

**Department of Biological Sciences**

**BACHELOR OF SCIENCE**

**PROGRAM OF STUDY**

**Forensic Biomolecular Biology Track**

**(BIOL:BS/ FORBIOMOL)**

PLEASE READ COURSE DESCRIPTIONS in the UNDERGRADUATE COURSE CATALOG (catalog.fiu.edu). Most elective courses have prerequisites that must be taken **BEFORE** you take the elective course. To see your own progress, you can view your Panther Degree Audit from your My FIU. If you need assistance or have any questions, you are encouraged to see an advisor prior to each registration period by making an appointment via the Panther Success Network. 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. **The Biological Sciences BS has enrollment and completion success markers that will be used to monitor your progress in the major. In cases where students are not making good progress, a change of major may be required.**

The main goals of the Forensic Biomolecular Biology track will be to introduce students to historical and modern DNA typing, human and non-human Forensics, best laboratory practices, applicability of DNA to criminalistics and will also focus on critical thinking with respect to methodology selection as well as the future of forensic science.

**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)
- Civic Literacy Requirement
- Students entering the University with fewer than 60 hours must complete 9 hours of coursework during the summer semester
- Foreign Language requirement
- 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"/> 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"/> Organic Chemistry I and II   | CHM 2210(4)+Lab(1)<br>CHM 2211(3)+Lab(1)   | CHM 2210+Lab<br>CHM 2211+Lab                              | CHM 201 + 205Lab<br>CHM 202 + 206Lab |
| <input type="checkbox"/> General Physics I and II   | PHY 2053(4)+2048L(1)<br>PHY 2054(4)+2049L(1)   | PHY 2053+Lab<br>PHY 2054+Lab                              | PHY 101 + 106Lab<br>PHY 102 + 108Lab |
|   | using algebra and trigonometry<br>or<br>PHY 2048(4)+Lab(1)<br>PHY 2049(4)+Lab(1)<br>using Calculus 1 and 2.                      | PHY 2048+Lab<br>PHY 2049+Lab                              |                                      |
| <input type="checkbox"/> Mathematics - Students must complete sub-requirements (A) <u>and</u> (B) |  |   |                                      |
| (A) Calculus I  | MAC 2311(4)  | MAC 2311  | MTH 111 or MTH 131                   |
| (B) Calculus II   | MAC 2312(4)  | MAC 2312  | MTH 112 or MTH 132                   |
| or<br>*Statistics I and II  | STA 3111(3) & 3112(3) Stats designed for Biology students.<br>or<br>STA 2122(3) & 3123(3) Stats designed for Psychology students |   |                                      |

**Note:** Calculus I and Statistics I together do not satisfy the requirement; STUDENTS WHO TAKE STATISTICS I AND II MUST ALSO COMPLETE CALCULUS. The Statistics sequence is preferred for students in this track.

## Upper Division Program Requirements for Forensic Biomolecular Biology Track (35-39 credits)

| Core Courses            | Pre-Requisites          | Credits |
|-------------------------|-------------------------|---------|
| PCB 3043 Ecology        | BSC 2010 + BSC 2011     | 3       |
| PCB 3063 Genetics       | BSC 2010                | 3       |
| PCB 4023 Cell Biology   | PCB 3063 + CHM 1046     | 3       |
| PCB 4674 Evolution      | PCB 3043 + PCB 3063     | 3       |
| BSC 4931 Senior Seminar | PCB 3043+3063+4023+4674 | 1       |

| Distribution Requirement- One lecture from each of the following areas. Areas B-D have required courses you must choose from. | Required Course  | Pre-Requisites      | Credits |
|---|--|---------------------|---------|
| A. Ecology Distribution   | PCB 4556 Population Genetics (strongly recommended not required)     | PCB 3063            | 3       |
| B. Organismal Diversity Distribution  | BSC3400 Wildlife Conservation, Forensic and Crime Science (required) | BSC2010 and BSC2011 | 3       |
| C. Physiology/Biochemistry Distribution   | BCH3033 General Biochemistry (required)                              | CHM2211 and BSC2010 | 3       |
| D. Structure/Development Distribution   | BSC4401 Principles of Forensic Biology (required)                    | BSC2010             | 3       |

| Additional Upper Division Electives   | Credits |
|---|---------|
| Two additional Biology Upper Division Electives in any Distribution Area. <i>Strongly Recommended: ENY 4060 Entomology (pre-requisites BSC 2010 + BSC 2011)</i> | 6       |

\* See next page for a list of elective courses to choose from

\*\* Please note that there may be limited course availability in summer.

\*\*\*Refer to course catalog for list of courses not applicable to the upper division Major electives.

| Internship Requirement | Credits |
|------------------------|---------|
| BSC 3905               | 0-3     |

| Lab Requirement- Recommended to take concurrently with lecture                                  | Credits |
|---|---------|
| PCB 3063L Genetics Lab  | 1       |
| BCH 3033L General Biochemistry Lab  | 1       |
| BSC 4401L Principles of Forensic Biology Lab  | 1       |
| <b>Additional Upper Division Lab:</b><br>Choose any lab. <i>Strongly Recommended: ENY 4060L</i> | 1       |

## College and University Requirements

|   |     |
|---|-----|
| Total Upper Division (3000-4000 level credits) required             | 45  |
| Total credit hours required for graduation (University requirement) | 120 |

## ELECTIVES COURSES - DISTRIBUTION REQUIREMENT – Spring 2021

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

*Courses listed may be subject to change. Please confirm course availability by searching for courses on your MyFIU.*

**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. Lab fee of \$1,158 applied.

**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 elective lecture requirement for Biology Majors or Minors.

### A. ECOLOGY

#### Spring 2021

|     |       |   |                                    |
|-----|-------|---|------------------------------------|
| OCB | 3043  | Marine Biology Oceanography (L*)                  | BSC2010, BSC2011                   |
| OCB | 3624  | Coral Reef Biology                                | BSC2011                            |
| OCB | 4005C | Biological Oceanography at Sea II                 | OCB 4004                           |
| OCB | 4070  | Coastal Marine Conservation                       | OCB3043 or PCB3043                 |
| OCB | 4633  | Marine Community Ecology                          | PCB 3043                           |
| PCB | 4232  | Biology of AIDS                                   | BSC2010, BSC2011, CHM1045, CHM1046 |
| PCB | 4301  | Freshwater Ecology                                | PCB 3043                           |
| PCB | 4414  | Behavioral Ecology                                | PCB3043                            |
| PCB | 4467C | Marine Protected Areas, <b>GL</b>                 | BSC2010 and BSC2011                |
| PCB | 4932  | Topics in Ecology: Disturbance Ecology            | BSC2010/L, BSC2011/L               |
| PCB | 4932  | Topics in Ecology: Advanced Ecological Statistics | BSC2010/L, BSC2011/L               |
| ZOO | 4513  | Animal Behavior (L*)                              | BSC2010, BSC2011                   |

### B. ORGANISMAL DIVERSITY

#### Spring 2021

|     |       |   |  |
|-----|-------|---|--|
| BSC | 3400  | Wildlife Conservation, Forensic and Crime Science | BSC2010, BSC2011                                 |
| BSC | 4205  | Topics in Organismal Diversity (U01)              | BSC2010, BSC2010L and BSC2011, BSC2011L          |
| BSC | 4205  | Topics in Organismal Diversity (U02)              | BSC2010, BSC2010L and BSC2011, BSC2011L, CHM1045 |
| BSC | 4435  | Bioinformatics for Biologists                     | BSC2010, BSC2011, PCB3063                        |
| ENY | 4060  | Entomology (L*)                                   | BSC2010, BSC2011                                 |
| MCB | 3020  | General Microbiology (*L)                         | CHM2210, BSC2010, BSC2011                        |
| ZOO | 4234  | General Parasitology (L*)                         | BSC 2010, Co-requisite: ZOO4234L                 |
| ZOO | 4454  | Fish Biology                                      | BSC2010, BSC2011, PCB3043                        |
| ZOO | 4462C | Herpetology                                       | BSC2010, BSC2011, PCB3043                        |
| ZOO | 4484  | Primate Biology                                   | BSC2010, BSC2011                                 |

## C. PHYSIOLOGY/BIOCHEMISTRY

### Spring 2021

|     |      |   |   |
|-----|------|---|---|
| BCH | 3033 | General Biochemistry (L*)                                 | CHM2211, BSC2010                        |
| BOT | 4503 | Plant Physiology  | BSC2010/L, BSC2011, CHM2210             |
| BSC | 4443 | Functional Genomics and Proteomics                        | PCB3063                                 |
| CHM | 4304 | Biological Chemistry I (L*)                               | CHM2211, CHM2211L                       |
| PCB | 3702 | Intermediate Human Physiology (L*)                        | BSC2010 or BSC2011                      |
| PCB | 3704 | Human Physiology II (L*)                                  | BSC2010                                 |
| PCB | 4233 | Immunology  | PCB3063                                 |
| PCB | 4717 | Topics in Physiology/Biochemistry: Mosquito Biology (U02) | BSC2010, BSC2010L and BSC2011, BSC2011L |

## D. STRUCTURE/DEVELOPMENT

### Spring 2021

|     |      |  |   |
|-----|------|--|---|
| BOT | 3353 | Morphology of Vascular Plants (L*)                                     | BSC2011 or permission of instructor   |
| BSC | 4422 | Biotechnology: Applications in Industry, Agriculture and Medicine (L*) |   |
| PCB | 4561 | Epigenetics  | BSC2011, PCB3063  |
| PCB | 4663 | General Human Genetics   | PCB3063   |
| ZOO | 3731 | Human Anatomy (L*)   | BSC2010 or BSC2023 or PCB2099 or MCB2000 or HSC3549. Co-requisite: ZOO3731L |
| ZOO | 3753 | Histology (L*)   | BSC201, CHM2210, CHM2211  |
| ZOO | 4733 | Survey of Regional Anatomy   | BSC2011/2011L, CHM1046/1046L, PHY2054                                       |

### 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.

### Foreign Language requirement

FIU FLENT/FLEX requirement – 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 who 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)
  - FLATS (visit <https://info.flats.byu.edu/list-of-languages/> to view the complete list of FLATS exams)

**Civic Literacy Requirement:** Beginning in the 2018-2019 school year and thereafter, all first-time-in-college baccalaureate seeking students entering a State University System institution must demonstrate civic literacy by satisfying the State of Florida's, civic literacy requirement. Students at FIU can satisfy the civic literacy requirement by successful completion of any one of **AMH2020 or POS2041**, or by achievement of the standard score on one of the following assessments:

- a. Advanced Placement (AP) — Government & Politics: United States (Min score of 3)
- b. Advanced Placement (AP) — United States History (Min score of 4)
- c. CLEP — American Government (Min. score of 50)
  - d. Florida Civic Literacy Test (CIV 2222) — (Min. score of 60). CIV 2222 will be proctored and administered through the University Testing Centers at MMC and BBC. This test will be offered to FIU students free of charge on specified dates each semester.

No baccalaureate seeking student admitted during the 2018-2019 school year and thereafter, may graduate from FIU without first having met this requirement.

### Minor in Biology

BSC 2010 and BSC 2011 with labs

One upper-division course (3000-level or above) in three of the following areas: A. Ecology, B. Organismal Diversity, C. Physiology/Biochemistry, or D. Structure/Development. One of these elective courses must be at the 4000-level or higher, and one must include a lab. Total upper-division biology credits must number 10 or more.

| <u>Course</u>         | <u>Distribution Area (Applies to Minors Only)</u> |
|-----------------------|---|
| PCB 3043 Ecology      | Ecology (A)                                       |
| PCB 4674 Evolution    | Organismal Diversity (B)                          |
| PCB 4023 Cell Biology | Physiology/Biochemistry (C)                       |
| PCB 3063 Genetics     | Structure/Development (D)                         |

### 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-Health 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.