### B.S. DEGREE REQUIREMENTS FOR BIOCHEMISTRY

#### Core Courses
- BIO 121 or BIO 200: General Biology I/II (4)  
  or Advanced Placement Biology Credit (6)
- BIO 305: Integrative Biology Lab (3)
- CHE 106/107 or 109/129: General Chemistry I/Lab (4)\(^1\)
- CHE 116/117 or 119/139: 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 326: Genetics and Cell Biology I (3)
- BIO 327: Genetics and Cell Biology II (3)
- CHE 474: Structural and Physical Biochemistry (3)
- BIO 475 or CHE/BCM477: Biochemistry Lab* or Preparation and Analysis of Proteins and Nucleic Acids Lab (3)*,\(^2\)
- BIO 575: Biochemistry I (3)
- BIO 576: Biochemistry II (3)

#### 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)
- BIO 447: Immunobiology (3)
- BCM 460: Research in Biochemistry (3)\(^3\)
- 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

#### 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 Biochemistry\(^3\)
- 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

**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 Biochemistry\(^3\)
- BIO 465: Molecular Biology Lab
- BCM 484: Biomolecular Modeling
- CHE 546: Molecular Spectroscopy and Structure
- CHE 575: Organic Spectroscopy

**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 Biochemistry\(^3\)
- BIO 462: Molecular Genetics
- BIO 465: Molecular Biology Lab
- BIO 501: Biology of Cancer
- BIO 503: Developmental Biology

**Preparation for Technical Careers in Pharmaceutical or Biotechnical Industry**
- CHE 335: Chemical and Biochemical Analysis Lab
- 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 Biochemistry\(^3\)
- BIO 462: Molecular Genetics
- BIO 463: Molecular Biotechnology Lab
- BIO 464: Applied Biotechnology Lab
- BIO 465: Molecular Biology Lab
- BIO 501: Biology of Cancer

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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.

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

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[last updated: November 18, 2015]