

Sample Honors and Bioengineering B.S. Curriculum

First Year – First Semester

BEN 111	Introduction to Bioengineering I	2
CHY 121	Introduction to Chemistry	3
CHY 123	Introduction to Chemistry Laboratory	1
MAT 126	Calculus I	4
PHY 121	Physics for Engineers and Physical Scientists I	4
HON 111	Civilizations I	4
		18

Second Year – First Semester

BEN 201	Fundamentals of Bioengineering	4
CHY 251	Organic Chemistry I	3
CHY 253	Organic Chemistry Laboratory I	2
MAT 228	Calculus III	4
HON 211	Civilizations III	4
HON 180	A Cultural Odyssey ²	1
		18

Third Year – First Semester

BEN 401	Applications of Bioengineering	3
BEN 402	Biomaterials and the Cellular Interface	3
ECE 209	Fundamentals of Electric Circuits	3
	Approved Technical Elective I ³	3
	Approved Technical Elective II ³	3
		15

Fourth Year – First Semester

BEN 363	Bioengineering Laboratory II	3
BEN 477	Elements of Bioengineering Design	3
BEN 493	Bioengineering Seminar	0
MEE 252	Statics and Strength of Materials	3
HON 498	Honors Directed Study	3
		12

First Year – Second Semester

BEN 112	Introduction to Bioengineering II	2
CHY 122 ¹	The Molecular Basis of Chemical Change	3
CHY 124 ¹	The Molecular Basis of Chemical Change Laboratory	1
MAT 127 ¹	Calculus II	4
PHY 122 ¹	Physics for Engineers and Physical Scientists II	4
BMB 280	Introduction to Molecular and Cellular Biology	3
HON 112	Civilizations II	4
		21

Second Year – Second Semester

BEN 202	Transport Processes in Biological Systems	4
CHY 252	Organic Chemistry II	3
MAT 258	Introduction to Differential Equations with Linear Algebra	4
BIO 208	Anatomy and Physiology	4
HON 212	Civilizations IV	4
		19

Third Year – Second Semester

BEN 403	Instrumentation in Bioengineering	4
CHE 350	Statistical Process Control and Analysis ⁴	3
BEN 361	Bioengineering Laboratory I	3
BMB 322	Biochemistry	3
BMB 323	Biochemistry Laboratory	2
HON 310	Honors Tutorial	3
		18

Fourth Year – Second Semester

BEN 479	Bioengineering Design Projects	4
BEN 493	Bioengineering Seminar	1
	Approved Technical Elective III ³	3
HON 499	Honors Thesis ⁴	3
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Total Credits Required for Graduation = 132 (130⁶)

A minimum of **48 credits of engineering topics** is required for graduation. For non-transfer students a minimum of 3 credits of the required 9 credits of Technical Electives must be taken in an Engineering discipline. For transfer students judicious use of Technical Electives should be employed to meet the minimum number of engineering topic credits.

¹ It is recommended that CHY 122 and CHY 124, or PHY 122, or MAT 127 be taken during the summer preceding the Second Year – First Semester.

² HON 180 (A Cultural Odyssey) must be taken for 1 credit at any time during the eight semesters, but it is recommended to be taken during the first two years.

³ The **Technical Electives (12 credits)** should be upper level (300 level or higher) engineering, mathematics or science courses. A list of pre-approved courses is available at the Department Office or at <http://umaine.edu/chb>.

⁴ Students may substitute **MAT 332 Statistics for Engineers** for **CHE 350 Statistical Process Control and Analysis**. However, the total minimum credits of engineering topics (48 credits) must be satisfied, for example through judicious use of technical electives.

⁵ HON 499 counts as one technical elective. The Honors thesis may count as a second technical elective on a case-by case basis. See your advisor before proceeding.

⁶ Total credits required without honors.