A. Course Description

Credits: 5

Prerequisites:

- BIOL 111 General Biology I AND
- BIOL 112 General Biology II AND
- CHEM 111 General Chemistry I AND
- CHEM 112 General Chemistry II AND
- MATH 115 College Algebra

OR

- BIOL 111 General Biology I AND
- BIOL 112 General Biology II AND
- CHEM 111 General Chemistry I AND
- CHEM 112 General Chemistry II AND
- MATH 120 Precalculus

Lab Hours/ Weeks: Corequisites: None

Lecture Hours/ Week :

MnTC Goals: None

This course covers life in terms of molecules, cells, tissues, and organs, integrating these levels of complexity and focusing on the underlying molecular and cellular mechanisms of biological function. Topics include membrane structure and function, trafficking of molecules, the endomembrane system signal transduction pathways, extracellular matrix, and the cell cytoskeleton. Laboratory includes descriptive histology of animal tissues. Intended for biology and life sciences teaching majors.


C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Demonstrate quantitative reasoning skills and competency with arithmetic, algebra, and statistics at a level appropriate for graduates of a bachelor’s degree program in biology.
2. Explain and apply scientific knowledge in cell biology and histology, both theoretical and experimental, at the upper division level.
3. Properly conduct supervised independent laboratory research at the senior undergraduate level.
4. Read and interpret primary scientific literature in cell biology.
5. Recall, explain and apply the concepts, knowledge and vocabulary of cell biology at the level necessary for success in graduate study in this field.

E. Learning Outcomes (MN Transfer Curriculum)

This contains no goal areas.

G. Special Information

Note: Enrollment limited to Biology and Life Science Teaching majors or Biochemistry only, except by instructor permission. First day attendance required except by instructor permission.