

Required Courses for Students Majoring in Chemical and Materials Engineering in the College of Engineering (applicable to students admitted in Fall 2008)

Academic Year Semester Course Titles	First Year		Second Year		Third Year		Fourth Year	
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
Common Required Courses (30)	Chinese (3)	Chinese (3)	History (2)					
	Foreign Languages (3)	Foreign Languages (3)						
	<ul style="list-style-type: none"> ● 16 credit hours of General Education courses, of which one course must be from each of the following core areas: Humanities & Thought, Physical Science, Applied Science, and Social Thought & Phenomenon. The remaining courses may be General Education electives. ● One non-credit Physical Education course each semester of their first three academic years, two of which must be Freshman PE I and Freshman PE II. ● One non-credit Service Education course in the fall and spring semester of an academic year. 							
Required Courses of the College (14)	Calculus MA1003 (3)	Calculus MA1004 (3)				Engineering Ethics EG4002 (2)		
	Programming for Engineering EG1001 (3)	General Physics PH1022 (3)						
Required Courses of the Department (72)	General Chemistry (3) CH1019	Intro to Chemical Engineering and Computer Calculations (3) CH1012	Organic Chemistry (3) CH2001	Organic Chemistry (3) CH2002	Chemical and Materials Engineering Thermodynamics I (3) CH3059	Chemical Reaction Engineering (3) CH3011	Transport Phenomena and Unit Operation III (3) CH3043	
	Intro to Materials Science, Materials Engineering & Chemical Eng. I (3) CH1013	Intro to Materials Science, Materials Engineering & Chemical Eng. II (3) CH1014	Physical Chemistry (3) CH2005	Physical Chemistry (3) CH2006	Instrumental Analysis (3) CH3012	Chemical and Materials Engineering Thermodynamics II (3) CH3060	Chemical and Materials Engineering Laboratory III (1) CH4060	
		Fundamental Materials Chemistry Laboratory I (1) CH1022	Engineering Mathematics (3) CH2009	Engineering Mathematics (3) CH2010	Transport Phenomena and Unit Operation I (3) CH2021	Transport Phenomena and Unit Operation II (3) CH3042	Two Core Electives (6): (see note 6 to confirm which courses are acceptable).	

			Inorganic and Materials Chemistry (3) CH2023	Inorganic and Materials Chemistry (3) CH2024	Intro to Solid State Physics (3) CH3055	Chemical and Materials Engineering Laboratory II (1) CH4059		
			Fundamental Materials Chemistry Laboratory II (1) CH2029	Fundamental Materials Chemistry Laboratory III (1) CH2030	Chemical and Materials Engineering Laboratory I (1) CH3058			
Total Semester Credit Hours	18	19	13	13	13	12	10	
Notes	<ol style="list-style-type: none"> The numerical figures in parentheses refer to course credit hours. The total number of credit hours for required courses amounts to 116; the total number of credit hours for elective courses amounts to 12, six of which must be earned from electives offered by this Department (i.e., courses whose titles start with CH); the minimum number of earned credit hours required for graduation is 128. The calculation of semester hours shall not include credit hours earned from General Education courses or History. First-year students may take any of the following to fulfill the University's foreign language requirement: (1) Freshman English; (2) other English courses offered by the English department; (3) six course credit hours of an alternative second-language offered or accredited by the Language Center. Before being permitted to graduate, students must demonstrate their English proficiency by reaching a threshold score in one of the English proficiency tests recognized by the Language Center or by passing two semesters of Remedial English; credit hours thus earned may be counted toward the minimum number required for a baccalaureate degree (for details, refer to the University's <i>Implementation Procedures for Freshman Foreign Language Courses</i> and <i>Implementation Procedures for Remedial English Courses</i>). Students are required to take two of the following seven Core Elective Courses: Process Design (CH4004), Numerical Analysis (CH4012), Polymer Chemistry (CH4056), Polymer Physics (CH4057), Electronic and Ceramic Materials (CH4051), Biochemical Engineering (CH8041), Energy Materials (CH8092). Students are required to receive a passing grade in Service Education in accordance with the University's <i>Service Education Implementation Procedures</i> before being permitted to graduate. <p>* First-year students who wish to take other foreign language courses other than Freshman English are required to have obtained a grade in English that ranks them among the top 12.5 percent among all examinees in the Entrance Exam.</p>							