B.S. in Mechanical Engineering with a Biomechanical Option
Curriculum of Biomechanical Engineering Option, 2023-2024

Freshman: 1st Semester (16 credits)	**MAE 1001 (1, F)** Intro to Mechanical and Aerospace Engineering	**MATH 1231 (3, F&S)** Single Variable Calculus I	**SEAS 1001 (1, F)** Engineering Operations	**CHEM 1111 or CHEM 1113 (4, F&S)** General Chemistry	**UW 1020 (4, F&S)** University Writing	**H/SS 1 (3)**
Freshman: 2nd Semester (19 credits)	**MATH 2184 (3, F&S)** Linear Algebra Pre: MATH 1220 or 1221 or 1231	**MAE 1004 (3, F&S)** Engineering Drawing and Computer Graphics	**PHYS 1021 (4, F&S)** University Physics I Pre: MATH 1220 or 1221 or 1231	**MATH 1232 (3, F&S)** Single Variable Calculus II Pre: MATH 1221 or 1231	**MAE 1117 (3, 5)** Intro to Engineering Computations	**H/SS 2 (3)**
Sophomore: 1st Semester (15 credits)	**APSC 2057 (3, F&S)** Analytical Mechanics I Pre: PHYS 1021	**APSC 2113 (3, F&S)** Engineering Analysis I Pre/Co: MATH 2233	**MAE 3192 (3, F)** Manufacturing Process and Systems Pre: MAE 1004	**MATH 2233 (3, F&S)** Multivariable Calculus Pre: MATH 1232	**MAE 2117 (3, F)** Engineering Computation Pre: MAE 1117, MATH 1232	
Sophomore: 2nd Semester (16 credits)	**APSC 2058 (3, F&S)** Analytical Mechanics II Pre: APSC 2057	**MAE 2131 (3, S)** Thermodynamcis Pre: PHYS 1021	**CE 2220 (3, F&S)** Mechanics of Solids Pre: APSC 2057, 2113	**PHYS 1022 (4, F&S)** University Physics II Pre: PHYS 1021, MATH 1232	**APSC 3115 (3, F&S)** Engineering Analysis III Pre: MATH 1232	
Junior: 1st Semester (16 credits)	**MAE 3126 (3, F)** Fluid Mechancis Pre: APSC 2058	**MAE 3217 (1, F)** Fluid Mechanics Lab Pre: APSC 2058, Co: MAE 3126	**MAE 3191 (3, F)** Mechanical Design Pre: CE 2220	**MAE 3119 (3, F)** Electronics and Devices for Mechanical Engineers Pre: MAE 2117, PHYS 1022	**MAE 3166W (3, F)** Materials Engineering Pre: CHEM 1111, PHYS 1022	**BME 4820 (3, F)** Anatomy and Physiology for Engineers
Junior: 2nd Semester (16 credits)	**MAE 3187 (3, S)** Heat Transfer Pre: MAE 3126, 2131	**MAE 3134 (3, S)** Linear System Dynamics Pre: APSC 2113, Co: APSC 2058	**MAE 3193 (3, S)** Mechanical Systems and Design Pre: MAE 3191	**MAE 3120 (3, S)** Methods of Engineering Experimentation Pre: MAE 3119	**MAE 3167W (1, S)** Mechanicals of Material Lab Pre: MAE 3166W	**MAE 3128 (3, S)** Biomechanics Pre: APSC 2057, CE 2220
Senior: 1st Semester (15 credits)	**MAE 4149 (3, F)** Thermal Systems Design Pre: MAE 3187	**MAE 4182 (3, F)** Electromechanical Control System Design Pre: MAE 2117, 3134	**MAE 4151 (3, F)** Capstone Design Project I Pre: MAE 3193	**MAE 6238 (3, S)** Biomaterials Pre: MAE 3166	**H/SS 3 (3)**	
Senior: 2nd Semester (15 credits)	**MAE 4152W (3, S)** Capstone Design Project II Pre: MAE 4151	**MAE 3171 (3, S)** Patent Law for Engineers	**H/SS 4 (3)**	**H/SS 5 (3)**	**H/SS 6 (3)**	

Color code:
- Design Courses
- Mechanical, Materials, Processes
- Electrical, Measurements, Controls
- Thermal/Fluid Sciences
- Engineering Orientation, Computations
- Humanities/Social Sciences, Writng
- Mathematics
- Basic Science

F = fall semester, S = spring semester
Pre = Pre-requisite
Co = Co-requisite
Pre/Co = Pre-requisite or Co-requisite
H/SS = Humanities / Social Sciences - all MAE students must take one humanities course and two social science courses from the University education requirement;
PHIL 2135, and two additional humanities or social science or non-technical courses from SEAS/MAE Department's pre-approved list of electives.

Technical Elective: Shall be selected from among the MA 3000, 4000, or 6000 level courses, except that the following are excluded: MAE 3171, 4172, 6298, 6999. All technical electives must be approved by the undergraduate advisor. Technical courses from other departments (3000, 4000, or 6000 level) may be permitted, on a case-by-case basis, if approved by both the undergraduate advisor and department chair.

ASME membership recommended
FE Exam recommended in the senior year