Faculty members are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Academic Affairs and Standards Council.

DEPT. Biology COURSE NUMBER: 1110

NUMBER OF CREDITS: 4 Lecture: 3 Lab: 1

| Course Title: |
| Principles of Biology I |

| Catalog Description: |
| Principles of Biology I investigates fundamental principles of biology with special emphasis on the composition of living things and living systems, the chemistry of living things, natural selection, cell biology, metabolism emphasizing bioenergetics and biosynthesis, the cell cycle, and genetics. Prerequisite: STSK 0090 or evidence of college level reading ability through assessment test or prior college coursework. |

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)

Goal 1: Communication: by meeting the following competencies:

Goal 2: Critical Thinking: by meeting the following competencies:

Goal 3: Natural Sciences: X by meeting the following competencies:
- Demonstrate understanding of scientific theories.
- Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
- Communicate their experimental findings, analyses, and interpretations both orally and in writing.
- Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

Goal 4: Mathematics/Logical Reasoning: by meeting the following competencies:

Goal 5: History and the Social and Behavioral Sciences: by meeting the following competencies:

Goal 6: The Humanities and Fine Arts: by meeting the following competencies:
Goal 7: Human Diversity: _____ by meeting the following competencies:

Goal 8: Global Perspective: _____ by meeting the following competencies:

Goal 9: Ethical and Civic Responsibility: _____ by meeting the following competencies:

Goal 10: People and the Environment: _____ by meeting the following competencies:

**Prerequisites or Necessary Entry Skills/Knowledge:**
Prerequisite: STSK 0090 or evidence of college level reading ability through assessment test or prior college coursework.

**Topics to be Covered (General)**
- Characteristics of Life
- Chemistry of living things
- Cell structure and function
- Biological Membranes
- Tissues form and function
- Energy and Metabolism
- Cellular respiration
- DNA replication
- Transcription and translation
- Mitosis/meiosis
- Patterns of inheritance
- Mendelian genetics
- Human Genetics/Genome
- Evolution
- Taxonomy

**Student Learning Outcomes**
1. Identify organic molecules and their function.
2. Describe and illustrate different types of cells, list the organelles, and summarize their functions.
3. Identify the different types of tissues and describe their functions.
4. Illustrate and explain cellular respiration.
5. Summarize the processes of DNA replication, transcription and translation.
6. Compare and contrast the phases of mitosis and meiosis and outline the details of each phase.
7. Demonstrate various patterns of inheritance and apply that knowledge to the human genome.
8. Examine the theory of evolution.
9. Classify organisms by utilizing binomial nomenclature.

**Is this course part of a transfer pathway:** Yes [ ] No [x]