

Track Electives (updated 11/3/2016)				
BIOINFORMATICS			Prerequisites***Subject to change	
CSE	1102	3	Object Oriented Design and Programming	CSE 1100 or 1010 (CSE 1102 no longer offered)
CSE	1729	3	Introduction to Principles of Programming	CSE 1010 (CSE 1729 newly approved; will require substitution form)
CSE	2100	3	Data Structures and Intro to Algorithms	CSE 1102 (CSE 2100 no longer offered)
CSE	2102	3	Introduction to Software Engineering	CSE 2100 & 2500; CSE 2500 may be taken concurrently
CSE	2050	3	Data Structures and Object-Oriented Design	CSE 1729 (CSE 2050 newly approved; will require substitution form)
CSE	2300W	4	Digital Logic Design	CSE 1100 or 1102 and secondary school physics or PHYS 1010 or 1501. ENGL 1010 or 1011 or 3800.
CSE	2500	3	Introduction to Discrete Systems	CSE 1102
CSE	3300	3	Computer Networks and Data Communication	CSE 2304 or CSE 3666
CSE	3302	3	Digital Systems Design	CSE 2300W
CSE	3500	3	Algorithms and Complexity	CSE 2100 & 2500
CSE	3666	3	Intro to Computer Architecture	CSE 2100 & 2300W
CSE	3802	3	Numerical Methods in Scientific Computation	CSE 1010 & MATH 2110Q & MATH 2410Q & Pre or Co req MATH 2210Q
CSE	4095	V	Special Topics in CSE	Topic requires BME Director Approval
CSE	4099	V	Independent Study in CSE	Project requires BME Director Approval
CSE	4302	3	Computer Organization and Architecture	CSE 2300W; CSE 3666
CSE	4701	3	Principles of Data Bases	CSE 3500
BIOSYSTEMS, IMAGING, & INSTRUMENTATION			Prerequisites***Subject to change	
CSE	2300W	4	Digital Logic Design	CSE 1100 or 1102 and secondary school physics or PHYS 1010 or 1501. ENGL 1010 or 1011 or 3800.
ECE	3001	3	Electromagnetic Fields and Waves	PHYS 1502 & MATH 2110 & 2410
ECE	3111	3	Systems Analysis	ECE 3101 & pre or co rec MATH 2210Q
ECE	3201	4	Electronic Circuit Design and Analysis	ECE 2001W or both ECE 2608 & ECE 2609W
ECE	3221	3	Digital Integrated Circuits	ECE 3201 or ECE 3608 & CSE 2300W
ECE	3223	3	Optical Engineering	ECE 3001 or PHYS 3201
ECE	3411	3	Microprocessor Applications Laboratory	None
ECE	3431	3	Numerical Methods in Scientific Computation	CSE 1100 or 1010 & MATH 2110Q & 2410Q & pre or co: MATH 2210Q
ECE	4095	V	Special Topics in ECE	Topic requires BME Director Approval
ECE	4095		Special Topics in ECE: Introduction to Robotics	This Topic only
ECE	4099	V	Independent Study in ECE	Project requires BME Director Approval
ECE	4111	3	Communication Systems	ECE 3101 or BME 3400 & STAT 3345Q or MATH 3160
ECE	4121	3	Digital Control Systems	ECE 3111
ECE	4131	3	Introduction to Digital Signal Processing	ECE 3101
ECE	4201	3	Electronic Circuits and Applications	ECE 3201. Recommended Preparation: ECE 3111
ECE	4211	3	Semiconductor Devices and Nanostructures	ECE 3201
ECE	4225	3	Fundamentals of Electron Device Design & Char	ECE 3201. Recommended Preparation: ECE 4211
ECE	4242	3	Micro/Opto-Electronic Devices & Circuits Fab Lab	ECE 3221 & 4211
ECE	4243	3	Nanoscience and Nanotechnology I	ECE 4211 or PHYS 2300 or 3401 or MSE 4001, & CHEM 1127
ECE	4244	3	Nanotechnology II	Senior standing & ECE 4211 or ECE/ENGR 4243
ECE	4401	3	Digital Design Lab	Pre or Co: CSE 3302/ECE 3401
ME	3295/5895	3	Special Topics in ME: 3 Dimensional Imaging of Materials	This Topic only; W. Chiu
ME	3295/5895	3	Special Topics in ME: 3D Printing	This Topic only; S. Tasaglu

BIOMATERIALS			Prerequisites***Subject to change	
ME	3295/5895	3	Special Topics in ME: 3 Dimensional Imaging of Materials	This Topic only; W. Chiu
ME	3295/5895	3	Special Topics in ME: 3D Printed Microfluidics	This Topic only; S. Tasoglu, S16
ME	3295/5895	3	Special Topics in ME: 3D Printing	This Topic only; S. Tasoglu, F15
MSE	2002	3	Intro to Structure, Properties, & Proc of Materials II	MSE 2001 or 2101; for BME/MSE double majors
MSE	2102	3	Materials Science and Engineering II	MSE 2001 or 2101
MSE	3001	4	Applied Thermodynamics of Materials	MSE 2001 or 2101
MSE	3002	4	Transport Phenomena in Materials Processing	MSE 3003 and MATH 2110Q, both of which may be taken concurrently.
MSE	3003	3	Phase Transformation Kinetics & Applications	MSE 2001 or 2101
MSE	3004	3	Mechanical Behavior of Materials	MSE 2001 or 2101
MSE	3020	3	Failure Analysis	MSE 2001 or 2101
MSE	3029	3	Ceramic Materials	MSE 2002 & PHYS 1502
MSE	3030	3	Introduction to Composite Materials	MSE 3004
MSE	4001	3	Electrical & Magnetic Properties of Materials	PHYS 1502Q & MSE 2001 or MSE 2101
MSE	4021	3	Materials Joining	MSE 2001 or 2101
MSE	4034	3	Corrosion & Materials Protection	MSE 2001 or 2101
MSE	4038	3	Alloy Casting Processes	MSE 3002, which may be taken concurrently, and 3003.
MSE	4095	V	Special Topics in Materials Engineering	Topic requires BME Director Approval
MSE	4095/4040	3	Special Topics in MSE: Materials Selection in Mechanical Design	This Topic only; was Special Topics. Now MSE 4040 (may need substitute)
MSE	4240	3	Nanomaterials Synthesis & Design	MSE 2002
MSE	4241	3	Nanomaterials Characterization & Application	MSE 2002
CHEG	2103	3	Intro to Chemical Engineering	CHEM 1128 or both CHEM 1125 & 1126; MATH 1122 or 1132 ; & CSE 1010
CHEG	2111	3	Chemical Engr. Thermodynamics I	<i>Rec prep:</i> MATH 2110, CHEM 1128, & CHEG 2103 or consent of CHEG Prog Dir.
CHEG	3112	3	Chemical Engr. Thermodynamics II	MATH 2410, CHEG 2111
CHEG	3123	3	Fluid Mechanics	MATH 2110 and 2410, CHEM 1128, and CHEG 2103. Corequisite: CHEG 3127
CHEG	3124	3	Heat and Mass Transfer	MATH 2410, CHEG 3123. Corequisite: CHEG 3128, 3151
CHEG	3127	1	Fluid Mechanics Laboratory	Corequisite: CHEG 3123
CHEG	3128	2	Heat/Mass/Kinetics Laboratory	CHEG 3123, 3127. Corequisite: CHEG 3124, & 3151
CHEG	3145	3	Chemical Engineering Analysis	CHEG 2103 & MATH 2110 & 2410
CHEG	3151	3	Process Kinetics	CHEG 3112. Corequisite: CHEG 3124, 3128
CHEG	3156	3	Polymeric Materials (Also offered as MSE 3156)	Not open for credit to students who have passed CHEM 3661
CHEG	3173	3	Introduction to Biochemical Engineering	CHEG 3151
CHEG	4995	V	Special Topics in Chemical Engineering	Topic requires BME Director Approval

BIOMECHANICS			Prerequisites***Subject to change	
CE	2120	3	Applied Mechanics II	CE 2110 and MATH 2110 or MATH 2130. May be repeated for credit
CE	3110	3	Mechanics of Materials	CE 2110; enrollment in the School of Engineering
ENVE	3120	3	Fluid Mechanics	Cannot be taken if taken ME 3250
ME	2233	3	Thermodynamic Principles	CHEM 1127Q or both CHEM 1124 & 1125; PHYS 1501Q; & MATH 2110Q which may be taken concurrently
ME	2234	3	Applied Thermodynamics	ME 2233 or CHEG 2111
ME	3214	3	Dynamics of Particles and Rigid Bodies	CE 2120
ME	3224	3	Analysis and Design of Mechanisms	MATH 2110 and 2410 and CE 2110
ME	3225	3	Computer-Aided Design, Modeling & Graphics	CSE 1010 or 1100 , CE 3110 , MATH 2110 and instructor consent
ME	3227	3	Design of Machine Elements	CE 3110
ME	3242	3	Heat Transfer	ME 2233 and 3250
ME	3250	3	Fluid Dynamics I	ME 2233 & MATH 2110 & 2410
ME	3251	3	Fluid Dynamics II	ME 3250 or CE 3120
ME	3253	3	Linear Systems Theory	CE 2120 & MATH 2410Q
ME	3255	3	Computational Mechanics	MATH 2410Q & CE 3110
ME	3260	3	Measurement Techniques	ECE 3002
ME	3263	3	Introduction to Sensors and Data Analysis	ME 2233; PHYS 1502Q; CE 2110
ME	3264	3	Applied Measurements Laboratory	ME 3263
ME	3275	3	Introduction to Computational Fluid Dynamics	ME 3242, 3250
ME	3295/5895	3	Special Topics in ME: 3D Printed Microfluidics	This Topic only; S. Tasoglu, S16
ME	3295/5895	3	Special Topics in ME: 3D Printing	This Topic only; S. Tasoglu, F15
MSE	4095/4040	3	Special Topics in MSE: Materials Selection in Mechanical Design	This Topic only; was Special Topics. Now MSE 4040 (may need substitute)