

BIOLOGY IN ENGINEERING CERTIFICATE PROGRAM CURRICULUM

Requirement	Course	Name	Minimum Prereqs
General Biology (5 cr)			
	Zoo 101 (3 cr) and 102 (2 cr), or	Introductory Biology*	HS chem or con reg coll chem
	Bot/Zoo 151 (5 cr) and Bot/Zoo 152 (5 cr), or		
	Biocore 303 and 304 (5 cr)		
Advanced Biology (at least 5 cr)			
	Zoo 315 (2cr),	Limnology	Intro bio, chem
	Zoo 316 (2 cr)	Limnology Lab	Zoo 315
	Zoo 350 (3cr)	Parasitology	Intro bio
	Zoo 351 (2 cr)	Parasitology Laboratory	Concurrent reg in Zoo 350
	Zoo 410 (3cr)	Evolutionary Biology	Elementary bot or zoo; Zoo 160 or 466 recommended
	Zoo 430 (5 cr)	Comparative Anatomy of Vertebrates	Intro zoo
	Zoo 466 (3cr)	General Genetics	1 yr bio, 1 yr chem
	Zoo 470 (3cr)	Introduction to Animal Development	Zoo 101 or Zoo 151/152
	Zoo 504 (3-5cr)	Modeling Animal Landscapes	Jr standing
	Zoo 510 (3 cr) ,	Ecology of Fishes	1 yr bio, 1 yr chem
	Zoo 511 (2 cr)	Ecology of Fishes Lab	Zoo 510 or concurrent reg
	Zoo 523 (3cr)	Neurobiology	Biocore 323 or Zoo 151/152 or Zoo 101 + other Zoo and 1 yr chem., 1 yr physics
	Zoo 524 (3 cr)	Neurobiology II	Zoo 523 or equivalent
	Zoo 525 (3 cr)	Animal Structural Design	Intermediate bio
	Zoo 548 (4 cr)	Ecology of Rivers and Streams	Chem 103, 104 or equiv; Zoo 315 or equiv; Zoo 460 or equiv strongly recommended.
	Zoo 570 (3 cr),	Cell Biology	1 year bio, 1 year chem
	Zoo 572 (3 cr)	Laboratory in Cell Biology	Zoo 570 or concurrent reg
	Any MM&I course	Medical Microbiology and Immunology	HS biol, chem, 1 sem of college biol
	Bmolchem 314 (3 cr)	Intro to Human Biochemistry	Chem 104 or 108 or equiv
	Physiol 335 (5 cr)	Physiology	Biol or Zool & Gen Chem before enroll
	Any Biochem course	Biochemistry	Chem 341 or 343
	Biocore 333 (3 cr)	Biological Interactions	Biocore 301, 303, and 323; or cons instr

	Bact 303 (3 cr)	Procaryotic Microbiology	Bot, Zool, Biocor or Gen Biol; 1 sem Org Chem or Con Reg
	Bact 304 (2 cr)	Procaryotic Microbiology Lab	Bact 303 or con reg.
	Bact 324 (2 cr)	Food Microbiology Lab	Bact 102 or 304; Bact/Food Sci 325 or con reg.
	Bact 325 (3 cr)	Food Microbiology	Bact 101 or 303 or MM&I 301 or cons inst.
	Bact 330 (3 cr)	Host-Parasite Interactions	Bact 101 & 102; or Bact 303 & 304; or equiv
	Bact 370 (2 cr)	Bacterial Genetics	Bact 303; Bact 304 or con reg.
	Biocore 323 (3 cr)	Organismal Biology	Biocore 301 & 303 or cons
	Biocore 324 (2 cr)	Organismal Biology Lab	Biocore 323 or con reg
Biology in Engineering (at least 3 cr)			
	BME 430 (3 cr)	Biological Interactions with Materials	2 sem biology + 1 sem organic chem; cons instr
	BMI 576 (3 cr)	Introduction to Bioinformatics	CS 367, Math 222
	BME 505 (3 cr)	Biofluidics	EMA 201; EMA 202 or ME 240; Physiol 335; or cons inst
	BME 547 (3 cr)	Biomedical Optics	Physics 202, Math 234 or equiv or cons instr
	BME 615 (3 cr)	Tissue Mechanics	BME 315 or cons instr
	BME 619 (3 cr)	Microscopy of Life	2 nd sem intro physics
	BSE 249 (3 cr)	Engineering Principles for Biological Systems	Math 221
	BSE 364 (3 cr)	Engineering Properties of Food and Biological Materials	BSE 249 & ME 361 or CBE 311, or cons instr
	BSE 365 (3 cr)	Measurements and Instrumentation for Biological Systems	Stat 224 & ECE 376 or cons instr
	BSE 542 (4 cr)	Food Engineering Operations	Food Sci 440, Sr st, or cons instr
	BSE 642 (2-3 cr)	Food & Pharmaceutical Separations	Cons instr
	CEE 320 (3 cr)	Environmental Engineering	1 year college chem
	CEE 629 (3 cr)	Special Topics: Environmental Microbial Biotechnology	Senior standing
	CBE 562 (3 cr.)	Special Topics – Modeling of Biological Processes	intro crse in Biol, Math 213 or equiv
	CBE 562 (3 cr)	Special Topics – Design of Biological Molecules	Biocore 303 or Biochem 501 or Zool 570
	InterEGR 301 (3 cr)	Engineering and Biology: Technological Symbiosis	ME 306, EE 230, CBE 320, MS&E 330, CEE 320, EMA 303 or BSE 249
	BME 550	Introduction to Medical and Biological Microsystems	Zool 152, BME 310, or cons inst.

	BME/ME 603	Biomechanic of Movement and Orthopedic Biomechanics	Cons inst.
Required	BME/CBE 517 (1 cr)	Biology in Engineering Seminar Course	Intro crse in Biol, Biochem 501 or Zool 570 or cons instr
	BME 515 (1 cr)	Therapeutic Medical Devices	BME 310, BME 315, Physiol 335 or cons instr

*Biocore students please see committee for substitutions.