

Biochemistry- B.S. – Degree Requirements

Core Courses (49-60 credits)

- BIO 121 *or* BIO 200: General Biology I/II (4) *or* Advanced Placement Biology Credit (6)
- CHE 106/107 *or* 109/119: General Chemistry I/Lab (4)¹
- CHE 116/117 *or* 129/139: General Chemistry II/Lab (4)¹
- CHE 275/276: Organic Chemistry I/Lab (5)
- CHE 325/326: Organic Chemistry II/Lab (5)

- MAT 285 *or* 295: Calculus I (3-4)
- MAT 286 *or* 296: Calculus II (3-4)

- PHY 211/221: General Physics I/Lab (4)
- PHY 212/222: General Physics II/Lab (4)

- BIO 305: Integrative Biology Lab (3)
- BIO 326: Genetics and Cell Biology I (3)
- BIO 327: Genetics and Cell Biology II (3)

- CHE 474: Structural and Physical Biochemistry (3)
- BIO 475 Biochemistry Lab (3) *or*
CHE/BCM477: Preparation and Analysis of Proteins and Nucleic Acids Lab (3)*,²
- BIO 575: Biochemistry I (3)
- BIO 576: Biochemistry II (3)

¹ Students with a score of 5 on the AP chemistry exam who complete CHE 275/276 during their first semester at SU, and who also take CHE 325/326 and CHE 474 at SU, are thereby exempt from the requirement to take CHE 106/107 and CHE 116/117 (or their honors equivalents) for the biochemistry B.S. degree. *Note, however, that the resulting program may not include enough CHE courses to formally satisfy pre-med requirements of certain medical schools.*

² If both BIO 475 and CHE/BCM 477 are taken, one may count toward the 12-credit elective requirement, thereby also meeting the instructional lab requirement.

Elective Courses

(At least 12 credits, including at least one instructional lab indicated with an asterisk)²

- CHE 335: Chemical and Biochemical Analysis Lab (4)*
- CHE 346: Physical Chemistry I (3)
- CHE 356: Physical Chemistry II (3)
- BIO 409: Microbiology (4)*
- CHE 412: Metals in Medicine (3)
- BIO 422: Bioinformatics for Life Sciences w/Lab (3)*
- BIO 425: Cell and Development Biology Lab* (3)
- BCM 430: Journal Club in Molecular Pharmacology and Structural Biology (1)

Biochemistry B.S. degree - Elective Courses (continued)

- BIO 447: Immunobiology (3)
- BCM 460: Research in Biochemistry (3)³
- BIO 462: Molecular Genetics (3)
- BIO 463: Molecular Biotechnology Lab (4)*
- BIO 464: Applied Biotechnology Lab (4)*
- BIO 465: Molecular Biology Lab (3)*
- BCM 484/684: Biomolecular Modeling w/Lab (3)*
- BIO 501: Biology of Cancer (3)
- BIO 503: Developmental Biology (3)
- BIO 518: Endocrinology (3)
- CHE 546: Molecular Spectroscopy and Structure (1-3)
- CHE 575: Organic Spectroscopy (3)
- BIO 595: Molecular Biology and Evolution (3)
- BIO 622: Cell and Molecular Biology I (3)
- BIO 623: Cell and Molecular Biology II (3)

³ BCM 460 counts once (up to 3 credits) towards elective requirement, but does not count as an instructional lab course.

RECOMMENDED ELECTIVES

Preparation for Graduate School in a Dept. of Biology, Biochemistry, or Molecular Biology

- BIO 409: Microbiology
- CHE 412: Metals in Medicine
- BCM 430: Journal Club in Molecular Pharmacology and Structural Biology
- BIO 447: Immunobiology
- BCM 460: Research in Biochemistry³
- BIO 462: Molecular Genetics
- BIO 463: Molecular Biotechnology Lab
- BIO 464: Applied Biotechnology Lab
- BIO 465: Molecular Biology Lab
- BCM 484: Biomolecular Modeling
- BIO 501: Biology of Cancer
- BIO 503: Developmental Biology
- BIO 518: Endocrinology

Preparation for Health Professions (M.D., D.D.S., D.V.M.)

- BIO 409: Microbiology
- CHE 412: Metals in Medicine
- BIO 447: Immunobiology
- BCM 460: Research in Biochemistry³
- BIO 462: Molecular Genetics
- BIO 465: Molecular Biology Lab
- BIO 501: Biology of Cancer
- BIO 503: Developmental Biology
- BIO 518: Endocrinology

Biochemistry B.S. degree - Recommended Electives (continued)

Preparation for Graduate School in a Dept. of Chemistry

- ☐ CHE 335: Chemical and Biochemical Analysis Lab
- ☐ CHE 346: Physical Chemistry I
- ☐ CHE 356: Physical Chemistry II
- ☐ CHE 412: Metals in Medicine
- ☐ BCM 430: Journal Club in Molecular Pharmacology and Structural Biology
- ☐ BCM 460: Research in Biochemistry³
- ☐ BIO 465: Molecular Biology Lab
- ☐ BCM 484: Biomolecular Modeling
- ☐ CHE 546: Molecular Spectroscopy and Structure
- ☐ CHE 575: Organic Spectroscopy

Preparation for Technical Careers in Pharmaceutical or Biotechnical Industry

- ☐ CHE 335: Chemical and Biochemical Analysis Lab
- ☐ BIO 409: Microbiology
- ☐ BCM 430: Journal Club in Molecular Pharmacology and Structural Biology
- ☐ BIO 447: Immunobiology
- ☐ BCM 460: Research in Biochemistry³
- ☐ BIO 462: Molecular Genetics
- ☐ BIO 463: Molecular Biotechnology Lab
- ☐ BIO 464: Applied Biotechnology Lab
- ☐ BIO 465: Molecular Biology Lab
- ☐ BCM 484: Biomolecular Modeling
- ☐ BIO 501: Biology of Cancer
- ☐ BIO 503: Developmental Biology
- ☐ BIO 518: Endocrinology
- ☐ CHE 575: Organic Spectroscopy