

# John Carroll University Chemistry Department

## B.S. Chemistry with Biochemistry Concentration & Entrepreneurship Minor Study Plan (2017-2019)

### First Year

Fall Semester	Credits	Major	Core	Other	Spring Semester	Credits	Major	Core	Other
CH141 General Chemistry I*	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	
BL155 Principles of Biology I	3	X			BL156 Principles of Biology II	3	X		
BL157 Principles of Biology Lab I	1	X			BL158 Principles of Biology Lab II	1	X		
<b>Total Credit Hours</b>	<b>16</b>				<b>Total Credit Hours</b>	<b>16</b>			

### 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		
PH126 General Physics Lab I	1	X			CH263 Analytical Chemistry Lab (QA)	1	X	X	
Career or Program Electives	6	X	X	X	PH126 General Physics II	3	X		
Creative and Performing Arts (CAPA)	1-3		X		PH126L General Physics Lab II	1	X		
					BL213 Genetics	4	X		
<b>Total Credit Hours</b>	<b>15</b>				<b>Total Credit Hours</b>	<b>16</b>			

### Third Year

Fall Semester	Credits	Major	Core	Other	Spring Semester	Credits	Major	Core	Other
CH363 Physical Chemistry I	3	X			CH436 Biochemistry II	3	X		
CH367 Physical Chemistry I Lab	2	X			ER301 Introduction to Entrepreneurship	3			X
CH435 Biochemistry I	3	X			CH478 Chemistry Seminar	0	X		
CH437 Biochemistry Laboratory	1	X			Engaging the Global Community (EGC)	3		X	
Linked Pair of Courses (w/ER201)	6		X	X	Humanities Course	3		X	
					Social Science Course	3		X	
<b>Total Credit Hours</b>	<b>15</b>				<b>Total Credit Hours</b>	<b>15</b>			

### Fourth Year

Fall Semester	Credits	Major	Core	Other	Spring Semester	Credits	Major	Core	Other
ER304 (ISJ)	3		X	X	CH or BL Elective**	3	X		
Entrepreneurs	3			X	Philosophy Knowledge/Reality (PLKR)	3		X	
Language Requirement	3		X		Language Requirement	3		X	
Philosophy Values/Society (PLVS)	3		X		Entrepreneurs	3			X
TRS Course	3		X		Experience	3			X
CH or BL Elective	3	X			TRS Course	3		X	
<b>Total Credit Hours</b>	<b>15</b>				<b>Total Credit Hours</b>	<b>18</b>			

*If you are planning to attend graduate school or a health professions program, take the GRE or MCAT in summer between years 3 and 4 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

471 and PS426 and others by petition.

CH398, or CH399D (with 3 credits of CH399). One of these should be taken in the senior year.

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