

# COURSE SYLLABUS

## CALCULUS

### COURSE DESCRIPTION

This course includes the study of functions, limits, differential calculus, and integral calculus. Students will use differential calculus in a variety of applications, such as the analysis of functions, optimization, and motion. They will use integral calculus in applications such as finding the volume of a solid of revolution, as well as various physics problems. All of this is accomplished using inquiry, real-world contexts, and explorations with technology.

The purpose of this course is to provide students with a deep understanding of foundational calculus concepts.

#### BY THE END OF THE COURSE, STUDENTS WILL BE ABLE TO:

- Reason with basic calculus definitions and theorems.
- Connect calculus concepts and processes.
- Implement algebraic and computational processes in basic calculus problems.
- Engage with a variety of graphical, numerical, analytical, and verbal representations and demonstrate connections among them.
- Fluently use calculus notation.
- Communicate calculus ideas in words, both orally and in writing.
- Use a graphing calculator and other technology to explore and interpret calculus concepts.

Having completed this course, students will have a foundational understanding of calculus that can be applied to the further study of calculus and other STEM-related courses.

### COURSE CHAPTERS

#### PART A (SEMESTER 1):

- Chapter 1 - Functions
- Chapter 2 - Limits and Continuity
- Chapter 3 - Differentiation
- Chapter 4 - Applications of Derivatives

#### PART B (SEMESTER 2):

- Chapter 5 - Integration
- Chapter 6 - Applications of Integrals

- Chapter 7 - Differential Equations and More Riemann Sums
- Chapter 8 - More Differentiation and Integration

## COURSE MATERIALS

The following items are suggested for this class:

- pencils or pens
- college-ruled paper
- folder or binder
- computer printer
- device that can take images to be uploaded to a computer (e.g., scanner, digital camera, smartphone)

See the Technology Requirements section for more about course materials.

## COURSE ASSIGNMENTS

Course lessons contain instructional videos, video notes pages, readings, interactive explorations, and practice problems. Students submit their video notes for a grade at the end of each chapter.

Other course components include: quizzes, chapter review assignments, chapter tests, discussion-based assessments (DBAs), projects, and semester exams.

## ASU PREP GRADE SCALE

Letter Grade	Percent Range	Grade Points
<b>A</b>	100% to 90%	4.0
<b>B</b>	89% to 80%	3.0
<b>C</b>	79% to 70%	2.0
<b>D</b>	69% to 60%	1.0
<b>F</b>	59% to 0%	0

## GRADING CATEGORIES

The graded components in each semester are divided into the following weighted categories:

- Assignments: 40%

- Assessments: 40%
- Discussion-Based Assessments: 10%
- Final Exam: 10%

## TECHNOLOGY REQUIREMENTS

### DEVICES

Devices that are less than 5 years old are recommended.

- Desktop
- Laptop
- Chromebook
- Microphone and webcam

### OPERATING SYSTEMS

- Windows 10 and newer
- Mac OSX 10.6 and newer
- Linux
- ChromeOS

### INTERNET SPEED

- High speed internet (recommended)

### SUPPORTED BROWSERS

- Edge (latest version)
- Safari (latest version)
- Chrome (latest version)
- Firefox (latest version)

### SUPPORTED BROWSER PLUGINS AND SETTINGS

- Javascript should be enabled.
- 1024x768 resolution is recommended.
- Pop-up blockers should be disabled.
- Cookies should be enabled.

## VIRTUAL REALITY (VR) /AUGMENTED REALITY (AR)

Some courses have Virtual and Augmented Reality experiences which are best viewed with devices that are AR/VR enabled. These experiences can have large file sizes and it is recommended that they are downloaded over wi-fi.

Minimum Devices:

- iPhones 5S
- Samsung Galaxy S5
- Newer VR/AR enabled devices (Recommended)

Please contact [support@asuprep.org](mailto:support@asuprep.org) for further assistance.

## ACADEMIC INTEGRITY

In this course we practice the “ASU Prep Way,” and as a part of this policy, it is essential for students to complete their own work at all times. Cheating means using the work of another person as their own, copying information or answers from another student, plagiarizing, allowing another student to copy work, excessive collaboration on an assignment meant to be done individually, or sharing test/quiz questions/answers with students who have not yet taken the test/quiz. If a student is caught violating these guidelines, he/she will receive disciplinary action according to school policy.