

# BIOLOGY COMPREHENSIVE MAJOR: SECONDARY LICENSURE EMPHASIS (WITH A 3+2 MASTER OF ARTS IN EDUCATION)

The 3+2 Secondary and K-12 Licensure Program allows students to complete a B.A. in their academic major with an emphasis in Secondary and K-12 Licensure and a Master of Arts in Education in five years. Students apply to the program by December of their junior year. MUS majors interested in the program need to set up an individualized plan with their MUS and EDUC advisors. To be accepted into the 3+2 Program, each student must:

- Provide letters of recommendation from at least one Education Department faculty member and one faculty member from the student's major
- Prove content, as defined by the Colorado Department of Education
- Be accepted into Western's Teacher Licensure Program
- Successfully complete EDUC 340 (by Spring of junior year)
- Be on track to complete all coursework required within the academic major

Upon satisfactory completion of these requirements, students will be designated as "MAED candidates with provisional acceptance." Upon completion of the final undergraduate credits for the Western B.A., students will be designated as "MAED degree-seeking students." Students who have completed all other requirements of the 3+2 Secondary and K-12 Licensure Degree Program and all Western undergraduate requirements, yet choose to leave the MAED program before Year Five, will still have completed the BA in Secondary and K-12 Licensure, have earned 120 credits necessary for a Western undergraduate degree, and be eligible to apply for initial teacher licensure .

## Program Requirements

Students interested in pursuing this comprehensive program should consult with the Teacher Education Program advisor in addition to the advisor in their major as soon as possible.

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	GENERAL ECOLOGY	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
<b>Total Credits</b>		<b>26</b>

Code	Title	Credits
Required Biology and/or ESS courses		
BIOL 201 or BIOL 342	Introduction to Microbiology (with laboratory) Microbiology (with laboratory)	4
Select one of the following:		4-8
ESS 201	Essentials of Human Anatomy and Physiology (with Lab)	
BIOL 372 & BIOL 373	Human Anatomy and Physiology I (with laboratory) and Human Anatomy and Physiology II (with laboratory)	

In addition, the student must fulfill the requirements of the Secondary Licensure 3+2 Program ([https://catalog.western.edu/undergraduate/programs/education/elementary-education-comprehensive-secondary-k-12-licensure-3\\_2/](https://catalog.western.edu/undergraduate/programs/education/elementary-education-comprehensive-secondary-k-12-licensure-3_2/)) (see description under Education), and the following:

Code	Title	Credits
<b>Minimum Supporting Courses</b>		
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4
MATH 213	Probability and Statistics (GT-MA1)	3
PHYS 110	Introductory Astronomy (GT-SC2)	3
PHYS 120	Meteorology (GT-SC2)	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (<https://catalog.western.edu/undergraduate/graduation-requirements/>).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ENG 102	Writing and Rhetoric I (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Gen Ed	Arts & Humanities	3
ENG 103	Writing and Rhetoric II (GT-CO2)	3
<b>Credits</b>		<b>14</b>

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**Year Two**

<b>Fall</b>		
BIOL 301	GENERAL ECOLOGY	3
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
ESS 201 or BIOL 372	Essentials of Human Anatomy and Physiology (with Lab) or Human Anatomy and Physiology I (with laboratory)	4
MATH 141	Precalculus (GT-MA1)	4
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
BIOL 310	Cell Biology	3
Gen Ed	Arts & Humanities	3
Gen Ed	Social Sciences	3
PHYS 120	Meteorology (GT-SC2)	3
MATH 213	Probability and Statistics (GT-MA1)	3
<b>Credits</b>		<b>15</b>

<b>Year Three</b>		
<b>Fall</b>		
BIOL 201 or BIOL 342	Introduction to Microbiology (with laboratory) or Microbiology (with laboratory)	4
BIOL 312	Genetics (with recitation)	4
Gen Ed	Arts & Humanities	3
Gen Ed	Social Sciences	3
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
<b>Credits</b>		<b>18</b>

<b>Spring</b>		
EDUC 000	Education Gateway Course	0
EDUC 340	Application of Pedagogy and Practice	3
GEOL 201	Historical Geology (with laboratory)	4
PHYS 110	Introductory Astronomy (GT-SC2)	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
Gen Ed	Social Sciences	3
<b>Credits</b>		<b>17</b>

<b>Year Four</b>		
<b>Fall</b>		
EDUC 403	INSTRTN&ASMT IN CONTENT AREA	3
EDUC 405	Data-driven Instructional Practices	3
EDUC 604	Learning Environments	3
EDUC 609	Secondary Student Teaching	3
EDUC 624	Managing to Differentiate	3
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
EDUC 606	Reading and Writing Across the Content Areas	3
EDUC 607	Rethinking Learning in the 21st Century	3
EDUC 609	Secondary Student Teaching	3
EDUC 629	Inclusion and English Learners	3
<b>Credits</b>		<b>12</b>

<b>Total Credits</b>		<b>121</b>
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