CASE SCHOOL OF ENGINEERING
CASE WESTERN RESERVE UNIVERSITY

Students must take the equivalent of the following courses at their liberal arts college before entering CWRU

General Requirements for Dual Degree Program		
Course	**Course Title**	**Semester Credit Hours**
MATH		
MATH 121	Calculus for Science & Engineering I	4
MATH 122	Calculus for Science & Engineering II	4
MATH 223	Calculus for Science & Engineering III	3
MATH 224	Elementary Differential Equations	3
CHEMISTRY		
CHEM 105	Principles of Chemistry I	3
CHEM 106	Principles of Chemistry II	3
CHEM 113	Principles of Chemistry Laboratory	2
PHYSICS		
PHYS 121	General Physics I-Mechanics	4
PHYS 122	General Physics II-Electricity and Magnetism	4
COMPUTER PROGRAMMING		
Students must take **one** of the following: **EECS 132** should be taken by Computer Engineering majors and computer tracks of BME (Biomedical Computing and Analysis) All other majors should take **ENGR 131**		
ENGR 131	Elementary Computer Programming (MATLAB)	3
EECS 132	Introduction to Programming in Java	3

Sample Course Sequence for Chemical Engineering

Year 1 Fall

Course	Course Title	Semester Credit Hours
ECHE 260	Intro to Chemical Systems	3
ECHE 360	Transport Phenomena Chemical Systems	4
ENGR 225	Thermodynamics, Fluid Dynamics, Heat and Mass Transfer	4
STAT 313	Statistics for Experimenters	3
	Materials Elective	3
		17

Year 1 Spring

Course	Course Title	Semester Credit Hours
ECHE 361	Separation Processes	3
ECHE 363	Thermodynamics of Chemical Systems	3
ECHE 364	Chemical Reaction Processes	3
ENGL 398	Professional Communication for Engineers	2
ENGR 398	Professional Communication for Engineers	1
ENGR 210	Intro to Circuits and Instrumentation	4
		16

Year 2 Fall

Course	Course Title	Semester Credit Hours
ECHE 151	Intro to Chemical Engineering at Case	1
ECHE 362	Chemical Engineering Laboratory	4
ECHE 367	Process Control	4
ECHE 398	Process Analysis and Design	3
	Technical Breadth Elective	3
		15

Year 2 Spring

Course	Course Title	Semester Credit Hours
ECHE 365	Measurements Laboratory	3
ECHE 399	Chemical Engineering Design Project	3
ENGR 200	Statics and Strength of Materials	3
	Technical Breadth Elective	3
	Technical Breadth Elective	3
		15

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.*

** This recommended schedule assumes students have taken the courses required for the dual degree program, as well as the following: organic chemistry (two semesters), physical chemistry (two semesters), advanced chemistry lab, and an advanced science course (in addition to those above).*

*****Technical Breadth Elective:*** *The technical breadth sequence consists of three advanced technical courses within one coherent theme. Students can choose from pre-approved sequences, or create their own. It is possible students could use some of their advanced courses towards the Technical Breadth Elective requirement. Technical Breadth Sequences: biochemical engineering, computing, electrochemical engineering, electronic materials, energy, environmental engineering, management/entrepreneurship, polymer science, research, and systems and control.*