Biomedical Sciences (B.S.)

College of Medicine
Burnett School of Biomedical Sciences
Health and Public Affairs II, Room: 335
https://med.ucf.edu/biomed/
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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 "C" in Common Program Prerequisites, Core Requirements and Restricted Electives will not be accepted.
- Students should consult with a BSBS academic advisor at least once per semester.

1. UCF General Education Program (GEP) (39 hrs)

- Certain courses must be selected in GEP for this major, bringing the total GEP hours to more than 36.

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)

C: Mathematical Foundations			**(7 hrs)**
Required	STA 2023	Statistical Methods I	3 hrs
Required	MAC 2311	Calculus with Analytic Geometry I	4 hrs

D: Social Foundations (6 hrs)

E: Science Foundations			**(8 hrs)**
Required	BSC 2010C	Biology I	4 hrs
[1] Required	CHM 2045C	Chemistry Fundamentals I	4 hrs

[1] or CHM 2040 and CHM 2041

2. Common Program Prerequisites (CPP)

- See "Common Prerequisites" in the Transfer and Transitions Services section for more information.

BSC 2010C	Biology I	GEP
[1] CHM 2045C	Chemistry Fundamentals I	GEP
CHM 2046	Chemistry Fundamentals II	3 hrs
CHM 2046L	Chemistry Fundamentals Laboratory	1 hr
MAC 2311C	Calculus with Analytic Geometry I	GEP
STA 2023	Statistical Methods I	GEP
CHM 2210	Organic Chemistry I	3 hrs
CHM 2211	Organic Chemistry II	3 hrs
CHM 2211L	Organic Laboratory Techniques I	2 hrs

Select one of the following sequences of courses:

PHY 2053C	College Physics I and	4 hrs
PHY 2054C	College Physics II	4 hrs

or

PHY 2048C	General Physics Using Calculus I and	4 hrs
PHY 2049C	General Physics Using Calculus II	4 hrs

[1] See Transfer Notes for possible substitutions.

3. Core Requirements: Basic Level

Math and Statistics

MAC 2311	Calculus with Analytic Geometry I	GEP
STA 2023	Statistical Methods I	GEP

Chemistry

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

Biomedical Sciences 25 hrs

- The following core courses are for students completing the general Biomedical Science degree.

Life Sciences 22 hrs

MCB 3020C	General Microbiology	5 hrs
BSC 3403C	Quantitative Biological Methods	4 hrs
PCB 3522	Molecular Biology I	3 hrs
PCB 4524	Molecular Biology II	3 hrs

Select 1: 3 hrs

MCB 4414	Microbial Metabolism or	3 hrs
MCB 4410	Cellular Metabolism	3 hrs

Select one of the following sequences of courses:

PCB 4280	Molecular Immunology and	3 hrs
PCB 3233L	Immunology Laboratory	1 hr

or

PCB 3233	Immunology and	3 hrs
PCB 3233L	Immunology Laboratory	1 hr

Biochemistry 3 hrs

BCH 4024	Medical Biochemistry or	4 hrs
BCH 4053	Biochemistry I	3 hrs

5. Restricted Electives

Biomedical Sciences Restricted Electives 23 hrs

- Select a minimum of seven (7) courses from the list below. At least two must have a laboratory course. No more than two may be MLS courses. Enrollment in some MLS courses is restricted. Check with advisor before enrolling. Only three hours of Honors thesis will count towards restrictive elective requirement.
- Students can only select two (2) of the following BCH 4054, BCH 4103L, PCB 3063, PCB 4514, ZOO 4603C.
- 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.

[1] BCH 4054	Biochemistry II	3 hrs
BCH 4103L	Biochemical Methods	2 hrs
BOT 4434C	General Mycology	4 hrs
BSC 3424	Nanobiotechnology	3 hrs
BSC 4434	Biomedical Informatics: Sequence Analysis	3 hrs
BSC 4439	Biomedical Informatics: Structure Analysis	3 hrs
[1] MCB 3202	Principles of Infectious Disease	3 hrs
[2] MCB 3203	Pathogenic Microbiology	3 hrs
[1] MCB 4404	Bacterial Genetics and Physiology	3 hrs
MCB 4114C	Determinative & Systemic Microbiology	4 hrs
[1] MCB 4207	Infectious Processes	3 hrs
MCB 4204	Cellular Microbiology: Host-Pathogen Interactions	3 hrs
[1] MCB 4276	Epidemiology of Infectious Diseases	3 hrs
[1] MCB 4312	Molecular Biotechnology	3 hrs
[1] MCB 4503C	Virology	3 hrs
MCB 4603	Environmental Microbiology	3 hrs
MCB 4721C	Methods in Biotechnology	4 hrs
MCB 4970H	Honors Undergraduate Thesis II	3 hrs
[1] MCB 4224	Molecular Biology of Diseases	3 hrs
MCB 4653	Applied Industrial Microbiology	3 hrs
MCB 5932	Current Topics in Molecular Biology	3 hrs
MLS 3220C	Techniques in Clinical Microscopy	3 hrs
[1] MLS 3305	Hematology	3 hrs
[1] MLS 4334	Hemostasis	3 hrs
[1] MLS 4430C	Clinical Parasitology	3 hrs
[1] MLS 4505C	Immunodiagnostics	3 hrs
MLS 4625	Advanced Clinical Chemistry I	3 hrs
MLS 4630	Advanced Clinical Chemistry II	3 hrs
[1] PCB 3063	Genetics	3 hrs
[1] PCB 3703C	Human Physiology	4 hrs
[1] PCB 4028	Molecular and Cellular Pharmacology	3 hrs
PCB 4135	Applied Molecular Cell Biology	3 hrs
PCB 4174	Foundation of Bio-Imaging Science	3 hrs
PCB 4234	Cancer Biology	3 hrs
PCB 4264	Stem Cell Biology	3 hrs
[1] PCB 4284	Immunobiology	3 hrs
[1] PCB 4514	Genetics II	3 hrs
PCB 4521	Tissue Engineering	3 hrs

PCB 4529C	Experimental Molecular Cell Biology	4 hrs
PCB 4663	Human Genetics	3 hrs
[1] PCB 4708L	Laboratory Virtual Simulations in Physiology	3 hrs
[1] PCB 4805	Endocrinology	3 hrs
[1] PCB 4832	Cellular and Molecular Basis of Brain Functions	3 hrs
[1] PCB 4833	Advanced Human Physiology	3 hrs
PCB 4843	Cellular and Molecular Neuroscience	3 hrs
PCB 5275	Signal Transduction Mechanics	3 hrs
[1] ZOO 3701C	Human Gross Anatomy & Dissection Techniques	3 hrs
[1] ZOO 3733C	Human Anatomy	4 hrs
[1] ZOO 3744	Neurobiology	3 hrs
[1] ZOO 3755C	Introductory Histology	4 hrs
[1] ZOO 4603C	Embryology/Development	5 hrs
[1] ZOO 4605	Human Clinical Embryology and Congenital Malformation	3 hrs
[1] ZOO 4742	Advanced Neurobiology	3 hrs
[1] ZOO 4743C	Clinical Neuroanatomy and Neuroscience	4 hrs
ZOO 4747C	Clinical Neuroscience	4 hrs
[1] ZOO 4753C	Vertebrate Histology	4 hrs
ZOO 5745C	Essentials of Neuroanatomy	4 hrs

[1] Recommended for Preprofessional students
[2] Students must take MCB 3203L Pathogenic Microbiology Lab in order for the combination to count as 1 restricted elective.

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 2.0 for all coursework in the Core and Restricted Electives.
- 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.
- 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 the institution.
- Complete the following course with a grade of B or better (4 credits):

BSC 3403C	Honors Quantitative Biological Methods	4 hrs

- Complete the following with a grade of B or better and successfully complete the oral defense of the Honors Thesis (3 credits):

MCB 4970H	Honors Undergraduate Thesis II	1 hr

Related Programs
- Biology
- Biotechnology
- Chemistry
- Medical Laboratory Sciences

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

BSC 2011C	Biology II	4 hrs
may be substituted with: BSC 3403C		
CHM 2045C	Chemistry Fundamentals I	4 hrs
may be substituted with: CHM 2040		
CHM 2045C	Chemistry Fundamentals I	4 hrs
may be substituted with: CHM 2041		

Plan of Study

Freshman Year - Fall		14 hrs
ENC 1101	Composition I	3 hrs
CHM 2045C	Chemistry Fundamentals I	4 hrs
[1] MAC 2311C	Calculus with Analytic Geometry I	4 hrs
GEP		3 hrs

[1] or follow math sequence determined by Math Placement Exam

Freshman Year - Spring		**14 hrs**
ENC 1102	Composition II	3 hrs
CHM 2046	Chemistry Fundamentals II	3 hrs
CHM 2046L	Chemistry Fundamentals Laboratory	1 hr
BSC 2010C	Biology I	4 hrs
GEP		3 hrs
Sophomore Year - Fall		**14 hrs**
CHM 2210	Organic Chemistry I	3 hrs
MCB 3020C	General Microbiology	5 hrs
GEP		3 hrs
Select 1:		**3 hrs**
STA 2023	Statistical Methods I	3 hrs
Sophomore Year - Spring		**15 hrs**
CHM 2211	Organic Chemistry II	3 hrs
BSC 3403C	Quantitative Biological Methods	4 hrs
GEP		3 hrs
Restricted Elective or Elective		3 hrs
Select 1:		**3 hrs**
CHM 2211L	Organic Laboratory Techniques I or	2 hrs
Elective		3 hrs

Sophomore Year - Summer		**9 hrs**
Restricted Elective or Elective		3 hrs
Elective		3 hrs
Select 1:		**3 hrs**
CHM 2211L	Organic Laboratory Techniques I or	2 hrs
Elective		3 hrs
Junior Year - Fall		**13 hrs**
PCB 3522	Molecular Biology I	3 hrs
GEP		3 hrs
Restricted Elective		3 hrs
Select 1:		**4 hrs**
PHY 2053C	College Physics I or	4 hrs
[1] PHY 2048C	General Physics Using Calculus I	4 hrs

[1] Students electing to enroll in the PHY2048/2049 sequence must plan to accommodate MAC 2311/2312 as prerequisites

Junior Year - Spring		**13 hrs**
PCB 4524	Molecular Biology II	3 hrs
Restricted Elective		3 hrs
Select 1:		**4 hrs**
PHY 2054C	College Physics II or	4 hrs
[1] PHY 2049C	General Physics Using Calculus II	4 hrs
Select 1:		**3 hrs**
PCB 3233L and PCB 4280 Molecular Immunology	or	4 hrs
PCB 3233 or Restricted Elective		3 hrs

[1] Students electing to enroll in the PHY2048/2049 sequence must plan to accommodate MAC 2311/2312 as prerequisites

Senior Year - Fall		**12 hrs**
GEP		3 hrs
Restricted Elective		3 hrs
Select 1:		**3 hrs**
MCB 4414	Microbial Metabolism or	3 hrs
BCH 4053	Biochemistry I	3 hrs
Select 1:		**3 hrs**
PCB 3233L and PCB 4280 Molecular Immunology	or	4 hrs
PCB 3233 or Restricted Elective		3 hrs
Senior Year - Spring		**15 hrs**
Restricted Elective		3 hrs
Restricted Elective		3 hrs
GEP		3 hrs
Select 1:		**3 hrs**
BCH 4053	Biochemistry I or	3 hrs
MCB 4414	Microbial Metabolism or	3 hrs
Elective		3 hrs

Program Academic Learning Compacts

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

Equipment Fees

- Part-Time Student: $39 per term
- Full-Time Student: $78 per term