Pre-Approved[1] Technical Electives - Chemical Engineering and Bioengineering

(NOTE: Bioengineering Technical Electives ≠ Bioengineering Electives)[2]

Updated: March 2011

Old #	Course #	Title	Offered	Credits
BCHM 441	BCH 441	Biochemistry of Macromolecules	[F]	3
BIOL 301	BIOB 375	General Genetics	[F,S]	3
BIOL 302	BIOB 425	Advanced Cell and Molecular Biology	[S]	3
MB 301	BIOM 360	General Microbiology I	[F,S]	5
MB 449	BIOM 410	Microbial Genetics	[S]	3
MB 433	BIOM 430	Applied and Env Microbiology	[F]	4
MB 420	BIOM 450	Microbial Physiology	[F]	3
CHEM 228	CHMY 311	Analytical Chemistry-Quant Analysis	[S]	4
CHEM 323	CHMY 371	Phys Chem-Quantum Chem & Spectroscopy I	[F]	3
CHEM 325	CHMY 372	Physical Chemistry Laboratory I	[F]	1
CHEM 324	CHMY 374	Physical Chemistry Laboratory II	[S]	2
CHEM 334	CHMY 401	Advanced Inorganic Chemistry	[S]	3
CHEM 417	CHMY 417	Synthetic Chemistry	[S odd]	3
CHEM 426	CHMY 421	Advanced Instrument Analysis	[F]	3
CHEM 428	CHMY 422	Instrumental Analysis Lab	[F]	2
	EBIO 490	Undergraduate Research	[F,S,Su]	1 to 3
	EBIO 498	Internship (1 cr per work period)	[F, S, Su]	1 to 3
CHBE 490	ECHM 490	Undergraduate Research	[F,S,Su]	1 to 3
CHBE 476	ECHM 498	Internship (1 cr per work period)	[F, S, Su]	1 to 3
EE 206	EELE 201	Circuits I for Engineering	[F,S]	4
EE 207	EELE 203	Circuits II for Engineering	[S]	4
EE 250	EELE 250	Circuits, Devices, and Motors	[F,S]	4
CE 340	EENV 340	Principles of Environmental Engineering	[F,S]	3
BREN 434	EENV 434	Groundwater Supply and Remediation	[S]	3
BREN 441	EENV 441	Natural Treatment Systems	[S]	3
ENVE 443	EENV 443	Air Pollution Control	[F even]	3
ENVE 445	EENV 445	Hazardous Waste Treatment	[F odd]	3
ENVE 444	EENV 447	Hazardous Waste Management	[S even]	3
EM 251	EGEN 201	Engineering Mechanics-Statics	[F,S,Su]	3
EM 252	EGEN 202	Engineering Mechanics- Dynamics	[F,S,Su]	3
EM 253	EGEN 205	Mechanics of Materials	[F,S]	3
	EGEN 211	Honors Statics	[F,S,Su]	3
I&ME 313	EIND 313	Work Analysis & Design	[S]	3
I&ME 354	EIND 354	Engr Probability and Statistics I	[F]	3
I&ME 434	EIND 434	Project and Engineering Management	[F]	3
ME 251	EMAT 252	Materials Science Laboratory	[F,S]	1
ME 450	EMAT 452	Adv. Engineering Materials	[on demand]	3
ME 321	EMEC 321	Thermodynamics II	[F,S]	3
ME 464	EMEC 444	Mechanical Behavior of Materials	[F even]	3
LRES 355	ENSC 345	Soil and Environmental Chemistry	[S odd]	3
ME 255	ETME 215	Manufacturing Processes	[F,S]	3
MATH 348	M 348	Techniques of Applied Mathematics I	[F]	3
MATH 349	M 349	Techniques of Applied Mathematics II	[S]	3
	M 386R	Software Applications In Mathematics	[S]	3
MATH 441	M 441	Numerical Linear Algebra & Optimization	[F]	3
MATH 442	M 442	Numerical Solution of Differential Equations	[S]	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: The Bioengineering curriculum includes 11 credits of *technical electives* and 9 credits of *bioengineering electives*. The courses listed on this list are pre-approved as technical electives, but most of these courses are not suitable for use a bioengineering electives (unless they have "bio" content).

MATH 450	M 450	Applied Mathematics I	[F odd]	3
MATH 451	M 451	Applied Mathematics II	[S even]	3
MATH 454	M 454	Introduction to Dynamical Systems I	[F even]	3
MATH 455	M 455	Introduction to Dynamical Systems II	[S odd]	3
MATH 449	M 472	Introduction to Complex Analysis	[S even]	3
PHYS 213	PHSX 224	Physics III	[S]	4
PHYS 231	PHSX 301	Intro. to Theoretical Physics	[S]	3
PHYS 426	PHSX 327	Optics	[S even]	3
PHYS 427	PHSX 337	Laser Applications	[S odd]	3
PHYS 441	PHSX 441	Solid State Physics	[F even]	3
PHYS 425	PHSX 446	Thermo. & Statistical Physics	[S odd]	3