Biochemistry, Cellular and Molecular Biology, B.S.

major

Biochemistry Emphasis

Required Credits: 81
Required GPA: 2.25

I REQUIRED COURSES

BIOLOGY CORE

COMPLETE THE FOLLOWING COURSES:

- BIOL 1400 Cellular Principles (4 credits)
- BIOL 2360 Genetics (4 credits)
- BIOL 3380 Molecular Genetics (3 credits)
- BIOL 3590 Cell Biology (3 credits)
- BIOL 3710 Microbiology (4 credits)

CHEMISTRY CORE

COMPLETE THE FOLLOWING COURSES:

- CHEM 2211 Principles of Chemistry I (4 credits)
- CHEM 2212 Principles of Chemistry II (4 credits)
- CHEM 3311 Organic Chemistry I (3 credits)
- CHEM 3312 Organic Chemistry II (3 credits)
- CHEM 3371 Organic Chemistry Laboratory I (1 credit)
- CHEM 3372 Organic Chemistry Laboratory II (1 credit)
- CHEM 4411 Biochemistry I (3 credits)
- CHEM 4412 Biochemistry II (3 credits)
- CHEM 4471 Biochemistry Laboratory I (1 credit)

RELATED FIELD REQUIREMENTS

SELECT ONE OF THE FOLLOWING GROUPS:

GROUP 1:

- PHYS 1101 General Physics I (4 credits)
- PHYS 1102 General Physics II (4 credits)

GROUP 2:

- PHYS 2101 Physics I (4 credits)
- PHYS 2102 Physics II (4 credits)

SEMINARS

COMPLETE THE FOLLOWING COURSES:

- BCMB 1000 Biochemistry, Cell and Molecular Biology Careers (BCMB Careers) (1 credit)
- BCMB 3000 Biochemistry, Cell and Molecular Biology Research (BCMB Research) (1 credit)

TECHNIQUES CORE

SELECT ONE OF THE FOLLOWING:

- BCMB 3074 Molecular Techniques (2 credits)
  or BIOL 3074 Molecular Techniques (2 credits)

SELECT ONE OF THE FOLLOWING:

- BCMB 3075 Cellular Techniques (2 credits)
- BIOL 3075 Cellular Techniques (2 credits)
- BCMB 3076 Biochemical Techniques (2 credits)
- CHEM 3076 Biochemical Techniques (2 credits)

RESEARCH

SELECT ONE OF THE FOLLOWING GROUPS:

GROUP 1:

- BIOL 4894 Advanced Research Project I (2 credits)
- BIOL 4895 Advanced Research Project II (2 credits)

GROUP 2:

- CHEM 4894 Research I (2 credits)
- CHEM 4895 Research II (2 credits)

II REQUIRED EMPHASIS - BIOCHEMISTRY

CHEMISTRY

COMPLETE THE FOLLOWING COURSES:

- CHEM 3507 Analytical Chemistry (3 credits)
- CHEM 3570 Analytical Chemistry Laboratory (1 credit)
- CHEM 4614 Medicinal Chemistry: Drug Design (3 credits)
- CHEM 4615 Medicinal Chemistry: Drug Action (3 credits)

CHEMISTRY ELECTIVES

SELECT ONE OF THE FOLLOWING GROUPS:

GROUP 1:

- CHEM 4510 Instrumental Methods of Analysis (3 credits)
- CHEM 4571 Instrumental Analysis Laboratory I (1 credit)

GROUP 2:

- CHEM 4711 Physical Chemistry I (3 credits)
- CHEM 4771 Physical Chemistry Laboratory I (1 credit)

GROUP 3:

- CHEM 4811 Advanced Inorganic Chemistry I (3 credits)
- CHEM 4871 Inorganic Chemistry Laboratory I (1 credit)

BIOLOGY ELECTIVES

SELECT ONE OF THE FOLLOWING:

- BIOL 3250 Human Anatomy (4 credits)
- BIOL 3260 Human Physiology (4 credits)
- BIOL 3300 Introduction to Hematology (4 credits)
- BIOL 3580 Immunology (3 credits)
- BIOL 4270 Histology (4 credits)
- BIOL 4360 Developmental and Tumor Biology (3 credits)
- BIOL 4447 Genomics (3 credits)
- BIOL 4460 Stem Cells and Regenerative Medicine (3 credits)
- BIOL 4470 Introduction to Vaccinology (4 credits)
- BIOL 4715 Clinical Microbiology (3 credits)

RELATED FIELD REQUIREMENTS

COMPLETE THE FOLLOWING COURSE:

- MATH 2471 Calculus I (5 credits)

SUGGESTED SEMESTER SCHEDULE FOR BIOCHEMISTRY, CELLULAR, AND MOLECULAR BIOLOGY, B.S. MAJOR BIOCHEMISTRY EMPHASIS

Freshman:

- BIOL 1400 Cellular Principles (4 credits)
- CHEM 2211 Principles of Chemistry I (4 credits)
- BIOL 2360 Genetics (4 credits)
- CHEM 2212 Principles of Chemistry II (4 credits)
- BCMB 1000 Biochemistry, Cell and Molecular Biology Careers (BCMB Careers) (1 credit)
- MATH 2471 Calculus I (5 credits)

Sophomore:

- BIOL 3590 Cell Biology (3 credits)
- CHEM 3311 Organic Chemistry I (3 credits)
- BIOL 3380 Molecular Genetics (3 credits)
- CHEM 3312 Organic Chemistry II (3 credits)
- BCMB 3074 Molecular Techniques (2 credits)
  or BIOL 3074 Molecular Techniques (2 credits)
- CHEM 3507 Analytical Chemistry (3 credits)

Junior:

- BIOL 3710 Microbiology (4 credits)
- CHEM 4411 Biochemistry I (3 credits)
- PHYS 2101 Physics I (4 credits)
- CHEM 4412 Biochemistry II (3 credits)
- BCMB 3000 Biochemistry, Cell and Molecular Biology Research (BCMB Research) (1 credit)
- BCMB 3076 Biochemical Techniques (2 credits)
  or CHEM 3076 Biochemical Techniques (2 credits)
- PHYS 2102 Physics II (4 credits)

Senior:

- CHEM 4894 Research I (2 credits)
- CHEM 4895 Research II (2 credits)
- CHEM 4614 Medicinal Chemistry: Drug Design (3 credits)
- CHEM 4615 Medicinal Chemistry: Drug Action (3 credits)
- Emphasis Chemistry elective(s)
- Emphasis Biology elective