

Curriculum

□ Undergraduate Program

Classification	Subject No.	Subject Name	Lecture:Lab.:Credit (Homework)	Semester	Remark
Mandatory Major Course	CBE 201	Molecular Engineering Laboratory	1:6:3(6)	Fall	
	CBE 301	Chemical and Biomolecular Engineering Laboratory I	0:3:1(6)	Spring	
	CBE 302	Chemical and Biomolecular Engineering Laboratory II	0:3:1(6)	Spring	
Elective Major Course	CBE 203	Industrial Organic Chemistry	3:0:3(3)	Spring	
	CBE 204	Understanding of Molecules and Nanosystems	3:0:3(3)	Fall	
	CBE 205	Engineering in Life Science & Chemistry	3:0:3(3)	Spring	
	CBE 221	Molecular Thermodynamics and Energy System	3:0:3(3)	Fall	
	CBE 260	Biomolecular Engineering	3:0:3(3)	Spring	
	CBE 261	Biochemical Engineering	2:3:3(3)	Fall	
	CBE 311	Molecular Reaction Engineering	3:0:3(3)	Spring	
	CBE 321	Molecular and Bio Separation Technology	3:0:3(3)	Fall	
	CBE 331	Fluid Mechanics of Microsystem	3:0:3(3)	Spring	
	CBE 332	Heat and Molecular Transfer	3:0:3(3)	Fall	
	CBE 341	Process Simulation and Control	3:1:3(3)	Fall	
	CBE 351	Introduction to Macromolecular Engineering	3:0:3(3)	Fall	
	CBE 362	Bioinformatics	3:0:3(3)	Fall	*BiS432
	CBE 442	Optimal Design and Economics	3:0:3(3)	Fall	**
	CBE 451	Structure and Properties of Macromolecules	3:0:3(3)	Spring	**
	CBE 455	Nanochemical Technology	3:0:3(3)	Spring	**
CBE 471	Introduction to Environmental Engineering	2:3:3(3)	Spring or Fall	**	
CBE 473	Microelectronics Processes	3:0:3(3)	Fall	**	
CBE 481	Special Topics in Chemical and Biomolecular Engineering	3:0:3(3)	Spring or Fall	** (Subtitles assigned)	
Research	CBE 490	Undergraduate Research	0:6:3		
	CBE 495	Individual Study	0:6:1		
	CBE 496	Seminar for Undergraduate Students	1:0:1		

* Substitute course

** Courses for both BS and MS degree requirement.

□ Graduate Program

Classification	Subject No.	Subject Name	Lecture:Lab.:Credit (Homework)	Semester	Remark
Elective Major Course	CBE 501	Experiment and Research in Chemical Biomolecular Engineering	2:3:3(3)	Spring	**
	CBE 502	Engineering Applied Mathematics	3:0:3(4)	Fall	**
	CBE 503	Numerical Method for Chemical Engineers	3:0:3(4)	Spring	**
	CBE 511	Design of Reaction Systems	3:0:3(3)	Spring or Fall	**
	CBE 512	Introduction to Catalysis Engineering	3:0:3(4)	Spring or Fall	**
	CBE 522	Introduction to Interfacial Engineering	3:0:3(3)	Spring	**
	CBE 523	Rate-controlled Separation Process	3:0:3(4)	Fall	**
	CBE 525	Molecular Electronics	3:0:3(3)	Spring or Fall	**
	CBE 531	Fluidization Engineering	3:0:3(3)	Spring	**
	CBE 532	Mass Transfer	3:0:3(4)	Spring	**
	CBE 533	Fundamentals of Microstructure Fluid Flow	3:0:3(4)	Spring or Fall	**
	CBE 541	Advanced Process Control I	3:0:3(4)	Spring	**
	CBE 542	Process Optimization	3:0:3(4)	Spring	**
	CBE 551	Polymer Rheology	3:0:3(3)	Spring or Fall	**
	CBE 552	Polymer Processing	3:0:3(3)	Fall	**
	CBE 554	Polymer Physics	3:0:3(3)	Spring	**
	CBE 555	Biopolymer	3:0:3(3)	Fall	**
	CBE 563	Enzyme Process Engineering	3:0:3(3)	Spring	**
	CBE 564	Fermentation Process Engineering	3:0:3(3)	Fall	**
	CBE 565	Bioprocess Experiment	1:6:3(5)	Spring	**
	CBE 566	Introduction to Molecular Biomedical Engineering	3:0:3(3)	Spring	**
	CBE 567	Metabolic Engineering	3:0:3(4)	Fall	*BiS622,**
	CBE 571	Energy Engineering	3:0:3(4)	Fall	**
	CBE 572	Inorganic Materials Processing	3:0:3(4)	Spring or Fall	**
	CBE 581	Micro-Chemical and Biomolecular System	3:0:3(3)	Spring	**
	CBE 611	Theory of Catalysis	3:0:3(3)	Spring or Fall	
	CBE 612	Design of Catalysis	3:0:3(4)	Spring or Fall	
	CBE 621	Phase Equilibria and Physical Properties	3:0:3(4)	Spring or Fall	
	CBE 622	Mixing Theory in Chemical Engineering	3:0:3(3)	Spring or Fall	
	CBE 631	Microfluidics	3:0:3(4)	Fall	
	CBE 632	Colloids and Surface Chemistry	3:0:3(3)	Fall	
	CBE 641	Advanced Process Design	3:0:3(4)	Spring or Fall	
	CBE 651	Multicomponent Polymer Materials	3:0:3(1)	Fall	
	CBE 652	Polymer Characterization	3:0:3(3)	Fall	
	CBE 653	Mechanical Properties of Polymers	3:0:3(4)	Spring or Fall	*MAE633
	CBE 661	Cell Culture Engineering	3:0:3(3)	Spring or Fall	
	CBE 662	Bioseparation Process Engineering	3:0:3(3)	Fall	
	CBE 664	Process for Recombinant Microorganisms	3:0:3(3)	Spring	
	CBE 672	Air Pollution Control	3:0:3(3)	Fall	
	CBE 673	Water Pollution Control	3:0:3(3)	Spring	
	CBE 680	Membrane Technology	3:0:3(3)	Fall	
CBE 682	Organic Nano-Structured Materials	3:0:3(3)	Fall		
CBE 711	Advanced Reaction Engineering	3:0:3(4)	Spring or Fall		
CBE 712	Surface Phenomena	3:0:3(3)	Spring or Fall	*MS654	
CBE 731	Polymer Fluid Dynamics	3:0:3(3)	Spring or Fall		
CBE 741	Advanced Process Control II	3:0:3(4)	Spring		

* Substitute course

** These courses are for both the BS and MS degree requirement.

Classification	Subject No.	Subject Name	Lecture:Lab.:Credit (Homework)	Semester	Remark
Elective Major Course	CBE 751	Advanced Rheology of Polymer	3:0:3(3)	Spring or Fall	(Subtitle is assigned) " " " " " " " " " " "(*BS760)
	CBE 761	Bioprocess Analysis and Control	3:0:3(3)	Spring	
	CBE 771	Electrochemical Engineering	3:0:3(4)	Spring or Fall	
	CBE 773	Recent Topics in Chemical & Biomolecular Engineering	3:0:3(3)	"	
	CBE 811	Special Topics in Chemical Reaction Engineering	3:0:3(3)	"	
	CBE 821	Special Topics in Chemical Engineering Thermodynamics	3:0:3(4)	"	
	CBE 831	Special Topics in Transport Phenomena	3:0:3(3)	"	
	CBE 832	Special Topics in Separation Processes	3:0:3(4)	"	
	CBE 841	Special Topics in Process Engineering	3:0:3(3)	"	
	CBE 851	Special Topics in Polymer Engineering	3:0:3(3)	"	
	CBE 861	Special Topics in Biochemical Engineering	3:0:3(3)	"	
Research	CH 960	Thesis <Master Student>	1:0:1	Spring or Fall	
	CH 966	Seminar <Master Student>		"	
	CH 980	Thesis <Ph.D. Student>	1:0:1	"	
	CH 986	Seminar <Ph.D. Student>		"	

* Substitute course