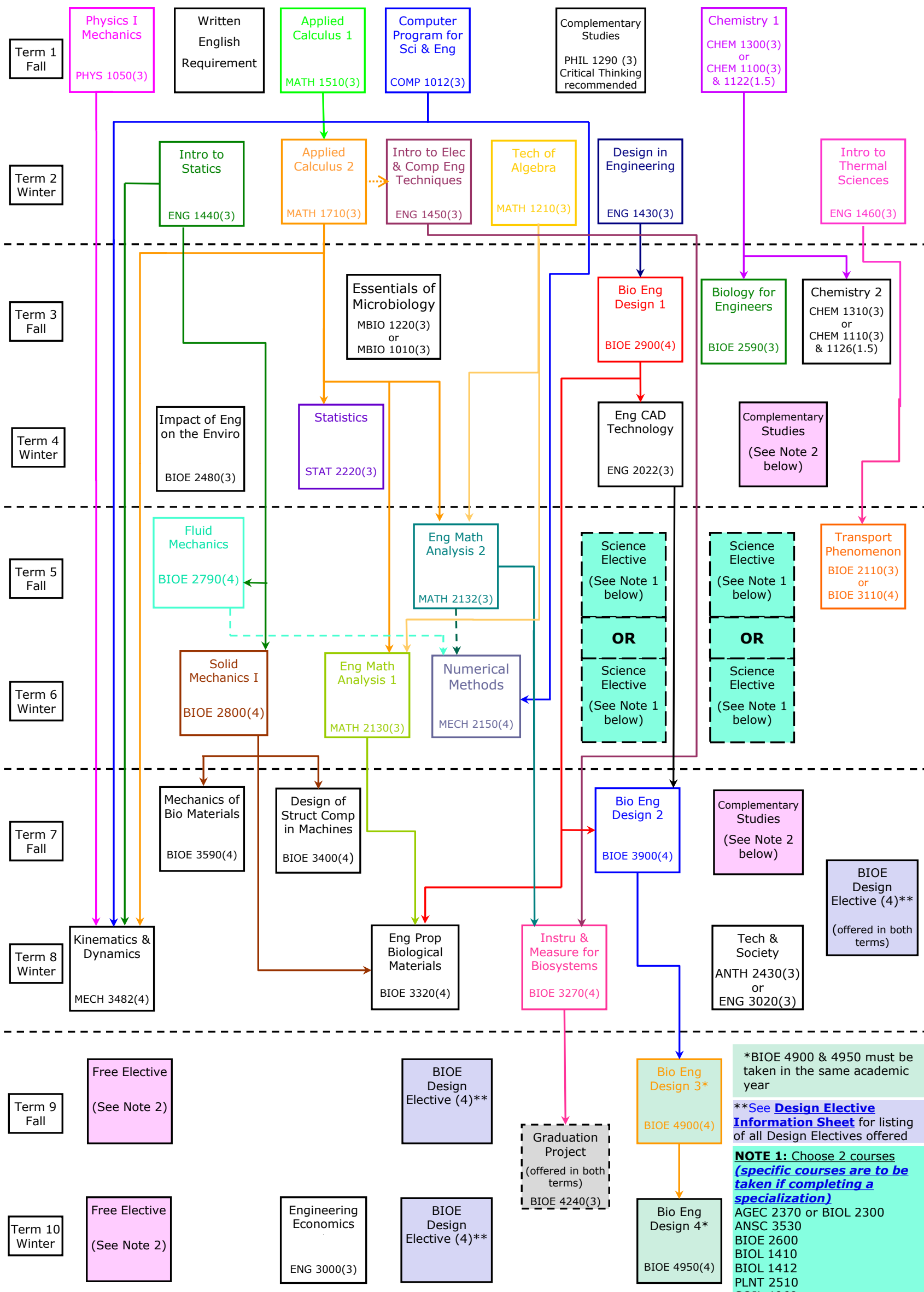


# BIOSYSTEMS ENGINEERING: EXAMPLE OF A 10-TERM PROGRAM

\*Pre- and co-requisites for Biosystems Engineering Science and Design Electives are dependent on course selection



→ prerequisite    - - - → corequisite

\*BIOE 4900 & 4950 must be taken in the same academic year

\*\*See **Design Elective Information Sheet** for listing of all Design Electives offered

**NOTE 1:** Choose 2 courses (*specific courses are to be taken if completing a specialization*)  
 AGECE 2370 or BIOL 2300  
 ANSC 3530  
 BIOE 2600  
 BIOL 1410  
 BIOL 1412  
 PLNT 2510  
 SOIL 4060

**NOTE 2:** Course is to be selected from a specified list if completing a **specialization**

## DEPARTMENT OF BIOSYSTEMS ENGINEERING

## 5 YEAR MODEL PROGRAM

For students starting second year Fall 2020

Students are expected to follow either the 4 year or the 5 year model program.

This will ensure prerequisite and timetable requirements are met.

**PRELIMINARY ENGINEERING PROGRAM:** The following 12 courses must be completed by all engineering students.

2019	cr hr	Pre- (p) or Co- (c) Requisites	cr hr	Pre- (p) or Co- (c) Requisites
Complementary Studies Elective	3		ENG 1430	Engineering Design 3
CHEM 1300	Chem 1 (CHEM 1100 & 1122)	3	ENG 1440	Engineering Statics 3
COMP 1012	Comp Prog Eng	3	ENG 1450	Intro Elec & Comp Eng 3
ENG 1460	Thermal Sciences	3	Written English Requirement	3
MATH 1510	Applied Calculus 1	3	MATH 1210	C/L Algebra 3
PHYS 1050	Physics	3	MATH 1710	Applied Calculus 2 3
		MATH 1500/1510 (p or c)		MATH 1500/1510 (p), PHYS 1050 (p or c)

**ADMISSION TO BIOSYSTEMS ENGINEERING PROGRAM:** Any Preliminary Engineering courses not yet completed should be taken in Second Year if possible.

FALL TERM (September)			WINTER TERM (January)		
SECOND YEAR 2020	Pre- (p) or Co- (c) Requisites				Pre- (p) or Co- (c) Requisites
BIOE 2590	Biology for Engineers	3	CHEM 1300 or CHEM 1100 & 1122(p)	BIOE 2480	Impact of Eng on Enviro 3
BIOE 2900	Design 1	4	ENG 1430 (p)	ENG 2022	Eng CAD Technology 3
CHEM 1310	Chem 2 (CHEM 1110 & 1126)	3	CHEM 1300 or CHEM 1100 & 1122(p)	Elective slot (see Note 1 below)	3/4
MBIO 1220	Essentials of Microbiology	3		STAT 2220	Statistics for Engineers 3
					MATH 1710/1700 (p)
<b>THIRD YEAR 2021</b>					
BIOE 2110	Transport (or BIOE 3110)	3	ENG 1460 (p)	BIOE 2800	Solid Mechanics 4
BIOE 2790	Fluid Mechanics	4	ENG 1440 (p), MATH 1710/1700 (p)	MECH 2150	Numerical Methods 4
MATH 2130	Math Analysis 1	3	MATH 1210 (p), MATH 1710 (p)	MATH 2132	Math Analysis 2 3
Elective slot (see Note 1 below)		3/4		Elective slot (see Note 1 below)	3/4
<b>FOURTH YEAR 2022</b>					
BIOE 3400	Des of Struc Comp Mach	4	BIOE 2800 (p)	BIOE 3270	Instrumentation for Biosy 4
BIOE 3590	Mechanics of Biomater	4	BIOE 2800 (p)	BIOE 3320	Eng Prop of Biolog Mate 4
BIOE 3900	Design 2	4	BIOE 2900 (p), BIOE 2022	MECH 3482	Kinematics & Dynamics 4
Elective slot (see Note 1 below)		3/4		ANTH 2430 or ENG 3020	3
BIOE Design Elective slot (see Note 2)				BIOE Design Elective slot (see Note	4
					MATH 2132 (p), ENG 1450 (p)
					MATH 2130 (p), BIOE 2800 (p)
					PHYS 1050 (p), ENG 1440 (p), COMP 1012 (p), MATH 1710 (p)
<b>FIFTH YEAR 2023</b>					
BIOE 4900**	Design 3	4	BIOE 3900 (p)	BIOE 4950**	Design 4 4
BIOE 4240*	Graduation Project	3	BIOE 3270 (p)	BIOE 4240*	Graduation Project 3
BIOE Design Elective slot (see Note 2)		4		BIOE Design Elective slot (see Note	4
Elective slot (see Note 1 below)		3/4		Elective slot (see Note 1 below)	3/4
				ENG 3000	Engineering Economics 3

\*Students may register for BIOE 4240 Graduation Project in either term.

\*\*BIOE 4900 & 4950 must be taken in the same academic year

Note 1: Must choose two science electives, two complementary studies electives, and two free electives.

(Science electives should be completed by end of Third Year.) Choose from specified lists if a Specialization is desired.

Note 2: Three BIOE design electives are required (out of the four slots shown). Choose from specified lists if a Specialization is desired.

#### Biomedical Specialization:

Students in the Biomedical Specialization should take BIOL 1410 (Fall) and BIOL 1412 (Winter) in the elective slots of Third Year.

#### Bioresource Specialization:

Students in the Bioresource Specialization should take BIOE 2600 (alternatively PLNT 2510<sup>1</sup> in the Fall or ANSC 3530 in the Winter of third year) and SOIL 4060 in the Winter of third year.

#### Environmental Specialization:

Students in the Environmental Specialization should take BIOE 2600 (alternatively AGECE 2370 in the Fall or BIOL 2300 in the Winter of third year) and SOIL 4060 in the Winter of third year.

1. PLNT 2510 is only offered in the fall every two years.