

Fond du Lac Tribal and Community College
COURSE OUTLINE FORM

03/19/19

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: 03/09/07 Date revised 5/6/25

4. Department/discipline: Mathematics

5. Department(s) endorsement(s): _____
(Signatures of the person(s) providing the endorsement are required.)

6. Course Title: Introduction to Contemporary Mathematics
Abbreviated course title for Transcripts (25 characters or less): _____

7. Course Designator: MATH 8. Course Level: 1025

9. Number of Credits: Lecture 3 Lab _____

10. Control Number (on site) 30 Control Number (online) _____

11. Catalog/Course description:

This course is designed for students not pursuing a math or science major. The emphasis is on developing quantitative skills that can analyze a variety of practical applications. The main topics include set theory, logic, network analysis, algebra, geometry, trigonometry, statistics, and finance.

12. Course prerequisite(s) or co-requisite(s):

Prerequisite(s): Course placement determined by Multiple Measures

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).

Instructor choice

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

1. Basic Concepts of Set Theory: Venn diagrams
2. Introduction to logic
3. Basic concepts of algebra
4. Graphing
5. Geometry
6. Personal financial management
7. Statistics
8. Trigonometry

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.)

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

Learning Outcomes	Competencies (CAC)	Cultural Standards
1. Apply operations on sets and Venn diagrams, area, perimeter, surface area and volume formulas to 2-D and 3-D figures.	C	
2. Solve applications using set theory, linear equations, and percents.	C	1
3. Analyze arguments using Euler diagrams and truth tables.	C	4,5
4. Graph points, lines and circles on the Cartesian coordinate system.	C	
5. Solve right triangle problems using trigonometry.	C	
6. Find measures of central tendency, variation and position on a data set.	C	

WINHEC Cultural Standards:

1. **GIKENDAASOWIN – *Knowing knowledge*:** To develop human beings who value knowledge, learning, and critical thinking and are able to effectively use the language, knowledge, and skills central to an Ojibwe-Anishinaabe way of knowing.
2. **GWAYAKWAADIZIWIN – *Living a balanced way*:** To develop balanced human beings who are reflective, informed learners who understand the interrelatedness of human society and the natural environment, recognize the importance of living in harmony with creation, and are able to apply a systems approach to understanding and deciding on a course of action.
3. **ZOONGIDE'EWIN – *Strong hearted*:** To increase the students' capacity to live and walk with a strong heart, humble and open to new ideas and courageous enough to confront the accepted truths of history and society.

4. **AANGWAAMIZIWIN – *Diligence and caution*:** To develop students' capacity to proceed carefully, after identifying, discussing, and reflecting on the logical and ethical dimensions of political, social, and personal life.
5. **DEBWEWIN – *Honesty and integrity*:** To increase students' capacity to think and act with honesty and integrity as they understand and face the realities of increasingly interdependent nations and people.
6. **ZAAGI' IDIWIN – *Loving and Caring*:** To encourage students' acceptance of the diversity within their school, community, and environment by developing healthy, caring relationships built on respect for all.
7. **ZHAWENINDIWIN – *Compassion*:** To expand students' knowledge of the human condition and human cultures and the importance of compassion especially in relation to behavior, ideas, and values expressed in the works of human imagination and thought.

16. **Minnesota Transfer Curriculum (MnTC):** List which goal area(s) – up to two – this course fulfills.

See www.mntransfer.org

Goal Area(s): 4

Goal Area 4: Mathematical/Logic & Reasoning

Goal: To increase students' knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. Students will learn to apply mathematics, logic, and/or statistics to help them make decisions in their lives and careers. Minnesota's public higher education systems have agreed that developmental mathematics includes the first three years of a high school mathematics sequence through intermediate algebra.

Students will be able to:

- Illustrate historical and contemporary applications of mathematics/logical systems.
- Clearly express mathematical/logical ideas in writing.
- Explain what constitutes a valid mathematical/logical argument (proof).
- Apply higher-order problem-solving and/or modeling strategies.

Attachment A:

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

- **H1: Concepts of mathematical patterns, relations, and functions, including the importance of number and geometric patterns in mathematics and the importance of the educational link between primary school activities with patterns and the later conceptual development of important ideas related to functions and be able to:**
 - **H1a**: identify and justify observed patterns;
 - **H1b**: generate patterns to demonstrate a variety of relationships;
 - **H1c**: relate patterns in one strand of mathematics to patterns across the discipline.
 - **H2: Relate patterns in one strand of mathematics to patterns across the discipline**
 - **H2a**: concepts and techniques of discrete mathematics and how to use them to solve problems from areas including graph theory, combinatorics, and recursion and know how to
 - **H2b**: help students investigate situations that involve counting finite sets, calculating probabilities, tracing paths in network graphs, and analyzing iterative procedures

- **H4: Understand the relationships of integers and their properties that can be explored and generalized to other mathematical domains;**
- **H4a**: concepts of space and shape:
- **H4b**: understand the properties and relationships of geometric figures
- **H7: The role of randomness and sampling in experimental studies;**
- **H7a**: mathematical processes
- **H7b**: know how to reason mathematically, solve problems, and communicate mathematics effectively at different levels of formality
- **H7c**: understand the connections among mathematical concepts and procedures, as well as their application to the real world
- **H7d**: understand the relationship between mathematics and other fields

17. Are there any additional licensing/certification requirements involved?

_____Yes X No

Provide the required documentation to show course meets required licensing/certification standards.

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