BIOTECHNOLOGY (B.S.)

Students majoring in Biotechnology (B.S.) may not pursue the Biology (B.A.) or Biology (B.S.) as Dual Major / Dual Degree, Second Baccalaureate degree.

The Bachelor of Science (B.S.) in Biotechnology provides students the opportunity to gain an understanding of living organisms, at the cellular and molecular level, and in relationship with their environment for the purpose of enhancing human health and improving the environment. The curriculum emphasizes hands-on learning and provides undergraduate research experience. Students learn through elective courses and research how to apply biological knowledge to solve current problems in fields such as Agriculture, Medicine, Environmental and Marine Sciences. The program prepares students pursuing graduate studies, entering the work force in industrial, academic or governmental laboratories, acceptance into medical, dental, veterinary or pharmacy schools.

Program Progression and Additional Graduation Requirements

For timely degree completion, students must complete all program milestones. The following actions occur when milestones are missed: first occurrence—advising hold and counseling regarding progression requirements; second occurrence—counseling and change to a major outside of the Department of Biology or Department of Chemistry and Physics that is more appropriate to student goals and academic performance. Appeals are handled through the relevant department. The decision of the appeal committee is final. Program milestones include the following:

- BSC 1010C General Biology with Lab I or BSC 1011 General Biology II/BSC 1011L General Biology II Laboratory minimum grade of C completed one calendar year from admission as first time in college (FTIC) or 30 credits earned, whichever is earlier.
- BSC 1010C General Biology with Lab I and BSC 1011 General Biology II/BSC 1011L General Biology II Laboratory minimum grade of C completed by end of fourth semester (including summers) from admission as FTIC or 45 credits earned, whichever is earlier.
- PCB 3023C Cell Biology, PCB 3043C General Ecology or PCB 3063C Genetics minimum grade of C completed by end of sixth semester (including summers) from admission as FTIC or 60 credits earned, whichever is earlier.

Transfer students may declare the major after they have completed BSC 1010C General Biology with Lab I, BSC 1011 General Biology II, and BSC 1011L General Biology II Laboratory with grades of C or better in each course. Transfer students must complete PCB 3023C Cell Biology, PCB 3043C General Ecology or PCB 3063C Genetics with a grade of C or better within three semesters (including summer) of declaring the major.

In addition to the program requirements, students must:

- Complete a minimum of 120 credits.
- Complete a minimum of 48 of the 120 credits at the upper division (3000 - 4999 level).
- Earn a cumulative GPA of 2.0 for all coursework attempted at FGCU.
- Satisfy the College-Level Skills and foreign language entrance requirements.
- Satisfy the Service-Learning requirement.
- Satisfy the Civic Literacy requirement.
- Satisfy the residency requirement: 30 of the last 60 credits must be completed at FGCU.
- Complete the summer course enrollment requirement.
- Submit an Application for Graduation by the deadline listed in the FGCU Academic Calendar.

Program Requirements

Code	Title	Credits
FGCU General Education Program (https://www.fgcu.edu/academics/undergraduatestudies/generaleducation/)		
To prevent or minimize excess hours, select general education courses that satisfy common prerequisite requirements for your intended major.		
Common Prerequisites		
For this major, common prerequisite courses with an asterisk (*) require prior knowledge and skills demonstrated through degree acceleration programs (e.g., the College Board's Advanced Placement Program [AP], International Baccalaureate Program [IB], College-Level Examination Program [CLEP], Advanced International Certificate of Education Program [AICE]); dual enrollment; placement exam; or college coursework.		
A minimum grade of C is required in each course		
BSC 1010C	General Biology with Lab I (Acceptable Substitute: BSCX010C or (BSCX010 and BSCX010L))	4
BSC 1011 & 1011L	General Biology II and General Biology II Laboratory (Acceptable Substitute: BSCX011C or (BSCX011 and BSCX011L))	4
CHM 1045 & 1045L	General Chemistry I and General Chemistry I Laboratory (Acceptable Substitute: CHM045C or (CHMX045 and CHMX045L)) *, 1	4
CHM 1046 & 1046L	General Chemistry II and General Chemistry II Lab (Acceptable Substitute: CHMX046C or (CHMX046 and CHMX046L))	4
CHM 2210 & 2210L	Organic Chemistry I and Organic Chemistry I Laboratory (Acceptable Substitute: CHMX210C or (CHMX210 and CHMX210L))	4
CHM 2211 & 2211L	Organic Chemistry II and Organic Chemistry II Laborator (Acceptable Substitute: CHMX211C or (CHMX211 and CHMX211L))	4
MAC 2311	Calculus I (Acceptable Substitute: MACX311 or MACX233 or MACX253 or MACX281) *, 2	4
PHY 2053 & 2053L	College Physics I and College Physics I Laboratory (Acceptable Substitute: PHYX053C or (PHYX053 and PHYX053L) or PHYX048C or (PHYX048 and PHYX048L)) *, 2	4
PHY 2054 & 2054L	College Physics II and College Physics II Laboratory (Acceptable Substitute: PHYX054C or (PHYX054 and PHYX054L) or PHYX049C or (PHYX049 and PHYX049L))	4

STA 2023	Statistical Methods (Acceptable Substitute: STAX023 or STAX122 or STAX014 or STAX024 or STAX321) *, [3]	3
Required Courses in the Major		**(30 credits)**
A minimum grade of C is required in each course		
BCH 3023C	Biochemistry	3
BSC 4422C	Methods in Biotechnology	3
BSC 4942C	Senior Res. Biotech. (capstone)	2
BSC 4943	Sr. Proj. Pres. Biotech. (capstone)	1
IDS 3300	Foundations of CivicEngagement	3
ISC 3120C	Scientific Process	3
MCB 3020C	General Microbiology	4
PCB 3023C	Cell Biology	4
PCB 3063C	Genetics	4
PCB 4522C	Molecular Genetics	3
Restricted Electives in the Major		**(18 credits)**
A minimum grade of C is required in each course		
Select 2 credits from the following:		
BSC 4905	Dir. Ind.Study/Res. Biotech.	1-3
BSC 4941	Internship in Biotechnology	1-3
Select 16 credits from the following:		
ANS 3440	Animal Nutrition	3
BCH 3025C	Analytical Biochemistry	3
BOT 3015C	The Lives of Plants and Algae	3
BOT 4503C	Plant Physiology	3
BSC 3874	Human Pharmacology	3
BSC 4434C	Bioinformatics	3
BSC 4905	Dir. Ind.Study/Res. Biotech.	1-3
BSC 4930	Special Topics in Biology	2-4
BSC 4941	Internship in Biotechnology	1-3
IDS 4263C	Aspects in Nanotechnology	3
MAC 2312	Calculus II	4
MCB 3652C	Environmental Microbiology	3
MCB 4223C	Food Microbiology	3
MCB 4404C	Microbial Physiology	3
MCB 4502C	Virology	3
PCB 3703C	Human Physiology [4]	4
PCB 3723C	Comparative Animal Physiology [4]	3
PCB 4233C	Immunology	3
PCB 4237C	Advanced Immunology	3
PCB 4253C	Developmental Biology	3
PCB 4454C	Biological Statistics	3
PCB 4671C	Evolution in the Omics Age	3
PCB 4714	Comparative Immunology	3
ZOO 4753C	Histology	3
Sustainability Course Graduation Requirement		**(3 credits)**
Select at least 3 credits in sustainability coursework (SCGR Attribute)		
Additional Electives		
As needed to reach total credits required for the degree		

1 Prerequisites of MAT 1033 Intermediate Algebra minimum grade of C then MAC 1105 College Algebra minimum grade of C; or relevant accelerated credit; or placement exam

2 Prerequisites of MAT 1033 Intermediate Algebra minimum grade of C then MAC 1105 College Algebra minimum grade of C then MAC 1147 Precalculus minimum grade of C; or relevant accelerated credit; or placement exam

3 Prerequisites of MAT 1033 Intermediate Algebra minimum grade of C; or relevant accelerated credit; or placement exam

4 Credits from only one course, either PCB 3723C Comparative Animal Physiology or PCB 3703C Human Physiology, will count towards the required hours of electives in Biotechnology.

Total Credits Required: 120