

Moberly Area Community College Common Syllabus

MTH201 Analytic Geometry and Calculus I

Current Term

Instructor:

Office number:

Office hours:

Response Time: I typically respond to student emails within 24 hours, Monday through Friday.

Contact information:

Classroom number:

Section number(s):

Class days and time:

Catalog Description: MTH201 Analytic Geometry and Calculus I (5-0-5)

Students are introduced to plane analytic geometry, including limits, continuity, derivative for functions of a single variable, differentials, indefinite and definite integrals, and applications of the derivative and integral. (FA, SP)

Prerequisite: Eligible placement, or MTH145 with a grade of "C" or higher, or MTH150 with a grade of "C" or higher.

Text: An access card for MyMathLab which includes the ebook is required. There is no print option available in the MACC bookstore.

Title: *MyMathLab with Pearson eText – Standalone Access Card – for Calculus*

Author: Briggs, Cochran, and Gillett

Edition: 3rd Edition 2019

Publisher: Pearson

ISBN: 978-0-13-485683-4

Other Required Materials:

None

Calculator policy: The use of calculators is prohibited on all tests, exams, and quizzes in this course.

Purpose of Course: Understanding of the calculus is essential for further course work in any area requiring applied mathematics of physical science.

Course Objectives (CO): Upon successful completion of this course, students will be able to:

1. apply the definition of limit to evaluate limits by multiple methods.
2. use the concept of a limit to determine continuity.
3. find the derivative of polynomial functions, rational functions, power functions, trigonometric functions, and implicit functions following the rules of differentiation.

4. demonstrate how the derivative can be used as a tool for analyzing the behavior of a function.
5. use the derivative to write the equation of a tangent line.
6. apply the derivative to a variety of numerical, geometrical, and physical problems.
7. graph functions using the first and second derivative tests.
8. define the integral as the limit of a Riemann sum.
9. compute definite and indefinite integrals.
10. integrate using the substitution method.
11. use the Fundamental Theorem of Calculus.
12. apply the integral to finding the region between curves and the volume of solids of revolution.

Course Content: A minimum course consists of the material in chapter 1 through chapter 6.

Chapter 1 - Functions

Chapter 2 - Limits

Chapter 3 - Derivatives

Chapter 4 - Applications of the Derivative

Chapter 5 - Integration

Chapter 6 - Applications of Integration

Statement to Connect Course with Institutional Student Level Outcomes:

In compliance with MACC's Institutional Student Level Outcomes, the student who successfully completes this course will be able to meet the following institutional learning outcomes:

- **Higher Order Thinking:** Students will demonstrate the ability to distinguish among opinions, facts, and inferences; to identify underlying or implicit assumptions; to make informed judgments; to solve problems by applying evaluative standards; and to reflect upon and refine those problem-solving skills. This outcome involves creative thinking, critical thinking, and quantitative literacy.

Evaluation of Student Learning:

Grades will be calculated in the Canvas gradebook where 60% mastery will be necessary for completion of the course, however 70% mastery is the prerequisite for the next calculus course in the sequence. Students who wish to transfer or who are enrolled in special programs may also have a minimum of 70% mastery required. Please check with your transfer institution or program director. Grades will be updated at least after each chapter test throughout the semester in the Canvas gradebook.

The grading scale will be structured as follows:

A - 90 - 100%

B - 80 - 89%

C - 70 - 79%

D - 60 - 69%

F - 59% or below

Points will be accumulated by:

Homework/Quizzes: 15%

Chapter/Unit Tests: 65%

Final Exam: 20%

Testing Expectations: This is a credit-bearing course. Retakes of tests are not allowed for individual students. Contact the Math Department Coordinator and/or refer to the course pages in the Math Department Canvas Shell for guidelines.

Make-up and late work:

Per instructor's policy

Tardiness:

Per instructor's policy in relationship to points given in the course and not in relationship to attendance.

Schedule of Student Assignments/Activities:

Instructors will identify a Student Assignment/Activities schedule. Instructors have the prerogative to construct the schedule by class periods, weeks, or an overview of topics to be covered. A sample schedule is attached as a guide.

Collegewide Policies:

All faculty and students need to be aware of collegewide policies and procedures. Statements on Academic Dishonesty, ADA, Attendance, Title IX, and other important collegewide policies can be accessed by clicking on the following: [Collegewide Policies in Student Resources](#).

Sample Schedule MTH201

Week 1	1.1 – Function Review	1.2 – Function Families Review	1.3 – Trig Functions Review
Week 2	2.1 & 2.2 – Intro. to Limits	2.3 – Computing Limits	2.4 – Infinite Limits
Week 3	2.5 – Limits at Infinity	2.6 - Continuity	Review & Practice
Week 4	2.7 – Precise Definition of Limits	Review & Practice	Test #1 (Chapter 2 only)
Week 5	3.1 – Intro. To Derivatives 3.2 – Working with Derivatives	3.3 – Rules of Differentiation	3.4 – Product & Quotient Rules
Week 6	3.5 – Derivatives of Trig Functions	Review & Practice	3.7 – Chain Rule
Week 7	Review & Practice	3.8 – Implicit Differentiation	Review & Practice
Week 8	3.6 – Derivatives as Rate of Change 3.9 – Related Rates	Review & Practice	Test #2
Week 9	4.1 – Maxima & Minima 4.2 – Info from Derivative	4.3 – Graphing Functions	Review & Practice
Week 10	4.4 – Optimization Problems	4.5 – Linear Approximation & Differentials 4.6 – Mean Value Theorem	4.7 – L’Hopital’s Rule
Week 11	Review & Practice	4.9 - Antiderivatives	Review & Practice
Week 12	Test #3	5.1 – Approximating Area 5.2 – Definite Integrals	5.3 – Fundamental Theorem of Calculus
Week 13	5.5 – Substitution Rule	Review & Practice	6.2 – Regions between Curves
Week 14	6.3 – Volume by Slicing	6.4 – Volume by Shells	Practice and Review
Week 15	Test #4	4.8 – Newton’s Method (if time permits)	Final Review
Week 16	Final Exams		

Calculators are not allowed on quizzes, tests or exams.

Note to instructors: At least one quiz is suggested between every test in order to give students feedback prior to the test.