

Fond du Lac Tribal and Community College  
**COURSE OUTLINE**

## I. Catalog Information

A. Title of Course: Introduction to Forensic Biology B. Course Designator: BIOL 1011

C. Number of Credits: Lecture 3 Lab 1 D. Control Number: 48 Lec/24 Lab

E. Catalog/Course description:

This course provides an introduction to the science of biology with a forensic biology theme. The course covers concepts in human biology, cell biology, and molecular biology and their applications to forensic biology. This course is intended for people contemplating the pursuit of more advanced courses in biology, forensic science, or law enforcement. (Meets MnTC goal area 3).

**F. Course prerequisites:** None

G. Date Approved: 05/06/11  
Date Revised: 08/28/19

**II. Course Materials** (Recommended course materials and resources. List all that apply, e.g. textbooks, workbooks, study guides, lab manuals, videos, guest lecturers)

Course materials including reference materials and resources will be selected by faculty based on relevance to the study of biological forensics and course objectives.

### Potential Texts Include:

- Fundamentals of Forensic Science, by Max Houck and Jay Siegel, published by Academic Press. Elsevier, ISBN 0-12-3567792-9
  - Essential Forensic Biology, by Alan Gunn, published by John Wiley & Sons, ISBN 13-978-0470-01276-2

#### Other course materials:

- Case studies will be an important part of this course. The class will use cases from the National Center for Case Study Teaching in Science Case Collection.  
<http://sciencecases.lib.buffalo.edu/cs/collection/> and other sources.
  - Many of the lab activities will be based on exercises available from Carolina Biological Supply (Forensics in the Biology Laboratory).
  - Free online Biology Text available at:  
<http://www.emc.maricopa.edu/faculty/farabee/BIOBK/BioBookTOC.html>

### **III. Learning Goals, Outcomes, and Assessment**

At FDLTCC we have four Competencies Across the Curriculum (CAC). These comprise our general education outcomes for students at our college. The four areas include:

- A. Information Literacy (the ability to use print and/or non-print tools effectively for the discovery, acquisition, and evaluation of information.)
  - B. Ability to Communicate (the ability to listen, read, comprehend, and/or deliver information in a variety of formats.)
  - C. Problem Solving (the ability to conceptualize, apply, analyze, synthesize, and/or evaluate information to formulate and solve problems.)

D. Culture (knowledge of Anishinaabe traditions and culture, knowledge of one's own traditions and culture, knowledge of others' traditions and cultures, and/or respect for global diversity.)

*Course learning outcomes will fulfill the identified competencies.*

Course Learning Outcomes:

Upon completion of this course, students will be able to:

1. Describe the stages of decomposition of a body. (A, C)
2. Determine the character of body fluids including blood. (A, C)
3. Explain how molecular biology contributes to forensic investigations. (A, C)
4. Summarize the role that insects play in forensic biology. (A, C)
5. Describe the role of plants in forensic science. (A, C)
6. Discuss the importance of bacteria and viruses in forensic cases. (A, C)

Documentation for MnTC

Goal 3: Natural Sciences

The following Natural Science Student Competencies addressed in this course:

- a) Students will demonstrate an understanding of theories.
  - Competency will be addressed by Problem Solving Outcome #2.
- b) Students will formulate and test hypotheses.
  - Competency will be addressed by Problem Solving Outcome #1.
- c) Students will communicate their experimental findings, analyses, and interpretations both orally and in writing.
  - Competency will be addressed by Communication Outcome #2.
- d) Students will evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.
  - This competency will be addressed by Ability to Communicate Outcome #2 and Cultural Outcome #1.

**IV. Course Content** (Outline the major topics covered in this course.)

- Scientific Method of Investigation
- Structure and Function of Organic Molecules
- Cell Theory, Cell Structure and Function, Cell Reproduction
- Animal Form and Function including: Blood, tissues, organs, organ systems, and the organism
- Molecular Biology
- Genetic Engineering
- Forensic Entomology
- Pathology
- Biology of DNA/Protein Synthesis/Genetic expression
- Microscopy, Electrophoresis, chromatography, DNA Fingerprinting
- Pathology

(revised October 2009)