# Fond du Lac Tribal and Community College
## COURSE OUTLINE FORM

**Updated 11/25/14**

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: ___Fall 1997___   Date revised ___05/13/15___

**4. Department/discipline:** ___Mathematics_____

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

6. Course Title: ___Calculus I_____
Abbreviated course title (25 characters or less):_____

7. Course Designator:__MATH_____   8. Course Level: 2001

9. Number of Credits: Lecture _____5_____   Lab _____

10. Control Number (on site)___35_____   Control Number (online)_____

11. Catalog/Course description:

> The two semester calculus sequence is designed for mathematics, computer science, engineering, and natural sciences majors. An introduction to basic differential and integral calculus: limits, derivatives & applications, integration & applications. (Prerequisite: MATH 1010 and MATH 1015 OR placement by Accuplacer OR instructor permission) (Meets MnTC goal area 4).

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

> Prerequisite(s): MATH 1010 College Algebra and MATH 1015 Trigonometry OR placement by Accuplacer OR instructor permission.

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).

> 1) textbook: Calculus by Thomas or Stewart are suitable choices.
> 2) graphing calculator

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

> 1. Review of algebra, review of trigonometry.
> 2. Limits and difference quotients.
> 3. Definition of the derivative, techniques.
> 4. Applications of the derivative.
> 5. Fundamental theorem of calculus and introduction to techniques.
> 6. Applications of integration.

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. Define the derivative of a function as a limit of its difference quotient, and compute derivatives of simple functions analytically using the limit definition.
2. Solve applied problems using properties of the derivative to find the maximum and minimum of functions.
3. Solve geometric problems of planar area, curve length, surface area, and volume defined by integrable functions.
4. Apply the fundamental theorem of calculus to problems in physics, economics, and other fields.
5. Solve separable and first order differential equations.
6. Employ numerical methods for integration.

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):＿＿4＿＿
Goal 4: Mathematical/Logical Reasoning