

Biomedical Sciences

The Biomedical Sciences degree is designed to prepare students who have the goal of admission to post-graduate health professional schools. The degree is designed to fulfill the prerequisites required for students pursuing advanced degrees in medicine, dentistry, pharmacy, physician assistant, biomedical sciences, etc.

A minimum grade of "C-" or better required in all courses in the program. 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 College-Level Communication and Computation, 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 (Core)	3
ENC 1102	English Composition II (Breadth)	3

Humanities

Choose one course from Group A (Core) and one additional course from either Group A or Group B (Breadth) 6

Group A (Core)

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

Group B (Breadth)

AML 2010	American Literature I
AML 2020	American Literature II
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: Humanities
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	Public Speaking
THE 2300	Survey of Dramatic Literature

Mathematics

Choose one course from Group A (Core) and one Additional course from either Group A or Group B (Breadth) 6

Group A (Core)

MAC 1105	College Algebra
MAC 1105C	College Algebra with Lab
MAC 2311	Analytic Geometry and Calculus I
MGF 1130	Mathematical Thinking
STA 2023	Elements of Statistics

Group B (Breadth)

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
MGF 1131	Mathematics in Context
STA 2360	Introduction to Data Science

Natural Sciences

Choose one course from Group A (Core) and one additional course from either Group A or Group B (Breadth) 6

Group A (Core)

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
GLY 2010	Physical Geology
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 (Breadth)

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
IDH 1043	Honors Core: Natural Sciences *
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.

Social Sciences

Choose one course from Group A (Core) and one additional course from either Group A or Group B (Breadth) 6

Group A (Core)

AMH 2010	United States to 1877
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

Group B (Breadth)

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: Special Topics
IDH 1041	Honors Core: Social Sciences
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 2000	Introduction to Sociology
SYG 2010	Current Social Problems

General Education Electives

Choose an additional course from two of the five areas of Communication, Mathematics, Social Sciences, Humanities, and Natural Sciences.

Students should discuss their professional goals with their advisor before selecting general education courses. The following general education courses are recommended.

For **Pharmacy School**, select the following:

Humanities:

PHI 2603	Ethics in Contemporary Society	3
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SPC 2608	Public Speaking	3
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Social Sciences:

ECO 2013	Principles of Economics Macro	3
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For **Medical School**, select the following:

Social Sciences:

PSY 2012	General Psychology	3
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SYG 2000	Introduction to Sociology	3
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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 4006	Anthropology of Human Rights	3
ANT 4025	Ritual Use of Human Remains	3
ANT 4403	Environmental Anthropology	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 3201	Art and Culture in The Global Middle Ages	3
ARH 2051	Western Survey II: Renaissance to Contemporary	3
ARH 3590	Non-Western Art	3
ARH 3607	Native American Art	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
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 3334	Emperors, Sultans, Dictators, and Democrats: The Balkans	3
EUH 3411	Rome and the Mediterranean World	3
EUH 3576	Soviet Union since 1917	3
FOL 3501	Global Cinema	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
HSC 2622	Introduction to Global Health Sciences	3
HIS 2050	Explore History: Special Topics	3
HIS 4262	Rise and Fall of the Portuguese Empire	3
IDH 1040	Honors Core: Humanities	3
IDH 1041	Honors Core: Social Sciences	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 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
MMC 4601	Minorities and the Mass Media	3
MUH 2930	The Music Experience: Special Topics	3
MUL 2010	Music Appreciation	3
NUR 4615	Patient Centered Population Health	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 an 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 or exam (course options AMH 2020, POS 2041)
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 and exam (course options AMH 2020, POS 2041)

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, SUS regulation [BOG 8.006](#) and Florida Statute [s.1007.25\(4,a-b\)](#).

Mathematics Pathway

Students are advised to complete the following courses to fulfill the mathematics pathway that aligns with the mathematics skills needed for success in their program and their career goals. Students should refer to their academic advisor for questions about the math pathway for their program. For information about this requirement, refer to the catalog page for [Mathematics Pathways](#). These courses may also fulfill requirements for General Education and Common Prerequisites.

Algebra through Calculus		
MAC 1105	College Algebra	3
	or MAC 1105CCollege Algebra with Lab	
	or MAC 2311 Analytic Geometry and Calculus I	
STA 2023	Elements of Statistics	3
	or MAC 1105 College Algebra	
	or MAC 1105CCollege Algebra with Lab	
	or MAC 1114 Trigonometry	
	or MAC 2311 Analytic Geometry and Calculus I	
	or MAC 2233 Calculus with Business Applications	
	or MAC 2312 Analytic Geometry and Calculus II	
	or MGF 1130 Mathematical Thinking	
	or MGF 1131 Mathematics in Context	
	or STA 2360 Introduction to Data Science	

Students will be placed on a starting point based on their mathematics placement.

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.

A grade of "C-" or better is required in each of the Common Prerequisite courses.

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
CHM 2210+L	Organic Chemistry I (+Lab)	4
CHM 2211+L	Organic Chemistry II (+Lab)	4
PHY 2053+L	Algebra-Based Physics I (+Lab)	4
PHY 2054+L	Algebra-Based Physics II (+Lab)	4
MAC 2311	Analytic Geometry and Calculus I *	4
STA 2023	Elements of Statistics *	3
Total Hours		39

* Common prerequisites should be used to satisfy 9 credits of Natural Sciences and 6 credits of Mathematics for General Education Course requirements.

Major Required Courses

BSC 2844	Biology Skills	1
BCH 3033	Biochemistry I	3
MCB 3020+L	Microbiology (+Lab)	4
PCB 3063	Genetics	3
PCB 3097L	Introduction to Human Anatomy Laboratory	3
PCB 3103	Cell Biology	3
PCB 4098	Concepts in Human Physiology	3
	or PCB 4723 Comparative Animal Physiology	
PCB 4233	Immunology	3
PCB 4524	Molecular Biology	3
PCB 4673	Principles of Evolution	3
Total Hours		29

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, HSA, HSC, MCB, MLS, PCB, and ZOO.

Upper-Division Electives

9 semester hours must come from Area 1.

9 semester hours must come from Area 2.

Must select 2 labs from any area part of the upper-division electives requirement.

Area 1: Cell, Molecular, and Organismal		9
BCH 3033L	Biochemistry I Laboratory *	
BCH 3034	Biochemistry II	
BOT 4374	Plant Developmental Biology	
BOT 4374L	Plant Developmental Biology Laboratory	
BOT 4503	Plant Physiology	
BOT 4503L	Plant Physiology Laboratory *	
BOT 4734	Plant Biotechnology	
BOT 4734L	Plant Biotechnology Lab *	
BOT 4850	Medicinal Botany	
BSC 4401L	Forensic Biology	
BSC 4405L	Advanced Biomedical Lab Techniques	
CHM 3120	Analytical Chemistry	
CHM 3120L	Analytical Chemistry Lab	
CHM 3230	Organic Chemistry III	
CHM 3400C	Basic Physical Chemistry	
CHM 3410	Physical Chemistry I	
CHM 4455+L	Introduction to Polymer Science (+Lab)	
CHM 4611	Inorganic Chemistry	
HSC 3555	Pathophysiology	
MCB 4631	Molecular Aquatic Microbial Ecology	
MLS 3194	Clinical Genetics	
MLS 3621	Clinical Biochemistry	
MLS 3032C	Applications in Clinical and Biotech Laboratories	
MLS 4191	Molecular Diagnostics	
MLS 4191L	Molecular Diagnostics Laboratory *	
MLS 4334	Hemostasis and Thrombosis	
MLS 4334L	Hemostasis and Thrombosis Lab *	
MLS 4460+L	Diagnostic Microbiology I (+Lab)	
MLS 4460L	Diagnostic Microbiology I Laboratory *	
MLS 4462	Medical Microbiology	
MLS 4462L	Medical Microbiology Lab *	
MLS 4550	Immunohematology I	
MLS 4550L	Immunohematology I Lab *	
PCB 3063L	Genetics Lab *	
PCB 3043	Ecology	
PCB 3043L	Ecology Lab *	
PCB 3103L	Cell Biology Laboratory *	
PCB 4028	Fundamentals of Pharmacology	
PCB 4098	Concepts in Human Physiology (If not taken as part of the required courses)	
PCB 4098L	Concepts in Human Physiology Laboratory *	

PCB 4125	Advanced Molecular Biology and Bioinformatics for Biologists	
PCB 4233L	Immunology Laboratory *	
PCB 4253	Developmental Biology	
PCB 4253L	Developmental Biology Lab *	
PCB 4524L	Molecular Biology Lab *	
PCB 4601	Plant Ecology	
PCB 4703	Human Physiology	
PCB 4723	Comparative Animal Physiology (If not taken as part of the required courses)	
PCB 4723L	Comparative Animal Physiology Laboratory *	
PCB 4841	Journey to the Brain: Brain Development and Neuronal Synapse Communication	
PCB 4870	Sensory Biology	
Area 2: Clinical, Public Health, and Other		9
APK 3110+L	Exercise Physiology (+Lab)	
APK 3220C	Biomechanical Basis of Movement with Laboratory	
APK 4125+L	Exercise Testing and Prescription (+Lab)	
APK 4163	Sports Nutrition	
ATR 3132	Functional Kinesiology	
BSC 4434	Bioinformatics and Data Science	
BSC 4854	Bioterrorism	
BSC 4940	Biology Internship	
CAP 4755	Tools for Data Science	
CAP 4774	Databases for Data Science	
ENC 3455	Writing for Science, Technology, Engineering and Math Majors	
GEY 4001	Gerontology	
HSC 3147	Pharmacology for Health Professionals	
HSC 3535	Medical Terminology	
HSC 4143	Drugs in Society	
HSC 4502	Principles of Human Disease	
HSC 4551	Communicable and Degenerative Diseases	
HSC 4572	Nutrition and Health	
MCB 4276	Epidemiology of Infectious Disease	
MLS 4220	Urinalysis/Body Fluids I	
MLS 4220L	Urinalysis/Body Fluids I Lab *	
MLS 4305	Hematology I	
MLS 4305L	Hematology I Lab *	
MLS 4505	Clinical Immunology	
MLS 4505L	Clinical Immunology Lab *	
MLS 4625	Clinical Chemistry I	
MLS 4625L	Clinical Chemistry I Lab *	
MLS 4630	Clinical Chemistry II	
MLS 4630L	Clinical Chemistry II Lab *	
PCB 4922	Biology Seminar (Can count towards area 1 or 2 requirement)	
PSB 4002	Brain, Behavior, and Experience	
STA 4051	Nonparametric Statistics	
STA 4173	Biostatistics	
STA 4121	Statistics for Data Science I	

STA 4231	Statistics for Data Science II	
STA 4222	Sampling Theory	
STA 4234	Regression Analysis	
The remaining 13 hours can come from any of the areas		13
Total Hours		31

* Indicates lecture is a concurrent prerequisite.

1-3 credits of directed independent study (DIS) may count towards any area electives and lab requirement.

Accelerated Bachelor's (BS) in Biomedical Sciences /Master's (MS) in Biology Option

Minimum Requirements For Admission

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

Process

A prospective student who meets the minimum requirements for admission for the Accelerated Bachelor's to Master's (BS/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/MS program. The student must then submit an application for the Accelerated BS/MS Biology Program and two letters 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. Admission into the Accelerated BS/MS program does not guarantee admission into the Biology MS program upon completion of the Biology BS undergraduate degree. Students must still submit an Express Admission application for the Biology MS program. Students who are a part of the BS/MS program cannot be provisionally or conditionally admitted into the Biology MS 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 Bachelor's/Master's 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. Any 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.

Biomedical Sciences Program Requirements

General Education

In addition to the General Education requirements listed on this page, students must satisfy all additional University requirements, including the College-Level Communication and Computation, 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 (Core)	3
ENC 1102	English Composition II (Breadth)	3

Humanities

Choose one course from Group A (Core) and one additional course from either Group A or Group B (Breadth) 6

Group A (Core)

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

Group B (Breadth)

AML 2010	American Literature I
AML 2020	American Literature II
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: Humanities
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	Public Speaking
THE 2300	Survey of Dramatic Literature

Mathematics

Choose one course from Group A (Core) and one Additional course from either Group A or Group B (Breadth) 6

Group A (Core)

MAC 1105	College Algebra
MAC 1105C	College Algebra with Lab
MAC 2311	Analytic Geometry and Calculus I
MGF 1130	Mathematical Thinking
STA 2023	Elements of Statistics

Group B (Breadth)

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
MGF 1131	Mathematics in Context
STA 2360	Introduction to Data Science

Natural Sciences

Choose one course from Group A (Core) and one additional course from either Group A or Group B (Breadth) 6

Group A (Core)

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
GLY 2010	Physical Geology
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 (Breadth)

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
IDH 1043	Honors Core: Natural Sciences
MCB 1000	Fundamentals of Microbiology *
PHC 2082	Informatics and Your Health
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* 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.

Social Sciences

Choose one course from Group A (Core) and one additional course from either Group A or Group B (Breadth) 6

Group A (Core)

AMH 2010	United States to 1877
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

Group B (Breadth)

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: Special Topics
IDH 1041	Honors Core: Social Sciences
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 2000	Introduction to Sociology
SYG 2010	Current Social Problems

General Education Electives

Choose an additional course from two of the five areas of Communication, Mathematics, Social Sciences, Humanities, and Natural Sciences.

Multicultural Requirement

Multicultural Courses

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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.

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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 4006	Anthropology of Human Rights	3
ANT 4025	Ritual Use of Human Remains	3
ANT 4403	Environmental Anthropology	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 3201	Art and Culture in The Global Middle Ages	3
ARH 2051	Western Survey II: Renaissance to Contemporary	3
ARH 3590	Non-Western Art	3
ARH 3607	Native American Art	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
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 3334	Emperors, Sultans, Dictators, and Democrats: The Balkans	3
EUH 3411	Rome and the Mediterranean World	3
EUH 3576	Soviet Union since 1917	3
FOL 3501	Global Cinema	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
HSC 2622	Introduction to Global Health Sciences	3
HIS 2050	Explore History: Special Topics	3
HIS 4262	Rise and Fall of the Portuguese Empire	3
IDH 1040	Honors Core: Humanities	3
IDH 1041	Honors Core: Social Sciences	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 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
MMC 4601	Minorities and the Mass Media	3
MUH 2930	The Music Experience: Special Topics	3
MUL 2010	Music Appreciation	3
NUR 4615	Patient Centered Population Health	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 an 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 or exam (course options AMH 2020, POS 2041)
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 and exam (course options AMH 2020, POS 2041)

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, SUS regulation [BOG 8.006](#) and Florida Statute [s.1007.25\(4.a-b\)](#).

Mathematics Pathway

Students are advised to complete the following courses to fulfill the mathematics pathway that aligns with the mathematics skills needed for success in their program and their career goals. Students should refer to their academic advisor for questions about the math pathway for their program. For information about this requirement, refer to the catalog page for [Mathematics Pathways](#). These courses may also fulfill requirements for General Education and Common Prerequisites.

Algebra through Calculus

MAC 1105	College Algebra	3
	or MAC 1105CCollege Algebra with Lab	
	or MAC 2311 Analytic Geometry and Calculus I	
STA 2023	Elements of Statistics	3
	or MAC 1105 College Algebra	
	or MAC 1105CCollege Algebra with Lab	
	or MAC 1114 Trigonometry	
	or MAC 2311 Analytic Geometry and Calculus I	
	or MAC 2233 Calculus with Business Applications	
	or MAC 2312 Analytic Geometry and Calculus II	
	or MGF 1130 Mathematical Thinking	
	or MGF 1131 Mathematics in Context	
	or STA 2360 Introduction to Data Science	

Students will be placed on a starting point based on their mathematics placement.

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.

A grade of "C-" or better is required in each of the common prerequisite courses.

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
CHM 2210+L	Organic Chemistry I (+Lab)	4
CHM 2211+L	Organic Chemistry II (+Lab)	4
MAC 2311	Analytic Geometry and Calculus I *	4
PHY 2053+L	Algebra-Based Physics I (+Lab)	4
PHY 2054+L	Algebra-Based Physics II (+Lab)	4
STA 2023	Elements of Statistics *	3
Total Hours		39

* Common prerequisites that should be used to satisfy 9 hours of Natural Sciences and 6 hours of Mathematics for General Education course requirements.

Major Required Courses

BSC 2844	Biology Skills	1
BCH 3033	Biochemistry I	3
MCB 3020+L	Microbiology (+Lab)	4
PCB 3063	Genetics	3
PCB 3097L	Introduction to Human Anatomy Laboratory	3
PCB 3103	Cell Biology	3
PCB 4098	Concepts in Human Physiology	3
or PCB 4723	Comparative Animal Physiology	
PCB 4233	Immunology	3
PCB 4524	Molecular Biology	3
PCB 4673	Principles of Evolution	3
Total Hours		29

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, HSA, HSC, MCB, MLS, PCB, and ZOO.

Upper-Division Electives

9 semester hours must come from Area 1.

9 semester hours must come from Area 2.

Must select 2 labs from any area part of the upper-division electives requirement.

Area 1: Cell, Molecular, and Organismal		9
BCH 3033L	Biochemistry I Laboratory *	
BCH 3034	Biochemistry II	
BOT 4374	Plant Developmental Biology	
BOT 4374L	Plant Developmental Biology Laboratory *	
BOT 4503	Plant Physiology	

BOT 4503L	Plant Physiology Laboratory *	
BOT 4734	Plant Biotechnology	
BOT 4734L	Plant Biotechnology Lab *	
BOT 4850	Medicinal Botany	
BSC 4401L	Forensic Biology	
BSC 4405L	Advanced Biomedical Lab Techniques	
CHM 3120+L	Analytical Chemistry (+Lab)	
CHM 3230	Organic Chemistry III	
CHM 3400C	Basic Physical Chemistry	
CHM 3410	Physical Chemistry I	
CHM 4455+L	Introduction to Polymer Science (+Lab)	
CHM 4611	Inorganic Chemistry	
HSC 3555	Pathophysiology	
MLS 3194	Clinical Genetics	
MCB 4631	Molecular Aquatic Microbial Ecology	
MLS 3621	Clinical Biochemistry	
MLS 4191	Molecular Diagnostics	
MLS 4191L	Molecular Diagnostics Laboratory *	
MLS 4460+L	Diagnostic Microbiology I (+Lab) *	
MLS 4460L	Diagnostic Microbiology I Laboratory *	
MLS 4462	Medical Microbiology	
MLS 4462L	Medical Microbiology Lab *	
MLS 4550	Immunohematology I	
MLS 4550L	Immunohematology I Lab *	
PCB 3043	Ecology	
PCB 3043L	Ecology Lab *	
PCB 3063L	Genetics Lab *	
PCB 3103L	Cell Biology Laboratory *	
PCB 4028	Fundamentals of Pharmacology	
PCB 4098	Concepts in Human Physiology (if not taken as part of the required courses)	
PCB 4098L	Concepts in Human Physiology Laboratory *	
PCB 4125	Advanced Molecular Biology and Bioinformatics for Biologists	
PCB 4233L	Immunology Laboratory *	
PCB 4253	Developmental Biology	
PCB 4253L	Developmental Biology Lab *	
PCB 4601	Plant Ecology	
PCB 4703	Human Physiology	
PCB 4841	Journey to the Brain: Brain Development and Neuronal Synapse Communication	
PCB 4870	Sensory Biology	
Area 2: Clinical, Public Health, and Other		9
APK 3110+L	Exercise Physiology (+Lab)	
APK 3220C	Biomechanical Basis of Movement with Laboratory	
APK 4125+L	Exercise Testing and Prescription (+Lab)	
APK 4163	Sports Nutrition	
ATR 3132	Functional Kinesiology	
BSC 4434	Bioinformatics and Data Science	
BSC 4854	Bioterrorism	
BSC 4940	Biology Internship	
CAP 4755	Tools for Data Science	

CAP 4774	Databases for Data Science	
ENC 3455	Writing for Science, Technology, Engineering and Math Majors	
GEY 4001	Gerontology	
HSC 3147	Pharmacology for Health Professionals	
HSC 3535	Medical Terminology	
HSC 4143	Drugs in Society	
HSC 4502	Principles of Human Disease	
HSC 4551	Communicable and Degenerative Diseases	
HSC 4572	Nutrition and Health	
MCB 4276	Epidemiology of Infectious Disease	
MLS 4220	Urinalysis/Body Fluids I	
MLS 4220L	Urinalysis/Body Fluids I Lab *	
MLS 4305	Hematology I	
MLS 4305L	Hematology I Lab *	
MLS 4334	Hemostasis and Thrombosis	
MLS 4334L	Hemostasis and Thrombosis Lab *	
MLS 4505	Clinical Immunology	
MLS 4505L	Clinical Immunology Lab *	
MLS 4625	Clinical Chemistry I	
MLS 4625L	Clinical Chemistry I Lab *	
MLS 4630	Clinical Chemistry II	
MLS 4630L	Clinical Chemistry II Lab *	
PCB 4922	Biology Seminar (Can count towards area 1 or 2 requirement)	
PSB 4002	Brain, Behavior, and Experience	
STA 4051	Nonparametric Statistics	
STA 4121	Statistics for Data Science I	
STA 4231	Statistics for Data Science II	
STA 4173	Biostatistics	
STA 4222	Sampling Theory	
STA 4234	Regression Analysis	
The remaining 13 hours can come from any of the areas.		13
Total Hours		31

* Indicates lecture is a concurrent prerequisite.

1-3 semester hours (sh) of directed independent study (DIS) may count towards any area electives and lab requirement.

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		
PCB 5235	Immunology	
PCB 5675	Principles of Evolution	
PCB 5727	Comparative Animal Physiology	
Approved Substitutions for Area 1 Electives ⁺		
BOT 5376	Plant Developmental Biology	
BOT 5376L	Plant Developmental Biology Laboratory *	
BOT 5852	Medicinal Botany	
BSC 5406L	Forensic Biology	

BSC 5459	Bioinformatics and Data Science	
BSC 5873	Fundamentals of Pharmacology	
CAP 5756	Tools for Data Science	
CAP 5775	Databases for Data Science	
HSC 5205	Public Health Preparedness	
MCB 5273	Epidemiology of Infectious Disease	
MCB 5633	Molecular Aquatic Microbial Ecology	
PCB 5525	Advanced Molecular Biology and Bioinformatics for Biologists	
PCB 5235L	Immunology Laboratory *	
PCB 5256	Developmental Biology	
PCB 5464	Molecular Ecology	
PCB 5605	Plant Ecology	
PCB 5846	Journey to the Brain: Brain Development and Neuronal Synapse Communication	
PCB 5872	Sensory Biology	
Approved Substitutions for Area 2 Electives ⁺		
BSC 5856	Bioterrorism	
PCB 5924	Biology Seminar (can count towards any area)	
STA 5126	Statistics for Data Science I	
STA 5232	Statistics for Data Science II	
Total Hours		1-12

* Indicates the lecture is a concurrent prerequisite.

+ 1-3 semester hours of directed independent study at the 5000-level may be applied to electives for any area and will count towards the lab requirement. Students should confer with an advisor when selecting electives.