

**State University of New York at Binghamton**  
**Thomas J. Watson College of Engineering and Applied Science**  
**BS in Biomedical Engineering Four-Year-Program**

Application Code: 274  
 (If undecided use: 0229)

**FALL 2025**

**Engineering Design Division**

*(The freshman year is common to all engineering majors)*

**Fall**

MATH 224/225 Diff Calc/Int Calc (M)  
 CHEM 111 Chemical Principles (L)  
 EDD 111 Introduction to Engineering Design  
 EDD 103 Engineering Communications I  
 General Education Elective (A, D, G, N)

Body/Wellness

**Spring**

MATH 226/227 Int Tech&App/Inf S. (MATH 225)  
 PHYS 131 General Physics I Calculus-based (MATH 225)  
 EDD 112 Introduction to Engineering Analysis (J) (EDD 111)  
 EDD 104 Engineering Communications II (EDD 103)  
 BIOL 113 Intro to Cell & Molecular Biol, or  
 General Education Elective (A, D, G, N)

Body/Wellness

**Year 2**

**Fall**

BME 201 Introduction to Biomedical Engineering  
 (MATH 225, PHYS 131, EDD 112) (Co-req: BIOL 113)  
 MATH 324 Ordinary Differential Equations  
 (MATH 227)  
 CHEM 231 Organic Chemistry I (CHEM 111)  
 General Education Elective (A, D, G, N)

**Spring**

BME 203 Biomedical Modeling & Numerical Methods  
 (MATH 324 or 371, BME 201)  
 BME 213 Biomolecule Engineering  
 (BIOL 113, BME 201, CHEM 111, MATH 324)  
 MATH 323 Calculus III (MATH 227)  
 PHYS 132 General Physics II Calculus-based (PHYS 131)  
 General Education Elective (A, D, G, N)

**Year 3**

**Fall**

BME 313 Biomaterials (CHEM 231, BME 213, BIOL 113)  
 BME 318 Biomechanics (PHYS 131, MATH 227)  
 BME 324 Biomedical Instrumentations (L)  
 (BME 201, BME 203, BME 213, PHYS 132)  
 BME 330 Biothermodynamics  
 (MATH 323, MATH 324, PHYS 131)  
 BME Depth or Science Elective\*

**Spring**

BME 303 Bio-Fluid Mechanics (BME 318, PHYS 131, MATH 226)  
 BME 340 Bioinformatics and Biostatistics (BIOL 113, BME 203)  
 BME 351 Biomedical Engineering Lab  
 (BME 213, BME 324, BME 318) (Co-req: BME 303)  
 BIOL 311 Cell Biology (BIOL 113, CHEM 111)  
 or  
 BIOL 401 Molecular Genetics (BIOL 113, CHEM 111, CHEM 231)  
 (Co-req: CHEM 332)  
 General Education Elective (A, D, G, N)

**Year 4**

**Fall**

BME 413 Biomedical Transport Phenomena  
 (BME 330, BME 318, BME 303)  
 BME 432 Ethics in Engineering (H) (Co-req: BME450)  
 BME 433 Human Physiology (CHEM 231, BIOL 113)  
 BME 450 Biomedical Engineering Design I  
 (BME 318, BME 351) (Co-req: BME 413)  
 BME Depth elective\*

**Spring**

BME 451 Biomedical Engineering Design II (J) (BME 450)  
 Science Elective (must be 4 credit hours) Refer to \*\*  
 BME Depth or Science Elective\*  
 BME Depth Elective\*

\* BME depth electives are chosen from your concentration.

\*\* Science electives include: PSYC 111, PSYC 220, ANTH 243, ANTH 240 (summer and winter online course), any BCHM 300 level and above, any CHEM 300 level and above, any BIOL 300 level and above.

## Biomedical Engineering with MCAT Preparation

### FALL 2025

#### Year 1

#### Engineering Design Division

*(The freshman year is common to all engineering majors)*

#### Fall

MATH 224/225 Calculus I (M)  
CHEM 111 Chemical Principles (L)  
EDD 111 Introduction to Engineering Design  
EDD 103 Engineering Communications I  
General Education Elective (A, D, G, N)

Body/Wellness

#### Fall

BME 201 Introduction to Biomedical Engineering  
(MATH 225, PHYS 131, EDD 112) (Co-req: BIOL 113)  
MATH 324 Ordinary Differential Equations (MATH 227)  
CHEM 231 Organic Chemistry I

- ANTH 240 offered online in summer and winter only (2 credits)

#### Fall

BME 318 Biomechanics (PHYS 131, MATH 227)  
BME 324 Biomedical Instrumentations (L)  
(BME 201, BME 203, BME 213, PHYS 132)  
BME 330 Biothermodynamics  
(MATH 323, MATH 324, PHYS 131)  
CHEM 341 Intermediate Inorganic Chemistry  
Pre-Med Elective\*

**MCAT typically taken after Junior Year** Before MCAT, courses suggested to take: BIOL 113, BIOL 114, CHEM 111, CHEM 341, CHEM 231, CHEM 332 and 335, PHYS 131, PHYS 132, PSYC 111, BCHM 403, BME 340, ANTH 240 (summer and winter online course), ANTH 243

#### Fall

BME 313 Biomaterials (CHEM 231, BME 213, BIOL 113)  
BME 413 Biomedical Transport Phenomena (BME 330,  
BME 318, BME 303)  
BME 432 Ethics in Engineering (H) (Co-req: BME 450)  
BME 433 Human Physiology (CHEM 231, BIOL 113)  
BME 450 Biomedical Engineering Design I (BME318,  
BME 351) (Co-req: BME 413)  
BME Depth elective\*\*

#### Spring

MATH 226/227 Calculus II (MATH 225)  
PHYS 131 General Physics I Calculus-based (MATH 225)  
EDD 112 Introduction to Engineering Analysis (J) (EDD 111)  
EDD 104 Engineering Communications II (EDD 103)  
BIOL 113 Intro to Cell & Molecular Biol, or  
General Education Elective (A, D, G, N)

Body/Wellness

#### Year 2

BME 203 Biomedical Modeling & Numerical Methods  
(MATH 227, BME 201)  
BME 213 Biomolecule Engineering  
(BIOL 113, BME 201, CHEM 111, MATH 324)  
MATH 323 Calculus III (MATH 227)  
PHYS 132 General Physics II Calculus-based (PHYS 131)  
Pre-Med Elective\*

#### Year 3

BME 303 Bio-Fluid Mechanics (BME 318, PHYS 131, MATH 227)  
BME 340 Bioinformatics and Biostatistics (BIOL 113, BME 203)  
BME 351 Biomedical Engineering Lab  
(BME 213, BME 324, BME 318) (Co-req: BME 303)  
Pre-Med Elective\*  
Pre-Med Elective\*

#### Spring

#### Year 4

BME 451 Biomedical Engineering Design II (J) (BME 450)  
BIOL 311 Cell Biology (BIOL 113, CHEM 111)  
or  
BIOL 401 Molecular Genetics (BIOL 113, CHEM 111, CHEM 231)  
(Co-req: CHEM 332)  
BME Depth Elective\*\*  
General Education Elective (A, D, G, N)  
General Education Elective (A, D, G, N)

\* Pre-Med Electives: BIOL 114, CHEM 332, CHEM 335 (L), PSYC 111, BIOL 403, ANTH 240 (2-credit), 243 (4-credit), any BCHM 300 level and above, any CHEM 300 level and above, any BIOL 300 level and above