

MACROMOLECULAR SCIENCE AND ENGINEERING

Dual Degree Program Course Requirements

Engineering Requirements for all majors/departments		
Course Code	Course Title	Semester Credit Hours
CHEM 105	Principles of Chemistry I	3
CHEM 106	Principles of Chemistry II	3
CHEM 113	Principles of Chemistry Lab	2
ENGR 131	Elementary Computer Programming (JAVA)	3
MATH 121	Calculus for Science and Engineering I	4
MATH 122	Calculus for Science and Engineering II	4
MATH 223	Calculus for Science and Engineering III	3
MATH 224	Elementary Differential Equations	3
PHYS 121	General Physics I	4
PHYS 122	General Physics II	4
	Humanities and Social Science (including college level writing proficiency)	22
	Physical Education (2 semesters)	0
		55

Sample Course Sequence for Macromolecular Science and Engineering

Fall Year 1

Subject Code	Course Number	Course Title	Hours per Week		Semester Credit Hours
			Class	Lab	
EMAC	270	Introduction to Polymer Science	3	0	3
CHEM	223	Organic Chemistry I	3	0	3
ENGR	200	Statics and Strength of Materials	3	0	3
ENGL	398N	Professional Communication	3	0	3
		Technical Elective	3	0	3
			15	0	15

Spring Year 1

Subject Code	Course Number	Course Title	Hours per Week		Semester Credit Hours
			Class	Lab	
EMAC	276	Polymer Properties and Design	3	0	3
ENGR	225	Thermo, Fluid Dynamics, Heat & Mass Transfer	4	0	4
CHEM	224	Organic Chemistry II	3	0	3
ENGR	210	Introduction to Circuits and Instrumentation	3	2	4
CHEM	321	Laboratory Methods and Techniques I	0	3	3
		(or) CHEM 290 Lab Methods for Engineers	1	5	3
			13 (14)	5 (5)	17

Fall Year 2

Subject Code	Course Number	Course Title	Hours per Week		Semester Credit Hours
			Class	Lab	
EMAC	370	Polymer Chemistry and Industry	3	0	3
EMAC	355	Polymer Analysis Laboratory	0	3	3
EMAC	351	Physical Chemistry for Engineers	3	0	3
EMAC	377	Polymer Processing	3	0	3
		Technical Elective	3	0	3
		Technical Elective	3	0	3
			15	3	18

Spring Year 2

Subject Code	Course Number	Course Title	Hours per Week		Semester Credit Hours
			Class	Lab	
EMAC	378	Polymer Production and Technology	3	0	3
EMAC	372	Polymer Processing Laboratory	0	3	3
EMAC	398	Senior Project	0	3	3
EMAC	376	Polymer Engineering	3	0	3
		Technical Elective	3	0	3
			9	6	15

Please Note: The course sequence serves as an example of the classes necessary to complete the Dual Degree Program. Courses and the semesters taken will be based on the student's transfer credit and discussion with the Case Western Reserve University faculty advisor.