Chemistry - Biochemistry Track (B.S.)

**College of Sciences**

**Department of Chemistry,**

**Physical Sciences, Room: 255**

[http://www.cos.ucf.edu/chemistry](http://www.cos.ucf.edu/chemistry)

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### Admission Requirements

- None

### Degree Requirements

- Students who change degree programs and select this major must adopt the most current catalog.
- Co-op or internship credit cannot be used in the major.
- Students should consult with a departmental advisor before registering.
- Departmental Residency Requirement consists of at least 30 semester hours of regularly scheduled 3000-4000 level courses taken from the UCF Department of Chemistry.
- Chemistry majors are discouraged from taking courses as a transient student at a Florida College System institution, except in situations where one semester of a two semester sequence has already been taken at the Florida College System institution.
- All prerequisites of courses taught within the College of Sciences will be enforced.
- Courses designated in 2 (Common Program Prerequisites) are usually completed in the first 60 hours.
- Courses designated in 1 (General Education Program) typically are spread throughout the 120 hours.
- AA transfer students are expected to have completed all of the following courses before enrolling as a Chemistry major; these classes are prerequisites for advanced science classes and students entering without these classes will be unable to register for most of the advanced courses.

1. **UCF General Education Program (GEP)**

   **Note:** Certain courses must be selected in the GEP for this major, which brings the GEP hours above 36.

   **A: Communication Foundations**
   
   (9 hrs)
   
   - Required ENC 1101 Composition I 3 hrs
   - Required ENC 1102 Composition II 3 hrs
   - Prefer SPC 1606 Fundamentals of Oral Communication 3 hrs

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

   **C: Mathematical Foundations**
   
   (7 hrs)
   
   - Required MAC 2312 Calculus with Analytic Geometry II 4 hrs

   **D: Social Foundations**
   
   (6 hrs)
   
   - Required PHY 2048C Physics for Engineers & Scientists I 4 hrs

   **E: Science Foundations**
   
   (8 hrs)
   
   - Required BSC 2040 Chemistry Fundamentals I and 3 hrs
   - Required CHM 2211 Organic Chemistry I and 3 hrs
   - Required PHY 2404C Physics for Engineers & Scientists I and 4 hrs
   - Preferred SPC 1608 Fundamentals of Oral Communication 3 hrs

   **2. Common Program Prerequisites (CPP)**
   
   (20 hrs)
   
   Select either:
   - CHM 2045C Chemistry Fundamentals I 4 hrs
   - CHM 2040 Chemistry Fundamentals IA and 6 hrs
   - CHM 2041 Chemistry Fundamentals IB 3 hrs

   **- and complete all the following**
   
   24 hrs
   - CHM 2046 Chemistry Fundamentals II and 3 hrs
   - CHM 2046L Chemistry Fundamentals Laboratory and 3 hrs
   - CHM 2210 Organic Chemistry II and 3 hrs
   - CHM 2211L Organic Laboratory Techniques I and 2 hrs
   - MAC 2311C Calculus with Analytic Geometry I and 4 hrs
   - MAC 2312 Calculus with Analytic Geometry II and 4 hrs
   - PHY 2048C Physics for Engineers & Scientists I and 4 hrs
   - PHY 2049C Physics for Engineers & Scientists II and 4 hrs

   **3. Core Requirements: Basic Level**
   
   (10 hrs)
   
   - All courses specifically identified in the preceding Common Program Prerequisites section of this catalog are also required in the Basic Core, and must be taken.

   **Basic Core: Required, satisfies the CPP**
   
   Select either:
   - CHM 2045C Chemistry Fundamentals I CPP
   - CHM 2040 Chemistry Fundamentals IA and CPP
   - CHM 2041 Chemistry Fundamentals IB CPP

   **- and**
   
   - CHM 2046 Chemistry Fundamentals II and CPP
   - CHM 2046L Chemistry Fundamentals Laboratory and CPP
   - CHM 2210 Organic Chemistry I and CPP
   - CHM 2211 Organic Chemistry II and CPP
   - CHM 2211L Organic Laboratory Techniques I and CPP
   - MAC 2311C Calculus with Analytic Geometry I and CPP
   - MAC 2312 Calculus with Analytic Geometry II and CPP
   - PHY 2048C Physics for Engineers & Scientists I and CPP
   - PHY 2049C Physics for Engineers & Scientists II and CPP

   **Basic Core: Additional Requirements**
   
   (10 hrs)
   - BSC 2010C Biology I and 3 hrs
   - CHM 3120 Analytical Chemistry and 3 hrs
   - CHM 3120L Analytical Chemistry Laboratory and 1 hr
   - CHM 3215L Organic Laboratory Techniques II and 2 hrs
   - MAC 2313 Calculus with Analytic Geometry III and 4 hrs

   **- and either**
   
   - STA 2023 Statistical Methods I or 3 hrs
   - STA 1063C Basic Statistics Using Microsoft Excel or 3 hrs

   **4. Core Requirements: Advanced Level**
   
   (37 hrs)
   
   - BCH 4053 Biochemistry I and 3 hrs
   - BCH 4054 Biochemistry II and 3 hrs
   - BCH 4103L Biochemical Methods and 2 hrs
   - CHM 3410 Physical Chemistry I and 3 hrs
   - CHM 3418 Physical Chemistry II and 3 hrs
   - CHM 3411L Physical Chemistry Laboratory and 2 hrs
   - CHM 4610 Inorganic Chemistry and 3 hrs
   - CHM 4912 Directed Independent Research and 4 hrs
   - CHM 4930 Chemistry Seminar I and 1 hr
   - CHM 4931 Chemistry Seminar II and 1 hr
   - MCB 3020C General Microbiology and 5 hrs
   - PCB 3023 Molecular Cell Biology and 3 hrs
   - PCB 3063 Genetics and 3 hrs

   **- and complete all the following**
   
   24 hrs

   **5. Restricted Electives**
   
   (10 hrs)

   Select from the following:

   - CHM 4130 Advanced Analytical Laboratory Technique and 3 hrs
   - CHM 4906 Directed Independent Study and 1 hr
   - CHM 5225 Advanced Organic Chemistry and 3 hrs
   - PCB 3522 Molecular Biology and 3 hrs

   Additional upper level courses as approved by a departmental advisor

   **6. Capstone Requirements**

   - None
7. Foreign Language Requirements
Admissions
- Two years high school, or one year college language (or equivalent proficiency exam) prior to graduation.

Graduation
- None

8. Electives
- Select primarily from upper level courses after meeting with a departmental advisor. Courses may be outside the department.

9. Additional Requirements
- Complete a minimum of 30 Chemistry credits from the UCF Chemistry Department.
- Achieve at least a "C" (2.0) grade in each UCF Chemistry course used to satisfy the major.
- The last 30 credit hours of regularly scheduled courses that satisfy degree requirements must be taken in Residence at UCF.
- Grades earned in the following courses will not be applied in the determination of the Chemistry GPA:
  CHM 4912 Directed Independent Research 4 hrs
  CHM 4930 Chemistry Seminar I 1 hr
  CHM 4931 Chemistry Seminar II 1 hr

10. Required Minors
- None

11. Departmental Exit Requirements
- Students are required to take a nationally normed test in chemistry and biochemistry during their last semester. The exam will be given in the Fall and Spring semesters. Students who plan to graduate in the Summer must take the exam in the Spring. The student must achieve a satisfactory score on the exam.
- Students are required to submit an undergraduate research report for evaluation no later than the date posted by the department in the semester they intend to graduate. The report must meet or exceed departmental requirements established for the report.

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.
- 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
- None

Related Programs
- Biology
- Chemistry
- Forensic Science - Analysis Track
- Forensic Science - Biochemistry Track
- Biomedical Sciences

Certificates
- None

Related Minors
- Chemistry
- Biology
- Biomedical Sciences

Advising Notes
- None

Transfer Notes
- Lower division courses do not substitute for upper division courses.
- Courses transferred from private and out-of-state schools must be evaluated for equivalency credit. The student must provide all supporting information.

Acceptable Substitutes for Transfer Courses
- The following Common Program Prerequisite courses may be satisfied by the following courses if taken prior to transferring to UCF:
  - CHM 2045C: May use CHM X040C plus CHM X041C.
  - Physics: Although the CPP allows substitution by physics courses or Organic Chemistry, both the specified Physics and Organic Chemistry classes are required in the major and will still have to be taken.

Plan of Study
- This is one of numerous possible plans of study. See program description for all requirements. Consult a departmental advisor for alternate, new or more appropriate selections.
- Prior to enrolling in Chemistry, take Chemistry Placement Test ~ http://knightsource.sdes.ucf.edu/placement
- Prior to enrolling in Math, take Math Placement Test ~ http://knightsource.sdes.ucf.edu/placement

Although all classes are listed as being taken during the academic year, you may be required to complete 9 hours of them during the Summer. Consult with an advisor to determine if you are exempt.

Freshman Year - Fall 15 hrs
- CHM 2045C Chemistry Fundamentals I 4 hrs
- MAC 2311C Calculus with Analytic Geometry I 4 hrs
- BSC 2010C Biology I 4 hrs
- ENC 1101 Composition I 3 hrs

Freshman Year - Spring 17 hrs
- CHM 2046 Chemistry Fundamentals II 3 hrs
- CHM 2046L Chemistry Fundamentals Laboratory 1 hr
- MAC 2312 Calculus with Analytic Geometry II 4 hrs
- ENC 1102 Composition II 3 hrs
- GEP 3 hrs
- GEP 3 hrs

Sophomore Year - Fall 14 hrs
- CHM 2210 Organic Chemistry I 3 hrs
- PHY 2048C Physics for Engineers & Scientists I 4 hrs
- MAC 2313 Calculus with Analytic Geometry III 4 hrs
- Statistics 3 hrs

Sophomore Year - Spring 16 hrs
- CHM 2211 Organic Chemistry II 3 hrs
- CHM 2211L Organic Laboratory Techniques I 2 hrs
- CHM 3120 Analytical Chemistry 3 hrs
- CHM 3120L Analytical Chemistry Laboratory 1 hr
- PHY 2049C Physics for Engineers and Scientists II 4 hrs
- PCB 3063 Genetics 3 hrs

Junior Year - Fall 14 hrs
- BCH 4054 Biochemistry I 3 hrs
- CHM 3215L Organic Laboratory Techniques II 2 hrs
- PCB 3023 Molecular Cell Biology 3 hrs
- GEP 3 hrs
- GEP 3 hrs

Junior Year - Spring 13 hrs
- BCH 4054 Biochemistry II 3 hrs
- BCH 4103L Biochemical Methods 2 hrs
- MCB 3020C General Microbiology 5 hrs
- GEP 3 hrs

Senior Year - Fall 16 hrs
- CHM 4912 Directed Independent Research 2 hrs
- CHM 4610 Inorganic Chemistry 3 hrs
- CHM 4912 Directed Independent Research 2 hrs
- GEP 4 hrs

Senior Year - Spring 15 hrs
- CHM 4931 Chemistry Seminar II 1 hr
- CHM 3411L Physical Chemistry Laboratory 2 hrs
- CHM 4912 Directed Independent Research 2 hrs
- GEP 4 hrs
Program Academic Learning Compacts

Program Academic Learning Compacts (student learning outcomes) for undergraduate programs are located at:
http://www.oelas.ucf.edu/academiclearningcompacts.html

Equipment Fees

- Part-Time Student: $45 per term
- Full-Time Student: $90 per term