

**Biomedical Engineering and Chemical Biological Engineering**

Name: \_\_\_\_\_

**Curriculum Checksheet - Effective Fall 2018 And After**

**Program Total Credits = 158**

COURSE	NAME (PREREQS (";" DENOTES "AND"))	TERM	C	COURSE	NAME (PREREQS (";" DENOTES "AND"))	TERM	C
<b>1st Year Fall</b>				<b>1st Year Spring</b>			
BIOM 100	Overview of Biomedical Engineering	F	1	CBE 101	Introduction to Chemical and Biological Engineering (CBE 160 or conc.)	F, S	3
CHEM 111	General Chemistry I (MATH 118 or 141 or 155 or 160 or 161 or 229 or 261; CHEM 105 or an appropriate score in the chemistry preparation module)	F, S, SS	4	CBE 160	MATLAB for Chemical and Biological Engineers	F, S	1
CHEM 112	General Chemistry Lab I (CHEM 111 or 117 or conc.)	F, S, SS	1	CHEM 113	General Chemistry II (CHEM 107 or 111 or 117; MATH 124 or MATH 141, 155, 160, 161, 229, 261 or conc.)	F, S, SS	3
LIFE 102	Attributes of Living Systems	F, S, SS	4	MATH 161	Calc for Physical Scientists II (MATH 124; MATH 159 or 160)	F, S, SS	4
MATH 160	Calculus for Physical Scientists I (MATH 124 and 126 (B or better))	F, S, SS	4	PH 141	Physics for Scientists and Engineers I (MATH 126 or conc.; MATH 155 or 159 or 160 or conc.)	F, S, SS	5
<b>Total 14</b>				<b>Total 16</b>			

<b>2nd Year Fall</b>				<b>2nd Year Spring</b>			
<b>CBE 201</b>	Material and Energy Balances (CBE 101 or 160 or conc. or MATH 151 or conc.; CHEM 111; LIFE 102 or conc.; PH 141 or conc.)	F	3	<b>CBE 210</b>	Thermodynamic Process Analysis ( <b>CBE 201</b> ; MATH 261 or conc.)	S	3
CBE 205	Fundamentals of Biological Engineering (CBE 101; CBE 160; LIFE 102)	F	3	CHEM 343	Modern Organic Chemistry II (CHEM 245 or 341 or 345)	F, S, SS	3
CHEM 341	Modern Organic Chemistry I (CHEM 113)	F, S, SS	3	CHEM 344	Modern Organic Chemistry Laboratory (CHEM 114; CHEM343 or conc)	F, S, SS	2
CHEM 114	General Chemistry Lab II (CHEM 112; CHEM 113 or conc.)	F, S, SS	1	MATH 340	Introduction to Ordinary Differential Equations (MATH 255 or 261)	F, S, SS	4
CO 150	College Composition (CO 130 or placement by ACT or SAT or DSP Survey or Challenge Exam)	F, S, SS	3	MECH 262	Engineering Mechanics (MATH 161; PH 141)	S	4
MATH 261	Calculus for Physical Scientists III (MATH 161)	F, S,	4				
<b>Total 17</b>				<b>Total 16</b>			

<b>3rd Year Fall</b>				<b>3rd Year Spring</b>			
BMS 300	Principles of Human Physiology (BZ 101 or 110 or LIFE 102; CHEM 103 or 107 or 111)	F, S, SS	4	BC 351	Principles of Biochemistry (BZ 110 or 120 or LIFE 102; CHEM 245 or 341 or 345)	F, S, SS	4
<b>CBE 310</b>	Molecular Concepts and Applications ( <b>CBE 210</b> ; MATH 340)	F	3	<b>BIOM 300</b>	Problem-Based Learning BME Lab (BIOM 101 or BIOM 200 or (BIOM 100; CBE 205; MECH 262); MATH 340 or 345)	S	4
<b>CBE 330</b>	Process Simulation ( <b>CBE 210</b> ; MATH 340)	F	3	<b>CBE 320</b>	Chemical and Biological Reactor Design ( <b>CBE 310 &amp; 330</b> )	S	3
<b>CBE 331</b>	Momentum Transfer and Mechanical Separations ( <b>CBE 210</b> ; MATH 340)	F	3	<b>CBE 332</b>	Heat and Mass Transfer Fundamentals ( <b>CBE 330 &amp; 331</b> )	S	3
STAT 315	Statistics for Engineers and Scientists (MATH 155 or 160)	F, S, SS	3	CBE 393	Professional Development Seminar	S	1
				AUCC		F, S, SS	3
<b>Total 16</b>				<b>NOTE- 18 cr OK b/c 493 is a 1-cr 'light' class; no CBE labs; 3 cr AUCC</b>			
				<b>Total 18</b>			

<b>4th Year Fall</b>				<b>4th Year Spring</b>			
BIOM 421	Transport Phenomena in Biomedical Engineering (BMS 300; CBE 332 or MECH 344)	F	3	BIOM 422	Quantitative Systems and Synthetic Biology (BIOM 421 or CBE 320)	S	3
CBE 333	Chemical & Biological Engineering Lab I (CBE 332)	F	2	CBE 430	Process Control & Instrumentation ( <b>CBE 320 &amp; 442</b> )	S	3
<b>CBE 442</b>	Separation Processes ( <b>CBE 332</b> )	F	4	<b>CBE 443</b>	Chemical and Biological Engineering Lab II (CBE 442)	S	2
<b>CBE 451</b>	Chemical and Biological Engineering Design I ( <b>CBE 320</b> ; CBE 442 or conc.)	F	3	PH 142	Physics for Scientists and Engineers II (MATH 161 or 255 or 271 or conc.; PH 141)	F, S	5
BME BE	BME Broad Elective	F, S, SS	3	AUCC		F, S, SS	3
<b>Total #</b>				<b>Total 16</b>			

<b>5th Year Fall</b>				<b>5th Year Spring</b>			
BIOM 486A	Biomedical Design Practicum: Capstone Design I (BIOM 300; (BIOM 421; CBE 320; CBE 442) or (BIOM 431; ECE 311; ECE 332; ECE 342) or (BIOM 441; MECH 301; MECH 307)	F	4	BIOM 486B	Biomedical Design Practicum: Capstone Design II (BIOM 486A; CBE 451 or ECE 312 or (MECH 325; MECH 344) or PH 353)	S	4
BME-TE	BME Technical Elective _____	F, S, SS	3	BME-TE	BME Technical Elective _____	F, S, SS	2
CBE-TE	CBE Technical Elective _____	F, S, SS	2	CBE-TE	CBE Technical Elective _____	F, S, SS	3
AUCC		F, S, SS	3	AUCC		F, S, SS	3
Advanced Writing	CHEM 301 or CO300 or CO301B or JTC 300 or LB 300 (CO150 or HONR193)	F, S, SS	3	AUCC		F, S, SS	3
<b>Total 15</b>				<b>Total 15</b>			

Check with your advisors regularly to ensure you are on track.

<b>Additional All University Core Courses (AUCCs)</b>
6 cr - 3B Arts and Humanities: _____
3 cr - 3C Social/Behavioral Science: _____
3 cr - 3D Historical Perspective: _____
3 cr - 3E Global/Cultural Awareness: _____

<b>Key:</b>
"conc." = concurrent enrollment Term: F = Fall, S = Spring, SS = Summer Session
Grey indicates Biomedical Engineering courses
Light green indicates labs
Red indicates exceptionally time-consuming/difficult courses
<b>Must have at least a "C" in BOLDED courses</b>