

John Carroll University Chemistry Department

B.S. Chemistry with Entrepreneurship Minor Study Plan

First Year

Fall Semester	Credits	Major	Core	Other	Spring Semester	Credits	Major	Core	Other
CH141 General Chemistry 1*	4	X			CH142 General Chemistry II*	4	X		
CH143 General Chemistry Lab I*	1	X			CH144 General Chemistry Lab II*	1	X		
MT135 Calculus / Analytic Geometry I	4	X			MT136 Calculus / Analytic Geometry II	4	X		
EN125 Seminar on Academic Writing	3		X		COMM125 Speech Communications	3		X	
Language Requirement	3		X		Language Requirement	3		X	
Total Credit Hours	15				Total Credit Hours	15			

Second Year

Fall Semester	Credits	Major	Core	Other	Spring Semester	Credits	Major	Core	Other
CH221 Organic Chemistry I	3	X			CH222 Organic Chemistry II	3	X		
CH223 Organic Chemistry Lab I	1	X			CH224 Organic Chemistry Lab II	1	X		
PH125 General Physics I	3	X			CH261 Analytical Chemistry	3	X		
PH125L General Physics Lab I	1	X			CH263 Analytical Chemistry Lab (QA)	1	X	X	
Linked Pair of Courses (w/ER201)	6		X	X	PH126 General Physics II	3	X		
Creative and Performing Arts (CAPA)	1-3		X		PH126L General Physics Lab II	1	X		
					ER301 Introduction to Entrepreneurship	3			X
Total Credit Hours	15				Total Credit Hours	15			

Third Year

Fall Semester	Credits	Major	Core	Other	Spring Semester	Credits	Major	Core	Other
CH363 Physical Chemistry I	3	X			CH399 Undergraduate Research	1	X		
CH367 Physical Chemistry I Lab	2	X			CH478 Chemistry Seminar	0	X		
CH399 Undergraduate Research	1	X			Philosophy Knowledge/Reality (PLKR)	3		X	
Philosophy Values/Society (PLVS)	3		X		ER306 Sales and Marketing for Entrepreneurship	3			X
ER304 (ISJ)	3		X	X	TRS Course	3		X	
Career or Program Elective	3		X		Career or Program Elective	3		X	X
					Engaging the Global Community(EGC)	3		X	
Total Credit Hours	15				Total Credit Hours	16			

Fourth Year

Fall Semester	Credits	Major	Core	Other	Spring Semester	Credits	Major	Core	Other
CH441 Instrumental Analysis	3	X			Career or Program Electives	6	X	X	X
CH443 Instrumental Analysis Lab**	2	X			TRS Course	3		X	
CH399 Undergraduate Research	1	X			Experience	3			X
Entrepreneurship	3			X	Humanities	3		X	
Social Sciences Course	3		X						
CH Elective or Career Elective	3	X	X						
Total Credit Hours	15				Total Credit Hours	15			

If you are planning to attend graduate school, take the GRE in summer and begin submitting applications this fall.

Total CH Credit Hours Required: 42 Total Credit Hours Required to Graduate: 120

Notes:

* Well prepared students may substitute the CH141-144 sequence with CH151/153 - Chemical Principles and Lab in the Fall Semester

** CH443 will satisfy the Core Requirements for Capstone, Advanced Writing, and Oral Presentation within the major (CAP, AW,OP)

*Please consult your academic advisor to address specific needs of your major, minor, and/or concentration.