A. Course Description

Credits: 4

Prerequisites:

- BIOL 111 General Biology I AND
- MATH 115 College Algebra

OR

- BIOL 111 General Biology I AND
- MATH 120 Precalculus or above College Algebra on the university's assessment tests.

Lab Hours/ Weeks: Corequisites: None

Lecture Hours/ Week:

MnTC Goals: None

This course provides a thorough major's level introduction to genetics and heredity. It will cover the fundamentals of genetic information, its transmission from parents to offspring [heredity], its phenotypic and molecular expression in cells and organisms, replication and repair of genetic material within a cell, and its population impacts. Also included are the modern techniques of genetics including: gene mapping, cloning, genome manipulation and mutation. Knowledge of species' genomes, their genes, their inheritance, and how genes impact individuals and/or populations has rapidly become an integral part of almost every aspect of biology. From public health to ecology - genetics touches all.

B. Course Effective Dates: 05/03/2017 - Present

C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Develop an accurate exposition of the fundamental principles of genetics; with an emphasis on the development of the genome, the genes themselves, their inheritance patterns, gene mapping, molecular mechanisms operating on genetic traits, mutation mechanisms and repair, quantitative and population genetics.
2. Develop the skills of pedigree analysis and mapping computation.
3. Gain an in-depth knowledge by reading and interpreting primary scientific literature of a genetic field of research.
4. Provide a framework for understanding the broader field of genetics.
5. Recall, explain and apply the concepts, knowledge and vocabulary of genetics at the level necessary for success in upper division study in biology and related fields.

E. Learning Outcomes (MN Transfer Curriculum)

This contains no goal areas.

G. Special Information

Note: First day attendance required except by instructor permission.