Biochemistry is a discipline that encompasses both biology and chemistry. This rapidly expanding science focuses on the study of the molecular aspects of living organisms. The tools and concepts of biochemistry are important as a foundation for careers in many areas of research and in medicine. Students considering a BA or BS degree in biochemistry should consult a biochemistry advisor for specific information regarding the program. This major is appropriate for students in pre-professional programs such as pre-dental, pre-medical, and pre-pharmacy programs.

Academic Map/Degree Plan at www.mnsu.edu/programs/#All

Accreditation. The BS Biochemistry program is accredited by the American Society for Biochemistry and Molecular Biology (ASBMB) and offers an ASBMB certified BS degree.

POLICIES/INFORMATION
The first year of coursework for biochemistry majors should include two semesters of chemistry (CHEM 201, CHEM 202), MATH and at least one semester of Biology (BIOC 105). Organic Chemistry should be taken during the second year.

Admission to Major. Admission to a program is necessary before a student can enroll in 300-and 400-level courses. To be eligible for admission to the biochemistry program a student must have declared biochemistry as a first major, completed 32 credits, including BIOC 105 and BIOC 106 as well as CHEM 201 and CHEM 202 and achieved a minimum grade point average of 2.0. Students also have an assigned biochemistry advisor with whom they have discussed the program.

GPA Policy. Students obtaining a major in biochemistry must maintain an overall GPA of 2.2 in all courses required for their selected program with no more than 4 credits of “D” work in chemistry or biochemistry courses.

Students must meet a residency requirement. This means that all students who wish to receive either the Biochemistry BA or the Biochemistry BS from Minnesota State Mankato must complete the biochemistry sequence which consists of CHEM 460, CHEM 461, CHEM 465 and CHEM 466 at Minnesota State Mankato. It is important that this sequence be taken during the third (junior) year for all majors.

Students who complete the requirements for the Biochemistry BS must submit a comprehensive research report in conjunction with completion of CHEM 498. Students are encouraged to contact Professor Moen for details regarding the research report prior to the enrolling in CHEM 498.

P/N Grading Policy. Courses leading to a major or minor in chemistry or biochemistry may not be taken on a P/N basis, except where P/N grading is mandatory.

The department is recognized by the American Chemical Society and offers a BS (Chemistry) major that is approved by that organization. The BS Biochemistry program follows the ASBMB recommended curriculum for a biochemistry and molecular biology undergraduate major. Anyone considering a biochemistry major should choose a biochemist as an advisor and consult that advisor often throughout the course of study.

BIOCHEMISTRY BA AND BS

- BIOCHEMISTRY BA
  - Degree Completion = 120 Credits

- BIOCHEMISTRY BS
  - Degree Completion = 120 Credits

Required General Education
- BIOC 105 General Biology I [4]
- CHEM 201 General Chemistry I [5]

Major Common Core
- BIOC 106 General Biology II [4]
- BIOC 211 Genetics [4]
- BIOC 270 Microbiology [4]
- BIOC 479 Molecular Biology [4]
- CHEM 202 General Chemistry II [5]
- CHEM 305 Analytical Chemistry [4]
- CHEM 324 Organic Chemistry II [3]
- CHEM 325 Organic Chemistry Lab [1]
- CHEM 340 Quantitative Skills for Chemistry and Biochemistry I [1]
- CHEM 460 Biochemistry I [3]
- CHEM 461 Biochemistry II [3]
- CHEM 465 Biochemical Techniques I [2]
- CHEM 465W Biochemical Techniques I Lab [2]
- CHEM 474 Chromatography [2]

Capstone
- CHEM 494 Biochemistry Capstone Experience [1]
- CHEM 495 Senior Seminar [1]

Major Restricted Electives
- Upper Division Electives
- Choose a minimum of 9 credits of upper division electives from either BIOC or CHEM courses. These electives must be approved by the Biochemistry Advisor.
- Courses used in the core cannot count as electives.

- BIOC 300 - BIOC 499
- CHEM 300 - CHEM 499

Other Graduation Requirements
- Choose at least 2 additional upper division credits to meet graduation requirements.

Required for Bachelor of Arts (BA) degree ONLY: Language (8 credits)

Required Minor: None.
Major Restricted Electives
Upper Division Electives
Choose a minimum of 7 credits from upper division Biology and Chemistry courses with approval from a Biochemistry advisor. Courses used in the core cannot count as electives.

BIOL 300 - BIOL 499
CHEM 300 - BIOL 499

PHYS (choose 8 credits from either the Principles of Physics sequence or the General Physics courses noted below)

PHYS 211 Principles of Physics I (4)
PHYS 212 Principles of Physics II (4)
PHYS 221 General Physics I (4)
PHYS 223 General Physics III (3)
PHYS 233 General Physics III Laboratory (1)

Required Minor: None.