

# Marine Biology

The University of West Florida is one of only a few institutions in the United States which offers a Bachelor of Science in Marine Biology. The program is provided through the Department of Biology. The curriculum includes a series of seven core courses fundamental to all areas of biology. Elective courses emphasize theoretical and practical aspects of aquatic/marine biology. Wetlands and estuarine marshes of the main campus, as well as the nearby Santa Rosa Island campus and the Gulf of Mexico, provide living specimens for study and serve as laboratories supporting elective courses. Graduates may seek careers in marine biology, fisheries management, aquaculture, pollution biology, and marine toxicology, and find employment in local, state, and federal departments of environmental regulation and education, as well as the private sector. Graduates are also well prepared to pursue advanced degrees. Prospective students need to be aware that some biology lab courses involve the use of live animals; students may wish to seek details from course instructors before enrolling.

## Program Requirements

In addition to general University requirements, students seeking the B.S. in Marine Biology must meet the requirements listed below.

Minimum grade of "C-" or better is required in all courses in the program including Major-Related, Elective and Common Prerequisites.

Consult with your academic advisor for courses which may satisfy both the General Education requirements and common prerequisites.

## General Education

In addition to the General Education requirements listed on this page, students must satisfy all additional University requirements, including the Gordon Rule, multicultural, and foreign language requirements. With appropriate planning and coordination with an academic advisor, students may satisfy some of the general University requirements through the General Education curriculum. For a complete listing of general degree requirements, refer to the "[University Requirements](#)" section of this catalog.

### General Education Curriculum:

#### Communication

ENC 1101	English Composition I	3
ENC 1102	English Composition II	3

#### Mathematics

Choose one course from Group A and one Additional course from either Group A or Group B 6

##### Group A

MAC 1105	College Algebra
MAC 1105C	College Algebra with Lab
MAC 2311	Analytic Geometry and Calculus I
MGF 1106	Mathematics for Liberal Arts I
MGF 1107	Mathematics for Liberal Arts II
STA 2023	Elements of Statistics

##### Group B

MAC 1114	Trigonometry
MAC 1140	Precalculus Algebra
MAC 1147	Precalculus with Trigonometry

MAC 2233	Calculus with Business Applications
MAC 2312	Analytic Geometry and Calculus II
STA 2360	Introduction to Data Science

## Social Sciences

Choose one course from Group A and one additional course from either Group A or Group B 6

##### Group A

AMH 2020	United States since 1877
ANT 2000	Introduction to Anthropology
ECO 2013	Principles of Economics Macro
POS 2041	American Politics
PSY 2012	General Psychology
SYG 2000	Introduction to Sociology

##### Group B

AMH 2010	United States to 1877
ANT 2100	Introduction to Archaeology
ANT 2400	Current Cultural Issues
CCJ 2002	Survey of Crime and Justice
COM 2023	Death and Communication
CPO 2002	Comparative Politics
DEP 2004	Human Development Across the Lifespan
EUH 1000	Western Perspectives I
EUH 1001	Western Perspectives II
FIN 2104	Personal Financial Planning
GEA 2000	Nations and Regions of the World
GEB 1011	Introduction to Business
HIS 2050	Explore! History
IDH 1041	Honors Core 2
INR 2002	International Politics
MMC 2000	Principles of Mass Communication
PLA 2013	Survey of American Law
SOW 2192	Understanding Relationships in the 21st Century
SPM 2010	Sport in Global Society
SYG 2010	Current Social Problems

## Humanities

Choose one course from Group A and one additional course from either Group A or Group B 6

##### Group A

ARH 1000	Art Appreciation
LIT 2000	Introduction to Literature
MUL 2010	Music Appreciation
PHI 2010	Introduction to Philosophy
THE 2000	Theatre Appreciation

##### Group B

AML 2010	American Literature I
AML 2020	American Literature II
AML 2072	Sex, Money, and Power in American Literature
ARH 2050	Western Survey I: Prehistory to the Medieval Period

ARH 2051	Western Survey II: Renaissance to Contemporary
ART 1015C	Exploring Artistic Vision
ART 2821	The Self, Creativity, Your Career and Visual Culture
CRW 2001	Introduction to Creative Writing
ENL 2010	History of English Literature I
ENL 2020	History of English Literature II
IDH 1040	Honors Core 1
LIT 2030	Introduction to Poetry
MUH 2930	The Music Experience: Special Topics
PHI 2103	Critical Thinking
PHI 2603	Ethics in Contemporary Society
REL 1300	World Religions
SPC 2608	Basic Communication Skills
THE 2300	Survey of Dramatic Literature

## Natural Sciences

Choose one course from Group A and one additional course from either Group A or Group B 6

Group A	
AST 1002	Descriptive Astronomy
BSC 1005	General Biology for Non-Majors *
BSC 1085	Anatomy and Physiology I *
BSC 2010	Biology I
CHM 1020	Concepts in Chemistry *
CHM 2045	General Chemistry I *
ESC 2000	Introduction to Earth Science *
EVR 2001	Introduction to Environmental Science
PHY 1020	Conceptual Physics
PHY 2048	Calculus-Based Physics I * **
PHY 2048C	Calculus-Based Physics I Studio ***
PHY 2053	Algebra-Based Physics I * **
Group B	
ANT 2511	Biological Anthropology *
AST 2037	Life in the Universe
BOT 2010	General Botany
BSC 1050	Fundamentals of Ecology
BSC 1086	Anatomy and Physiology II *
BSC 2011	Biology II
BSC 2311	Introduction to Oceanography and Marine Biology *
CGS 2020	Introduction to Machine Learning
CHM 2046	General Chemistry II *
CIS 2530	Introduction to Cybersecurity
GLY 2010	Physical Geology *
MCB 1000	Fundamentals of Microbiology *
PHC 2082	Informatics and Your Health
PHY 2049	Calculus-Based Physics II * **
PHY 2054	Algebra-Based Physics II * **

\* May be taken with or without lab.

\*\* Algebra-Based Physics is usually recommended for non-science majors, while Calculus-Based Physics is recommended for science majors

\*\*\* Although students receive 5 semester hours credit for PHY 2048C, an additional 3 semester science course will be needed to meet General Education requirements.

## General Education Electives

Choose an additional course from two of the three areas of Humanities, Social Sciences, and Natural Sciences

Marine Biology majors should satisfy the mathematics (6 sh) and natural science (7 sh) components of General Education with course work taken from the common prerequisites shown below.

Marine Biology majors should take ANT 2000 Introduction to Anthropology to satisfy the social science/behavioral perspectives component of General Education.

## Multicultural Requirement

### Multicultural Courses

An important component of a liberal education is the study of cultures other than one's own. As such, multiculturalism encompasses the appreciation of the values, expressions, and modes of organization of diverse cultural communities. To further such study, the University of West Florida requires all students pursuing a bachelor's degree to complete at least one course that explores one or more of the dimensions of another culture (language, religion, socio-economic structures, etc.). Students are exempt from this requirement if they have completed an A.A. degree, the general education program at a Florida public institution, or a baccalaureate degree.

The requirement is satisfied by the successful completion of a multicultural course designated on the following list. Several of the selections are General Education courses, and students may enroll in these to meet both the General Education and the multicultural requirements.

\*\*Passed by UWF Faculty Senate on 11/08/2002

This list is continually updated and students are encouraged to check with their advisors for alternative options.

AML 2010	American Literature I	3
AML 2020	American Literature II	3
AML 3604	African American Literature	3
AML 3624	Black Women Writers	3
AML 4015	Topics in Nineteenth-Century American Literature	3
AML 4640	Topics in Native American Literature	3
ANT 1001	Anthropology as a Profession	1
ANT 2000	Introduction to Anthropology	3
ANT 2301	Human Sexuality and Culture	3
ANT 3212	Peoples and Cultures of the World	3
ANT 3312	North American Indians	3
ANT 3363	Japanese Culture	3
ANT 3403	Cultural Ecology	3
ANT 4006	Anthropology of Human Rights	3
ANT 4025	Ritual Use of Human Remains	3
ANT 4516	Modern Human Physical Variation	3
ARH 1000	Art Appreciation	3

ARH 2050	Western Survey I: Prehistory to the Medieval Period	3	LIT 4385	Feminist Theory	3
ARH 2051	Western Survey II: Renaissance to Contemporary	3	MAN 4102	Management of Diversity	3
ARH 3590	Non-Western Art	3	MAR 4156	Seminar in International Marketing	3
ARH 3607	Native American Art	3	MMC 3743	Communicating Fear: Horror Films and Popular Culture	3
ARH 4302	Late Renaissance Art in Italy	3	MMC 3745	Communicating Fear Abroad: International Horror Films & Popular Culture	3
ARH 4412	The Age of Revolution to Romanticism in Europe: 1750-1850	3	MUH 2930	The Music Experience: Special Topics	3
ARH 4450	Modern Art: 1850-1980	3	MUL 2010	Music Appreciation	3
ARH 4470	Contemporary Art	3	NUR 4615	Community and Public Health Nursing	3
ARH 4563	Art of Japan	3	NUR 4636	Population-based Public Health Nursing	3
CCJ 3678	Race, Gender, Ethnicity, and Crime	3	PHI 3790	African Philosophy	3
COM 3014	Gender Communication	3	PUR 3404	International Public Relations	3
COM 3461	Intercultural Communication	3	PSY 3860	Positive Psychology	3
COM 4242	Communication and Christianity	3	SOP 3730	Psychology, Culture, and Society	3
CPO 2002	Comparative Politics	3	SOW 4233	Human Diversity and Social Justice	3
CPO 4792	Geopolitics	3	SPN 3400	Advanced Stylistics	3
CRW 2001	Introduction to Creative Writing	3	SPN 4520	Latin American Culture and Civilization	3
EDF 2085	Teaching Diverse Populations	3	SYO 4421	Sociology of Health, Illness and Health Care	3
ENG 4013	Introduction to Literary Theory	3	SYO 4530	Inequality in America	3
ENL 2020	History of English Literature II	3			
EUH 1000	Western Perspectives I	3			
EUH 1001	Western Perspectives II	3			
EUH 3203	Modern Europe	3			
EUH 3334	Emperors, Sultans, Dictators, and Democrats: The Balkans	3			
EUH 3411	Rome and the Mediterranean World	3			
EUH 3576	Soviet Union since 1917	3			
EUH 4563	The Other Germany: The Lands of the Austrian Monarchy, 1526-1918	3			
FRE 4955	Supervised Foreign Language Field Experience Abroad	1-3			
GEA 2000	Nations and Regions of the World	3			
GEB 4361	International Business	3			
GEO 3421	Cultural Geography	3			
GEO 3471	Geography of World Affairs	3			
HIS 2050	Explore! History	3			
HIS 4262	Rise and Fall of the Portuguese Empire	3			
IDH 1040	Honors Core 1	3			
IDH 1041	Honors Core 2	3			
INR 2002	International Politics	3			
LAH 4135	Spanish Conquest of the Americas	3			
LAH 4131	'Atlantic Indians': How Indigenous and African Peoples Shaped Europe & the Americas	3			
LAH 4451	Greater Mexico: Central America from Conquest to the 20th Century	3			
LAH 4728	Gender and Sexuality in Latin America from Colonization to Today	3			
LIT 2000	Introduction to Literature	3			
LIT 2030	Introduction to Poetry	3			
LIT 3233	Postcolonial Literature	3			
LIT 4036	Topics in Poetry and Poetics	3			

## Civic Literacy Requirement

The 2017 Florida Legislature amended [Section 1007.25, Florida Statutes](#), to require students **initially entering a State University System (SUS) and/or Florida College System (FCS) institution in 2018-2019** and thereafter to demonstrate competency in civic literacy.

The 2021 Legislature further amended Florida Statutes, requiring students to complete both a civic literacy course and exam. As a result, there are three cohorts of students currently matriculating at Florida public institutions subject to varying requirements. As demonstrated in the table below, the exact civic literacy requirements are based on the academic term in which a student first enrolled in a Florida public institution.

Students Included in Cohort	Civic Literacy Competency Requirement
Cohort 1: Students first entering the SUS or FCS prior to fall 2018	None
Cohort 2: Students first entering the SUS or FCS in fall 2018 – summer A 2021	Complete a course <b>or</b> exam
Cohort 3: Students first entering the SUS or FCS in summer B 2021 (on or after July 1, 2021) and thereafter	Complete both a course <b>and</b> exam

Additionally, the 2021 Legislature made two additional exceptions: approving the use of accelerated mechanisms for meeting the course competency requirement and exempting high school students who pass the Florida Civic Literacy Exam in high school from the postsecondary exam requirement. These two changes are in effect for Cohort 3.

There are multiple ways to satisfy this requirement. Students should work with their academic advisor to determine which option is best for their degree requirements/degree plan.

Additional information can be found on our [Civic Literacy](#) website.

\*BOG 8.006; s.1007.25(4,a-b)

## Common Prerequisites

State-mandated common prerequisites must be completed prior to graduation, but are not required for admission to the program. See the [Common Prerequisite Manual](#) for course substitutions from Florida colleges and universities.

Graduation requirements for the B.S. degree in Marine Biology include the successful completion of the following science/mathematics prerequisites:

- Biology I and Biology II
- General Chemistry I and II
- Organic Chemistry I or Calculus-Based Physics I
- Organic Chemistry II
- Calculus I
- Statistics

Note: STA 2023, Elements of Statistic is recommended to meet the prerequisite requirement for STA 4173, Biostatistics.

Since it will be difficult to incorporate all prerequisites into the 60 sh Lower Division Curriculum, students are advised to complete the following common prerequisites.

BSC 2010+L	Biology I (+Lab)	4
BSC 2011+L	Biology II (+Lab)	4
CHM 2045+L	General Chemistry I (+Lab)	4
CHM 2046+L	General Chemistry II (+Lab) *	4
MAC 2311	Analytic Geometry and Calculus I *	4
STA 2023	Elements of Statistics * †	3
Choose one option from the following:		8
Option 1		
CHM 2210+L	Organic Chemistry I (+Lab)	
CHM 2211+L	Organic Chemistry II (+Lab)	
Option 2		
PHY 2053+L	Algebra-Based Physics I (+Lab)	
PHY 2054+L	Algebra-Based Physics II (+Lab)	
<b>Total Hours</b>		<b>31</b>

\* Indicates common prerequisites which can be used to satisfy General Education requirements.

† STA 2023, Statistics must be completed as the prerequisite to STA 4173 Biostatistics.

Students are highly encouraged to take the Organic Chemistry sequence as part of the common prerequisites.

A minimum grade of "C-" or better required in all courses in the program to include all Specialization, Subcore, Major-Related, and Common Prerequisites. Biology Program minimum GPA of 2.0 is required for graduation.

## Lower Division Electives

Students must complete sufficient 1000/2000 level electives to complete at least 60 semester hours in the lower division. Current UWF students may use elective courses at any level (1000-4000) to meet this elective requirement.

**Total Hours** **0-10**

## Major Required Courses

BOT 4404C	Aquatic Botany	4
BSC 2844	Biology Skills (Recommended in first year)	1
MCB 4631	Molecular Aquatic Microbial Ecology	3
OCE 3007	Concepts of Oceanography and Marine Biology (Recommended in 2nd year)	3
PCB 3063+L	Genetics (+Lab)	4
PCB 3043+L	Ecology (+Lab)	4
PCB 4673	Principles of Evolution	3
PCB 4723	Comparative Animal Physiology	3
STA 4173	Biostatistics	3
ZOO 4254C	Marine Invertebrate Zoology	4
ZOO 4304C	Marine Vertebrate Zoology	4
<b>Total Hours</b>		<b>36</b>

## Major GPA Calculation:

The upper-division courses (3000-4000 level) with the following prefixes will be used in calculating the major grade point average: BCH, BOT, BSC, MCB, PCB, and ZOO.

## Major Related:

Students must take one of the following courses that are not completed as part of the Common Prerequisites in the lower division:

CHM 2210+L	Organic Chemistry I (+Lab)	4
PHY 2053+L	Algebra-Based Physics I (+Lab)	4

## Upper-Division Electives

Choose from the following list of electives **20**

BCH 3033	Biochemistry I	
BCH 3033L	Biochemistry I Laboratory *	
BSC 4303	Biogeography	
BSC 4860	Conservation Biology	
ENC 3455	Writing for Science, Technology, Engineering and Math Majors	
EVR 3894	Environmental Writing	
EVR 4035	Environmental Law	
EVR 4823	Environmental Impact Assessment	
GEO 4004	Environmental Science, Politics and Policy	
GIS 4043+L	Geographic Information Systems (+Lab)	
GIS 4048	Applications in Geographic Information Systems	
MCB 3020	Microbiology	
MCB 3020L	Microbiology Laboratory *	
OCB 4201	Biology of Coral Reefs	
PCB 4048C	Coastal Marine Ecology	
PCB 4125	Advanced Molecular Biology and Bioinformatics for Biologists	
PCB 4253	Developmental Biology	
PCB 4253L	Developmental Biology Lab *	
PCB 4364	Marine Ecological Physiology	
PCB 4364L	Marine Ecological Physiology Laboratory *	
PCB 4461	Molecular Ecology	

PCB 4524	Molecular Biology
PCB 4524L	Molecular Biology Lab *
PCB 4723L	Comparative Animal Physiology Laboratory
PCB 4870	Sensory Biology
PCB 4922	Biology Seminar
STA 4051	Nonparametric Statistics
STA 4222	Sampling Theory
STA 4234	Regression Analysis
ZOO 4454	Elasmobranch Biology
ZOO 4457	Ichthyology
ZOO 4472	Avian Science
ZOO 4485	Marine Mammalogy
ZOO 4513	Animal Behavior
<b>Total Hours</b>	<b>20</b>

\* Indicates concurrent pre-requisite with the lecture

## Accelerated Bachelors (B.S.) in Marine Biology /Masters (M.S.) in Biology Option

### Minimum Requirements For Admission:

- Overall undergraduate GPA of 3.25 or better
- Undergraduate Major GPA of 3.5 or better
- Completion of all Bachelor of Sciences in Biology core requirements
- A grade of B (3.0) or better in each Bachelor of Sciences in Biology core courses
- Two letters of recommendation

### Process:

A prospective student who meets the minimum requirements for admission for the Accelerated BS to MS program must schedule a meeting with their undergraduate advisor and the Biology graduate coordinator to discuss and develop a degree plan for the student's Accelerated BS to MS program. The student must then submit an Accelerated BS to MS program in Biology application and letter of recommendation to the Biology graduate coordinator.

### Program Requirements:

Students must have completed 75 undergraduate credit hours, including credits earned from advanced placement, prior to applying to the Accelerated BS/MS program in Biology. Transfer students must have completed a minimum of two semesters and at least 24 credit hours at the University of West Florida prior to application to the Accelerated BS/MS program. For admission into the Accelerated BS/MS program in the summer semester, application materials must be submitted by March 1. For admission into the Accelerated BS/MS program in the fall semester, application materials must be submitted by June 1. For admission into the Accelerated BS/MS program in the spring semester, application materials must be submitted by October 1. Admission into the Accelerated BS/MS program does not guarantee admission into the Biology M.S. program upon completion of the Biology B.S. undergraduate degree. Students must still submit an Express Admission application for the Biology M.S. program. Students who are a part of the BS/MS program cannot be provisionally or conditionally admitted into the Biology M.S. program.

Upon admission into the Master's In Biology program, 12 graduate credit hours completed as an undergraduate student will count for 12 semester hours of coursework for the master's program. Students in the Accelerated Bachelors/ Masters Program in Biology must earn a grade of B (3.0/4.0) or better in each of the graduate level courses that are being applied to both degrees. Courses completed with a grade of B- or below cannot be applied to the master's degree. Only dual listed 4000/5000 level Biology courses are permitted. The student must take the class at the 5000 level to count for accelerated credit.

If a student in the program completes the bachelor's degree requirements with an overall GPA of less than 3.25/4.0 the student is no longer eligible to apply the graduate credit hours to both degrees. A student who becomes ineligible to continue participating in or withdraws from the Accelerated BS/MS program cannot apply any graduate credit hours toward both degrees (i.e., the student can only apply the credit hours towards completion of the BS degree or toward a future master's degree).

Students who are enrolled in the program are eligible for graduate assistantship positions only after completing the bachelor's degree.

## Marine Biology Specialization

The marine biology specialization includes a series of seven core courses fundamental to all areas of biology. Elective courses emphasize theoretical and practical aspects of aquatic/marine biology. Wetlands and estuarine marshes of the main campus, as well as the nearby Santa Rosa Island campus and the Gulf of Mexico, provide living specimens for study and serve as laboratories supporting elective courses.

Minimum grade of "C-" or better required in all courses in the program to include all Core, Specialization, Subcore, Major-Related and Common Prerequisites. Marine Biology Program minimum GPA of 2.0 is required for graduation.

## General Education

In addition to the General Education requirements listed on this page, students must satisfy all additional University requirements, including the Gordon Rule, multicultural, and foreign language requirements. With appropriate planning and coordination with an academic advisor, students may satisfy some of the general University requirements through the General Education curriculum. For a complete listing of general degree requirements, refer to the "[University Requirements](#)" section of this catalog.

## General Education Curriculum:

### Communication

ENC 1101	English Composition I	3
ENC 1102	English Composition II	3

### Mathematics

Choose one course from Group A and one Additional course from either Group A or Group B

#### Group A

MAC 1105	College Algebra
MAC 1105C	College Algebra with Lab
MAC 2311	Analytic Geometry and Calculus I
MGF 1106	Mathematics for Liberal Arts I
MGF 1107	Mathematics for Liberal Arts II
STA 2023	Elements of Statistics

## Group B

MAC 1114	Trigonometry
MAC 1140	Precalculus Algebra
MAC 1147	Precalculus with Trigonometry
MAC 2233	Calculus with Business Applications
MAC 2312	Analytic Geometry and Calculus II
STA 2360	Introduction to Data Science

**Social Sciences**

Choose one course from Group A and one additional course from either Group A or Group B 6

## Group A

AMH 2020	United States since 1877
ANT 2000	Introduction to Anthropology
ECO 2013	Principles of Economics Macro
POS 2041	American Politics
PSY 2012	General Psychology
SYG 2000	Introduction to Sociology

## Group B

AMH 2010	United States to 1877
ANT 2100	Introduction to Archaeology
ANT 2400	Current Cultural Issues
CCJ 2002	Survey of Crime and Justice
COM 2023	Death and Communication
CPO 2002	Comparative Politics
DEP 2004	Human Development Across the Lifespan
EUH 1000	Western Perspectives I
EUH 1001	Western Perspectives II
FIN 2104	Personal Financial Planning
GEA 2000	Nations and Regions of the World
GEB 1011	Introduction to Business
HIS 2050	Explore! History
IDH 1041	Honors Core 2
INR 2002	International Politics
MMC 2000	Principles of Mass Communication
PLA 2013	Survey of American Law
SOW 2192	Understanding Relationships in the 21st Century
SPM 2010	Sport in Global Society
SYG 2010	Current Social Problems

**Humanities**

Choose one course from Group A and one additional course from either Group A or Group B 6

## Group A

ARH 1000	Art Appreciation
LIT 2000	Introduction to Literature
MUL 2010	Music Appreciation
PHI 2010	Introduction to Philosophy
THE 2000	Theatre Appreciation

## Group B

AML 2010	American Literature I
AML 2020	American Literature II

AML 2072 Sex, Money, and Power in American Literature

ARH 2050 Western Survey I: Prehistory to the Medieval Period

ARH 2051 Western Survey II: Renaissance to Contemporary

ART 1015C Exploring Artistic Vision

ART 2821 The Self, Creativity, Your Career and Visual Culture

CRW 2001 Introduction to Creative Writing

ENL 2010 History of English Literature I

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IDH 1040 Honors Core 1

LIT 2030 Introduction to Poetry

MUH 2930 The Music Experience: Special Topics

PHI 2103 Critical Thinking

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REL 1300 World Religions

SPC 2608 Basic Communication Skills

THE 2300 Survey of Dramatic Literature

**Natural Sciences**

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## Group A

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ESC 2000	Introduction to Earth Science *
EVR 2001	Introduction to Environmental Science
PHY 1020	Conceptual Physics
PHY 2048	Calculus-Based Physics I **, **
PHY 2048C	Calculus-Based Physics I Studio ***
PHY 2053	Algebra-Based Physics I **, **

## Group B

ANT 2511	Biological Anthropology *
AST 2037	Life in the Universe
BOT 2010	General Botany
BSC 1050	Fundamentals of Ecology
BSC 1086	Anatomy and Physiology II *
BSC 2011	Biology II
BSC 2311	Introduction to Oceanography and Marine Biology *
CGS 2020	Introduction to Machine Learning
CHM 2046	General Chemistry II *
CIS 2530	Introduction to Cybersecurity
GLY 2010	Physical Geology *
MCB 1000	Fundamentals of Microbiology *
PHC 2082	Informatics and Your Health

PHY 2049	Calculus-Based Physics II *	**
PHY 2054	Algebra-Based Physics II *	**

\* May be taken with or without lab.

\*\* Algebra-Based Physics is usually recommended for non-science majors, while Calculus-Based Physics is recommended for science majors

\*\*\* Although students receive 5 semester hours credit for PHY 2048C, an additional 3 semester science course will be needed to meet General Education requirements.

## General Education Electives

Choose an additional course from two of the three areas of Humanities, Social Sciences, and Natural Sciences

Marine Biology majors should satisfy the mathematics (6 sh) and natural science (7 sh) components of General Education with course work taken from the common prerequisites shown below.

Marine Biology majors should take ANT 2000 Introduction to Anthropology to satisfy the social science/behavioral perspectives component of General Education.

## Multicultural Requirement

### Multicultural Courses

An important component of a liberal education is the study of cultures other than one's own. As such, multiculturalism encompasses the appreciation of the values, expressions, and modes of organization of diverse cultural communities. To further such study, the University of West Florida requires all students pursuing a bachelor's degree to complete at least one course that explores one or more of the dimensions of another culture (language, religion, socio-economic structures, etc.). Students are exempt from this requirement if they have completed an A.A. degree, the general education program at a Florida public institution, or a baccalaureate degree.

The requirement is satisfied by the successful completion of a multicultural course designated on the following list. Several of the selections are General Education courses, and students may enroll in these to meet both the General Education and the multicultural requirements.

*\*\*Passed by UWF Faculty Senate on 11/08/2002*

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AML 3624	Black Women Writers	3
AML 4015	Topics in Nineteenth-Century American Literature	3
AML 4640	Topics in Native American Literature	3
ANT 1001	Anthropology as a Profession	1
ANT 2000	Introduction to Anthropology	3
ANT 2301	Human Sexuality and Culture	3
ANT 3212	Peoples and Cultures of the World	3
ANT 3312	North American Indians	3
ANT 3363	Japanese Culture	3
ANT 3403	Cultural Ecology	3
ANT 4006	Anthropology of Human Rights	3

ANT 4025	Ritual Use of Human Remains	3
ANT 4516	Modern Human Physical Variation	3
ARH 1000	Art Appreciation	3
ARH 2050	Western Survey I: Prehistory to the Medieval Period	3
ARH 2051	Western Survey II: Renaissance to Contemporary	3
ARH 3590	Non-Western Art	3
ARH 3607	Native American Art	3
ARH 4302	Late Renaissance Art in Italy	3
ARH 4412	The Age of Revolution to Romanticism in Europe: 1750-1850	3
ARH 4450	Modern Art: 1850-1980	3
ARH 4470	Contemporary Art	3
ARH 4563	Art of Japan	3
CCJ 3678	Race, Gender, Ethnicity, and Crime	3
COM 3014	Gender Communication	3
COM 3461	Intercultural Communication	3
COM 4242	Communication and Christianity	3
CPO 2002	Comparative Politics	3
CPO 4792	Geopolitics	3
CRW 2001	Introduction to Creative Writing	3
EDF 2085	Teaching Diverse Populations	3
ENG 4013	Introduction to Literary Theory	3
ENL 2020	History of English Literature II	3
EUH 1000	Western Perspectives I	3
EUH 1001	Western Perspectives II	3
EUH 3203	Modern Europe	3
EUH 3334	Emperors, Sultans, Dictators, and Democrats: The Balkans	3
EUH 3411	Rome and the Mediterranean World	3
EUH 3576	Soviet Union since 1917	3
EUH 4563	The Other Germany: The Lands of the Austrian Monarchy, 1526-1918	3
FRE 4955	Supervised Foreign Language Field Experience Abroad	1-3
GEA 2000	Nations and Regions of the World	3
GEB 4361	International Business	3
GEO 3421	Cultural Geography	3
GEO 3471	Geography of World Affairs	3
HIS 2050	Explore! History	3
HIS 4262	Rise and Fall of the Portuguese Empire	3
IDH 1040	Honors Core 1	3
IDH 1041	Honors Core 2	3
INR 2002	International Politics	3
LAH 4135	Spanish Conquest of the Americas	3
LAH 4131	'Atlantic Indians': How Indigenous and African Peoples Shaped Europe & the Americas	3
LAH 4451	Greater Mexico: Central America from Conquest to the 20th Century	3
LAH 4728	Gender and Sexuality in Latin America from Colonization to Today	3
LIT 2000	Introduction to Literature	3

LIT 2030	Introduction to Poetry	3
LIT 3233	Postcolonial Literature	3
LIT 4036	Topics in Poetry and Poetics	3
LIT 4385	Feminist Theory	3
MAN 4102	Management of Diversity	3
MAR 4156	Seminar in International Marketing	3
MMC 3743	Communicating Fear: Horror Films and Popular Culture	3
MMC 3745	Communicating Fear Abroad: International Horror Films & Popular Culture	3
MUH 2930	The Music Experience: Special Topics	3
MUL 2010	Music Appreciation	3
NUR 4615	Community and Public Health Nursing	3
NUR 4636	Population-based Public Health Nursing	3
PHI 3790	African Philosophy	3
PUR 3404	International Public Relations	3
PSY 3860	Positive Psychology	3
SOP 3730	Psychology, Culture, and Society	3
SOW 4233	Human Diversity and Social Justice	3
SPN 3400	Advanced Stylistics	3
SPN 4520	Latin American Culture and Civilization	3
SYO 4421	Sociology of Health, Illness and Health Care	3
SYO 4530	Inequality in America	3

## Civic Literacy Requirement

The 2017 Florida Legislature amended [Section 1007.25, Florida Statutes](#), to require students **initially entering a State University System (SUS) and/or Florida College System (FCS) institution in 2018-2019** and thereafter to demonstrate competency in civic literacy.

The 2021 Legislature further amended Florida Statutes, requiring students to complete both a civic literacy course and exam. As a result, there are three cohorts of students currently matriculating at Florida public institutions subject to varying requirements. As demonstrated in the table below, the exact civic literacy requirements are based on the academic term in which a student first enrolled in a Florida public institution.

Students Included in Cohort	Civic Literacy Competency Requirement
Cohort 1: Students first entering the SUS or FCS prior to fall 2018	None
Cohort 2: Students first entering the SUS or FCS in fall 2018 – summer A 2021	Complete a course <b>or</b> exam
Cohort 3: Students first entering the SUS or FCS in summer B 2021 (on or after July 1, 2021) and thereafter	Complete both a course <b>and</b> exam

Additionally, the 2021 Legislature made two additional exceptions: approving the use of accelerated mechanisms for meeting the course competency requirement and exempting high school students who pass the Florida Civic Literacy Exam in high school from the postsecondary exam requirement. These two changes are in effect for Cohort 3.

There are multiple ways to satisfy this requirement. Students should work with their academic advisor to determine which option is best for their degree requirements/degree plan.

Additional information can be found on our [Civic Literacy](#) website.

\*[BOG 8.006; s.1007.25\(4,a-b\)](#)

## Common Prerequisites

State-mandated common prerequisites must be completed prior to graduation, but are not required for admission to the program. See the [Common Prerequisite Manual](#) for course substitutions from Florida colleges and universities.

BSC 2010+L	Biology I (+Lab) *	4
BSC 2011+L	Biology II (+Lab) *	4
CHM 2045+L	General Chemistry I (+Lab) *	4
CHM 2046+L	General Chemistry II (+Lab) *	4
MAC 2311	Analytic Geometry and Calculus I *	4
STA 2023	Elements of Statistics *	3
Choose one option from the following:		8
Option 1		
CHM 2210+L	Organic Chemistry I (+Lab)	
CHM 2211+L	Organic Chemistry II (+Lab)	
Option 2		
PHY 2053+L	Algebra-Based Physics I (+Lab)	
PHY 2054+L	Algebra-Based Physics II (+Lab)	

**Total Hours** **31**

\* Indicates common prerequisites which can be used to satisfy General Education requirements.

† STA 2023 must be completed as the prerequisite to STA 4173

## Lower Division Electives

Students must complete sufficient 1000/2000 level electives to complete at least 60 semester hours in the lower division. Current UWF students may use elective courses at any level (1000-4000) to meet this elective requirement.

**Total Hours** **0-10**

## Major Required Courses

BOT 4404C	Aquatic Botany	4
BSC 2844	Biology Skills (Recommended in first year)	1
MCB 4631	Molecular Aquatic Microbial Ecology	3
OCE 3007	Concepts of Oceanography and Marine Biology (Recommended in 2nd year)	3
PCB 3043+L	Ecology (+Lab)	4
PCB 3063+L	Genetics (+Lab)	4
PCB 4673	Principles of Evolution	3
PCB 4723	Comparative Animal Physiology	3
STA 4173	Biostatistics	3
ZOO 4254C	Marine Invertebrate Zoology	4
ZOO 4304C	Marine Vertebrate Zoology	4

**Total Hours** **36**

The upper-division courses (3000-4000 level) with the following prefixes will be used in calculating the major grade point average: BCH, BOT, BSC, MCB, PCB, and ZOO.



## Major Related

Students must take one of the following courses that are not completed as part of the Common Prerequisites in the lower division:

CHM 2210+L	Organic Chemistry I (+Lab)	4
PHY 2053+L	Algebra-Based Physics I (+Lab)	4

## Upper-Division Electives

Choose from the following list of electives 20

BCH 3033	Biochemistry I	
BCH 3033L	Biochemistry I Laboratory	
BSC 4303	Biogeography	
BSC 4860	Conservation Biology	
ENC 3455	Writing for Science, Technology, Engineering and Math Majors	
EVR 3894	Environmental Writing	
EVR 4035	Environmental Law	
EVR 4823	Environmental Impact Assessment	
GEO 4004	Environmental Science, Politics and Policy	
GIS 4043+L	Geographic Information Systems (+Lab)	
GIS 4048	Applications in Geographic Information Systems	
MCB 3020	Microbiology	
MCB 3020L	Microbiology Laboratory *	
OCB 4201	Biology of Coral Reefs	
PCB 4048C	Coastal Marine Ecology	
PCB 4125	Advanced Molecular Biology and Bioinformatics for Biologists	
PCB 4253	Developmental Biology	
PCB 4253L	Developmental Biology Lab *	
PCB 4364	Marine Ecological Physiology	
PCB 4364L	Marine Ecological Physiology Laboratory *	
PCB 4461	Molecular Ecology	
PCB 4524	Molecular Biology	
PCB 4524L	Molecular Biology Lab *	
PCB 4723L	Comparative Animal Physiology Laboratory	
PCB 4870	Sensory Biology	
PCB 4922	Biology Seminar	
STA 4051	Nonparametric Statistics	
STA 4222	Sampling Theory	
STA 4234	Regression Analysis	
ZOO 4454	Elasmobranch Biology	
ZOO 4457	Ichthyology	
ZOO 4472	Avian Science	
ZOO 4485	Marine Mammalogy	
ZOO 4513	Animal Behavior	

\* Indicates concurrent pre-requisite with the lecture

Up to 3 sh of directed study credit may be applied to electives. Students should confer with an advisor when selecting electives.

## Graduate Level Courses

Up to 12 credit hours of advisor approved 5000 level courses listed below will be allowed to substitute for the undergraduate degree requirements. Other 5000 level courses may be allowed to substitute with advisor approval.

### Approved Substitutions for Major Required Courses

MCB 5633	Molecular Aquatic Microbial Ecology
PCB 5675	Principles of Evolution
PCB 5727	Comparative Animal Physiology
ZOO 5305C	Marine Vertebrate Zoology

### Approved Substitutions for Elective Courses \*

BSC 5305	Biogeography
BSC 5865	Conservation Biology
GIS 5050+L	Geographic Information Systems (+Lab)
OCB 5203	Biology of Coral Reefs
PCB 5319	Marine Ecological Physiology
PCB 5319L	Marine Ecological Physiology Laboratory *
PCB 5445C	Coastal Marine Ecology
PCB 5464	Molecular Ecology
PCB 5525	Advanced Molecular Biology and Bioinformatics for Biologists
PCB 5872	Sensory Biology
PCB 5924	Biology Seminar
ZOO 5452	Elasmobranch Biology
ZOO 5458	Ichthyology
ZOO 5475	Avian Science
ZOO 5486	Marine Mammalogy
ZOO 5514	Animal Behavior

**Total Hours 1-12**

\* Indicates concurrent pre-requisite with lecture

+ 1-3 credit hours of directed independent study at the 5000 level may be applied to electives. Students should confer with an advisor when selecting electives.