

**John Carroll University**  
**Department of Education**  
**Adolescent Young Adult Integrated Science**  
 Credit hours 46 to 48 OAE Test- 024

Course #		Course Title	Credits Required
<i>Chemistry Courses</i>			10 credits
CH 1410	CH 141	General Chemistry I	4
CH 1430	CH 143	General Chemistry Lab	1
CH 1420	CH 142	General Chemistry II	4
CH 1440	CH 144	General Chemistry Lab II	1
<i>Earth/Space Science Courses</i>			7 Credits
PH 1110	PH 111	From Planets to The Cosmos	3
PH 1150	PH 115	Environmental Earth Science	3
PH 1151	PH 115L	Environmental Earth Science Lab	1
<i>Life Science Courses</i>			7 Credits
BL 1500	BL 155	Principles of Biology I	3
BL 1505	BL 157	Principles of Biology Lab I	1
BL 1600	BL 156	Principles of Biology II	3
BL 1605	BL 158	Principles of Biology Lab II	1
<i>Mathematics Courses</i>			7/8 Credits
MT 1350	MT134, MT135, MT231	Calculus 1	4
MT 1360 OR Data 1220	MT136, MT232	Calculus 2 OR Elementary Statistics	4 3
<i>Physics courses: one of the following 4-courses sequences</i>			8 Credits
PH 1250 PH 1251	PH 125 & PH 125L	General Physics I & General Physics Lab I	Course 3, lab 1
PH 1260 PH 1261	PH 126 & PH 126L	General Physics II & General Physics Lab II	Course 3, lab 1
<i>Or</i>			
PH 1510 & PH 1511	PH 135 PH 215	SCI: PHYSICS I PHYSICS WORKSHOP I	Course 3, lab 1
PH 136, PH 216	PH 1520 & PH 1521	Physics II Physics Workshop II	Course 3, lab 1

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<i>Supplemental courses- take any two of the following courses, lecture and lab count as one section</i>			
<i>7 to 8 credits</i>			
BL 2130	BL 213	Genetics	4
BL 3310	BL 331	Global Climate Change	3
CH 2210	CH 221	Organic Chemistry I	3
CH 2230	CH 223	Organic Chemistry Lab I	1
CH 2220	CH 222	Organic Chemistry II	3
CH 2240	CH 224	Organic Chemistry Lab II	1
CH 2610	CH 261	Analytical Chemistry	3
CH 2630	CH 263	Analytical Chemistry Lab I	1
CH 3630	CH 363	Physical Chemistry I	3
CH 3670	CH 367	Physical Chemistry Lab I	2
Ch 3660	CH 366	Physical Chemistry II	3
Ch 3680	CH 368	Physical Chemistry Lab II	1
PH 2540	PH 246	Modern Physics	3
PH 2522	PH 247	Modern Physics Lab	1

*August 2023*