

Name: \_\_\_\_\_

Exp. Grad.: Fall \_\_\_\_ / Spring \_\_\_\_

**Biomaterials Engineering**  
**Suggested Curriculum Course Plan for students entering Fall 2024 – Spring 2025**

Semester 1		Semester 2		Semester 3		Semester 4	
Course (cr. hr.)	X	Course (cr. hr.)	X	Course (cr. hr.)	X	Course (cr. hr.)	X
Writing I*: ENGL 101* (4)		Calculus II: MATH 152 (4)		Technical Communication: ENGR 110 (4)		Differential Equations: MATH 271 (3)	
Calculus I: MATH 151 (4)		Biological Foundations**: BIOL 150** (4)		Calculus III: MATH 253 (4)		Cell Biology & Lab: BIOL 211 (4) & BIOL 211L (0)	
General Chemistry I & Lab: CHEM 105 (3) & CHEM 105L (1)		General Chemistry II & Lab: CHEM 106 (3) & CHEM 106L (1)		Physics II & Lab: PHYS 126 (4) & PHYS 126L (0)		Thermodynamics of Materials: CEMS 235 (4)	
Introduction to Engineering: ENGR 101 (2)		Physics I & Lab: PHYS 125 (4) & PHYS 125L (0)		Structure & Properties of Materials: CEMS 214 (3)		Microscopy & Microstructural Characterization: CEMS 215 (3) & CEMS 215L (0)	
Engineering Foundations II & Lab: ENGR 117 (2) & ENGR 117L (0)		First-Year Seminar: ENGR 160 (0)		Undergraduate Seminar: ENGR 360 (0)		Bonding & Structures of Materials: CEMS 216 (3)	
First-Year Seminar: ENGR 160 (0)		Common Ground: UNIV 101 (1)		General Education Elective (2)		Undergraduate Seminar: ENGR 360 (0)	
Wellness (2)							
<b>Total (18)</b>		<b>Total (17)</b>		<b>Total (17)</b>		<b>Total (17)</b>	

\* ENGL 101 if required otherwise General Education elective (2-4).

\*\* Students who have taken any college level BIOL course should consult with the Chair of Biology to determine if that course substitutes for BIOL 150.

Semester 5		Semester 6		Semester 7		Semester 8	
Course (cr. hr.)	X	Course (cr. hr.)	X	Course (cr. hr.)	X	Course (cr. hr.)	X
Thermal Processes in Materials: CEMS 237 (4)		Engineering Statistics: ENGR 305 (3) or Biostatistics: BIOL 226 (4)		Physical Metallurgy: CEMS 336 (3)		Properties II: Electrical, Magnetic, & Optical: CEMS 344 (4)	
Introduction to Bioengineering: CEMS 368 (3)		Biology for Engineers: CEMS 460 (3)		Thermal & Mechanical Properties: CEMS 342 (4)		Senior Capstone Individual Project: ENGR 480 (2)	
Engineering Economics: ENGR 306 (2)		Basic Organic Chemistry*: CHEM 310* (3)		Biocompatibility: CEMS 465 (4)		Biomaterials Elective (3)	
Statics: MECH 211 (3)		Computer Aided Design: ENGR 102 (2)		Biomedical Materials: CEMS 468 (3)		Technical Elective (3)	
Biomaterials Elective (3)		Introduction to Polymers: CEMS 334 (3)		Senior Capstone Individual Project: ENGR 480 (2)		Undergraduate Seminar: ENGR 360 (0)	
Undergraduate Seminar: ENGR 360 (0)		Engineering Design: ENGR 395 (2)		Undergraduate Seminar: ENGR 360 (0)		General Education Elective (4)	
General Education Elective (4)		Mechanics of Materials: MECH 241 (3)		Fitness (1)			
		Undergraduate Seminar: ENGR 360 (0)					
<b>Total (19)</b>		<b>Total (19)</b>		<b>Total (17)</b>		<b>Total (16)</b>	

\* CHEM 315 (4) and CHEM 316 (4) may substitute for CHEM 310 (3) and 5 credits of BME Electives. **Credits: 140**

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### **Definitions of Electives for BMEG (9 total credits):**

6 Credits – BMEG Program-specific electives which can include:

BCHM 320, BCHM 420, BCHM 422, BIOL 302, BIOL 306, BIOL 307, BIOL 308, BIOL 320, BIOL 376, BIOL 402, BIOL 405, BIOL 420, BIOL 422, non-required CEMS 36x or 46x, BCHM, BIOL, or CEMS Topics, Independent Study, or ENGR 385/Internship if pre-approved by the Dean.

3 Credits – Technical Electives which can include:

(A) Most 300- and 400-level courses designated CEMS, CHEM, ELEC, ENGR, MATH, MECH, PHYS, or RNEW. Exceptions include: CHEM 343, MATH 331, MECH 320, and Topics courses unless approved by the Dean. (B) One of FIN 348 or MGMT 328, (C) COOP 385 or ENGR 385/Internship.

### **Requirements:**

1. AU Global Perspective
2. AU Wellness & Physical Education: Well (ATHT 111, 190, 215, 222, BIOL 105, 120, DANC 120, 200, 222, 223, 224, 226, PSYC 251, 322, 351, WELL 100, 101, WGST 351, PFIT: Varsity sport for one season, physical fitness test, any course with PFIT designation which includes some Equestrian, Dance, and ROTC courses.
3. SOE Minimum Credit Requirement of 128 credits
4. SOE GPA requirement of 2.0 and no more than 7 credits of D or D+ in engineering courses.
5. SOE Seminar requirement
6. SOE General Education Requirement of 60 credits comprising: Quantitative Reasoning, Humanities (minimum of six credits with at least two different acronyms, Natural Science, Social Science (minimum of three credits), AU Wellness, Written Communication, and General/Arts (maximum of eight credits).
7. Defense of Capstone Poster & submission of approved Thesis. (ENGR 480 2+2 with the same instructor).

Complete SOE requirements are available in the AU Undergraduate Catalog 2024-2025.

<https://alfred.edu/academics/undergrad-majors-minors/catalog.cfm>

Degree Audit, including What-If, is available via Degree Works.

<https://my.alfred.edu/degreeworks/index.cfm>

*Special cases are not covered by this Suggested Curriculum Course Plan; these may include testing out of courses via SAT score. AP exam, etc., double/dual majors, minors, transfer credits, etc.*

*Edited June 7, 2024*