

Fond du Lac Tribal and Community College
COURSE OUTLINE FORM

Updated 01/21/16

Please return this form to the college vice president of academic affairs and the chairperson of the Academic Affairs and Standards Council (AASC)

1. Prepared by: _____

2. Date submitted: _____

3. Date approved: 2/4/16 Date revised 1/31/2020

4. Department/discipline: Science

5. Department(s) endorsement(s): _____

(Signatures of the person(s) providing the endorsement are required.)

6. Course Title: Investigative Science I

Abbreviated course title (25 characters or less): _____

7. Course Designator: SCI 8. Course Level: 1280

9. Number of Credits: Lecture 3 Lab 1

10. Control Number (on site) 24 Control Number (online) _____

11. Catalog/Course description:

This course is an introduction to the science areas of: life, biology, and engineering for the aspiring elementary education teachers. Basic concepts in chemistry, technology and biology will be covered with an emphasis on the scientific methods, inquiry based with hands on exercises in a lab setting. Anishinaabe aspects of science will be explored. Lecture and lab.

12. Course prerequisite(s) or co-requisite(s): Accuplacer scores/ Other courses

Prerequisite(s):

Co-requisite:

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

Appropriate textbook and other materials including laboratory manual to be decided by instructor or Biology department.

14. **Course Content** (Provide an outline of major topics covered in course)

Understandings about science
Scientific inquiry and investigation
Understandings about engineering
Engineering design
Careers and contributions in science and engineering
Mutual influence of science, engineering and society
The role of mathematics and technology in science and engineering
Levels of organization in biology
Cells

Ecosystems
Flow of energy and matter
Biological reproduction
Genetic variation
Biological evolution
Interactions with the environment
Health and disease

15. Learning Goals, Outcomes, and Assessment

At FDLTCC we have 4 Competencies Across the Curriculum (CAC) areas. They are as follows:

- 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, culture of work, culture of academic disciplines and/or respect for global diversity.)

Course Learning Outcomes will fulfill the identified competencies.

Course Learning Outcomes.

Upon completion of this course, the student will be able to:

- 1. Generate a scientific question and plan an appropriate scientific investigation to answer that question. (B, C)
- 2. Describe how science and engineering influence and are influenced by local traditions and beliefs. (B, D)
- 3. Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system. (B, C)
- 4. Recognize that cells carry out life functions, and that these functions are carried out in a similar way in all organisms, including animals, plants, fungi, bacteria, and protists. (B, C)

16. Minnesota Transfer Curriculum (MnTC): If this course fulfills an MnTC goal area, state the goal area and list the goals and outcomes below:

See www.mntransfer.org

Goal Area(s): 3

Goal 3: Natural Sciences

Goal and Outcomes:

Goal:

Improve students' understanding of natural science principles and of the methods of scientific inquiry.

Outcomes:

Demonstrate understanding of scientific theories.

Formulate and test hypotheses by performing laboratory experiments.

Communicate their experimental findings, analyses, and interpretations both orally and in writing.

Evaluate life science issues from a societal and cultural perspective and ask questions about evidence presented.

Attachment A:

Minnesota Board of Teaching Learning Standards: 8710.3200 Subject Matter standards:

- **8710.3200 Subject Matter standards:**
 - **J:** A teacher of children in kindergarten through grade 6 must demonstrate a fundamental knowledge of scientific perspectives, scientific connections, science in personal and social perspectives, the domains of science, and the methods and materials for teaching science and scientific inquiry. The teacher must:
 - **J2:** know and apply the understandings and abilities of scientific inquiry including the ability to:
 - **J2c:** use appropriate scientific instrumentation and equipment and mathematics as tools to improve scientific investigations and communications;
 - **J2e:** evaluate alternative explanations and models based on evidence, current scientific understanding, and logic.
 - **J2f:** communicate and defend a scientific argument.
 - **J3:** know how to make connections across the domains of science, between science and technology, and between science and other school subjects;
 - **J6:** know and apply the fundamental concepts and principles of life science concerning the characteristics of organisms, the life cycle of organisms, the interrelationships of organisms and environments, structure and function in living systems, reproduction and heredity, regulation and behavior, populations and ecosystems and their interrelationships, and diversity and adaptations of organisms;