

## Biomedical Engineering Technical Electives

**Technical Electives (TEs) are designed to provide additional depth and breadth in the Biomedical and partner major degree.**

*Click on course number to hyperlink to catalog information.*

BME+CBE = 3-5 Cr of BME TE (check DAKS), BME+CPE = 3 Cr of BME TE, BME+EE = 6 Cr of BME TE, BME+EE/L&O = 0 Cr BME TE, BME+MECH = 6 Cr of BME TE

**\*\* Approved-DARS changes coming = Course approved by BME, will show in catalog/on DARS eventually**

### Related BME Area



**Courses required for degree cannot count as Technical Electives**

Anatomy and Physiology

Biology

**Biomaterials**

Biomechanics

Cardiovascular

Chemistry

Computational  
Biology

Disease

Genetics

Imaging and  
Diagnostics

Medical Devices/  
Instrumentation

Neuro

Pharmaceuticals

Tissue Engineering

Scientific/ Engr  
Process

[illegible]

BIOM 526	Biological Physics											X				
BIOM 527 (A-F)	Biosensors											X				
BIOM 531	Materials Engineering			X											X	X
BIOM 533	Biomolecular Tools for Engineers			X					X				X		X	X
BIOM 537	Biomedical Signal Processing											X				
BIOM 570	Bioengineering			X					X			X	X		X	X
BIOM 573	Structure and Function of Biomaterials			X									X		X	X
BIOM 574	Bio-Inspired Surfaces			X									X		X	X
BIOM 576	Quantitative Systems Physiology	X	X													
BIOM 578	Musculoskeletal Biosolid Mechanics	X			X											
BIOM 579	Cardiovascular Biomechanics			X		X										
BIOM 572	Regenerative Bioengineering with Stem Cells <b>**Approved - DARS changes coming</b>	X														X
BMS 301	Human Gross Anatomy	X														
BMS 302	Laboratory in Principles of Physiology	X														
BMS 310	Anatomy for the Health Professions (online)	X														
BMS 320	Virtual Laboratory in Physiology (online)	X														
BMS 325	Cellular Neurobiology		X						X					X		
BMS 345	Functional Neuroanatomy								X					X		
BMS 405	Nerve and Muscle-Toxins, Trauma, and Disease								X					X		
BMS 409	Human and Animal Reproductive Biology	X	X						X							
BMS 420	Cardiopulmonary Physiology	X				X			X							
BMS 430	Endocrinology	X							X						X	
BMS 450	Pharmacology	X							X						X	
BMS 500/NB 501	Mammalian Physiology I	X				X			X					X		
BMS 501	Mammalian Physiology II	X							X							
BMS/NB 503	Developmental Neurobiology		X							X			X			
BMS/NB 505	Neuronal Circuits, Systems and Behavior		X										X	X		
BZ 310	Cell Biology		X													
BZ 311	Developmental Biology		X													
BZ 350	Molecular and General Genetics		X							X						

BZ 476*/BZ 576	Genetics of Model Organisms		x						x						
CBE 330	Process Simulation							x							x
CBE 505	Biochemical Engineering Laboratory		x				x						x		
CBE 570	Biomolecular Engineering/Synthetic Biology		x				x								
CHEM 334	Quantitative Analysis Laboratory						x								
CHEM 335	Intro to Analytical Chemistry						x								
CHEM 343	Modern Organic Chemistry II						x								
CHEM 344	Modern Organic Chemistry II Laboratory						x								
CHEM 346	Organic Chemistry II						x								
CHEM 433**	Clinical Chemistry						x								x
CHEM 539A-C	Principles of NMR and MRI						x				x				
CM 501	Advanced Cell Biology		x												
CM/NB 502	Techniques in Molecular and Cellular Biology		x												
ECE/MECH 569*	Micro-Electro-Mechanical Devices										x	x			
ERHS 450	Introduction to Radiation Biology		x						x		x				
ERHS 502	Fundamentals of Toxicology		x				x		x				x		
ERHS 510/VS 510	Cancer Biology		x						x			?			
ERHS 540	Principles of Ergonomics				x				x						
FSHN 470	Integrated Nutrition and Metabolism		x						x						
HES 307	Biomechanical Principles of Human Movement				x										
HES 319	Neuromuscular Aspects of Human Movement	x			x								x		
HES 403	Physiology of Exercise	x													
HES 420	Electrocardiography and Exercise Management	x				x			x		x	x		x	
HES 476	Exercise and Chronic Disease	x			x				x						
MATH 455**	Mathematics in Biology and Medicine		x												
MECH 543**	Biofluid Mechanics					x									
MIP 300	General Microbiology		x												
MIP 302	General Microbiology Laboratory		x												
MIP 342	Immunology	x							x						

MIP 343	Immunology Laboratory	x							x							
MIP 351	Medical Bacteriology								x							
MIP 352	Medical Bacteriology Laboratory								x							
MIP 420	Medical and Molecular Virology		x						x							
MIP 436*	Industrial Microbiology		x						x					x		
MIP 443	Microbial Physiology	x							x					x		
MIP 450	Microbial Genetics	x							x	x						
MIP/BSPM 576	Bioinformatics							x			x					
NB 500/BMS 502	Readings into Cellular Neurobiology								x				x	x		

How to REQUEST COURSE OVERRIDES (if courses are 500-level **and/or** if you don't have prereqs for course you want to take)

BIOM and MECH 500-level courses need overrides because you are not at the graduate level; email Sara.Neys@colostate.edu to get a CLASS STANDING override.

For **ANY course** (Graduate- or Undergraduate-level) **for which you don't meet prerequisites**, email the prof, explain why you think you'll be successful and forward approval/permissions to contact below.

- ◆ OVERRIDES For 500-level BIOM or MECH courses, forward request to to Sara.Neys@colostate.edu to request override (w/prof permission if you don't have 3.0+ GPA or prereqs)
- ◆ OVERRIDES For 500-level CBE courses, forward prof permission permission to Claire.Lavelle@colostate.edu for override.
- ◆ OVERRIDES For 500-level ECE courses forward prof permission to Courtney.Johnsrud@colostate.edu
- ◆ OVERRIDES for ALL other courses - contact professor/department teaching the course. They will enter override into the system if your request is approved.

<sup>1</sup> - Maximum of 3 credits of BIOM 476 and/or 495 can count as BME TE