

Cleveland State University
College of Engineering
Bachelor of Science in Biomedical Engineering - GENERAL BME TRACK
(for students immediately eligible for English I, General Chemistry, and Calculus I)

First Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
ENG 100 or ENG 101 English I	3	X	W/C	ESC 102 Technical Writing, or			
MTH 181 Calculus I	4	X	M/QL	ENG 102 English II	3	X	W/C
BIO 200 Introductory Biology I	3	X	NS	MTH 182 Calculus II	4	X	M/QL
BIO 201 Introductory Biology I Lab	1	X	NS	PHY 241 University Physics I	5	X	NS
ESC 120 Intr. to Engineering Design	2	X		CHM 261 General Chemistry I	3	X	
ESC 100 New Student Orientation	1	X	INTRO	CHM 266 General Chemistry Laboratory I	1	X	
MCE 180 Computer Aided Design I	2	X		MCE 181 Computer Aided Design II	2	X	
Semester Total	16			Semester Total	18		

Second Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
PHY 242 University Physics II	5	X		BME 300 Introduction to Biomedical Engr.	3	X	
ESC 130 Engineering Co-Op Orientation	1	X		BIO 266 Human Anatomy & Physiology I	3	X	NS
ESC 152 MATLAB	3	X		BIO 267 Human Anatomy & Physiology I Lab	1	X	NS
				ESC 310 Engineering Probability & Statistics	3	X	
ESC 250 Intr. To Differential Equations	3	X		CHM 331 Organic Chemistry I	3	X	
CHM 262 General Chemistry II	3	X		CHM 336 Organic Chemistry I Lab	1	X	
CHM 267 General Chemistry II Lab	1			ESC 201 Statics	3	X	
Semester Total	16			Semester Total	17		

Third Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
BME 302 Biofluids/ Biotransport	3	X		BME 306 Systems Physiology (Writing)	3	X	WAC
BME 304 Cell & Tissue Biology	3	X		ESC 315 Electrical Engineering Concepts	3	X	
ESC 270 Materials Science & Engineering	3	X		BME 390 Clinical Experience (Writing)	1	X	WAC
ESC 211 Strength of Materials	3	X		General Education Elective (Diversity)	3	X	DIV
				General Education Elective (SS)	3	X	SS
General Education Elective (SS)	3	X	SS	BME 455 Biomaterials	3	X	
Semester Total	15			Semester Total	16		

Fourth Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
PHL 215 Engineering Ethics (Writing, A&H)	3	X	A&H	BME 480 Biomedical Signals & Instrumentat	3	X	
BME 440 BME Senior Design I (Writing)	3	X	WAC				
BME 451 Biomechanics	3	X		BME 441 BME Senior Design II (Writing)	3	X	CAP
BME Senior Elective I	3	X		BME Senior Elective III	3	X	
BME Senior Elective II	3	X		General Education Elective (A&H, non-US) *	3	X	A&H
				General Education Elective (Diversity)	3	X	DIV
Semester Total	15			Semester Total	15		

Degree Total: 128 hours

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

College/ Program Notes:

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

*General Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a **minimum of 128 total credit hours**, of which a **minimum of 42 credit hours** must be upper division (300 or 400-level courses). Depending upon other elective choices made, students may not need as many general electives as indicated above, or may need additional electives.

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University Notes:

Gen Ed Key:

INTRO = Introduction to University Life Requirement (one course)

W/C = Writing/Composition Requirement (two courses; C or better required)

M/QL = Mathematics/Quantitative Literacy Requirement (two courses)

NS = Natural Sciences (two courses, one of which must have a lab)

SS = Social Sciences Requirement (2 courses, one of which must be focused outside the US**)

A&H = Arts & Humanities Requirement (2 courses, one must be focused outside the US**)

DIV = Social Diversity Requirement (2 courses; one US Diversity and one African American Exp.)

WAC/SPAC = Writing/Speaking Across the Curriculum Requirement (3 courses, one in the major)

CAP = Capstone Requirement

** of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

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MTH 181 Calculus I	4	X	M/QL	ENG 102 English II	3	X	W/C
BIO 200 Introductory Biology I	3	X	NS	MTH 182 Calculus II	4	X	M/QL
BIO 201 Introductory Biology I Lab	1	X	NS	PHY 241 University Physics I	5	X	NS
ESC 120 Intr. to Engineering Design	2	X		CHM 261 General Chemistry I	3	X	
ESC 100 New Student Orientation	1	X	INTRO	CHM 266 General Chemistry Laboratory I	1	X	
MCE 180 Computer Aided Design I	2	X		MCE 181 Computer Aided Design II	2	X	
Semester Total	16			Semester Total	18		

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Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed
PHY 242 University Physics II	5	X		BME 300 Introduction to Biomedical Engr.	3	X	
ESC 130 Engineering Co-Op Orientation	1	X		BIO 266 Human Anatomy & Physiology I	3	X	NS
BIO 202 Introductory Biology II	3	X		BIO 267 Human Anatomy & Physiology I Lab	1	X	NS
BIO 203 Introductory Biology II Lab	1	X		ESC 310 Engineering Probability & Statistics	3	X	
ESC 250 Intr. To Differential Equations	3	X		CHM 331 Organic Chemistry I	3	X	
CHM 262 General Chemistry II	3	X		CHM 336 Organic Chemistry I Lab	1	X	
CHM 267 General Chemistry II Lab	1			General Education Elective (Psychology)	3	X	
Semester Total	17			Semester Total	17		

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BME 302 Biofluids/ Biotransport	3	X		BME 306 Systems Physiology (Writing)	3	X	WAC
BME 304 Cell & Tissue Biology	3	X		ESC 315 Electrical Engineering Concepts	3	X	
ESC 270 Materials Science & Engineering	3	X		BME 390 Clinical Experience (Writing)	1	X	WAC
ESC 152 MATLAB	3	X		General Education Elective (Diversity)	3	X	DIV
BIO 306 Biochemistry I	3	X		BIO 310 Genetics	3	X	NS
BIO 307 Biochemistry I Recitation	1	X		BIO 311 Genetics Recitation	1	X	NS
Semester Total	16			Semester Total	14		

Fourth Year

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PHL 215 Engineering Ethics (Writing, A&H)	3	X	A&H	BME 480 Biomedical Signals & Instrumentat	3	X	
BME 440 BME Senior Design I (Writing)	3	X	WAC				
BME Senior Elective I	3	X		BME 441 BME Senior Design II (Writing)	3	X	CAP
BME 495 Biomedical Engineering Research	3	X		BME Senior Elective II	3	X	
General Education Elective (SS)	3	X	SS	General Education Elective (A&H, non-US) *	3	X	A&H
				General Education Elective (Diversity)	3	X	DIV
Semester Total	15			Semester Total	15		

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