

**EARTH SCIENCE LICENSURE Fall 2018**  
**REQUIRES A TOTAL OF 60 SEMESTER HOURS**

Updated 9/05/2108

Pedagogy Requirements: (4 sem. hrs. req.)

EDT 434	Science Methods For AYA	3
EDT 434L	Science Methods For AYA Lab	1
STANDER SYMPOSIUM Presentation & Participation in Science		

<https://stander.udayton.edu>

Earth Science Requirements: (30 sem. hrs. req.)

GEO 115	Physical Geology	3
GEO 115L	Physical Geology Laboratory	1
GEO 116	Geological History of the Earth	3
GEO 116L	Geological History of the Earth Lab	1
GEO 201	Mineralogy	3
GEO 201L	Mineralogy Laboratory	1
GEO 208	Environmental Geology	3
GEO 208L	Environmental Geology Laboratory	1
GEO 301	Structural Geology	3
GEO 301L	Structural Geology Laboratory	1
GEO 307	Geomorphology	3
GEO 307L	Geomorphology Laboratory	1

Select additional courses to total 30 hours in Geology:

GEO 303	Field Geology	6
GEO 308	Problems & Decisions in Environ Geo	3
GEO 308L	Problems & Decisions in Environ Geo Lab	1
GEO 309	Surface and Groundwater Hydrology	3
GEO 309L	Surface and Groundwater Hydrology Lab	1
GEO 401	Paleontology	3
GEO 401L	Paleontology Laboratory	1
GEO 403	Sedimentology	3
GEO 403L	Sedimentology Laboratory	1
GEO 404	Problems in Geology	1-4
PHY 250	Descriptive Astronomy	3

Biology, Chemistry & Physics Requirements: (20 sem. hrs. req.)

BIO 151	Concepts of Biology I	3
BIO 151L	Biology Laboratory Investigation I	1
CHM 123	General Chemistry I	3
CHM 123L	General Chemistry I Laboratory	1
CHM 124	General Chemistry II	3
CHM 124L	General Chemistry II Laboratory	1
PHY 201	General Physics I	3
PHY 201L	General Physics I Laboratory	1
PHY 202	General Physics II	3
PHY 202L	General Physics II Laboratory	1

Math Requirements: (6 sem. hrs. req.)

MTH 148	Introductory Calculus I	3
MTH 149	Introductory Calculus II	3

Computer Requirements: Use of computers is required in BIO 151L, GEO 307, GEO 401, and GEO 404. Students who do not possess needed skills should take CPS 111 or a higher level CPS course.

Integrated Science License: Requires a single and/or dual field concentration area, and the Integrated Science state of Ohio teaching license will be processed by the University of Dayton once ODE has issued the single and/or double field concentration license.

**LIFE SCIENCE LICENSURE Fall 2019**  
**REQUIRES A TOTAL OF 63 SEMESTER HOURS**

Updated 2/18/2019

Pedagogy Requirements: (4 sem. hrs. req.)

EDT 434	Science Methods For AYA	3
EDT 434L	Science Methods For AYA Lab	1
STANDER SYMPOSIUM Presentation & Participation in Science		

Research <https://stander.udayton.edu> or \*BIO 420 or \*BIO 421

Biology Requirements: (33 sem. hrs. req.)

BIO 151	Concepts of Biology I	3
BIO 151L	Biology Laboratory Investigation I	1
BIO 152	Concepts of Biology II	3
BIO 152L	Biology Laboratory Investigations II	1
BIO 301	Evolution	3
BIO 310	Ecology	3
BIO 310L	Ecology Laboratory	1
BIO 312	General Genetics	3
BIO 312L	Genetics Laboratory	1
BIO 395	Global Environmental Biology	3
BIO 411	General Microbiology	3
BIO 411L	General Microbiology Laboratory	1

Select additional courses to total 33 hours in Biology including at least 2 laboratory credits:

*BIO 299	Biology Seminar (Majors only)	1
BIO 309	Comparative Anatomy	3
BIO 309L	Comparative Anatomy Laboratories	1
BIO 311	Introductory Entomology	3
BIO 314	Plant Biology	3
BIO 314L	Plant Biology Laboratory	1
*BIO 420	Biology Capstone Seminar	1
*BIO 421	Biological Problems	1-2
BIO 459	Environmental Ecology	3
BIO 466	Biology of Infectious Disease	3

\*Permission required

Chemistry, Earth Science & Physics Requirements: (20 sem. hrs. req.)

CHM 123	General Chemistry I	3
CHM 123L	General Chemistry I Laboratory	1
CHM 124	General Chemistry II	3
CHM 124L	General Chemistry II Laboratory	1
CHM 313	Organic Chemistry I	3
CHM 313L	Organic Chemistry Laboratory	1
GEO 115	Physical Geology	3
GEO 115L	Physical Geology Laboratory	1
PHY 201	General Physics I	3
PHY 201L	General Physics I Laboratory	1

Math Requirements: (6 sem. hrs. req.)

MTH 148	Introductory Calculus I	3
MTH 149	Introductory Calculus II	3