

## Recommended Curriculum Sequence (For Students Matriculating Fall 2019 and Later)

### 1st Year - Fall Semester

BEN 111	Introduction to Biomedical Engineering I*	2
CHY 121	Introduction to Chemistry	3
CHY 123	Introduction to Chemistry Lab	1
PHY 121	Physics for Engineers and Physical Scientists I	4
MAT 126	Calculus I	4
ENG 101	College Composition	3
		<b>17</b>

### 2nd Year – Fall Semester

BEN 201	Fundamentals of Biomedical Engineering*	4
CHY 251	Organic Chemistry I	3
CHY 253	Organic Chemistry Lab	2
MAT 228	Calculus III	4
ECE 209	Fundamentals of Electric Circuits*	3
		<b>16</b>

### 3rd Year – Fall Semester

MEE 252	Statics & Strength of Materials*	3
BEN 401	Applications of Bioengineering*	3
BEN 403	Biomedical Engineering Instrumentation*	3
BEN 361	Biomedical Engineering Laboratory I*	3
	Human Values & Social Context Elective <sup>1</sup>	3
		<b>15</b>

### 4th Year - Fall Semester

BEN 477	Elements of Biomedical Engineering Design*	3
BEN 478	Biomedical Engineering Design I*	2
BEN 493	Biomedical Engineering Seminar*	0
	Approved Technical Elective <sup>2</sup>	3
	Approved Technical Elective <sup>2</sup>	3
	Human Values & Social Context Elective <sup>1</sup>	3
	Human Values & Social Context Elective <sup>1</sup>	3
		<b>17</b>

### 1st Year - Spring Semester

BEN 112	Introduction to Biomedical Engineering II*	2
CHY 122	Molecular Basis of Chemical Change	3
CHY 124	Molecular Basis of Chemical Change Laboratory	1
PHY 122	Physics for Engineers and Physical Scientists II	4
MAT 127	Calculus II	4
BMB 280	Introduction to Molecular and Cell Biology	3
		<b>17</b>

### 2nd Year- Spring Semester

BEN 202	Transport in Biomedical Systems*	4
MAT 258	Introduction to Differential Eqns with Lin.	4
COS 220	Introduction to C++ Programming**	3
BIO 208	Anatomy and Physiology	4
STS 332	Stats for Engineers*	3
		<b>18</b>

### 3rd Year – Spring Semester

BEN 402	Biomaterials and the Cellular Interface*	3
BEN 363	Biomedical Engineering Laboratory II*	3
BMB 322	Biochemistry	3
BMB 323	Biochemistry Laboratory	2
	Approved Technical Elective <sup>2</sup>	3
	Human Values & Social Context Elective <sup>1</sup>	3
		<b>17</b>

### 4th Year – Spring Semester

BEN 479	Biomedical Engineering Design II*	3
BEN 493	Biomedical Engineering Seminar II*	1
	Approved Technical Elective <sup>2</sup>	3
	Human Values & Social Context Elective <sup>1</sup>	3
	Human Values & Social Context Elective <sup>1</sup>	3
		<b>13</b>

### Total Credits Required for Graduation = 130

A minimum of **48 credits of engineering topics** is required for graduation. For transfer students, and those seeking non-engineering minors, judicious use of Technical Electives should be employed to meet the minimum number of engineering topic credits. \*\*ECE 177 (4 credits) can be substituted in place of COS 220 and is required for the Electrical Engineering minor.

<sup>(1)</sup> The **Human Values & Social Context Electives (18 credits)** must be selected to meet the University of Maine General Education requirements. These should be selected from approved courses to satisfy each of the five sub-categories: western cultural tradition, social context and institutions, cultural diversity and international perspectives, population and the environment, and artistic and creative expression. Some courses cover more than one sub-category. Students should consider completing their elective requirements during extra sessions such as summer, winter or May terms. Doing so provides scheduling flexibility for the addition of minors or COOP activities.

<sup>(2)</sup> The **Technical Electives (12 credits)** should be upper level (300 level or higher) engineering, mathematics or science courses. A list of approved courses is available at the Department Office or at <http://www.umche.maine.edu/chb>.

**Ethics:** The course sequence BEN 477, BEN 479 and BEN 493 satisfies the University of Maine General Education requirements for ethics.