

BIOMEDICAL ENGINEERING MAJOR

Welcome to the Department of Biomedical Engineering at Tulane University in New Orleans, LA. Since 1977, our department has been a leader in engineering science investigations of health and medicine. As you explore this site, you will see that our curriculum and translational studies are targeted and integrated, spanning areas of biomaterials, biomechanics, device development and tissue engineering. Our team of faculty and staff members brings energy and enthusiasm towards educating future generations of biomedical engineers as we solve today's most complex and interesting basic and applied research problems relevant to healthcare. We welcome the opportunity to develop collaborations at all levels.

Tulane's Biomedical Engineering program is accredited by the Engineering Accreditation Commission of ABET (www.abet.org).

Requirements

Curriculum

Year 1

Fall		Credit Hours
MATH 1210	Calculus I ¹	4
CHEM 1070	General Chemistry I	3
CHEM 1075	General Chemistry Lab I	1
PHYS 1310	General Physics I	4
ENGL 1010	Writing	4
TIDES Tulane Inter. Exp. Sem.		1
SCEN 1400	Engineering at Tulane and Beyond (optional) ²	1
Credit Hours		18

Spring

MATH 1220	Calculus II	4
CHEM 1080	General Chemistry II	3
CHEM 1085	General Chemistry Lab II	1
PHYS 1320	General Physics II	4
ENGP 1410	Statics	3
NTC Core Elective		3
Credit Hours		18

Year 2

Fall		
MATH 2210	Calculus III	4
CELL 1010	Intro to Cell & Molec Biology	3
CELL 2115	General Biology Lab	1
BMEN 2310	Product & Experimental Design ³	3
ENGP 2010	Electric Circuits	3
ENGP 2011	Electric Circuits Lab	1
ENGP 2430	Mechanics of Materials	3
Credit Hours		18

Spring

MATH 2240	Intro To Applied Math	4
BMEN 2020	Computing Concepts & Applic	4
BMEN 2600	Intro Organic & Biochem	3
BMEN 2730	Biomedical Electronics	4
ENGP 3120	Materials Science and Engineering	3
Credit Hours		18

Year 3

Fall		
BMEN 3030	Anatomy & Physio for Engr	3
BMEN 3035	Anatomy & Physiology for Engineers Cadaver Lab	1

BMEN 3440	Biofluid Mechanics	3
BMEN 4900	Art of Professional Eng	1
BMEN 3xxx	"Domain" class ⁴	3
PELECT Professional Elective ⁵		3
Credit Hours		14
Spring		
BMEN 3070	Quantitative Physiology	3
BMEN 3075	Quant. Physiology Lab	1
BMEN 3820	Math Analysis Bio Systms	3
BMEN 4902	SR Research Prof Experience I	3
BMEN 3xxx	"Domain" class ⁴	3
NTC Core Elective		3
Credit Hours		16
Year 4		
Fall		
BMEN 4030	BMEN Team Dsgn Project I	3
BMEN 4890	Service Learning	0
BMEN 6710	Departmental Seminar	1
BMEN 4912	SR Research Prof Experience II	3
NTC Core Elective		3
Professional Elective ⁵		3
Professional Elective ⁵		3
Credit Hours		16
Spring		
BMEN 4040	BMEN Team Dsgn Proj II	3
BMEN 4920	Senior Research and Design Conference	0
BMEN 4890	Service Learning	0
NTC Core Elective		3
NTC Core Elective		3
Professional Elective ⁵		3
Credit Hours		12
Total Credit Hours		130

¹ Students with a strong preparation in calculus are advised to consider MATH 1310 Consolidated Calc. in lieu of MATH 1210/1220 Calc. I & II. Consult the Math Dept. website for further guidance.

² This optional course is offered in the fall and spring of the 1st year. Students are required to take a 1-hour "service learning" course before the end of the Sophomore year. There is an optional service learning course (SCEN 1891) associated with this course.

³ This course is associated with an optional 1st-tier service learning course (BMEN 2890).

⁴ Students are required to take 2 BME "Domain" courses at the 3xxx level. Additional Domain courses may be taken as Professional Electives. See the student handbook on the BME website for more information.

⁵ One Professional Elective must be a BMEN6xxx advanced class, following up on a BMEN3xxx domain class.

Pre-Med Students

Those students who are declared pre-med are to make the following adjustments to the BME curriculum:

1. Substitute CHEM 2410 Organic Chemistry I (3 c.h.) & CHEM 2415 Organic Chemistry Lab I (1 c.h.) for BMEN 2600 Intro Organic & Biochem (3 c.h.)
2. Count CHEM 2420 Organic Chemistry II (3 c.h.) & CHEM 2425 Organic Chemistry Lab II (1 c.h.) as one Professional Elective
3. Count CELL 4010 Cellular Biochemistry (3 c.h.) as a second Professional Elective
4. Count EBIO 1010 Diversity of Life (3 c.h.) & EBIO 1015 Diversity of Life Lab (1 c.h.) as the third Professional Elective

No additional Professional Electives are required, except the BMEN 6xxx upper level elective. Note that this adjustment will increase the total required credits toward a BME bachelor's degree by 3 credits due to the additional required laboratories

If after you have completed CHEM 2410 Organic Chemistry I (3 c.h.)/ CHEM 2415 Organic Chemistry Lab I (1 c.h.); or if after you have completed CHEM 2410 Organic Chemistry I (3 c.h.)/ CHEM 2415 Organic Chemistry Lab I (1 c.h.) and CHEM 2420 Organic Chemistry II (3 c.h.)/CHEM 2425 Organic Chemistry Lab II (1 c.h.), you decide to not pursue pre-med, you will be required to take either BMEN 2600 Intro Organic & Biochem (3 c.h.) or CELL 4010 Cellular Biochemistry (3 c.h.) as an appropriate substitute. In this case, CHEM 2410 Organic Chemistry I (3 c.h.)/ CHEM 2415 Organic Chemistry Lab I (1 c.h.), and/or CHEM 2420 Organic Chemistry II (3 c.h.)/CHEM 2425 Organic Chemistry Lab II (1 c.h.) will be counted as one and/or two of your required three, non-6xxx level Professional Electives, respectively