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: ___3/3/16___ 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 II___________________________
Abbreviated course title (25 characters or less): _______________________________

7. Course Designator: __SCI____ 8. Course Level: 1285

9. Number of Credits: Lecture ___3___ Lab ___1___

10. Control Number (on site) ___24___ Control Number (online) ____________

11. Catalog/Course description:

   An exploration of fundamental concepts in Earth and Space Science (chemistry and physics) through inquiry-based, hands-on exercises including the preparation and proper use of equipment and supplies in Earth science laboratory. Emphasis will be placed on science education principles and connections to state and national science education standards. This course will incorporate the Anishinaabe perspective throughout the course. (Meets MnTC goal area 3).

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 Science department.

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

   Careers and contributions in physical sciences and engineering
   Technology in the Earth and Space sciences
   Properties of light and the electromagnetic spectrum
   Energy and matter
   Rocks and minerals – identification, classification and processes
   The structure of the Earth
   Plate tectonics
Weather and climate
Landforms
The Solar System
Life in the Universe
Interactions between humans and the environment
Inclusion of the Anishinaabe perspective of science

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. Apply the scientific method to laboratory activities. (B, C)
2. Describe processes that shape the Earth. (B, C)
3. Describe the motions of bodies in the Solar System (B, C)
4. Identify examples of indigenous Earth System and Space Science knowledge. (B, C, D)
5. Perform measurements in Earth science (such as atmospheric conditions) and convey the results of such measurements. (A, B, C)
6. Interpret information provided in maps. (A, 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 Area 3: Natural Science

Goals & Outcomes
Goal:
Improve students’ understanding of Earth system 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 Earth system science issues from a societal and cultural perspective and ask questions about evidence presented.

Does this course require additional material for specific program requirements? If yes, please provide.

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:
      - J2e: 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.
    - J5: know and apply the fundamental concepts and principles of physical science concerning properties of and changes in matter; position, motion, and force; light, heat, electricity, and magnetism; and kinds of and ways to transfer energy.
    - J7: know and apply the fundamental concepts and principles of earth and space science concerning properties of earth materials; objects in the sky; changes in earth and sky; structure of the earth system, including hydrosphere, biosphere, atmosphere, and lithosphere; history of the earth; and earth in the solar system.