

## BIOMEDICAL ENGINEERING CURRICULUM SHEET | FALL 2015

### FRESHMAN (34)

<b>FALL</b>			<b>SPRING</b>		
BMEN 101*	Prof. Dev. & Ethics I	1	BMEN 211*	Model & Sim. Of BMEN Sys.	3
BIOL 101 &L*	SCI: Biological Principles I	4	BIOL 102 &L*	Biological Principles II	4
CHEM 111 &L*	SCI: General Chemistry I & Lab	4	CHEM 112 &L*	General Chemistry II & Lab	4
MATH 141*	ARP: Calculus I	4	MATH 142*	ARP: Calculus II	4
ENGL 101*	CMW: Critical Reading & Comp.	3	ENGL 102*	CMW: Rhetoric & Composition	3
			16		
			18		

### SOPHOMORE (32)

<b>FALL</b>			<b>SPRING</b>		
BMEN 202	Prof. Dev. & Ethics II	1	BMEN 260*	Biomechanics	3
MATH 241*	Vector Calculus	3	BMEN 290*	Thermo. of Biomolecular Sys.	3
PHYS 211 &L*	Essentials of Physics I & Lab	4	MATH 242*	Elem. Differential Equations	3
CHEM 333	Organic Chemistry I	3	PHYS 212 &L*	Essentials of Physics II & Lab	4
CHEM 331 L	Organic Chem. Lab I	1	STAT 509	Statistics for Engineers	3
BIOL 302 &L	Cell & Molecular Biol. & Lab	4			
			16		
			15		

### JUNIOR (33)

<b>FALL</b>			<b>SPRING</b>		
BMEN 271	Biomaterials	3	BMEN 303	Prof. Dev. & Ethics III	1
BMEN 321	Biomonitoring & Electrophys.	3	BMEN 345	Human A & P for BMEN	4
BMEN 391	Kinetics in Biomolecular Systems	3	BMEN 354	Biotransport	3
ECHE 320	Fluid Mechanics	3	BMEN 361	Biomedical Instrumentation	4
ELECTIVE	AIU: Aest. & Intr. Understanding	3	BMEN ELCT	BMEN elective	3
ELECTIVE	GSS: Social Science	3			
			18		
			15		

### SENIOR (31)

<b>FALL</b>			<b>SPRING</b>		
BMEN 427	Senior BMEN Design I	3	BMEN 428	Senior BMEN Desing II	3
BMEN ELCT	BMEN elective	3	BMEN ELCT	BMEN elective	3
ENCP ELCT	Engineering/Computing Elective	3	ENCP ELCT	Engineering/Computing Elective	3
TECH ELCT	Technical Elective	3	TECH ELCT	Technical Elective	3
TECH LAB	Technical Lab Elective	1	ELECTIVE	VSR: Values, Ethics, Social Resp	3
ELECTIVE	GHS: Historical Thinking	3			
			16		
			15		

### ADDITIONAL REQUIREMENTS (0-12)

These additional University requirements may be satisfied through overlay courses, by placement testing, or by stand alone courses beyond the curriculum requirements above.

#### **CMS Effective, Engaged, and Persuasive Communication: Spoken Component**

Any approved Carolina Core CMS overlay or stand alone course.

#### **INF Information Literacy**

USC's ENGL 102 or other approved Carolina Core INF overlay or stand alone course.

#### **GFL Global Citizenship and Multicultural Understanding: Foreign Language**

Score of two or better on foreign language test, or equivalent study of approved Carolina Core GFL course(s).

\* Indicates a lower division course to be completed before junior level courses.

### **Biomedical Engineering Electives (9 hours)**

BMEN	342, all 389's, 392, 499, 546, 572, all 589's
EMCH	580
EXSC	535
PSYC	507

### **Engineering Electives (6 hours)**

ECHE	300, 321, 322, 372, 430, 440, 456, 550, 567, 572, 573
ECIV	350, 521
ELCT	220, 321, 331, 361, 363, 350, 540,
EMCH	111, 308, 327, 330, 332, 354, 371, 497, 501, 502, 507, 508, 516, 528, 529, 532, 535, 554, 555, 557, 560, 571, 575, 580, 584, 585, 586
CSCE	204, 206, 215, 240, 245, 317, 330, 350, 355, 500, 551, 555, 561, 563

any Biomedical elective can be used as an engineering elective

### **Technical Electives (6 hours)**

BIOL	250, 301, 303, 415, 460, 505, 530, 531, 534, 541 (or CHEM 550), 545 (or CHEM 555), 546 (or CHEM 556), 553, 610, 612, 620, 635, 653, 655, 656, 662, 665, 667, 690
CHEM	321, 334, 340, 541, 542, 545, 550 (or BIOL 542), 555 (or BIOL 545), 556 (or BIOL 546)
EXSC	530, 535, 562
MATH	344, 374, 520, 524, 526 or 544, 546, 547, 550, 552
PHYS	514, 515, 516, 517, 521, 522
STAT	516, 518, 519, 520, 523, 525, 528, 530, 582

any Biomedical Engineering elective or Engineering elective can be used as a technical elective

### **Technical Lab Elective (1 hour)**

BIOL	250L, 460L, 505L, 505L, 534L, 541L or (CHEM 550L)
CHEM	321L, 332L, 333L <sup>%</sup> , 334L, 340L, 541L, 542L, 550L (or BIOL 541L)
ECIV	350L
EMCH	555L
EXSC	530L
MATH	344L

<sup>%</sup> CHEM 333L is a two credit course that may satisfy the CHEM 331L and technical lab elective.

### **Curriculum Notes**

C or better required in ENGL 101, 102, MATH 141, 142, BMEN 211, BIOL 101 & L, CHEM 111 & L, and PHYS 211 & L.

ECHE 101, ENCP 101, or ELCT 101 can substitute for BMEN 101