

Pre-Approved¹ Chemical Engineering Technical Electives

(NOTE: Chemical Engineering Technical Electives ≠ Biological Engineering Technical Electives)

Updated: September 2019

Course #	Title	Offered	Credits
BCH 380	Biochemistry	[F,S,Su]	4+1
BCH 441	Biochemistry of Macromolecules	[F]	3
BCH 442	Metabolic Regulation	[S]	3
BCH 444	Biochemistry & Molecular Bio Methods	[F,S]	
BIOB 260	Cellular and Molecular Biology	[F,S]	3+1
BIOB 375	General Genetics	[F,S,Su]	3
BIOB 425	Advanced Cell and Molecular Biology	[F,S]	3
BIOH 201	Human Anatomy and Physiology I	[F,S,Su]	3+2
BIOM 360	General Microbiology I	[F,S]	5
BIOM 410	Microbial Genetics	[S]	3
BIOM 430	Applied and Env Microbiology	[S]	4
BIOM 450	Microbial Physiology	[F]	3
CHMY 311	Analytical Chemistry-Quant Analysis	[F,S]	4
CHMY 323	Organic Chemistry II	[F,S,Su]	3+1
CHMY 371	Phys Chem-Quantum Chem & Spectroscopy I	[F]	3
CHMY 372	Physical Chemistry Laboratory I	[F]	1
CHMY 374	Physical Chemistry Laboratory II	[S]	2
CHMY 401	Advanced Inorganic Chemistry	[S]	3
CHMY 417	Synthetic Chemistry	[F odd]	3
CHMY 421	Advanced Instrument Analysis	[S]	3
CHMY 422	Instrumental Analysis Lab	[S]	2
EBIO 216	Elem Princ of Bioengineering	[S]	3
EBIO 324	Bioengineering Transport	[F]	3
EBIO 407	Biological Engineering Thermodynamics	[F]	3
EBIO 439	Downstream Processing	[S]	3
EBIO 443	Bioengineering Lab II	[S]	2
EBIO 490	Undergraduate Research	[F,S,Su]	1 to 3
EBIO 461	Principles of Biomedical Engineering	[S]	3
EBIO 498	Internship (1 cr per work period)	[F, S, Su]	1 to 3
ECHM 405	Sustainable Energy	[F]	3
ECHM 490	Undergraduate Research	[F,S,Su]	1 to 3
ECHM 498	Co-op Internship (1 cr per work period)	[F, S,Su]	1 to 3
EELE 201	Circuits I for Engineering	[F,S]	4
EELE 203	Circuits II for Engineering	[F,S,Su]	4
EELE 250	Circuits, Devices, and Motors	[F,S,Su]	4
EENV 340	Principles of Environmental Engineering	[F,S]	3
EENV 341	Physical & Chemical Processes in Water Treatment	[F]	4
EENV 434	Groundwater Supply and Remediation	[S]	3
EENV 440	Water Chemistry for Envr Engr.	[F]	3
EENV 441	Natural Treatment Systems	[S]	3
EENV 443	Air Pollution Control	[F]	3
EENV 445	Hazardous Waste Treatment	[F]	3
EENV 447	Hazardous Waste Management	[S even]	3
EGEN 201	Engineering Mechanics-Statics	[F,S,Su]	3
EGEN 202	Engineering Mechanics- Dynamics	[F,S,Su]	3
EGEN 205	Mechanics of Materials	[Su]	3
EGEN 211	Honors Statics	[F,S,Su]	3

Note 1: Other courses may be allowed for technical elective credit, but you should get any course you are considering approved prior to enrolling. **See your advisor about approving potential technical elective courses.**

Courses that are required in a program cannot also be counted as technical electives. (No double counting allowed.)

Note 2: At least one (1) Chemical engineering technical elective must be from the CHMY or BCH rubric (i.e., chemistry or biochemistry)

EGEN 325	Engineering Economic Analysis	[S]	3
EGEN 330	Bus. Fundamentals for Technical Professionals	[F,S,Su]	3
EIND 313	Work Analysis & Design	[S]	3
EIND 354	Engr Probability and Statistics I	[F]	3
EIND 434	Project and Engineering Management	[F]	3
EIND 458	Production & Engineering Mgmt.	[S]	3
EMAT 252	Materials Science Laboratory	[F,S]	1
EMAT 350	Engineering Materials	[S]	3
EMAT 460	Polymeric Materials	[F]	3
EMAT 463	Composite Materials	[F]	3
EMAT 464	Biomedical Materials	[F,S]	3
EMAT 452	Adv. Engineering Materials	[on demand]	3
EMEC 321	Thermodynamics II	[F,S]	3
EMEC 368	Introduction to Aerospace	[F]	3
EMEC 424	Cellular Mechanotransduction	[F]	3
EMEC 430	Introduction to Combustion	[F]	3
EMEC 444	Mechanical Behavior of Materials	[F]	3
EMEC 465	Bio-inspired Engineering	[S]	3
ENSC 345	Soil and Environmental Chemistry	[S odd]	3
ENSC 444	Watershed Hydrology	[F]	2+1
ENSC 460	Soil Remediation	[S]	3
ETME 215	Manufacturing Processes	[F,S]	3
ETME 462	Industrial Automation and Control	[S]	2+1
M 221	Introduction to Linear Algebra	[F,S,Su]	3
M 333	Linear Algebra	[F]	3
M 330	History of Mathematics	[F, even]	3
M 348	Techniques of Applied Mathematics I	[F]	3
M 349	Techniques of Applied Mathematics II	[S]	3
M 386R	Software Applications In Mathematics	[S]	3
M 430	Mathematical Biology	[S]	3
M 441	Numerical Linear Algebra & Optimization	[F]	3
M 442	Numerical Solution of Differential Equations	[S]	3
M 450	Applied Mathematics I	[F odd]	3
M 451	Applied Mathematics II	[S even]	3
M 454	Introduction to Dynamical Systems I	[F even]	3
M 455	Introduction to Dynamical Systems II	[S odd]	3
M 472	Introduction to Complex Analysis	[S]	3
NUTR 325	Introduction to Food Processing	[S]	3
PHSX 224	Physics III	[F,S,Su]	4
PHSX 301	Intro. to Theoretical Physics	[S]	3
PHSX 327	Advanced Optics	[S]	3
PHSX 437	Laser Applications	[S]	3
PHSX 441	Solid State Physics	[S]	3
PHSX 442	Novel Mat for Physics/Engineers	[on demand]	3
PHSX 446	Thermo & Statistical Physics	[S]	3