



MA 16500 Course Syllabus

Course Title: Analytic Geometry and Calculus I

Instructor Email: _____

Course Number: MA 16500

Office Hours: MTWRF 9:00-9:30

Instructor Name: _____

Office Location: _____

Last Updated: Fall 2026

Course Description:

Introduction to differential and integral calculus of one variable, with applications. Conic sections.

Course Prerequisites:

MA 15400 with a grade of C- or higher or permission of the instructor.

Course Access:

The Learning Management System used for this course will be Google Classroom.

Course Goals:

This course is designed to develop your ability to interpret and employ limits, derivatives, and integrals to model real-world phenomena, analyze the behavior of functions, and solve applied problems. Through this process, you will strengthen your problem-solving skills, think critically, and prepare for continued study in mathematics, science, and engineering.

Indiana College Core Area 3 Quantitative Reasoning Competencies

- 3.1. Interpret information that has been presented in mathematical form*.
- 3.2. Represent information/data in mathematical form* as appropriate
*mathematical form = functions, equations, graphs, diagrams, tables, words, and geometric figures.
- 3.3. Demonstrate skill in carrying out mathematical (e.g. algebraic, geometric, logical, statistical) procedures flexibly, accurately, and efficiently to solve problems.
- 3.4. Analyze mathematical arguments, determining whether stated conclusions can be inferred.
- 3.5. Communicate which assumptions have been made in the solution process.
- 3.6. Analyze mathematical results in order to determine the reasonableness of the solution.
- 3.7. Cite the limitations of the process where applicable. Communication
- 3.8. Clearly explain the representation, solution, and interpretation of the math problem.

Student Learning Objectives:

Limits and Continuity: Students should understand limits from multiple perspectives (graphically, numerically, algebraically and verbally) and be able to evaluate limits at points or at infinity. Students should also understand the concept of continuity, be able to determine where a function is continuous or discontinuous, and be able to apply continuity theorems.

Derivatives: Students should understand derivatives from multiple perspectives (geometrically, numerically and analytically). They should be able to find the derivatives of algebraic, trigonometric, and exponential functions using the limit definition of derivative. They should be able find the derivatives of sums, differences, products, quotients, and compositions of functions using derivative formulas. They should know when and how to apply the techniques of implicit and logarithmic differentiation. They should be able to find the derivatives of exponential functions, trigonometric functions, logarithms, and other inverse functions.

Applications of Differentiation: Students should learn how to determine the extreme values of functions and how to investigate the shape of curves using the derivative. They learn how to use the theory to solve applied optimization problems. They use Newton's Method, and learn the basic properties of antiderivatives.

Integrals: Students should know and understand the definition of the definite integral using Riemann sums. They should understand the relationship between the definite integral and area; understand and use the basic properties of the definite and indefinite integral and the Fundamental Theorem of Calculus.

In addition to the above, see also the Indiana Academic Mathematics Standards for Calculus listed [here](#).

Learning Resources & Texts

- **Required Textbook:** Calculus for AP with CalcChat and CalcView 2e by Ron Larson, Paul Battaglia
- **Graphing Calculator:** TI-84 Plus or TI-84 Plus CE is recommended (other models are permitted, but the student is responsible for knowing how to use them)

Assignments

Grades will be calculated by cumulative points earned from homework, mastery check, quizzes and tests.

Grading Scale:

A+ 100%
A 90-99%
B 80-89%
C 70-79%
D 60-69%
F Below 60%

Course Evaluation:

Students will be provided a link through their email or LMS. This link will be to a form created and managed by the Collegiate Connection office, all data collected is anonymous and will be shared with instructors and their departments at the end of the school year.

Academic Misconduct / Plagiarism / AI:

Academic Misconduct, including plagiarism (using other people's ideas/words and not giving them credit thus implying the work is your own original work) or using your own work from a previous course without the express permission of the instructor, is taken very seriously at any learning institution. It is taken very seriously in this class. Please be aware of what behaviors constitute academic misconduct ([See Bulletin, Code of Students Rights, Responsibilities and Conduct Part II. A.](#)) If caught cheating or plagiarizing, a student may receive no credit on the assignment and may result in an F for the course. Any instances of academic dishonesty will be reported to the Office of Student Conduct and Care and your Department Chair and may result in expulsion from the University. Additional potential consequences can be found under: potential consequences (See Bulletin, [Code of Students Rights, Responsibilities and Conduct, Part III. A.](#): i.e., failure of the assignment, failure of the course and/or dismissal from the university) of such behavior.

The use of AI-driven tools should not be used to replace learning or problem solving, but instead may be used to help guide or provide direction on how to complete a problem. Be aware that AI does not consistently provide accurate responses.

Academic honesty is expected of all students. You are responsible for knowing how to maintain academic honesty and for abstaining from cheating, the appearance of cheating, or assisting in another's cheating.

Student Support Services

Purdue University Fort Wayne is committed to your academic and personal success. Visit the [Student Support Services](#) page for a list of student support services, including academic services, technology services, health and wellness, and support from administrative offices. For help with technology, including Brightspace, visit the [IT Services Student Technology Support](#) page.

If you observe and/or are made aware of student behavior that leaves you feeling concerned, worried, and/or alarmed, trust your instincts and say something. The CARE Team can assist with the student of concern, whether that's you or someone you are referring. Report the concern through the online CARE referral form. Please note that this form is not for emergencies. If you know of a student who is injured, is injuring themselves or others, or is threatening injuries to themselves or others, please call 911 immediately.

Your emotional wellness and mental health are important. If you have a mental health disorder, are struggling with your mental health, your stress overwhelms your ability to cope with it, or you find yourself needing emotional support, please talk to someone. If you or someone you know is in a mental health crisis situation, call 911 or go to the local emergency room. Otherwise, please reach out to our Center for Student Counseling (CSC). All currently enrolled PFW and IUFW students have access to free counseling at the center. To make an appointment to talk with a counselor call 260-481-6200 or email csc@pfw.edu.

Course Schedule

Tentative Exam Dates:

August 21: Quiz Chapter P (Preparation for Calculus)

September 15/16: Test Chapter 1 (Limits and Their Properties)

November 10/11: Test Chapter 2 (Differentiation)

December 11/14: Test (beginning) Chapter 3 (Applications of Differentiation)

December 17: Semester 1 Final Exam

January 13: Quiz (end) Chapter 3

March 4/5: Test Chapter 4 (Integration)

April 8: Quiz (beginning) Chapter 5 (Differential Equations)

April 29: Test Chapter 6 (Applications of Integration)

May 11: Quiz (beginning) Chapter 7 (Integration Techniques)

May 26: Semester 2 Final Exam