MASTER OF ENGINEERING, PLAN C, BIOMEDICAL ENGINEERING SPECIALIZATION

The Master of Engineering, Plan C, Biomedical Engineering Specialization focuses on enhancing the expertise of working engineering professionals. Engineers and scientists who want to further their careers with engineering related firms and governmental agencies should consider this degree. Students have flexibility to develop a plan of study in their area of interest.

Students interested in graduate work should refer to CSU's Graduate and Professional Bulletin (http://catalog.colostate.edu/general-catalog/graduate-bulletin/) and the School of Biomedical Engineering (http://www.engr.colostate.edu/sbme/) website.

Learning Objectives

Students will:

1. Review the fundamental science and engineering principles relevant to biomedical engineering.
2. Demonstrate an advanced technical knowledge of evolving areas associated with the biomedical engineering field so the students can be successful in their chosen field of work.
3. Develop critical thinking related to the engineering principles relevant to biomedical engineering.
4. Apply knowledge of fundamentals in biomedical engineering to relevant real-life problems.

Requirements Effective Fall 2021

Code	Title	Credits
Core Course Requirements		
BIOM 570/MECH 570	Bioengineering	3
BIOM 576/MECH 576	Quantitative Systems Physiology	4
Foundation Courses		
Select a minimum of 9 credits from the following:		9
BIOM 517/ ECE 517	Advanced Optical Imaging	
BIOM 525/ MECH 525	Cell and Tissue Engineering	
BIOM 526/ ECE 526	Biological Physics	
BIOM 531/ MECH 531	Materials Engineering	
BIOM 533/ CIVE 533	Biomolecular Tools for Engineers [1]	
or CIVE 534	Applied and Environmental Molecular Biology	
BIOM 537/ ECE 537	Biomedical Signal Processing	
BIOM 573/ MECH 573	Structure and Function of Biomaterials	
BIOM 574/ MECH 574	Bio-Inspired Surfaces	
Depth Courses		
Select a minimum of 11 credits from the following not taken in another category:		11
ANEQ 565	Interpreting Animal Science Research	
BC 565	Molecular Regulation of Cell Function	
BIOM 504/ CBE 504	Fundamentals of Biochemical Engineering	
BIOM 518/ ECE 518	Biophotonics	
BIOM 527A/ ECE 527A	Biosensing: Cells as Circuits	
BIOM 531/ MECH 531	Materials Engineering	
BIOM 532/ MECH 532	Materials Issues in Mechanical Design	
BIOM 578/ MECH 578	Musculoskeletal Biosolid Mechanics	
BIOM 579/ MECH 579	Cardiovascular Biomechanics	
BIOM 586A	Biomedical Clinical Practicum	
BIOM 586B	Biomedical Clinical Practicum	
BIOM 592	Seminar	
BMS 500	Mammalian Physiology I	
BMS 501	Mammalian Physiology II	
BMS 575	Human Anatomy Dissection	
BMS 631	Mechanisms of Hormone Action	
CBE 503	Transport Phenomena Fundamentals	
ECE 512	Digital Signal Processing	
ERHS 712	Physics of Diagnostic Imaging	
HES 531	Muscle and Joint Mechanics	
MECH 502	Advanced/Additive Manufacturing Engineering	
MECH 530	Advanced Composite Materials	
MECH 543	Biofluid Mechanics	
MIP 651	Immunobiology	
NB 505/BMS 505	Neuronal Circuits, Systems and Behavior	
Breadth Courses		
Select a minimum of 3 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	
STAR 512	Design and Data Analysis for Researchers II	
Program Total Credits:		**30**

A minimum of 30 credits are required to complete this program.[2]

[1] Students with a strong background in Cellular and Molecular Biology may substitute CM 502 for BIOM 533 or CIVE 534.

[2] Students must take a minimum of 15 credits of biomedical engineering (BIOM) courses.

Requirements for All Graduate Degrees

For more information, please visit Requirements for All Graduate Degrees (http://catalog.colostate.edu/general-catalog/graduate-bulletin/graduate-study/procedures-requirements-all-degrees/) in the Graduate and Professional Bulletin (http://catalog.colostate.edu/general-catalog/graduate-bulletin/).

Summary of Procedures for the Master's and Doctoral Degrees

NOTE: Each semester the Graduate School publishes a schedule of deadlines. Deadlines are available on the Graduate School website (https://graduateschool.colostate.edu/deadline-dates/). Students should consult this schedule whenever they approach important steps in their careers.

Forms (https://graduateschool.colostate.edu/forms/) are available online.

Step	Due Date
1. Application for admission (online)	Six months before first registration
2. Diagnostic examination when required	Before first registration
3. Appointment of advisor	Before first registration
4. Selection of graduate committee	Before the time of fourth regular semester registration
5. Filing of program of study (GS Form 6)	Before the time of fourth regular semester registration
6. Preliminary examination (Ph.D. and PD)	Two terms prior to final examination
7. Report of preliminary examination (GS Form 16) - (Ph.D. and PD)	Within two working days after results are known
8. Changes in committee (GS Form 9A)	When change is made
9. Application for Graduation (GS Form 25)	Refer to published deadlines from the Graduate School Website
9a. Reapplication for Graduation (online)	Failure to graduate requires Reapplication for Graduation (online) for the next time term for which you are applying
10. Submit thesis or dissertation to committee	At least two weeks prior to the examination or at the discretion of the graduate committee
11. Final examination	Refer to published deadlines from the Graduate School Website
12. Report of final examination (GS Form 24)	Within two working days after results are known; refer to published deadlines from the Graduate School website
13. Submit a signed Thesis/Dissertation Submission Form (GS Form 30) to the Graduate School and Submit the Survey of Earned Doctorates (Ph.D. only) prior to submitting the electronic thesis/dissertation	Refer to published deadlines from the Graduate School website.
14. Submit the thesis/dissertation electronically	Refer to published deadlines from the Graduate School website
15. Graduation	Ceremony information is available from the Graduate School website