Undergraduate Biomedical and Health Sciences Engineering Curriculum
University of North Carolina at Chapel Hill
2017-2018

Students may declare the biomedical and health sciences engineering major as early as their first year. However, students who enter UNC fall 2016 or later and wish to complete the biomedical and health sciences engineering major must apply for admission to the program. Admission to the university does not guarantee admission to the program. Admission to the program is granted to rising sophomores, and students will apply in the spring or summer of their first year. Rising juniors may also apply, but admission to rising juniors will only be granted on a limited basis if space is available. Students who are not accepted to the program must select a different major.

In order to apply, students must complete or receive credit (transfer, AP or IB) for core courses (see notes 2 and 3 below). More information about this process is available on the department Web site.

Freshman year

BMME	101	Frontiers of Biomedical Engineering[1]	1
MATH	231	Calculus of Functions of One Variable[2]	3
MATH	232	Calculus of Functions of One Variable II[2]	3
PHYS	118	Mechanics[2]	4
CHEM	101, 101L	General Chemistry I and Lab[2]	4
CHEM	102,102L	General Descriptive Chem and Lab	4
ENGL	105 / 105I	English Composition and Rhetoric[3]	3
		Foreign Language 3	3

1. Strongly recommended, but not required. Course provides an introduction to Biomedical Engineering tools and topics and information about the curriculum. Not offered in summer.
2. Students must earn a C or better in this course in order to apply for the major.
3. Students must earn a C- or better in this course in order to apply for the major.

Sophomore year

MATH	233	Calculus of Functions of Several Variables	3
MATH	383, 383L	Linear Algebra and Differential Equations	4
PHYS	119	Electromagnetism and Optics	4
BMME	210	BME Design and Manufacturing I	2
BIOL	101, 101L	Principles of Biology with Lab	4
BIOL	202	Molecular Biology and Genetics	4
COMP		Introductory Programming Elective (COMP 116 highly recommended, but you can choose from COMP 116, 401, PHYS 331 or, in summer, BMME 201)	3

Fall only:

BMME	160	Statics	3

Spring only:

BMME	150	Introduction to Material Sciences	3

Junior year

BMME	310	BME Design and Manufacturing II	2
BIOL	252	Fund. Of Hum. Anatomy and Physiol.	4
MATH	528	Mathematical Methods for the Physical Sciences I (lab section is optional)	3
STOR		Statistics Elective (choose from STOR 435 or STOR 455)	3
		BME Specialty Elective 1	3

Fall only:

BMME	350	Fundamentals of Biomedical Electronics	4

Spring only:

BMME	351	Human Physiology and Biological Measurements	4
BMME	465	Biomedical Instrumentation	4
BMME	410	Signals and Systems	3

Senior year

		BME Specialty Elective 2	3
		BME Specialty Elective 3	3
		BME Specialty Elective 4	3

Choose ONE of the following (additional courses taken count as a BME Specialty Elective)

		BMME 341 Thermodynamics (fall)	3
		BMME 455 BioFluid Mechanics (fall)	3
		BMME 475 Transport Processes (spring)	3

Fall only:

BMME	697	Senior Design Project	3

Spring only:

BMME	698	Senior Design Project	3

Any semester

		Approaches class #1[4]	3
		Approaches class #2[4]	3
		Approaches class #3[4]	3
		Approaches class #4[4]	3
		Approaches class #5[4]	3
		Approaches class #6[4]	3
		Lifetime Fitness	1

4. The six (6) approaches classes must satisfy all UNC General Education requirements in Social and Behavioral Sciences and Humanities/Fine Arts (the Physical and Life Sciences requirements will be satisfied by the other required courses in BME).

BME electives offered in fall (this list is subject to change):

BMME 445: Systems Neuroscience
BMME 455: Biofluid Mechanics
BMME 485: Biotechnology
BMME 505: Biomechanics II
BMME 510: Biomaterials
BMME 550: Medical Imaging
BMME 580: Microcontroller Applications I
PHYS 405: Biological Physics

BME electives offered in spring (this list is subject to change):

BMME 470: Tissue Engineering
BMME 475: Transport Processes
BMME 405: Biomechanics I
BMME 576: Mathematics for Imaging Computing
CHEM 449: Microfabricated Chemical Measurement Systems
CHEM 441: Intermediate Analytical Chemistry
COMP 590-099: Introduction to Robotics