

**WILMINGTON UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
BASIC COURSE INFORMATION**

COURSE NUMBER	BIO 251
COURSE TITLE	Biology I (With Lab)
CREDITS	4
PREREQUISITE	None

FACULTY MEMBER

TERM

METHOD OF CONTACT/ OFFICE HOURS

COURSE TIME BREAKDOWN

64 Hours of Structured Learning Activities

TEXTBOOKS

*A list of course textbooks are available on the Wilmington University Bookstore website:

<http://bookstore.wilmu.edu/>

COURSE DESCRIPTION:

This course is the first part of a two part introductory Biology course designed for those intending to major in the Natural Sciences. Living organisms will be studied on a molecular and cellular level. Emphasis will be placed on the chemistry of biological molecules, structure and function of cells and their components, genetic patterns of inheritance, flow of genetic information and biotechnology.

COURSE OBJECTIVES:

This course will provide students with the knowledge and skills to:

1. Demonstrate proper and safe use of the biology laboratory.
2. Conduct inquiry based investigations involving experimental design, data collection and analysis and reporting of results.
3. Describe the structure of biological polymers and analyze data to determine the effect of structure on function.
4. Describe the structure and function of cell organelles and membranes including the movement of molecules across membranes in order to maintain homeostasis.
5. Identify mechanisms and structural features of cells that allow organisms to capture, store and use free energy.
6. Model the transmission of genetic material to the next generation in order to create either identical cells or genetic variation.
7. Identify Mendelian and Non-Mendelian patterns of inheritance using data sets and predict the inheritance of traits in future generations.
8. Model the transfer of genetic information from DNA and RNA to a protein and explain how gene expression is regulated and can be altered to affect the organism.
9. Explain the transfer of genetic information in viruses and bacteria.

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10. Describe the techniques used to manipulate genetic material in order to understand the importance of biotechnology to humankind.

Lab Requirements:

For face to face courses only: Safety goggles and nitrile gloves will be provided by Wilmington University. All persons in the lab are required to wear closed toed, non-perforated shoes and personal protective equipment. Long hair needs to be tied back. Students who are not dressed appropriately will not be allowed to participate in that day's laboratory activity, will be asked to leave, and will not have the opportunity to make up the experiment. Before any lab work can be performed, students will sign a contract confirming that they understand and will follow all safety rules, including waste handling and other important protocols. Any student found performing unauthorized experiments, failing to respond to instructions in a timely fashion, or behaving in an unsafe mann uns