

BIOLOGY (AST)

Program Code: AS.TBIOLOGY

Are you interested in better understanding how life works? Biology is the study of living and once-living organisms, and an understanding of biological principles can be applied to a wide range of fields such as bioinformatics, ecology, education, marine biology, medicine, molecular biology, veterinary medicine, and more. Biology majors develop critical thinking and problem-solving skills that allow them to ask questions that lead to a better understanding of the natural world. As part of the life, physical, and social science occupations, the Bureau of Labor Statistics anticipates continued job market growth with median annual wages greater than \$60,000.

The Biology Major Transfer Map (MTM) outlines Oregon community colleges coursework to complete in order to transfer seamlessly to any Oregon four-year public university to earn a bachelor of science (B.S.) in biology. The Biology MTM is intended for students who know they want to transfer and earn a B.S. in biology, but who are unsure of their intended transfer destination. Students should work with an advisor to ensure they properly fulfill the requirements of this Biology MTM.

Outcomes

Program Outcomes

Upon successful completion of this program, students should be able to:

- apply the process of science to biological phenomenon;
- use quantitative reasoning to present evidence-based arguments;
- communicate an emerging understanding of the impact of scientific discovery and research on society.

Requirements

Complete 90 credits from the following:

Foundational Skills

Writing

- 2 courses
- Information literacy will be included in the Writing requirement
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Code	Title	Credits
WR-121Z	Composition I	4.00
WR-227Z	Technical Writing	4.00

Mathematics

- 2 courses
- Students who test out of MTH-112Z Precalculus II: Trigonometry may substitute a recommended elective with a **MTH** prefix (see recommended electives below)
- Strongly recommend seeing an advisor for assistance with choosing sequences that best match your specific academic, pre-professional, and career goals

Code	Title	Credits
MTH-111Z	Precalculus I: Functions (or higher)	4.00
MTH-112Z	Precalculus II: Trigonometry (or higher)	4.00

Biology

- 3 courses
- Each course must be at least 4 credits

Code	Title	Credits
BI-221Z	Principles of Biology: Cells	5.00
BI-222Z	Principles of Biology: Organisms	5.00
BI-223Z	Principles of Biology: Ecology and Evolution	5.00

Chemistry

- 3-course sequence with lab
- Each course must be at least 4 credits
- Strongly recommend seeing an advisor for assistance with choosing additional chemistry courses that best match your specific academic, pre-professional, and career goals
- Students considering pre-medical, pre-dental, and pre-pharmacy programs should consider taking the Organic Chemistry sequence. Courses in sequence must be taken at the same institution.

Code	Title	Credits
CH-221	General Chemistry	5.00
CH-222	General Chemistry	5.00
CH-223	General Chemistry	5.00

Physics

- 1 sequence

Code	Title	Credits
Physics Sequence 1		
PH-201	General Physics	5.00
PH-202	General Physics	5.00
PH-203	General Physics	5.00
Physics Sequence 2		
PH-211	General Physics With Calculus	5.00
PH-212	General Physics With Calculus	5.00
PH-213	General Physics With Calculus	5.00

General Education Distribution Areas

Arts & Letters

- 2 courses
- Each course must be at least 3 credits

Arts & Letters Course List

Code	Title	Credits
ART-101	Art Appreciation	3.00
ART-115	Basic Design: 2-Dimensional Design	4.00
ART-117	Basic Design: 3-Dimensional Composition	4.00
ART-131	Introduction to Drawing	4.00
ART-204	History of Art/Ancient Through Medieval	4.00
ART-205	History of Art/Romanesque Through Baroque	4.00

Code	Title	Credits	Code	Title	Credits
ART-206	History of Art/Enlightenment Through Contemporary	4.00	ENG-243	African Mythology	4.00
ART-232	Life Drawing (Figure Emphasis)	4.00	ENG-250	Greek Mythology	4.00
ART-233	Drawing for Comics	4.00	ENG-251	Celtic Mythology	4.00
ART-250	Ceramics/Beginning	4.00	ENG-252	Hindu Mythology	4.00
ART-251	Ceramics/Hand-Building I	4.00	ENG-253	American Literature: Pre-Columbian to Civil War	4.00
ART-252	Ceramics/Wheel-Throwing I	4.00	ENG-254	American Literature: 1865 to Present	4.00
ART-253	Ceramics/Intermediate	4.00	ENG-255	American Literature: Topics in American Literature	4.00
ART-254	Ceramics/Hand-Building II	4.00	ENG-260	Introduction to Women Writers	4.00
ART-255	Ceramics/Wheel-Throwing II	4.00	ENG-261	Literature of Science Fiction	4.00
ART-257	Metalsmithing/Jewelry	4.00	ENG-270	Introduction to Literary Criticism	4.00
ART-281	Painting: Still Life/Beginning	4.00	ENG-271	World Literature: Ancient Through Classical Times	4.00
ART-282	Painting: The Figure/Beginning	4.00	ENG-272	World Literature: Early Middle Ages through the 18th Century	4.00
ART-283	Painting: Landscapes/Beginning	4.00	ENG-273	World Literature: the 19th Through 21st Centuries	4.00
ART-284	Painting: Still Life/Intermediate	4.00	ENG-295	Revolutionary Film	4.00
ART-285	Painting: The Figure/Intermediate	4.00	ENG-296	Adaptation: Literature Into Film	4.00
ART-286	Painting: Landscapes/Intermediate	4.00	FR-201	Second-Year French I	4.00
ART-291	Sculpture	4.00	FR-202	Second-Year French II	4.00
ART-292	Sculpture (Figure Emphasis)	4.00	FR-203	Second-Year French III	4.00
ART-293	Sculpture (Metal Emphasis)	4.00	HUM-235	Perspectives on Terrorism	4.00
ASL-201	Second-Year American Sign Language I	4.00	HUM-237	Perspectives on Democracy and Dialogue	4.00
ASL-202	Second-Year American Sign Language II	4.00	J-211	Mass Media & Society	4.00
ASL-203	Second-Year American Sign Language III	4.00	J-216	Writing for Media	4.00
COMM-112	Persuasive Speaking	4.00	MUS-105	Music Appreciation	3.00
COMM-126	Intro to Communication, Gender, and Sexuality	4.00	MUS-111	Music Theory I	3.00
COMM-140	Introduction to Intercultural Communication	4.00	MUS-112	Music Theory I	3.00
COMM-212	Mass Media & Society	4.00	MUS-113	Music Theory I	3.00
COMM-218Z	Interpersonal Communication	4.00	MUS-205	Music Literature: History of Jazz	4.00
COMM-219	Small Group Discussion	4.00	MUS-206	Music Literature: History of Rock	4.00
COMM-227	Nonverbal Communication	4.00	MUS-211	Music Theory II	3.00
ENG-104Z	Introduction to Fiction	4.00	MUS-212	Music Theory II	3.00
ENG-105Z	Introduction to Drama	4.00	MUS-213	Music Theory II	3.00
ENG-106Z	Introduction to Poetry	4.00	PHL-101	Philosophical Problems	4.00
ENG-107	World Literature: Ancient Through Classical Times	4.00	PHL-102	Ethics	4.00
ENG-108	World Literature: Early Middle Ages through the 18th Century	4.00	PHL-103	Critical Reasoning	4.00
ENG-109	World Literature: The 19th through 21st Centuries	4.00	PHL-205	Moral Issues	4.00
ENG-116	Introduction to Literature: Comics	4.00	PHL-210	Philosophy of Religion	4.00
ENG-121	Mystery Fiction	4.00	PHL-213	Asian Philosophy	4.00
ENG-194	Introduction to Film	4.00	PHL-216	Ancient Philosophy	4.00
ENG-195	American Film	4.00	R-101	Judaism and Foundations of Religion	4.00
ENG-201	Shakespeare	4.00	R-102	Christianity and Islam	4.00
ENG-202	Shakespeare	4.00	R-103	Asian Religions	4.00
ENG-204	British Literature: Ancient to Enlightenment	4.00	R-204	History of Christianity	4.00
ENG-205	British Literature: Romantic to Contemporary	4.00	R-210	World Religions	4.00
ENG-213	U.S. Latinx Literature	4.00	R-211	History of the Old Testament	4.00
ENG-218	Arthurian Literature	4.00	R-212	History of the New Testament	4.00
ENG-222	Children's and Young Adult Literature	4.00	SPN-201	Second-Year Spanish I	4.00
ENG-226	Popular Literature	4.00	SPN-202	Second-Year Spanish II	4.00
ENG-240	Native American Mythology	4.00	SPN-203	Second-Year Spanish III	4.00
ENG-241	Norse Mythology	4.00	SSC-237	Perspectives on Democracy and Dialogue	4.00
			TA-101	Appreciation of Theatre	4.00

Code	Title	Credits
TA-102	Appreciation of Theatre	4.00
TA-103	Appreciation of Theatre	4.00
TA-111	Fundamentals of Technical Theatre	4.00
TA-122	Costuming II	3.00
TA-123	Costuming III	3.00
TA-141	Acting I	4.00
TA-142	Acting II	4.00
TA-143	Acting III	4.00
TA-153	Theatre Rehearsal & Performance	3.00
WR-240	Creative Nonfiction Writing I	4.00
WR-241	Fiction Writing I	4.00
WR-242	Poetry Writing I	4.00
WR-243	Playwriting I	4.00
WR-244	Fiction Writing II	4.00
WR-245	Poetry Writing II	4.00
WR-246	Publishing Literature: Reading and Revising for Publication	4.00
WR-247	Playwriting II	4.00
WR-248	Publishing Literature: Editing and Marketing for Publication	4.00
WR-250	Publishing Literature: Designing and Promoting for Publication	4.00
WR-262	Introduction to Screenwriting	4.00
WR-263	Screenwriting II	4.00
WR-265	Digital Storytelling	4.00
WR-270	Creative Nonfiction Writing II: Food Writing	4.00
WS-101	Introduction to Women's Studies	4.00

Social Science

- 2 courses
- Each course must be at least 3 credits

Social Science Course List

Code	Title	Credits
ANT-101	Biological Anthropology	4.00
ANT-102	Archaeology & Prehistory	4.00
ANT-103	Cultural Anthropology	4.00
ANT-232	Native Americans of North America	4.00
CJA-101	Criminology	4.00
CJA-201	Juvenile Delinquency	4.00
EC-200	Contemporary Economic Issues	4.00
EC-201Z	Principles of Microeconomics	4.00
EC-202Z	Principles of Macroeconomics	4.00
ES-101	Introduction to Ethnic Studies	4.00
ES-211	Introduction to Latino/a/x Studies	4.00
ES-221	Introduction to Black Studies	4.00
ES-231	Introduction to Southeast Asian and South Pacific Island Diaspora Studies	4.00
ES-241	Introduction to Native American Studies	4.00
GEO-100	Introduction to Physical Geography	4.00
GEO-110	Cultural & Human Geography	4.00
GEO-130	Introduction to Environmental Geography	4.00

Code	Title	Credits
GEO-208	Geography of the United States & Canada	4.00
HST-101	History of Western Civilization	4.00
HST-102	History of Western Civilization	4.00
HST-103	History of Western Civilization	4.00
HST-131	History of Crime & Punishment in Western Civilization	4.00
HST-132	History of Language and the Written Word in Western Civilization	4.00
HST-136	History of Popular Culture, Entertainment & Sports in Western Civilization	4.00
HST-137	History of Science, Medicine, & Technology in Western Civilization	4.00
HST-201	History of the United States	4.00
HST-202	History of the United States	4.00
HST-203	History of the United States	4.00
HUM-237	Perspectives on Democracy and Dialogue	4.00
PS-200	Introduction to Political Science	4.00
PS-201	American Government and Politics	4.00
PS-203	State and Local Governments	4.00
PS-204	Introduction to Comparative Politics	4.00
PS-205	International Relations	4.00
PS-225	Introduction to Political Ideologies	4.00
PS-297	Introduction to Environmental Politics	4.00
PSY-201Z	Introduction to Psychology I	4.00
PSY-202Z	Introduction to Psychology II	4.00
PSY-215	Introduction to Developmental Psychology	4.00
PSY-219	Introduction to Psychological Disorders	4.00
PSY-231	Introduction to Human Sexuality	4.00
SOC-204Z	Introduction to Sociology	4.00
SOC-205Z	Social Change and Institutions	4.00
SOC-206Z	Social Problems	4.00
SOC-207	Social Stratification & Social Systems	4.00
SOC-210	Marriage, Family, & Intimate Relations	4.00
SSC-235	Perspectives on Terrorism	4.00
SSC-237	Perspectives on Democracy and Dialogue	4.00
WS-101	Introduction to Women's Studies	4.00

Cultural Literacy

- 1 course

Cultural Literacy Course List

Code	Title	Credits
ANT-102	Archaeology & Prehistory	4.00
ANT-103	Cultural Anthropology	4.00
ANT-232	Native Americans of North America	4.00
ART-204	History of Art/Ancient Through Medieval	4.00
ART-205	History of Art/Romanesque Through Baroque	4.00
ART-206	History of Art/Enlightenment Through Contemporary	4.00
ASL-201	Second-Year American Sign Language I	4.00
ASL-202	Second-Year American Sign Language II	4.00
ASL-203	Second-Year American Sign Language III	4.00
COMM-126	Intro to Communication, Gender, and Sexuality	4.00

Code	Title	Credits
COMM-140	Introduction to Intercultural Communication	4.00
COMM-218Z	Interpersonal Communication	4.00
COMM-219	Small Group Discussion	4.00
ENG-107	World Literature: Ancient Through Classical Times	4.00
ENG-108	World Literature: Early Middle Ages through the 18th Century	4.00
ENG-109	World Literature: The 19th through 21st Centuries	4.00
ENG-213	U.S. Latinx Literature	4.00
ENG-240	Native American Mythology	4.00
ENG-241	Norse Mythology	4.00
ENG-243	African Mythology	4.00
ENG-250	Greek Mythology	4.00
ENG-251	Celtic Mythology	4.00
ENG-252	Hindu Mythology	4.00
ENG-261	Literature of Science Fiction	4.00
ENG-271	World Literature: Ancient Through Classical Times	4.00
ENG-272	World Literature: Early Middle Ages through the 18th Century	4.00
ENG-273	World Literature: the 19th Through 21st Centuries	4.00
ENG-295	Revolutionary Film	4.00
ES-211	Introduction to Latino/a/x Studies	4.00
ES-221	Introduction to Black Studies	4.00
ES-231	Introduction to Southeast Asian and South Pacific Island Diaspora Studies	4.00
ES-241	Introduction to Native American Studies	4.00
FR-201	Second-Year French I	4.00
FR-202	Second-Year French II	4.00
FR-203	Second-Year French III	4.00
GEO-100	Introduction to Physical Geography	4.00
GEO-110	Cultural & Human Geography	4.00
GEO-130	Introduction to Environmental Geography	4.00
GEO-208	Geography of the United States & Canada	4.00
HST-101	History of Western Civilization	4.00
HST-102	History of Western Civilization	4.00
HST-103	History of Western Civilization	4.00
HST-131	History of Crime & Punishment in Western Civilization	4.00
HST-132	History of Language and the Written Word in Western Civilization	4.00
HST-136	History of Popular Culture, Entertainment & Sports in Western Civilization	4.00
HST-137	History of Science, Medicine, & Technology in Western Civilization	4.00
HST-201	History of the United States	4.00
HST-202	History of the United States	4.00
HST-203	History of the United States	4.00
HUM-235	Perspectives on Terrorism	4.00
HUM-237	Perspectives on Democracy and Dialogue	4.00
MUS-206	Music Literature: History of Rock	4.00
PHL-101	Philosophical Problems	4.00
PHL-102	Ethics	4.00
PHL-103	Critical Reasoning	4.00

Code	Title	Credits
PHL-205	Moral Issues	4.00
PHL-210	Philosophy of Religion	4.00
PHL-213	Asian Philosophy	4.00
PHL-216	Ancient Philosophy	4.00
PS-200	Introduction to Political Science	4.00
PSY-202Z	Introduction to Psychology II	4.00
PSY-219	Introduction to Psychological Disorders	4.00
PSY-231	Introduction to Human Sexuality	4.00
R-101	Judaism and Foundations of Religion	4.00
R-102	Christianity and Islam	4.00
R-103	Asian Religions	4.00
R-204	History of Christianity	4.00
R-210	World Religions	4.00
R-211	History of the Old Testament	4.00
R-212	History of the New Testament	4.00
SOC-204Z	Introduction to Sociology	4.00
SOC-205Z	Social Change and Institutions	4.00
SOC-206Z	Social Problems	4.00
SOC-207	Social Stratification & Social Systems	4.00
SOC-210	Marriage, Family, & Intimate Relations	4.00
SPN-201	Second-Year Spanish I	4.00
SPN-202	Second-Year Spanish II	4.00
SPN-203	Second-Year Spanish III	4.00
SSC-235	Perspectives on Terrorism	4.00
SSC-237	Perspectives on Democracy and Dialogue	4.00
WR-241	Fiction Writing I	4.00
WR-244	Fiction Writing II	4.00
WS-101	Introduction to Women's Studies	4.00

Other Requirements

Elective Courses

Recommended electives by transferring institution:

- **EOU:** STAT-243Z Elementary Statistics I or an additional **Math, or Chemistry sequence (p. 1)**
- **OIT:** 4-6 credits social science, 1-3 credits humanities, or 2 credits lower division health biology
- **OSU:** COMM-111Z Public Speaking, 3 credits Fitness, 1 Difference Power and Discrimination course, or an additional **Math, or Chemistry sequence (p. 1)**
- **PSU:** STAT-243Z Elementary Statistics I or an additional **Math, or Chemistry sequence (p. 1)**
- **SOU:** STAT-243Z Elementary Statistics I or an additional **Math, or Chemistry sequence (p. 1)**
- **UO:** WR-122Z Composition II or an additional **Math, or Chemistry sequence (p. 1)**
- **WOU:** WR-122Z Composition II or an additional **Math, or Chemistry sequence (p. 1)**
- Any college-level course that would bring total credits to 90 credits

- Other courses numbered 100 or above may be used in this area, which may include up to 12 credits of career technical courses
- Please refer to the [Elective Course List](#) for courses that may be included

Notes

- All courses must be passed with a C or better
- No course may be used to satisfy more than one requirement or distribution area