

College of Engineering
Bachelor of Science in Engineering Science and Mechanics
Biomechanics Option
For Students Graduating in Calendar Year 2011

Name: _____

Advisor: _____

Freshman Year

Fall Semester	
CHEM 1035 General Chemistry or CHEM 1074 General Chemistry for Engineers	3
CHEM 1045 General Chemistry Lab. or CHEM 1084 General Chemistry Lab. for Engineers	1
ENGE 1024 Engineering Exploration	2
ENGL 1105 Freshman English	3
MATH 1205 Calculus	3
MATH 1114 Linear Algebra	2
Area 2/3 Liberal Education*	3
TOTAL HOURS	17

Spring Semester	
ENGE 1114 Exploration of Engineering Design	2
ENGL 1106 Freshman English	3
MATH 1206 Calculus	3
MATH 1224 Vector Geometry	2
PHYS 2305 Foundations of Physics I and Lab	4
Area 2/3 & 7 Liberal Education*	3
TOTAL HOURS	17

Sophomore Year

Fall Semester	
ESM 2014 Prof. Development Seminar	1
ESM 2104 Statics	3
ISE 2014 Engineering Economy	2
MATH 2224 Multivariable Calculus	3
PHYS 2306 Foundations of Physics I and Lab	4
Area 2/3 Liberal Education*	3
Area 6 Liberal Education	1
TOTAL HOURS	17

Spring Semester	
ESM 2074 Computational Methods	3
ESM 2204 Mechanics of Deformable Bodies	3
ESM 2304 Dynamics	3
MATH 2214 Intro. Diff. Equations	3
MSE 2034 Elements Materials Engr.	3
Area 2/3 Liberal Education*	3
TOTAL HOURS	18

Junior Year

Fall Semester	
ESM 3015 Fluid Mechanics I	3
ECE 3054 Electrical Theory	3
MATH 4574 Vector & Complex Analysis	3
ME 3134 Thermodynamics	3
BMVS 4064 Intro. to Medical Physiology	3
Biomechanics Option Course †	3
TOTAL HOURS	18

Spring Semester	
ESM 3016 Fluid Mechanics II	3
ESM 3034 Fluid Mechanics Laboratory £	1
ESM 3124 Intermediate Dynamics	3
ESM 4004 Inst. & Exp. Mechanics	3
ESM 3054 Mechanical Behavior of Materials	2
ESM 3064 Mech. Behavior of Matls. Lab £	1
MATH 4564 Operational Methods	3
ESM 3114 Problem Definition and Problem Scoping in Design	1
TOTAL HOURS	17

Senior Year

Fall Semester	
ESM 4015 Creative Design & Proj. I %	3
ESM 4074 Vibration and Control	3
ESM 4234 Mech. Bio. Mat. and Struct. or ESM 3154 Solid Mechanics**	3
Biomechanics Option Course †	3
Biomechanics Option Course †	3
STAT 4604 Statistical Methods for Engineers	3
TOTAL HOURS	18

Spring Semester	
ESM 4016 Creative Design & Proj. II %£	3
ESM 4734 Intro Finite Elements	3
ESM 4304 Hemodynamics or ESM 4014 Applied Fluid Mechanics**	3
Biomechanics Option Course †	3
TOTAL HOURS	12

* A total of 6 hours of Area 2 and 6 hours of Area 3 courses must be completed. Only selected courses can simultaneously satisfy both Area 2/3 & 7 requirements. Use extra care when selecting this course.

% Students must also complete a senior design project within the area of biomechanics.

** This is an alternate course not typically offered during the indicated semester. Use extra care when planning.

£ Fulfills Visual Expression, Writing and Speaking Requirement

† See attached list for approved biomechanics option courses.

Foreign Language Requirement: Students who did not complete 2 units of foreign language in high school must earn 6 credit hours of a college level foreign language, such credits to be in addition to those normally required for graduation.

Eligibility for continued enrollment: Upon having completed 72 hours (including transfer, advanced placement, advanced standing, and credit by examination), "satisfactory progress" toward a B.S. degree will include the following minimum criteria: (1) all courses in the freshman year, including a minimum grade of C- or better in ENGE 1024 and ENGE 1114; (2) credit for MATH 2214, 2224; ESM 2014, 2104, 2204, 2304, 2074; and PHYS 2305, 2306; and (3) a 2.5 GPA.

Statement on Hidden Prerequisites: There are no hidden prerequisites for any course on this checksheet.

An in major (all ESM classes) and overall GPA of 2.0 is required for graduation.

A TOTAL OF 134 SEMESTER HOURS ARE REQUIRED FOR GRADUATION.

† **Approved Biomechanics Option Courses (Choose 4):**

ESM 4105: Engineering Analysis of Physiologic Systems
ESM 4204: Musculoskeletal Biomechanics and Biologic Control
ESM 4224: Biodynamics & Control
ESM 4574: Biomaterials
ESM 5354: Mathematical Modeling of Biological Dynamics
BMES 5174: Biomechanics Of Crash Injury Prevention
BMES 5304: Biological Transport Phenomena
BMES 5544: Biomedical Signal Processing
CHE 4544: Protein Separation Engineering
ME 4754: Impact Biomechanics