Biochemistry Major Requirements
Catalog Year: 2013-14
Degree: Bachelor of Science
Credit Hours: 72+

“PR” indicates a pre-requisite. “CO” indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Required Courses

- CHEM 111 Principles of Chemistry (3) PR: MATH 111 or equivalent; CO: CHEM 111L
- CHEM 111L Principles of Chemistry Lab (1) CO: CHEM 111
- CHEM 112 Principles of Chemistry (3) PR: CHEM 111, CHEM 111L or HONS 153, HONS 153L or HONS 191, HONS 191L; CO: CHEM 112L
- CHEM 112L Principles of Chemistry Lab (1) CO: CHEM 112
- CHEM 221 Quantitative Analysis (4) PR: CHEM 112, CHEM 112L or HONS 154, HONS 154L or HONS 294, HONS 294L; CO: CHEM 221L
- CHEM 221L Quantitative Analysis Laboratory (0) CO: CHEM 221
- CHEM 231 Organic Chemistry (3) PR: CHEM 112, CHEM 112L or HONS 154, HONS 154L; CO: CHEM 231L
- CHEM 231L Introduction to Organic Chemistry Laboratory Techniques (1) CO: CHEM 231
- CHEM 232 Organic Chemistry (3) PR: CHEM 231, CHEM 231L; CO: CHEM 232L
- CHEM 232L Organic Synthesis and Analysis (1) CO: CHEM 232
- CHEM 341 Physical Chemistry (3) PR: CHEM 221 and MATH 220; CO: CHEM 341L (MATH 221 is strongly recommended.)
- CHEM 341L Physical Chemistry Laboratory (1) CO: CHEM 341
- CHEM 342 Physical Chemistry (3) PR: CHEM 341, CHEM 341L; CO: CHEM 342L
- CHEM 342L Physical Chemistry Laboratory (1) CO: CHEM 342
- CHEM 351 Biochemistry (3) PR: CHEM 232, CHEM 232L
- CHEM 352 Biochemistry II (3) PR: CHEM 351
- CHEM 354L Biochemistry II (1) PR: CHEM 351
- CHEM 490 Chemistry and Biochemistry Seminar (1) PR: Junior or senior standing
- CHEM 492 Senior Seminar (1) PR: CHEM 341 and senior standing
- CHEM 511 Advanced Inorganic Chemistry (3) PR or CO: CHEM 341, CHEM 341L and CHEM 342, CHEM 342L

Biology Requirement

- BIOL 111 Introduction to Cell and Molecular Biology (3) PR: None; CO: BIOL 111L
- BIOL 111L Introduction to Cell and Molecular Biology Lab (1) CO: BIOL 111
- OR
- HONS 151 Honors Biology I (3) PR: None; CO: HONS 151L
- HONS 151L Honors Biology I Lab (1) CO: HONS 151
- BIOL 112 Evolution, Form, and Function of Organisms (3) PR: BIOL 111 and 111L; CO: BIOL 112L
- BIOL 112L Evolution, Form, and Function of Organisms Lab (1) CO: BIOL 112
- OR
- HONS 152 Honors Biology II (3) PR: HONS 151 and 151L; CO: HONS 152L
- HONS 152L Honors Biology II Lab (1) CO: HONS 152
Select 4 credit hours from the following Biology courses:

- **BIOL 305** Genetics (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; PR or CO: BIOL 211 and 211D and MATH 250 or instructor permission for biochemistry majors

- **AND**

- **BIOL 305L** Genetics Lab (1) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; PR or CO: BIOL 211 and 211D, BIOL 305 and MATH 250 or instructor permission for biochemistry majors

- **BIOL 310** General Microbiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D or CHEM 232 and 232L and CHEM 111 and 111L and CHEM 112 and 112L; PR or CO: BIOL 305 or CHEM 232 and 232L and MATH 250 or instructor permission for biochemistry majors

- **BIOL 313** Cell Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D or CHEM 232 and 232L and CHEM 111 and 111L and CHEM 112 and 112L; PR or CO: BIOL 305 or CHEM 232 and 232L and MATH 250 or instructor permission for biochemistry majors

- **AND**

- **BIOL 313L** Cell Biology Laboratory (1) PR or CR: BIOL 313 and MATH 250 or instructor permission for biochemistry majors

- **BIOL 321** General and Comparative Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L, and CHEM 111 and 111L and CHEM 112 and 112L; PR or CO: MATH 250 or instructor permission for biochemistry majors

### Physics Requirement

- **PHYS 111** General Physics I (3) PR or CO: MATH 120 or equivalent or instructor permission; CO: PHYS 111
- **PHYS 111L** General Physics I Lab (1) CO: PHYS 111
- **PHYS 112** General Physics II (3) PR: PHYS 111 or HONS 157; CO or PR: MATH 220 or equivalent or instructor permission; CO: PHYS 112
- **PHYS 112L** General Physics II Lab (1) CO: PHYS 112

### Mathematics Requirement

- **MATH 120** Introductory Calculus (4) PR: Placement or C or better in MATH 111
- **MATH 220** Calculus II (4) PR: MATH 120 or HONS 115

### Notes:

- MATH 250 is a prerequisite for all 300 level BIOL courses but can be waived with instructor permission for biochemistry majors.
- Honors students can take the alternative sequence of HONS 191/HONS 191L, HONS 192/HONS 192L, HONS 293/HONS 293L, and HONS 294/HONS 294L in lieu of CHEM 111/111L, CHEM 112/112L, CHEM 231/231L, and CHEM 232/232L.
- Honors students can take the alternative sequence of HONS 157/HONS 157L and HONS 158/HONS 158L in lieu of PHYS 111/111L and PHYS 112/112L.
- MATH 221 is a recommended course.
- All junior and senior chemistry majors are strongly encouraged to attend the scheduled department seminars.
- Students who have completed PHYS 101 Introductory Physics I and PHYS 102 Introductory Physics II before declaring a chemistry or biochemistry major may satisfy this requirement by taking additional related courses. Please see the department chair for the list of courses.