

Bioengineering elective policy:

- 1) Bioengineering electives: 6 credits of electives must have a BIO ENG prefix, selected from List 1 below (does not include BIO ENG 488, BIO ENG 495 or BIO ENG 499).
- 2) Technical electives: 12 credits of electives may be either BIO ENG courses from List 1, or other relevant engineering or science courses from list 2. (In the Pre-med option, technical electives are the required pre-medical courses).

List 1: Bioengineering electives

Course Name	Prerequisite(s)	Credits
BIO ENG 425 Biomechanics	BIO ENG 321 with a C or better or CE 215 with a C or better; MATH 315 with a C or better	3
BIO ENG 455 Metabolic Engineering	BIO ENG 210 or CHE 211; CHE 201; MATH 220; MATH 315; MBIOS 301 or 303	3
BIO ENG 476 Nanobiotechnology	Junior standing	3
BIO ENG 481 Advanced Topics in Bioengineering	Junior standing; instructor permission	3

List 2: Technical electives

Highlighted courses need extra prerequisites beyond the normal bioengineering curriculum.

Course Name	Prerequisite(s)	Credits
BIOENGINEERING		
BIO ENG 488 Professional Practice Coop/Internship		V
BIO ENG 495 Internship	BIO ENG 205	V
BIO ENG 499 Special Problems in Bioengineering	Sophomore standing; instructor permission	V
BIOLOGY		
BIOLOGY 106 Introductory Biology: Organismal Biology		4
BIOLOGY 251 Introductory Human Physiology	BIOLOGY 102, 106, or 107	4
BIOLOGY 301 General Genetics	BIOLOGY 106 or 120; BIOLOGY 107; CHEM 101 or 105; CHEM 102 or 106	4
BIOLOGY 315 Gross & Microanatomy	At least 3 hours of BIOLOGY; sophomore standing; cumulative WSU GPA 2.5 or better	4
BIOLOGY 340 Introduction to Mathematical Biology	MATH 140 with a C or better, or MATH 172 with a C or better, or MATH 182 with a C or better; BIOLOGY 101, BIOLOGY 102, BIOLOGY 106, or BIOLOGY 107	3
BIOLOGY 352 Cell Physiology	BIOLOGY 107; CHEM 345	3
BIOLOGY 353 Advanced Human Physiology	BIOLOGY 106; BIOLOGY 107	4
BIOLOGY 494 Seminar in Mathematical Biology	MATH 140 with a C or better, or MATH 172 with a C or better, or MATH 182 with a C or better; BIOLOGY 101, BIOLOGY 102, BIOLOGY 106, or BIOLOGY 107.	1
CHEMICAL ENGINEERING		
CHE 301 Chemical Engineering Thermodynamics	CHE 201 with a C or better; CHEM 331 with a C or better or concurrent enrollment; certified Chemical Engineering major	3
CHE 334 Chemical Engineering Separations	CHE 301 with a C or better; CHE 310 with a C or better; CHE 332 with a C or better or concurrent enrollment; certified Chemical Engineering major	3
CHE 475 Introduction to Biochemical Engineering	CHE 321 with a C or better; CHE 332 with a C or better	3
CHEMISTRY		
CHEM 345 Organic Chemistry I	CHEM 102 with a C or better, or CHEM 106 with a C or better	3

CHEM 348 Organic Chemistry II and Problem Solving	CHEM 345 with a C or better	4
CHEM 370 Chemical Biology	CHEM 102 or 345 with a C or better	3
CIVIL ENGINEERING		
CE 315 Fluid Mechanics	ME 212; certified major in Civil Engineering	3
CE 463 Engineering Administration		3
COMPUTER SCIENCE		
CPT_S 121 Program Design and Development	MATH 108, 171, 172, 182, 201, 202, 206, or 220, each with a C or better	4
ELECTRICAL ENGINEERING		
E_E 262 Electrical Circuits Laboratory	E E 261 with a C or better or concurrent enrollment	1
MOLECULAR BIOSCIENCES		
MBIOS 301 General Genetics	BIOLOGY 106 or 120; BIOLOGY 107; CHEM 101 or 105; CHEM 102 or 106	4
MBIOS 303 Introductory Biochemistry	CHEM 102 or 345	4
MBIOS 304 Microbiology and Molecular Biology Laboratory	MBIOS 303 or concurrent enrollment, or MBIOS 305 or concurrent enrollment	3
MBIOS 305 General Microbiology	BIOLOGY 107; CHEM 102 or 345	4
MBIOS 306 General Microbiology Laboratory	MBIOS 305 or concurrent enrollment	2
MBIOS 401 Intro Cell Biology	MBIOS 301; MBIOS 303 or concurrent enrollment	3
MBIOS 413 General Biochemistry	MBIOS 303; junior standing	3
MBIOS 414 General Biochemistry	MBIOS 413	3
MBIOS 426 Microbial Genetics	MBIOS 301; MBIOS 303	3
MBIOS 465 Principles of Biophysical Chemistry	MBIOS 303; MATH 140 or 171; PHYSICS 102 or 202	3
MBIOS 478 Bioinformatics	MBIOS 301, 303, or CPT S 355	3
MECHANICAL ENGINEERING		
ME 116 Engineering Computer-aided Design and Visualization	MATH 171 or concurrent enrollment	2
ME 212 Dynamics	MATH 172 or 182 with a grade of C or better; CE 211 with a grade C or better	3
ME 216 Integrated CAD Design	ME 116 with a C or better; CE 215 or concurrent enrollment	2
ME 301 Fundamentals of Thermodynamics	PHYSICS 201 with a grade of C or better	3
ME 303 Fluid Mechanics	ME 212	3
ME 310 Manufacturing Processes	MSE 201; certified major in Mechanical Engineering, Materials Science Engineering, Civil Engineering, or Electrical Engineering	2
ME 311 Manufacturing Processes Laboratory	ME 310 or concurrent enrollment; certified major in Mechanical Engineering, Materials Science Engineering, Civil Engineering, or Electrical Engineering	1
ME 401 Mechatronics	E E 304; ME 348	3
ME 472 Finite Element Methods in Design	ME 414	3
ME 473 Advanced CAD and Geometric Modeling	ME 316	3
MATERIALS SCIENCE		
MSE 201 Materials Science	CHEM 106; PHYSICS 201 or concurrent enrollment	3
MSE 302 Electronic Materials	CHEM 105; PHYSICS 202 or concurrent enrollment	3
MSE 401 Metallic Materials	MSE 201	3
MSE 402 Polymeric Materials	MSE 201	3
MSE 403 Ceramic Materials	MSE 201	3
MSE 406 Biomaterials	MSE 201	3
MSE 413 Mechanics of Solids	CE 215; MSE 201	3
NEUROSCIENCE		
NEUROSCI 301 Foundations of Neuroscience	CHEM 106; BIOLOGY 107	3
NEUROSCI 302 Foundations of Neuroscience - Honors	CHEM 106; BIOLOGY 107; PHYSICS 101 with a B or better, PHYSICS 201 with a B or better, or PHYSICS 205 with a B or better	3

NEUROSCI 305 Neurons, Genes, and Behavior	NEUROSCI 301, 302, MBIOS 301, or PSYCH 372	3
NEUROSCI 403 Cellular Neurobiology	NEUROSCI 301 or NEUROSCI 302; MBIOS 303; certified Neuroscience major or minor	3
NEUROSCI 404 Neuroanatomy	NEUROSCI 301 or NEUROSCI 302	4
NEUROSCI 425 Integrated Physiology	BIO ENG 210, MBIOS 301, MBIOS 303, NEUROSCI 301, NEUROSCI 302, or PSYCH 372	3
NEUROSCI 426 Integrative Physiology - Laboratory	Concurrent enrollment in NEUROSCI 425	1
NEUROSCI 430 Principles of Neurophysiology	BIOLOGY 107; NEUROSCI 301 or NEUROSCI 302; PHYSICS 102, 202 or 206	4
PHILOSOPHY		
PHIL 365 [HUM] [H] Biomedical Ethics		3
PHYSICS		
PHYSICS 466 Biological Physics	CHEM 106 or 116; MATH 172 or 182; PHYSICS 202 or 206	3