

LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

SPECIAL NOTE:

This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):

Please check with the LCC bookstore <http://www.labette.edu/bookstore> for the required texts for this class.

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| <u>COURSE NUMBER:</u> | BIOL 108 |
| <u>COURSE TITLE:</u> | PRINCIPLES and CONCEPTS of GENETICS |
| <u>SEMESTER CREDIT HOURS:</u> | 3 |
| <u>DEPARTMENT:</u> | Biology |
| <u>DIVISION:</u> | General Education |
| <u>PLACEMENT TEST LEVEL:</u> | General Education Course Placement |
| <u>PREREQUISITE:</u> | None |

COURSE DESCRIPTION:

Genetics, Principles and Concepts is a course designed to study the patterns and mechanisms of classical inheritance, molecules basis of inheritance and gene expression, DNA technologies, gene expression, cancer genetics and population genetics and evolution.

COURSE OUTCOMES AND COMPETENCIES:

Students who successfully complete this course will be able to:

1. Describe the mendelian genetics, genetics linkage, mitosis and meiosis, sex linkage and mendelian patterns of inheritance.

- Understand the modern history of genetics.
- Understand the segregation, independent assortment.
- Analyze probability.
- Understand multiple alleles.

2. Describe the linkage, crossing over and recombination.

- Understand linkage and crossing over.
- Understand the recombination.

3. Understand the molecular basis of inheritance and gene expression.

- Understand DNA structure and chromosome.
- Explain the changes in chromosome.
- Understand DNA replication.
- Describe transcription and translation.

4. Describe recombinant DNA technology.

- Describe cloning DNA.
- Understand cloning eukaryotic genes.
- Understand human gene therapy.

5. Describe the genetics of bacteria and bacteriophages.

- Understand the bacteria and bacteriophages in genetic research.
- Describe the morphological characteristics.
- Understand the transformation, conjugation and transduction.
- Describe the operon model.

6. Describe DNA mutation, repair and transposition.

- Understand mutation.
- Describe mutagenesis and origin of mutation.
- Understand the physiological roles of mitochondria and chloroplasts.
- Describe the drosophila embryonal development and sex determination.
- Understand programmed cell death in development.
- Understand cancer genetics.
- Describe the population genetics.