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)
- 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