# Welcome to MATH 2413 – Calculus I

**Semester Syllabus**

**Delete these instructions after following them**: Instructors must make the following customizations:

- Change all highlighted text and remove highlights. Text highlighted in yellow should be customized; text highlighted in green is instructions that should be followed and then deleted.
- It is impossible to arrange the vertical spacing correctly on the master syllabus, as each instructor will be adding and deleting items. Consider starting each of the Level 1 Headings (The Basics, Course Calendar, Getting Help, Grades, Course Content, and The Details) at the top of a new page.
- In order to make the document accessible to screen readers, the master syllabus uses styles for text. The 6 styles in use are Title, Subtitle, Heading 1, Heading 2, Normal, and hyperlink. If you would like to customize these styles with different fonts or formatting, please do so using Styles. Right click on the style you want to change and choose Modify.
- Please do not add tables without following accessibility procedures. Previous syllabi that contained critical information on the first page without a table do not meet accessibility requirements.

## THE BASICS

### About Your Instructor

**Name:** Insert info here

**The best way to reach me is**: Insert info here

**Phone number:** Insert info here

**Email:** Insert info here

**Office location (and/or link if appropriate):** Insert info here

**Office hours:** Insert info here

**To schedule a conference outside of office hours**: Insert info here

### About Your Course

**Instructional Methodology**: **Delete these instructions after following them**: Choose the correct option and **delete the other options**

Classroom Section: This course is taught in the classroom primarily as a lecture/discussion course.

DLS—Synchronous Virtual Class Meetings Required: Instruction is fully online with required online meetings during the specified days and times listed.

ONL—Online: Instruction and testing are fully online without required class times.

HYC—Hybrid Classroom: Instruction is mostly on-campus with remaining instruction online.

**Synonym:** Insert info here **Section:** Insert info here

**Meeting location**: Insert info here **Meeting times:** Insert info here

**Prerequisites:** MATH 2412 with a C or better OR satisfactory score on the ACC Higher Level Mathematics Placement Test.

## Required Materials

This is a First Day™ class. The cost of required course materials, including an online version of the textbook and software access, has been added to your tuition and fees bill.

**Textbook:** *Calculus: Early Transcendentals*, 3rd Edition by Briggs, Cochran, Gillette, & Schulz. Pearson Publishing (MyLab software) ISBN: 9780134763644

**Online Component:** MyLab may be required for one or all of the Calculus courses. Access to the software is included with the First Day version of the text.

**Calculator:** You must have access to technology that enables you to (1) Graph a function, (2) Find the zeroes of a function. (3) Do numerical integration. Most ACC faculty are familiar with the TI family of graphing calculators. Hence, TI calculators are highly recommended for student use. Other calculator brands can also be used. Your instructor will determine the extent of calculator use in your class section.

**Other Technology:** **Delete these instructions after following them**: Delete webcam info if it does not apply; add any other needed technology. Access to a webcam and microphone are required for this course. Eligible students can check out required technology at https://www.austincc.edu/students/student-technology-services.

## Course Calendar

**Delete these instructions after following them**: This is the recommended 16-week calendar from the course committee. See the document "Suggested Course Calendars" for other options and customize this chart as appropriate.

**Note: Schedule changes may occur during the semester. Any changes will be announced in class and posted as a Blackboard Announcement.**

| Week | Material |
|---|---|
| 1 | Policies & Prereqs, 2.1 |
| 2 | 2.2 – 2.5 |
| 3 | 2.5, 2.6 |
| 4 | 3.1, 3.2; **Test 1** |
| 5 | 3.2 – 3.4 |
| 6 | 3.5 – 3.7 |
| 7 | 3.8 – 3.10 |
| 8 | 3.11; **Test 2** |
| 9 | 4.1 – 4.3 |
| 10 | 4.4 – 4.5 |
| 11 | 4.6 – 4.7; **Test 3** |
| 12 | 4.7, 4.9 |
| 13 | 5.1, 5.2 |
| 14 | 5.3, 6.1, 5.4 |
| 15 | 5.5; **Test 4** |
| 16 | Review; **Final** |

### Important Dates

**Last day to withdraw:** Insert date here
**Holidays:** Insert ACC holidays for current semester

(Please note these are the **ONLY** holidays this semester.)

### Making Time to Learn

We learn math by thinking about and working on mathematical problems, which takes time. Practice is crucial in a math course. To ensure that you have adequate time, set aside 8-12 hours per week outside of class time to practice and study for this course. Ask for help immediately when something isn't clear.

## Getting Help

ACC provides several free resources for students who need help; descriptions and links are below:

**Office hours:** Another name for office hours is "student hours." This is the time your instructor has set aside to answer student questions, so feel free to drop by if you have questions. Office hours may be virtual or on campus; see information above.

**Instructional Associates:** Instructional Associates specific to the course you are taking are available for tutoring. To make an appointment, go to https://sites.google.com/a/austincc.edu/math-students/meet/list and then click on your course.

**Learning Labs:** The ACC Learning Labs provide tutoring in math and other subjects. To schedule an appointment, go to https://www.austincc.edu/students/learning-lab. This site includes information about in person and virtual tutoring options.

**Academic Coaching:** Academic coaches offer extra support to students with study strategies; they want to help you learn to be an active participant in your own learning process. For more information or to make an appointment with an academic coach, go to https://www.austincc.edu/students/academic-coaching.

**ACC Student Services**: Services are offered in many areas, including Academic, Financial, Personal, and Technology Support. For more information, go to https://www.austincc.edu/student-support.

## GRADES

**Delete these instructions after following them**: Grading criteria must be clearly explained in the syllabus. The criteria should specify the number of exams and other graded material (homework, assignments, projects, etc.). **Instructors must include where students can access their grades.** Instructors should discuss the format and administration of exams. Guidelines for other graded materials, such as homework or projects, should also be included in the syllabus. An example is given below; you should modify it to fit your course.

### Grade Components

**Tests:** 80%

**Homework:** 10%

**Quizzes:** 5%

**Other:** 5%

### Grading Scale

**A:** 90 - 100

**B**: 80 – 89

**C:** 70 – 79

**D:** 60 – 69

**F:** < 60

### Where can I find my grades?

Grades will be posted in Blackboard.

## What will we do in this class?

**Tests:** Insert info here

**Homework:** Insert info here

**Quizzes:** Insert info here

**Group work:** Insert info here

## What happens if I miss something?

**Dropped Grade Policy:** Insert info here

**Late Work Policy:** Insert info here

**Missed Exam Policy**: Insert info here

**Attendance/Class Participation:** **Delete these instructions after following them**: Each instructor should clearly express their attendance and class participation policies. If there are specific policies for field or laboratory activities, they could be included here. Some suggested wording is:

"Regular and punctual class and laboratory attendance is expected of all students. If attendance or compliance with other course policies is unsatisfactory, the instructor may withdraw students from the class."

And to cover situations where classes are cancelled because of weather or other emergencies:

"In the event the college or campus closes due to unforeseen circumstances (for example, severe weather or other emergency), the student is responsible for communicating with their professor during the closure and completing any assignments or other activities designated by their professor as a result of class sessions being missed."

# Course Content

## Course Description

**Credit Hours:** 4, **Contact Hours:**4

**MATH 2413 – Calculus I (4-4-0).** A standard first course in calculus. Topics include inequalities; functions; limits; continuity; the derivative; differentiation of elementary functions; applications of the derivative; the integral; integration of algebraic functions and the sine and cosine functions; numerical integration; and basic applications of the integral.

## Course Rationale

This course is the first course in the traditional calculus sequence for mathematics, science and engineering students. It is part of what could be a three-semester sequence in calculus courses. The approach allows the use of technology and the rule of four (topics are presented geometrically, numerically, algebraically, and verbally) to focus on conceptual understanding. At the same time, it retains the strength of the traditional calculus by exposing the students to the rigor of proofs and the full variety of traditional topics: limits, continuity, derivative, applications of the derivative, and an introduction to the definite integral.

## Course Objectives

1. Find limits of functions (graphically, numerically and algebraically)
2. Analyze and apply the notions of continuity and differentiability to algebraic and transcendental functions.
3. Determine derivatives by a variety of techniques including explicit differentiation, implicit differentiation, and logarithmic differentiation. Use these derivatives to study the characteristics of curves. Determine derivatives using implicit differentiation and use to study characteristics of a curve.
4. Construct detailed graphs of nontrivial functions using derivatives and limits.
5. Use basic techniques of integration to find particular or general antiderivatives.
6. Demonstrate the connection between area and the definite integral.
7. Apply the Fundamental theorem of calculus to evaluate definite integrals.
8. Use differentiation and integration to solve real world problems such as rate of change, optimization, and area problems.

## Student Learning Outcomes

Upon successful completion of the course, a student should be able to:

1. Solve tangent and area problems using the concepts of limits, derivatives, and integrals.
2. Draw graphs of algebraic and transcendental functions considering limits, continuity, and differentiability at a point.
3. Determine whether a function is continuous and/or differentiable at a point using limits.
4. Use differentiation rules to differentiate algebraic and transcendental functions.
5. Identify appropriate calculus concepts and techniques to provide mathematical models of real-world situations and determine solutions to applied problems.
6. Evaluate definite integrals using the Fundamental Theorem of Calculus.
7. Demonstrate an understanding of the relationship between derivatives and integrals using the Fundamental Theorem of Calculus.

## General Education Competencies

1. Critical Thinking: gathering, analyzing, synthesizing, evaluating and applying information is covered in every SLO.
2. Quantitative and Empirical Reasoning: applying mathematical, logical, and scientific principles and methods is covered in every SLO.
3. Technology Skills: using appropriate technology to retrieve, manage, analyze, and present information is covered in SLOs # 1, 2, 3, 5, and 7.
4. Written, Oral and Visual Communication: communicating effectively adapting to purpose, structure, audience and medium is covered in every SLO.

## The Details

**[Delete these instructions after following them: Remove the following two paragraphs if your class is not online]**

**Distance Education Information:** This class is fully online. Successful online students actively participate in class on a regular basis just like in an on-campus class and avoid putting off classwork until the last minute. This includes reading assignments, taking quizzes and tests, and any other activities assigned by your professor. You will need to stay motivated and routinely log in to your classes in order to keep on top of your assignments.

Students will use the Blackboard learning management system for assignment instructions, submitting assignments, and collaboration. Students are encouraged to read ACC Distance Education General Information available at https://online.austincc.edu/faq/.

**First Day Access:** To enhance your learning experience and provide affordable access to the right course material, this course is part of an inclusive access model called First Day™. You can easily access the required materials for this course through Blackboard, at a discounted price, and benefit from single sign-on access. Austin Community College includes the discounted price as a course fee in your registration fees for this course.

It is NOT recommended that you Opt Out, as these materials are required to complete the course. You can choose to Opt Out on the first day of class, but you will be responsible for purchasing your course materials at the full retail price and access to your materials may be suspended. See your course in Blackboard for details.

**Withdrawal Policy:** It is the responsibility of each student to ensure that his or her name is removed from the roll should he or she decide to withdraw from the class. The instructor does, however, reserve the right to drop a student should he or she feel it is necessary. If a student decides to withdraw, he or she should also verify that the withdrawal is submitted before the Final Withdrawal Date. The student is also strongly encouraged to retain their copy of the withdrawal form for their records.

Students who enroll for the third or subsequent time in a course taken since Fall 2002 may be charged a higher tuition rate for that course. State law permits students to withdraw from no more than six courses during their entire undergraduate career at Texas public colleges or universities. With certain exceptions, all course withdrawals automatically count towards this limit. Details regarding this policy can be found in the ACC college catalog.

**Reinstatement Policy:** Students who withdrew or were withdrawn will not be reinstated unless they have completed all coursework, projects, and exams necessary to place them at the same level of course completion as the rest of the class. Reinstatement is up to the instructor's approval.

**Incomplete Grade Policy:** Incomplete grades (I) will be given only in very rare circumstances. Generally, to receive a grade of "I", a student must be up to date on coursework and have a passing grade, and after the last date to withdraw, have a legitimate reason that prevents course completion. An incomplete grade cannot be carried beyond the established date in the following semester. The completion date is determined by the instructor but may not be later than the final deadline for withdrawal in the subsequent semester.

**Communication with Your Instructor:** All e-mail communication to students will be sent solely to the student's ACCmail account or math software if applicable, with the expectation that such communications will be read in a timely fashion. Likewise, students should use their ACCmail account or math software when communicating with instructors. Instructors will respond to student emails within 3 business days, if no response has been received by the student at the end of that time, then the student should send a reminder to the instructor.

**Name Change Information**: If you want to change how your name appears online at ACC, go to https://www.austincc.edu/admissions/update-student-information/chosen-name.

**General College Policies**: Policies that apply to all courses at ACC can be found here: https://www.austincc.edu/offices/academic-outcomes-assessment/master-syllabi/college-policies.