

Typical Course Schedule

		Units per term		
		1st	2nd	3rd
<i>Second Year</i>				
Ma 2 ab	Sophomore Mathematics	9	9	-
Ph 2 ab	Sophomore Physics	9	9	-
Ch 3 b	Experimental Procedures of Synthetic Chemistry	-	-	8
Ch 41 abc	Organic Chemistry	9	9	9
ChE 63 ab	Chemical Engineering Thermodynamics	9	9	-
ChE 64	Principles of Chemical Engineering HSS Electives	-	-	9
		<u>9</u>	<u>9</u>	<u>18</u>
		45	45	44

<i>Third Year</i>				
ACM 95 abc	Introductory Methods of Applied Mathematics	12	12	12
Ch 21 ab	Physical Description of Chemical Systems	9	9	-
ChE 103 abc	Transport Phenomena	9	9	9
ChE 101	Chemical Reaction Engineering	-	9	-
CDS 110 a	Introductory Control Theory Science Writing	9	-	-
	HSS Electives	-	-	3
		<u>-</u>	<u>9</u>	<u>18</u>
		39	49	42

Fourth Year

Fourth-year courses of study are based on particular areas (tracks) of chemical engineering:

Biomolecular Track

Bi/Ch 110	Intro. to Biochemistry	12	-	-
BE 201 abc	Physiology for Bioengineering	9	9	9
BE/ChE 163	Intro. to the Design of Biological Molecules and Systems	-	9	-
or				
ChE/BE 210	Cellular Engineering	-	-	9
ChE 126 ab	Chemical Engineering Laboratory	9	9	-
or				
ChE 126 a and ChE 90 ab	Chemical Engineering Laboratory and Senior Thesis	9	9	9
	Bioengineering Electives	-	9	9
	HSS Electives	9	-	9
	Science/Engineering Electives	<u>9</u>	<u>9</u>	<u>9</u>
		48	36-45 ¹	36-54 ¹

¹ Second and third term total number of units must be at least 78.

Environmental Track

ChE 126 a	Chemical Engineering Laboratory	9	-	-
ESE 116	Aerosol Measurements	-	-	9
or				
ESE/Ge 143	Environmental Chemistry Lab	-	-	9
ESE/Ge 148 abc	Global Environmental Science	9	9	9
	ESE Courses ¹	9	18	9
	HSS Electives	9	-	9
	Science/Engineering Electives	<u>9</u>	<u>9</u>	<u>9</u>
		45	36	45

¹ Recommended ESE courses include ESE 142, ESE 144, ESE 146, ChE/ESE 158, ESE/Bi 166, ESE/Bi 168, ESE/Ge/Ch 171, ESE/Ge/Ch 172, ESE/Ge/Ch 175 ab.

Process Systems Track

ChE 110 ab	Optimal Design of Chemical Systems	-	9	9
ChE 126 ab	Chemical Engineering Laboratory	9	9	-
or				
ChE 126 a	Chemical Engineering Laboratory	9	9	9
and ChE 90 ab	and Senior Thesis			
	HSS Electives	9	-	9
	Engineering Electives	18	9-18 ¹	9
	Science/Engineering Electives	<u>9</u>	<u>9</u>	<u>9</u>
		45	36-45 ²	36-45 ²

¹ If ChE 90 ab option, then 9 units.

² Second and third term total number of units must be at least 81.

Materials Track

ChE 126 ab	Chemical Engineering Laboratory	9	9	-
or				
ChE 126 a	Chemical Engineering Laboratory	9	9	9
and ChE 90 ab	and Senior Thesis			

Advanced Materials Courses¹

1-Polymers

Ch 120 a	Nature of the Chemical Bond	9	-	-
Ch/ChE 147	Polymer Chemistry	-	9	-
ChE/Ch 148	Polymer Physics	-	-	9

2–Electronic Materials

APh 114 ab	Solid-State Physics	9	9	-
ChE 189	Special Topics in Materials Processing	-	-	9

3–Structural Materials

MS 131	Structure and Bonding in Materials	9	-	-
MS 132	Diffraction and Structure of Materials	-	12	-
MS 133	Kinetic Processes in Materials	-	-	9
	HSS Electives	9	-	9
	Science/Engineering Electives	<u>9</u>	<u>9</u>	<u>9</u>
		45	36-48 ²	27-45 ²

¹ One complete track (1, 2, or 3) and two elective courses from the tracks not completed (ChE 90 b can substitute for 9 units of Science/Engineering Electives). MS 115ab are now also being considered as possible options to fulfill requirements in this track. Please see your advisor about this.

² Second and third term total number of units must be at least 81.