning German I	4	
		16	

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	Intermed Calc with Analytic Geom (B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
GER 112	Intensive Beginning German II	4	
		18	

Sophomore Year Fall Semester

Course Code	Description	Cr	
BIO 121	Human Anatomy	4	
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	
GER 103*	Intermediate German	3	
		19	

*Or GER 113 if you can fit 4 credits

Sophomore Year Spring Semester

Course Code	Description	Cr	
BIO 242	Intro Human Physiology	3	
BIO 244	Intro Human Physiology Lab	1	
BME 207	Intro to Biomedical Engineering	3	
ELE 212	Linear Circuit Theory	4	
ELE 215	Linear Circuits Lab	1	
MTH 243	Calculus for Funcs. of Sev. Vars. (A1, B3)	3	
GER 114	Intensive Intermediate German II	4	
		19	

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	
GER 205	Conversation and Composition	3	
		19	

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 <i>or</i> STA 409	Probability and Statistics for Engineers <i>or</i> Statistical Methods in Research I	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
GER 206	Conversation and Composition	3	
		19	

Semester Abroad

Course Code	Description	Cr	
GER/EGR 411	Technical German/Professional Elective**	3	
GER 3XX		4	
GER 3XX or GER 4XX		3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		16	

International Internship Semester

Course Code	Description	Cr	
GER 315-316	Language Study Abroad	3-6	
		3-6	

Senior Year Fall Semester

Course Code	Description	Cr	
BME 461	Physiological Modeling and Control	3	
BME 464	Medical Imaging	3	
BME 465	Medical Imaging Processing Lab	1	
BME 484	BME Capstone Design I	3	
ELE 400	Intro to Professional Practice	1	
GER 4XX		3	
		14	

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	
GER 4XX		3	
		17	

Specified Math, Science, and Engineering Courses

Introductory Engineering					
Sem	Course	Cr	Grade	QP	Note
	EGR 105 (A4)	1			
	EGR 106 (A4)	2			
		3			

Engineering Science and Design (Major)					
Sem	Course	Cr	Grade	QP	Note
	BME 181	1			
	BME 207	3			
	BME 281	1			
	BME 307	3			
	BME 360	3			
	BME 361	1			
	BME 362	3			
	BME 363	1			
	BME 461	3			
	BME 464	3			
	BME 465	1			
	BME 466	3			
	BME 468	3			
	BME 484 [capstone]	3			
	BME 485 [capstone]	2			
		34			

Supporting Engineering					
Sem	Course	Cr	Grade	QP	Note
	ELE 201	3			
	ELE 202	1			
	ELE 212	3			
	ELE 215	2			
	ELE 313	3			
	ELE 314	3			
	ELE 400	1			
		16			

Natural Sciences					
Sem	Course	Cr	Grade	QP	Note
	BIO 121	4			
	BIO 242	3			
	BIO 244	1			
	BIO 341	3			
	CHM 101 (A1)	3			
	CHM 102	1			
	CHM 124	3			
	PHY 203 (A1)	3			
	PHY 273 (A1)	1			
	PHY 204 (A1)	3			
	PHY 274 (A1)	1			
		26			

**Professional Elective					
Sem	Course	Cr	Grade	QP	Note
		3-4			

Mathematics					
Sem	Course	Cr	Grade	QP	Note
	MTH 141 (A1 & B3)	4			
	MTH 142 (B3)	4			
	MTH 243 (A1 & B3)	3			
	MTH 362	3			
	STA 409 or ISE 311	3			
		17			

* **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 (ie: only four 3-credit GER classes **OR** three 4-credit GER classes may be used to fulfill General Education Outcomes). 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, 444/445, 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.

German Language Requirements					
Sem	Course	Cr	Gr	QP	Note
GER 101, 102, & 111 will not count toward major requirements.					
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER 4____	3			
6 Credits in Literature, at least 3 at 400-level					
	GER ____	3			
	GER 4____	3			
		30			

General Education Outcome Audit		
	Course	Credit
Knowledge		
A1. STEM	CHM & PHY (see above)	11
A2. Social & Behavioral Sciences	ECN 201	3
A3. Humanities	GER 205/206 (suggested)	3
A4. Arts & Design	EGR 105 & 106	3
Competences		
B1. Write Effectively		
B2. Communicate Effectively		
B3. Mathematical, statistical, or computational strategies	MTH (see above)	11
B4. Information literacy		
Responsibilities		
C1. Civic knowledge & responsibility		
C2. Global responsibilities	GER 205/206 (suggested)	3
C3. Diversity and Inclusion		
Inegrate & Apply		
D1. Ability to synthesize	BME 485	3
Grand Challenge		
G. Check that at least one course of your 40 credits is an approved "G" course		
Total General Education Outcome Credits		40