



## Department of Biological Sciences

# BACHELOR OF ARTS PROGRAM OF STUDY (BIOL:BA)

\*Students are encouraged plan their own course selections; **PLEASE READ COURSE DESCRIPTIONS** in the **UNDERGRADUATE COURSE CATALOG**. Most elective courses have prerequisites that must be taken **BEFORE** you take the elective course. To see your own progress, you can see and print out your own Degree Audit from you My FIU. If you need assistance or have any questions you are encouraged to see an advisor prior to each registration period. Make Advisor appointment through your Dashboard. All Biology faculty members serve as biology career advisors and have designated advising times. All Science and Math courses must be completed with a grade of "C" or better to satisfy the requirements.

## LOWER DIVISION PROGRAM

- UCC –University Core Curriculum (**Note:** Transfer students with an AA degree from a Florida College System or other Florida State University are exempt from the UCC).
- GLOBAL LEARNING REQUIREMENT at Foundation Level and In-field/Discipline Specific Level (consider using upper division courses here)
- Students entering the University with fewer than 60 hours must complete 9 hours of coursework during the summer semester
- Foreign Language requirements (see page 2)
- General Science Requirements** (also called Common Prerequisites)

| <u>General Science Courses</u>   | <u>FIU ( ) = credit hours</u>   | <u>BC or MDC equivalent</u>                               | <u>UM Equivalent</u>                         |
|--|---|---|--|
| <input type="checkbox"/> Essentials of Biology: The Big Picture  | BSC 1005(3)   | N/A   | N/A  |
| <input type="checkbox"/> Foundations of Biochemistry<br>Prerequisites: BSC2010+CHM045                            | BCH 2020(3)   | N/A   | N/A  |
| <input type="checkbox"/> Biological Organization:<br>The Size and Scale of Life<br>Prerequisites: BSC2010+CHM045 | BSC 2300(3)   | N/A   | N/A  |
| <input type="checkbox"/> General Biology I and II  | BSC 2010(3)+Lab(1)<br>BSC 2011(3)+Lab(1)  | BSC 2010+Lab or BOT 1010+Lab<br>BSC 2011+Lab ZOO 1010+Lab | BIL 150 +151Lab<br>BIL 160 + 161Lab          |
| <input type="checkbox"/> General Chemistry I and II  | CHM 1045(3)+Lab(1)<br>CHM 1046(3)+Lab(1)  | CHM 1045+Lab or CHM 1040+Lab<br>CHM 1046+Lab CHM 1041+Lab | CHM 111 + 113Lab<br>CHM 112 + 114Lab         |
| <input type="checkbox"/> General Physics I   | PHY 2053(4)<br>using algebra and trigonometry<br>or<br>PHY 2048(4)<br>using Calculus 1 and 2. | PHY 2053<br><br>PHY 2048                                  | PHY 101                                      |
| <input type="checkbox"/> Mathematics - Students must complete sub-requirements (A) <u>and</u> (B)                |   |   |  |
| (A) Pre-Calculus Algebra<br>and Trigonometry   | MAC 1147 (4)<br>or MAC 1140 (3)<br>and MAC 1114 (3)<br>or MAC 2311                            | MAC 1147<br>or MAC 1140<br>and MAC 1114<br>or MAC 2311    | MTH 105 or MTH 108<br><br>MTH 111 or MTH 131 |
| (B) Statistics I   | STA 3111(3)<br>or<br>STA 2122(3)  | STA 2023  |  |

## UPPER DIVISION PROGRAM (≈ 34 credits)

| <input type="checkbox"/> Required Courses  | Prerequisites  | Credits  |
|--|--|----------|
| <input type="checkbox"/> PCB 3043 Ecology (L*)   | BSC 2010 + 2011  | 3        |
| <input type="checkbox"/> PCB 3063 Genetics (L*)  | BSC 2010   | 3        |
| <input type="checkbox"/> PCB 4674 Evolution  | PCB 3043 + PCB 3063  | 3        |
| <input type="checkbox"/> BSC 4931 Senior Seminar   | PCB 3043+3063+4023+4674  | <u>1</u> |
|  |  | 10       |
| <br>   |  |          |
| <input type="checkbox"/> 7 Upper Division Elective Courses - Distribution Requirement - One Elective lecture course in each of the following Areas** |  |          |
|  | <input type="checkbox"/> A. Ecology Area                                   | 3        |
|  | <input type="checkbox"/> B. Organismal Diversity Area                      | 3        |
|  | <input type="checkbox"/> C. Physiology/biochemistry Area                   | 3        |
|  | <input type="checkbox"/> D. Structure/development Area                     | 3        |
|  | <input type="checkbox"/> +3 upper division electives in any of these areas | <u>9</u> |
|  |  | 21       |

- Laboratory Requirement** - 3 Upper Division Labs (2cr labs=1 lab) 3 or more
- Please take labs that support upper division courses needed for your career goals
- Track Specific Courses-** (18) credits. Please see page 4 for track lists
- Students MUST meet with Advisor to declare Track.**

### College of Arts, Sciences, and Education Requirements

- Credit hours of courses outside the major required within the last 60 hours of enrollment
- Note:** Take these 9 credit hours from upper division courses to help you reach the 45 hours needed for graduation Ex. 35 + 9 = 44 upper division credit hours 9
- Upper Division hours required 45
- Total credit hours required for graduation (University Requirement) 120

### Foreign Language requirement

FIU Flent/Flex requirement – 2 years of high school foreign language satisfy Flent/Flex

All students graduating from Florida International University must meet the state-mandated foreign language requirement. The FLENT/FLEX requirement can be met if students have completed two years of the same foreign language in high school prior to their admission to FIU.

Transfer students may also qualify for an exemption with ANY of the following:

- Appropriate accelerated credit mechanisms (e.g., AP, A-Level, IB, CLEP)
- Transfer credits from a post-secondary institution,
- Two consecutive semesters of one language (levels 1 & 2)
- One intermediate or advanced level language course
- A passing TOEFL score for admission to the University
- Foreign Credentials (e.g High School transcript from Non-English speaking country)
- A previously earned Bachelor's degree (regionally accredited)
- An AA degree earned at a FL public institution prior to 1989

Students that do not qualify for any of the above exemptions must complete the foreign language requirement here at FIU, using one of the following options:

- Two introductory level courses (levels 1 & 2)
- One intermediate or advanced level course
- CLEP (Spanish, French and German only)

### Transfer Students

Transfer students with >60 credits, must take half of their upper division credits at FIU.

A **maximum** of 60 lower division semester hours taken at a two-year or a four-year institution may be counted toward the degree. A maximum of 30 upper division semester hours taken at a senior institution may be counted toward the degree.

Lower division courses in excess of 60 semester hours may serve to meet specific course requirements for the degree, but credit hours represented by these courses **will not** reduce the number of credit hours to be completed at the University.

### Pre-Medical, Dental, Optometry, Physician Assistant, Pharmacy, Podiatry and Veterinary Curricula

Students who have fulfilled the requirements for the BS in Biology will also have satisfied most of the course requirements for admission to the above mentioned professional schools. Interested students should consult a Pre-Medical Advisor (DM 331A; 305-348-0515) for arranging a curriculum to enhance their potential to gain admission to these professional schools.

**Enrollment Status – for continuous enrollment in a semester, dropping courses can change enrollment status. Contact the Registrar for more details. Contact Financial Aid for various regulations.**

Full time = 12 to 18 credits. Normal load = 15 credits; registration for more than 18 credits requires Dean Approval.

Half time = 6-11 credits; Less than Half time = 5 credits or less.

\*\* See below for a list of ELECTIVE courses to choose from: TAKE ELECTIVES IN FALL and SPRING, **DO NOT COUNT on ELECTIVES being offered in the SUMMER**

\*\*The following courses are not allowed as Biology Electives: Essentials of Biology: The Big Picture (BSC 1005), Foundations of Biochemistry (BCH 2020), Biological Organization: The Size and Scale of Life (BSC 2300), Student Research Labs (BSC 3915, 4914, and 6916); Workshop Biology Labs (BSC 5928, PCB 5238, BSC 6926, etc.); Cooperative Education credits (BSC 3949); Biology of Women (BSC 3027); Research Methods in Biological Sciences (BSC 3910); and courses for non-science majors (BOT 1010, PCB 2061, PCB 2099, MCB 2000, MCB3007, BSC 2023, EVR 3013, OCB 2003, and OCE 3014).

## ELECTIVES COURSES - DISTRIBUTION REQUIREMENT – Fall 2018

(L\*)-Indicates that lab is being offered this term along with the lecture

### A. ECOLOGY

|     |       | Fall 2018                            | Prerequisites (Grades of C or higher in) |
|-----|-------|--------------------------------------|--|
| BOT | 4601  | General Plant Ecology (L*)           | PCB3043                                  |
| BSC | 4304  | Environments of the Past             |  |
| BSC | 4363  | Biodiversity in the Caribbean Basin  | BSC2010, BSC2011                         |
| OCB | 3043  | Marine Biology and Oceanography (L*) | BSC 2010 + 2011                          |
| OCB | 4070  | Coastal Marine Conservation          | OCB3043 or PCB3043                       |
| OCB | 4104C | Field Methods in Marine Ecology      | OCB3043 or PCB3043                       |
| PCB | 3374  | Tropical Ecology                     | PCB3043                                  |
| PCB | 4232  | Biology of AIDS                      | BSC 2010+2011 and CHM 1045+1046          |
| PCB | 4414  | Behavioral Ecology                   | PCB3043                                  |
| PCB | 4467C | Marine Protected Areas (GL)          | BSC 2010 + 2011                          |
| PCB | 4673  | Evolutionary Ecology                 | PCB 3043, PCB3063                        |

### B. ORGANISMAL DIVERSITY

|     |       | Fall 2018   | Prerequisites (Grades of C or higher in)  |
|-----|-------|---|---|
| BOT | 3154  | Local Flora (L*)  | BOT1010 or BSC2011; Corequisite: BOT3154L |
| BOT | 3663  | Tropical Botany   | BSC2011                                   |
| BSC | 4205  | Topics Organism Diversity: Great Ape Conservation (U01) | BSC 2010 + 2011 (with labs)               |
| BSC | 4434  | Bioinformatics for Biologists                           | BSC2010, BSC2011, PCB3063                 |
| MCB | 3020  | General Microbiology (L*)                               | CHM2210, CHM2211, BSC2010, BSC2011        |
| OCB | 4303  | Biology of Marine Mammals                               | BSC2010, BSC2011, (PCB3043 or OCB3043)    |
| ZOO | 3205C | Invertebrate Zoology                                    | BSC2011                                   |
| ZOO | 3303  | Vertebrate Zoology                                      | BSC2010, BSC2011, BSC2010L, BSC2011L      |
| ZOO | 4234  | General Parasitology (L*)                               | BSC2010 Corequisite: ZOO4234L             |
| ZOO | 4484  | Primate Biology   | BSC2010, BSC2011                          |

### C. PHYSIOLOGY/BIOCHEMISTRY

|     |      | Fall 2018  | Prerequisites (Grades of C or higher in) |
|-----|------|--|--|
| BCH | 3033 | General Biochemistry (L*)                              | CHM2211, BSC2010                         |
| CHM | 4304 | Biological Chemistry I (L*)                            | CHM2211, CHM2211L                        |
| MCB | 4503 | Virology   | CHM2210, PCB3063                         |
| PCB | 3702 | Intermediate Human Physiology (L*)                     | BSC2010 or BSC2011                       |
| PCB | 3703 | Human Physiology I (L*)                                | BSC2010                                  |
| PCB | 4233 | Immunology   | PCB3063                                  |
| PCB | 4234 | Biology of Cancer                                      | PCB3063, PCB3043                         |
| PCB | 4724 | Comparative Physiology                                 | BSC2010, BSC2011, CHM2210                |
| PCB | 4776 | Physiological and Behavioral Ecology of Marine Animals | BSC2010, BSC2011, and PCB3043            |
| PCB | 4805 | Endocrinology  | BSC2011, CHM2211, one physiology course  |
| ZOO | 4744 | Neurobiology   | BSC2010 and BSC2011                      |

### D. STRUCTURE/DEVELOPMENT

|     |      | Fall 2018   | Prerequisites (Grades of C or higher in)                 |
|-----|------|---|--|
| BSC | 4422 | Biotechnology: Applications in Industry, Agriculture and Medicine |  |
| PCB | 4253 | Developmental Biology   | PCB3063 or BCH3033                                       |
| ZOO | 3603 | Embryology (L*)   | BSC2010, BSC2011, BSC2010L, BSC2011L                     |
| ZOO | 3731 | Human Anatomy (L*)  | BSC 2010 or BSC 2023 or PCB 2099 or MCB 2000 or HSC 3549 |
| ZOO | 3753 | Histology (L*)  | BSC2010, CHM2210, CHM2211                                |
| ZOO | 4733 | Survey of Regional Anatomy  | BSC2011, BSC2011L, CHM1046, CHM1046L, PHY2054            |

**BSC 4473C - Introduction to Scientific Diving** Prerequisites: (OCB3043+lab or PCB3043+lab or CHS4600 or OCE3014), open water diving certification, permission of the instructor, FIU Diving Medical clearance, pass standardized swim test, at least 18 years old.

**BSC 3941 - Biological Sciences Research Internship**

Supervised, practical experience in a professional, laboratory or field setting in which biologists may work. Instructor permission is required. This does **NOT** fulfill any lab or distribution requirement for Biology Majors or Minors.

## Track Specific Courses – Six courses in the specified track must be completed

| <b>Allied Health Profession Track (ALLHLTPRO)</b> |   |   |
|---|---|---|
| ANT 3462  | Medical Anthropology  | 3 |
| ANT4480   | Anthropological Approaches to Global Health                         | 3 |
| APK 3110  | Exercise Physiology   | 3 |
| CLP 4146  | Abnormal Psychology   | 3 |
| DEP 2000  | Human Growth and Development: Introductory Developmental Psychology | 3 |
| ECO 4504  | Intro to Public Finance   | 3 |
| HIS 4492  | History of U.S. Health Policy                                       | 3 |
| PAD 3034  | Policy Development and Implementation                               | 3 |
| PCB 3703  | Human Physiology I  | 3 |
| PCB 3703L   | Human Physiology I Lab  | 1 |
| POS 3424  | The Legislative Process   | 3 |
| HSC 3537  | Medical Terminology   | 3 |
| HSC 3549  | Clinical Physiology for Health Professionals                        | 3 |
| HSC 4553  | Fundamentals of Pathology   | 3 |
| HUN 2202  | Principles of Nutrition   | 3 |
| PET 3310  | Kinesiology   | 3 |
| PSY 2012  | Introductory Psychology   | 3 |
| ZOO 3731  | Human Anatomy   | 3 |
| ZOO 3731L   | Human Anatomy Demonstration   | 1 |

| <b>Science Communication Track (SCICOM)</b> |   |   |
|---|---|---|
| COM 3110                                    | Business and Professional Communication                                       | 3 |
| ENC 3213                                    | Professional and Technical Writing  | 3 |
| ENC 3311                                    | Advanced Writing and Research   | 3 |
| ENC 3363                                    | Writing About the Environment   | 3 |
| ENC 3416                                    | Writing and New Media   | 3 |
| ENC 4241                                    | Scientific Writing  | 3 |
| ENC 4260                                    | Advanced Professional Writing   | 3 |
| ENC 4357                                    | How To Go Public  | 3 |
| IDS 3309                                    | How We Know What We Know – GL   | 3 |
| MMC 3121                                    | Writing Fundamentals for Communicators  | 3 |
| MMC 3650                                    | Media and Sustainability  | 3 |
| MMC 4936                                    | Special Topics  | 3 |
| JOU 3314                                    | Environmental Journalism: Communicating Environmental Issues in South Florida | 3 |

| <b>Health Policy, Environmental Policy and Pre-Law Track (HLTENVLAW)</b> |   |   |
|--|---|---|
| AMH 3630   | Environmental History of the United States            | 3 |
| CJL 3512   | The Courts  | 3 |
| CJL 4064   | Criminal Justice and the Constitution                 | 3 |
| COM 4462   | Conflict Management                                   | 3 |
| ECP 3302   | Introduction to Environmental Economics               | 3 |
| ENC 3311   | Advanced Writing and Research                         | 3 |
| ENC 3354   | Writing as Social Action                              | 3 |
| ENC 3371   | Rhetorical Theory and Practice                        | 3 |
| ENC 4331   | Writing, Rhetoric, and Community                      | 3 |
| ENC 4930   | Special Topics in Composition                         | 3 |
| GEO 4354   | Geography of the Global Food System - GL              | 3 |
| INR 4350   | International Environmental Politics                  | 3 |
| PAD 3034   | Policy Development and Implementation                 | 3 |
| PHI 2100   | Introduction to Logic                                 | 3 |
| PHI 2103   | Critical Thinking                                     | 3 |
| PHI 4130   | Symbolic Logic  | 3 |
| POS 3283   | The Judicial Process                                  | 3 |
| POS 3603   | Constitutional Law: Powers                            | 3 |
| POS 3604   | Constitutional Law: Limitations                       | 3 |
| POS 4784   | Analytic Writing in Political Science                 | 3 |
| REL 3492   | Earth Ethics-GL                                       | 3 |
| SPC 3230   | Rhetorical Communication: A Theory of Civil Discourse | 3 |
| SPC 3540   | Persuasion  | 3 |

| <b>Bioentrepreneur Track (BIOENTRP)</b> |   |   |
|---|---|---|
| ACG 3024                                | Accounting for Managers and Investors (AC)            | 3 |
| FIN 3005                                | Introduction to Business Finance                      | 3 |
| ISM 3012                                | Introduction to Decision and Information Systems (IS) | 3 |
| MAN 3022                                | Introduction to Management                            | 3 |
| MAR 3024                                | Marketing Fundamentals (ME)                           | 3 |
| <b>Choose one of the following:</b>     |   |   |
| COM 3110                                | Business and Professional Communication               | 3 |
| HAS 3111                                | Introduction to Health Services Systems               | 3 |