

**UNDERGRADUATE MAJOR:** B.S. in Biology with 7-12 Life Science Teacher Education Program – 2021-2022

**CREDITS REQUIRED IN MAJOR:** 69

**FOUNDATION/REQUIRED MAJOR COURSES**

<b>COURSE NUMBER</b>	<b>COURSE NAME</b>	<b>CREDIT S</b>	<b>PREREQUISITES</b>
BIO 105	Biological Principles I: Cellular Biology	3	Students must have fulfilled the University's readiness requirement in mathematics
BIO 106	Biological Principles I Laboratory	1.5	Grade of C or higher or concurrent enrollment in BIO 105. Students must have fulfilled the University's readiness requirement in mathematics.
BIO 107	Biological Principles II: Evolution, Biodiversity, and Ecology	4.5	Grades of C or higher in BIO 105 and BIO 106.
BIO 109	Biological Principles III: Functional Biology	3	Grade of C or higher in BIO 107.
BIO 201	Genetics	3	Grade of C or higher in BIO 105 or BIO 111, or permission of instructor.
BIO 203	Ecology	3	Grade of C or higher in BIO 107.
BIO 217	Evolution	3	Grades of C or higher in BIO 107 and BIO 201, or permission of instructor.

**SELECT One lecture/laboratory combination from each of the following three areas (9-12 credits):**

**AREA 1: Organismal Biology**

BIO 205	Comparative Vertebrate Anatomy	5	Grade of C or higher in BIO 109 or BIO 113.
BIO 231	Botany	4.5	Grade of C or higher in BIO 107 or permission of instructor.
BIO 291	Ornithology	4.5	Grade of C or higher in BIO 107 or permission of instructor.
BIO 335	Entomology	3	Grade of C or higher in BIO 107.
BIO 351	Invertebrate Zoology	5	Grade of C or higher in BIO 107.
BIO 353	Vertebrate Zoology	5	Grade of C or higher in BIO 109.
BIO 361	Parasitology and Laboratory	2	Grade of C or higher in BIO 107.
BIO 362	Parasitological Laboratory	2	BIO 361 or concurrently.
BIO 405	Animal Behavior	3	Grade of C or higher in BIO 107 or BIO 113, or permission of instructor.
BIO 406	Animal Behavior Laboratory	2	Grade of C or higher or concurrent enrollment in BIO 405.

**AREA 2: Ecology**

BIO 337	Marine Ecology	5	Grade of C or higher in BIO 203 or ESP 125.
BIO 383	Plant Ecology	5	Grade of C or higher in BIO 203 or ESP 125.
BIO 415	Microbial Ecology	3	Grade of C or higher in BIO 203 or ESP 125, and BIO 311 or equivalent, or permission of instructor.
BIO 416	Microbial Ecology Laboratory	2	Grade of C or higher in BIO 415 (or equivalent) or concurrent enrollment, or permission of instructor.
ESP 341	Limnology	4	ESP 125/126 or BIO 107, and one semester chemistry lecture/lab, or permission of instructor.
ESP 412	Field Ecosystem Ecology	4	ESP 125/126 and MAT 120.

**AREA 3: Cellular and Functional Biology**

BIO 305	Developmental Biology	3	Grade of C or higher in BIO 107
BIO 306	Developmental Biology Laboratory	2	Prior or concurrent registration in BIO 305.
BIO 311	Microbiology	3	CHY 115 and grade of C or higher in BIO 107 or BIO 113; or permission of instructor.
BIO 282	Microbiology Laboratory	2	Grade of C or higher or concurrent enrollment in BIO 281 or BIO 311; or permission of instructor.
BIO 321	Neurobiology	3	Grade of C or higher in BIO 109 or BIO 111, or permission of instructor.
BIO 322	Neurobiology Laboratory	2	Prior or concurrent registration in BIO 321.
BIO 401	Animal Physiology	3	CHY 115, either PHY 111 or PHY 121, and grade of C or higher in either BIO 107 or BIO 113; or permission of instructor.
BIO 402	Animal Physiology Laboratory	2	Grade or C or higher or concurrent enrollment in BIO 401; MAT 220.
BIO 409	Cell and Molecular Biology	3	CHY 115 and either grade of C or higher in BIO 201 or concurrent enrollment in BIO 201.
BIO 410	Cell and Molecular Biology Laboratory	2	BIO 409 or concurrently.

**NON MAJOR REQUIREMENTS: 31 Credits**

CHY 113	Principles of Chemistry I	3	Pre- or co-requisite: successful completion of MAT 108 or equivalent.
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CHY 114	Laboratory Techniques I	1	Co-requisite: CHY 113
CHY 115	Principles of Chemistry II	3	Grade of C or better in CHY 113
CHY 116	Laboratory Techniques II	1	Co-requisite: CHY 115
CHY 251	Organic Chemistry I	3	Grade of C or better in CHY 115
CHY 252	Organic Chemistry Laboratory	2	Co-requisite: CHY 251
MAT 152	Calculus A	4	MAT 140 or appropriate score on the College Level Math exam (for MAT 152)
MAT 220	Statistics for the Biological Sciences	4	MAT 152

**SELECT One of the following two sequences:**

**Sequence 1:**

PHY 111	Elements of Physics I	4	Successful completion of the University's readiness requirement in mathematics.
PHY 114	Introductory Physics Laboratory I	1	Co-requisite: PHY 111 or PHY 121
PHY 112	Elements of Physics II	4	PHY 111 or equivalent. Co-requisite: PHY 116.
PHY 116	Elements of Physics II Laboratory	1	Co-requisite: PHY 112 or 123.

**Sequence 2:**

PHY 121	General Physics I	4	Completion of MAT 152 (recommended) or concurrent registration in MAT 152, or equivalent experience.
PHY 114	Introductory Physics Laboratory I	1	Co-requisite: PHY 121
PHY 123	General Physics II	4	PHY 121 or equivalent and one semester of calculus
PHY 116	Introductory Physics Laboratory II	1	Co-requisite: PHY 112 or PHY 123

**MAJOR ELECTIVES: 4-6 CREDITS**

In addition to BIO 105, 106, 107, 109, 201, 203, 217, and one lecture/laboratory course from each of the three stipulated areas, biology majors are required to take either two additional biology lecture courses or one biology lecture/laboratory course, with prefix numbers of 200 or above.

**CAPSTONE: 3 CREDITS**

Students must fulfill the University Core curriculum requirements, including a Capstone course in the biology major (course varies by term).

**MAJOR COURSES OVERLAPPING IN THE CORE:**

CORE AREA	COURSE NUMBER	COURSE NAME	REQUIRED BY MAJOR?
SE	BIO 107	Biological Principles II: Evolution, Biodiversity, Ecology	Yes
CAP	BIO 417	Issues in Evolution	Yes, as an option
CAP	BIO 421	Seminar	Yes, as an option
CAP	BIO 499	Topics in Biology	Yes, as an option
QR	MAT 152	Calculus A	Yes
SE	PHY 121	General Physics I	Must select either PHY 121 or PHY 111
SE	PHY 111	Elements of Physics	Must select either PHY 121 or PHY 111
SE	PHY 114	Introductory Physics Laboratory I	Yes (co-requisite with PHY 121 or PHY 111)
SE	CHY 113 CHY 114	Principles of Chemistry I Laboratory Techniques I	Yes
CAP	BIO ____	Varies	Yes (see biology department)

**PROFESSIONAL EDUCATION PRE-INTERNSHIP REQUIREMENTS (15 credits):**

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES
EDU 100	Exploring Teaching	3	none
EDU 225	Child and Adolescent Development	3	WRI1
EDU 305	Foundations of Cultural and Linguistic Diversity	3	EDU 225
EDU 222	Foundations of Language and Literacy Development	3	EDU 225 and Teacher Education Pathway
SED 235	Students with Exceptionalities in General Education	3	

**PROFESSIONAL EDUCATION PRE-INTERNSHIP RECOMMENDED COURSES (6 credits):**

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES
SED 300	Ethics and Youth with Exceptionalities	3	none
EDU 310	Purpose of Schooling in a Democracy	3	WRI1

**PROFESSIONAL EDUCATION REQUIREMENTS (24 credits):**

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES
EDU 445	Student Teaching	9	Teacher education program, EDU 442
EDU 442	Seminar in Teaching, Learning, Assess	3	Teacher education program, Jr. standing
EDU 501	Secondary Science Methods	3	Teacher education program, EDU 442
EDU 414	Improving Teaching in Content Areas	3	Teacher education program, EDU 442
EDU 410	Creating Positive Learning Environments	3	Teacher education program, EDU 442
EDU 546	Testing and Assessment I	3	Teacher education program, EDU 442
EDU 547	Testing and Assessment II	3	Teacher education program, EDU 546

**Academic Requirements**

The minimum academic requirements to be a student in good standing in the Secondary Teacher Education Pathway are as follows:

- A grade of B- or better in all professional education coursework.
- A grade of C or better in content courses required for the area of teacher certification.
- An overall GPA of 3.0 or better.

Failure to maintain the above requirements may result in program dismissal. Appeals may be made in writing to the Director of Educator Preparation.

Students are required to complete and show documentation of the fingerprinting process outlined by the Maine Department of Education: <http://www.maine.gov/doe/cert/fingerprinting>.

**Recommendation for Certification**

Graduates who successfully complete all the Secondary Teacher Education Pathway requirements are eligible for recommendation for teacher certification in Maine. In order to be recommended for certification, students must complete the Recommendation for Certification form. Students who fail to meet the academic or professional requirements for the Secondary Teacher Education Pathway or choose not to pursue teacher certification may withdraw from the pathway and graduate with their major.

**NOTE--Course requirements are subject to change based upon changes in teacher certification regulation.**

**CORE CURRICULUM CODES**

**WRI 1** – Writing, Reading, & Inquiry 1

**WRI 2** – Writing, Reading, & Inquiry 2

**WRI 3** – Writing, Reading, & Inquiry 3

**QR** – Quantitative Reasoning

**CE** – Creative Expression

**SCA** – Socio-cultural Analysis

**CI** – Cultural Interpretation

**SE** – Science Exploration

**EISRC** – Ethical Inquiry, Social Responsibility, & Citizenship

**DIV** – Diversity

**INT** – International

**EL** – Engaged Learning

**CAP** – Capstone

Revised 3.15.21