PH.D IN BIOENGINEERING

Requirements

Intra-University in Colleges of Health and Human Sciences, Engineering, Natural Sciences, Veterinary Medicine and Biomedical Sciences

Effective Fall 2021

Code	Title	Credits
Core Course Requirements		
BIOM 533/CIVE 533	Biomolecular Tools for Engineers	3
BIOM 570/MECH 570	Bioengineering	3
BIOM 576/MECH 576	Quantitative Systems Physiology	4
BIOM 592	Seminar [1]	4
BIOM 799	Dissertation	15-18
Select three credits from the following:		3
MATH 530	Mathematics for Scientists and Engineers	
MATH 535	Foundations of Applied Mathematics	
MATH 545	Partial Differential Equations I	
MATH 550/ ENGR 550	Numerical Methods in Science and Engineering	
MATH 560	Linear Algebra	
MATH 569A	Linear Algebra for Data Science: Matrices and Vectors Spaces	
MATH 569B	Linear Algebra for Data Science: Geometric Techniques for Data Reduction	
MATH 569C	Linear Algebra for Data Science: Matrix Factorizations and Transformations	
MATH 569D	Linear Algebra for Data Science: Theoretical Foundations	
Select four credits from the following:		4
STAR 501	Data Wrangling/Visualization for Researchers	
STAR 502	Multivariate Analysis for Researchers	
STAR 512	Design and Data Analysis for Researchers II	
STAR 513	Regression Models for Researchers	
STAR 514	Experimental Design/Analysis for Researchers	
STAR 531	Generalized Regression Models for Researchers	
STAR 532	Mixed Models for Researchers	
STAR 534	Machine Learning for Researchers	
M.S. Earned		30
Electives [2]		6-12
Program Total Credits:		**72**

A minimum of 72 credits are required to complete this program.[3]

1 BIOM 592 must be taken in four semesters.

2 Select a minimum of 6 credits of Engineering courses 500-level or above (either as a master's student or Ph.D. student) with approval of advisor.

3 Program Total Credits must include a minimum of 42 semester credits earned at CSU (while in the graduate program), a minimum of 32 semester credits earned after admission to CSU, and a minimum of 12 semester credits earned at CSU (post-master's degree) in 500-level or above courses (not including dissertation and independent study). 10 credits earned after a master's degree is acceptable with approval from the student's advisor, the Bioengineering program, and the Graduate School. Completion of the Ph.D. also requires successfully completing a qualifying exam, a preliminary exam, and a dissertation defense.