

**Biological Sciences - Biotechnology Concentration**

Bachelor of Science | Code: S9120 | 120 credits

CIP (1102601011)

Effective Term: Fall 2024 (2247)

The Bachelor in Science (B.S.) in Biological Sciences is designed to provide students with a broad foundation in biology. Miami Dade College students will explore structure, function, genetics, and evolution of cells and organisms, while being provided the hands-on skills necessary to obtain jobs in the Biological/Life Science fields. Students take the core courses in biology, chemistry, physics and mathematics, and must meet the same General Education Requirements of all students seeking an AA degree. Students may choose from a variety of electives in science and general education to complete their degree requirements.

Course	Course Title	Credits	Pre-/Co-Requisites
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**GENERAL EDUCATION REQUIREMENTS – 36 Credits Required (MET WITH A GRADE OF “C” OR HIGHER)****Communications – 6 Credits Required**

ENC 1101	English Composition 1	3	
ENC 1102	English Composition 2	3	Pre-Req ENC 1101

**Oral Communication – 3 Credits Required****Select 3 Credits from the following**

ENC 2300	Advanced Composition & Communication	3	Pre-Req ENC 1101, 1102
LIT 2480	Issues in Literature & Culture	3	Pre-Req ENC 1102
SPC 1017	Introduction to Communications	3	
SPC 2608	Introduction to Public Speaking	3	

**Humanities – 6 Credits Required****Group A – Select 3 Credits from the following (State Core):**

ARH 1000	Art Appreciation	3
HUM 1020	Humanities	3
LIT 2000	Introduction to Literature	3
MUL 1010	Music Appreciation	3
PHI 2010	Introduction to Philosophy	3
THE 2000	Theater Appreciation	3

**\*AND\*****Group B – Select 3 Credits from the following (MDC Core):**

ARC 2701	History of Architecture 1	3	
ARC 2702	History of Architecture 2	3	
ARH 1000	Art Appreciation	3	
ARH 2050	Art History 1	3	Pre-Req ARH 2050
ARH 2051	Art History 2	3	
ARH 2740	Cinema Appreciation	3	
DAN 2100	Dance Appreciation	3	
DAN 2130	Dance History 1	3	
HUM 1020	Humanities	3	
IND 1100	History of Interiors 1	3	
IND 1130	History of Interiors 2	3	
LIT 2000	Introduction to Literature	3	
LIT 2120	A Survey of World Literature	3	Pre-Req ENC 1101 or ENC 1102 or Equivalent
MUH 2111	Survey of Music History 1	3	
MUH 2112	Survey of Music History 2	3	Pre-Req MUH 2112
MUL 1010	Music Appreciation	3	
MUL 2380	Jazz and Popular Music in America	3	
PHI 2010	Introduction to Philosophy	3	
PHI 2604	Critical Thinking and Ethics	3	

THE 2000	Theater Appreciation	3
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**Behavioral and Social Science – 3 Credits Required (State Core)**

AMH 2020	History of the United States from 1877	3
POS 2041	American Federal Government	3

**NOTE:** If a behavioral science course is selected from the State Core, then a social science course must be selected from the MDC Core. If a social science course is selected from the State core, then a behavioral science course must be selected from the MDC core.

**Behavioral and Social Science – 3 Credits Required (MDC Core)**

**Group A – Select 3 Credits from the following:**

ANT 2000	Introduction to Anthropology	3
ANT 2410	Introduction to Cultural Anthropology	3
CLP 1006	Psychology of Personal Effectiveness	3
DEP 2000	Human Growth and Development	3
ISS 1161	The Individual in Society	3
PSY 2012	Introduction to Psychology	3
SYG 2000	Introduction to Sociology	3

**\*OR\***

**Group B – Select 3 Credits from the following:**

AMH 2010	History of the United States to 1877	3
AMH 2020	History of the United States from 1877	3
ECO 2013	Principles of Economics	3
ISS 1120	The Social Environment	3
POS 2041	American Federal Government	3
WOH 2012	History of World Civilization to 1715	3
WOH 2022	History of World Civilization from 1715	3

**NOTE:** If a behavioral science course is selected from the State Core, then a social science course must be selected from the MDC Core. If a social science course is selected from the State core, then a behavioral science course must be selected from the MDC core.

**Natural Science – 3 Credits Required (State Core)**

**Group A – Select 3 Credits from the following (Life Sciences):**

BSC 2010	Principles of Biology 1	3	Pre/Co-Req BSC 2010L, CHM 1045
<b>*OR*</b>			

**Group B - Select 3 Credits from the following (Physical Sciences):**

CHM 1045	General Chemistry & Qualitative Analysis	3	Prerequisites: CHM 1025, 1025L or passing score on CART exam, MAC 1105 Corequisite: CHM 1045L
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**NOTE:** If a Physical Science course is selected from the State Core, then a Biological Science course must be selected from the MDC Core. If a Life Science course is selected from the State Core, then a Physical Science course must be selected from the MDC Core. In addition, students in the health sciences are recommended to complete CHM 1033/1033L prior to registering for BSC 2085/2085L. Students in the biotechnology pathway must take BSC 2426/2426L prior to admission to the BS in Biological Sciences degree.

**Natural Science – 3 Credits Required (MDC Core)**

**Group A – Select 3 Credits from the following (Life Sciences):**

BSC 2010	Principles of Biology 1	3	Pre/Co-Req BSC 2010L, CHM 1045
<b>*OR*</b>			

**Group B - Select 3 Credits from the following (Physical Sciences):**

CHM 1025	Introductory Chemistry	3	Prerequisite: MAT 1033
CHM 1045	General Chemistry & Qualitative Analysis	3	Prerequisites: CHM 1025, 1025L or passing score on CART exam, MAC 1105 Corequisite: CHM 1045L

**NOTE:** If a Physical Science course is selected from the State Core, then a Biological Science course must be selected from the MDC Core. If a Life Science course is selected from the State Core, then a Physical Science course must be selected from the MDC Core. In addition, students in the health sciences are recommended to complete CHM 1033/1033L prior to registering for BSC 2085/2085L. Students in the biotechnology pathway must take BSC 2426/2426L prior to admission to the BS in Biological Sciences degree.

**Mathematics – 6 Credits Required****Group A Must take 3 credits from the following group (State Core):**

MAC 1105	College Algebra	3	Pre-Req MAT 1033
STA 2023	Statistical Methods	3	Pre-Req MAT1033 or MGF 1131
<b>*AND*</b>			

**Group B Must take 3 credits from the following group (MDC Core):**

MAC 1105	College Algebra	3	Pre-Req MAT 1033
STA 2023	Statistical Methods	3	Pre-Req MAT1033 or MGF 1131

NOTE - The following course(s) are not allowed for credit in this area: All Labs

**General Education Elective – 3 Credits Required (MET WITH A “C” LETTER GRADE OR HIGHER)**

- See Academic Advisor for approved selection.

**LOWER DIVISION ELECTIVES – 24 Credits Required (MET WITH A “D” LETTER GRADE OR HIGHER)**

- See Academic Advisor for approved selection.

**UPPER DIVISION CORE REQUIREMENTS – 25 Credits Required**

BCH 3023	Introduction Biochemistry	3	Prerequisites: BSC2010, 2010L, 2011, 2011L, CHM2211, 2211L; Corequisite: BCH3023L
BCH 3023L	Introduction Biochemistry Lab	2	Prerequisites: BSC2010, 2010L, 2011, 2011L, CHM2211, 2211L; Corequisite: BCH3023
MCB 3023	Principles of Microbiology	3	Prerequisites: BSC2010, 2010L, 2011, 2011L, CHM2211, 2211L; Corequisite: MCB3023L
MCB 3023L	Principles of Microbiology Lab	2	Prerequisites: BSC2010, 2010L, 2011, 2011L, CHM2211, 2211L; Corequisite: MCB3023
PCB 3060	Genetics	3	Prerequisites: BSC2010, 2010L; Corequisite: PCB3060L
PCB 3060L	Genetics Lab	2	Prerequisites: BSC2010, 2010L; Corequisite: PCB3060
BSC 3930	Biological Sciences Seminar	1	Prerequisites: BSC2010, 2010L, 2011, 2011L
PCB 4023	Molecular and Cell Biology	3	Prerequisites: BSC2010, 2010L, 2011, 2011L
PCB 4674	Evolution	3	Prerequisites: BSC2010, 2010L, 2011, 2011L, PCB3060, 3060L
BSC 4940	Senior Specialty Internship	3	Prerequisite: Departmental Approval

**SPECIALTY AREA – 19 Credits Required**

BSC 2426	Biotechnology 1	3	Corequisites:BSC2426L
BSC 2426L	Biotechnology 1 Lab	2	Corequisites:BSC2426
BSC 2427	Biotechnology 2	3	Prerequisites:BSC2426, 2426L Corequisites: BSC2427L
BSC 2427L	Biotechnology 2 Lab	2	Prerequisites:BSC2426, 2426L Corequisites: BSC2427L
BSC 4422	Biotechnology 3	3	Prerequisites: BCH 3023, 3023L, BSC2427, 2427L, PCB 3060, 3060L Corequisites: BSC4422L
BSC 4422L	Biotechnology 3 Lab	2	Prerequisites: BCH 3023, 3023L, BSC2427, 2427L, PCB 3060, 3060L Corequisites: BSC4422
PCB 4233C	Immunology	4	Prerequisites: MCB3023, 3023L

**ELECTIVES – 16 Credits Required**

BOT*	GER*	POR*
BSC*	HBR*	RUS*
CHI*	ITA*	SPN*
FRE*	JPN*	ZOO*
FRW*	PCB*	

PHI 3633

Biomedical Ethics

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**Additional Information:**

- Students should check their individualized Degree Audit Report to determine the specific graduation policies in effect for their program of study for the year and term they entered Miami Dade College. This outline includes current graduation requirements.
- Students must complete all coursework with a “C” or better to complete the degree.