Biomedical Sciences - Molecular and Cellular Biology Track (B.S.)

College of Medicine
Burnett School of Biomedical Sciences
Health and Public Affairs II, Room: 335

http://biomed.ucf.edu
Email: bsbsadvising@ucf.edu
Dr. Griffith Parks, Director, 407-823-5932

Admission Requirements
- None

Degree Requirements
- Students who change degree programs and select this major must adopt the most current catalog.
- Students should complete the General Education Program before transferring within the Florida College System or State University System.
- Grades below a C in Common Program Prerequisites, Core Requirements and Restricted Electives will not be accepted.
- Students in this track must maintain a minimum science GPA of 3.2. Students who are unable to maintain such GPA, the student will have to revert back into the non-track Biomedical Sciences B.S.
- Students should consult with a BSBS academic advisor at least once per semester.

1. UCF General Education Program (GEP)
   
   **A: Communication Foundations (9 hrs)**
   - Required ENC 1101 Composition I 3 hrs
   - Required ENC 1102 Composition II 3 hrs
   - Prefer SPC 1603C Fundamentals of Technical Presentations 3 hrs

   **B: Cultural & Historical Foundations (9 hrs)**
   - Required MAC 2311 Calculus with Analytic Geometry I 4 hrs
   - Required STA 2023 Statistical Methods I 3 hrs

   **C: Mathematical Foundations (7 hrs)**
   - Required CHM 2045C Chemistry Fundamentals I 4 hrs
   - Required MAC 2311 Calculus with Analytic Geometry I 4 hrs

   **D: Social Foundations (6 hrs)**
   - Required BSC 2010C Biology I 4 hrs

   **E: Science Foundations (8 hrs)**
   - Required BSC 2010C Biology I 4 hrs
   - Required SPC 1603C Fundamentals of Technical Presentations 3 hrs

   **1** or CHM 2040 and CHM 2041

2. Common Program Prerequisites (CPP) (12 hrs)
   - See "Common Prerequisites" in the Transfer and Admissions section for more information.

   BSC 2010C Biology I
   1 CHM 2045C Chemistry Fundamentals I
   CHM 2046 Chemistry Fundamentals II 3 hrs
   CHM 2046L Chemistry Fundamentals Laboratory 1 hr
   MAC 2311 Calculus with Analytic Geometry I GEP

   **1** or CHM 2040 and CHM 2041

3. Core Requirements: Basic Level
   
   **Math and Statistics (6 hrs)**
   - STA 2023 Statistical Methods I GEP
   - MAC 2311 Calculus with Analytic Geometry I GEP

   **Chemistry (8 hrs)**
   - CHM 2210 Organic Chemistry I 3 hrs
   - CHM 2211 Organic Chemistry II 3 hrs
   - CHM 2211L Organic Laboratory Techniques I 2 hrs

4. Core Requirements: Advanced Level (35 hrs)
   - BSC 3403C Quantitative Biological Methods 4 hrs
   - MCB 3020C General Microbiology 5 hrs
   - PCB 3522 Molecular Biology I 3 hrs
   - PCB 3233L Immunology Laboratory 1 hr
   - PCB 4280 Molecular Immunology 3 hrs
   - PCB 4524 Molecular Biology II 3 hrs
   - MCB 4410 Cellular Metabolism 3 hrs

   **Select 1:**
   - BCH 4024 Medical Biochemistry or 4 hrs
   - BCH 4053 Biochemistry I 3 hrs

   **Track Core Requirements**
   - PCB 4280C Experimental Molecular Cell Biology 4 hrs
   - PCB 4016 Molecular and Cellular Pharmacology 3 hrs
   - PCB 4234 Cancer Biology 3 hrs

5. Restricted Electives
   Students must choose three electives from the list below.

   **At least one must have a laboratory component.**
   - BSC 4434 Biomedical Informatics: Sequence Analysis 3 hrs
   - MCB 4224 Molecular Biology of Diseases 3 hrs
   - MCB 4721C Methods in Biotechnology 4 hrs
   - PCB 4653 Human Genetics 3 hrs
   - PCB 4174 Foundation of Bio-Imaging Science 3 hrs
   - PCB 3703C Human Physiology 4 hrs
   - PCB 4521 Tissue Engineering 3 hrs
   - PCB 4264 Stem Cell Biology 3 hrs
   - PCB 4284 Immunobiology 3 hrs
   - PCB 4813 Molecular Aspects of Obesity, Diabetes & Metabolism 3 hrs

   **As an alternative to one of these listed electives, students can take part in a GEAR course, the PURE program, the PILOT course, or carry out an HIM thesis. Any one of these courses or programs will substitute for a restricted elective course, including elective laboratory courses.**

6. Capstone Requirements
   - None

7. Foreign Language Requirements
   **Admissions**
   - Two years of one foreign language in high school or one year of one foreign language in college (or equivalent proficiency exam) prior to graduation.

   **Graduation**
   - None

8. Electives
   - Variable. Students are encouraged to participate in undergraduate research if interested in pursuing graduate or professional education.

9. Additional Requirements
   - None

10. Required Minors
    - None

11. Departmental Exit Requirements
    - Students must complete all coursework in the baccalaureate curriculum as shown and earn a GPA of at least 3.2 in the sciences.
    - Independent study, directed research or similar credit may not be used as a restricted elective.
    - A minimum of 20 hours must be taken at UCF in the department of the major.
    - Students will be required to take a comprehensive test during their last semester.

12. University Minimum Exit Requirements
    - A 2.0 UCF GPA
    - 60 semester hours earned after CLEP awarded
    - 48 semester hours of upper division credit completed
    - 30 of the last 39 hours of course work must be completed in residency at UCF.

UNIVERSITY OF CENTRAL FLORIDA
Undergraduate Catalog 2017-2018
A maximum of 45 hours of extension, correspondence, CLEP, Credit by Exam, and Armed Forces credits permitted.

Complete the General Education Program, the Gordon Rule, and nine hours of Summer credit.

**Total Semester Hours Required**

- **120**

**Honors in Major**

- Application and admission through the Department and the Burnett Honors College.
- Fulfill University requirements for Honors in the Major and maintain a 3.2 UCF GPA; 3.5 in the major; 3.2 cumulative average for graded upper division courses regardless of institution.
- Complete the following course with a grade of B or better
  
  - BSC 3403C Quantitative Biological Methods 4 hrs

- Honors section

**Complete the following with a grade of B or better and successfully complete the oral defense of the Honors Thesis**

- MCB 4970H Honors Undergraduate Thesis II 1 hr

**Related Programs**

- Biology
- Biotechnology
- Medical Laboratory Sciences
- Chemistry - Biochemistry Track

**Certificates**

- None

**Related Minors**

- Biology
- Chemistry

**Advising Notes**

- None

**Transfer Notes**

- Students who begin a two semester sequence course (e.g. General Chemistry) at a Florida College System institution are strongly encouraged to complete the sequence before transferring. If it will not be possible to complete the sequence before transferring, the student should postpone beginning the course until enrolling at UCF.
- Lower division courses do not substitute for upper division courses.

**Acceptable Substitutes for Transfer Courses**

- The combination of CHM 2040 and CHM 2041 substitutes CHM 2045C.

**Plan of Study**

<table>
<thead>
<tr>
<th>Freshman Year - Fall</th>
<th>14 hrs</th>
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<tr>
<td>ENC 1101 3 hrs</td>
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<tr>
<td>CHM 2045C Chemistry Fundamentals I 4 hrs</td>
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<th>Freshman Year - Spring</th>
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<tr>
<td>BSC 2010C 4 hrs</td>
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<tr>
<td>ENC 1102 Composition II 3 hrs</td>
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<tr>
<td>CHM 2046 Chemistry Fundamentals II 3 hrs</td>
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<td>CHM 2046L Chemistry Fundamentals Laboratory 1 hr</td>
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<td>MCB 3020C General Microbiology 5 hrs</td>
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<td>General Education Program Course 3 hrs</td>
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**Select 1:**

- CHM 2211L Organic Laboratory Techniques I or 2 hrs
- Elective 3 hrs

**Select 1:**

- CHM 2211L Organic Laboratory Techniques I or 2 hrs
- Elective 3 hrs

**Junior Year - Fall**

- PCB 3522 Molecular Biology I 3 hrs

**Select 1:**

- PHY 2053C College Physics I or 4 hrs
- PHY 2048C General Physics Using Calculus I 4 hrs
- Restricted Elective 3 hrs
- General Education Program Course 3 hrs

**Junior Year - Spring**

- PCB 4524 Molecular Biology II 3 hrs
- PCB 4280 Molecular Immunology 3 hrs
- PCB 4028 Molecular and Cellular Pharmacology 3 hrs
- PCB 3233L Immunology Laboratory 1 hr

**Select 1:**

- PHY 2054C College Physics II or 4 hrs
- PHY 2049C General Physics Using Calculus II 4 hrs

**Senior Year - Fall**

- PCB 4234 Cancer Biology 3 hrs

**Select 1:**

- Restricted Elective or 4 hrs
- Elective 3 hrs
- Elective 3 hrs

**Senior Year - Spring**

- PCB 4234 Cancer Biology 3 hrs

**Select 1:**

- Restricted Elective or 4 hrs
- Elective 3 hrs
- Elective 3 hrs

**Program Academic Learning Compacts**

- Program Academic Learning Compacts (student learning outcomes) for undergraduate programs are located at: [http://www.oesas.ucf.edu/alc/academic_learning_compacts.htm](http://www.oesas.ucf.edu/alc/academic_learning_compacts.htm)