CALCULUS BC SYLLABUS

COURSE DESCRIPTION

Mathematics is the common language of science and engineering, and calculus is a part of mathematics that is essential for understanding and describing many aspects of the physical world. This course is designed to introduce the fundamental concepts of the calculus and provide the mathematical foundations on which subjects across disciplines build.

The major topics of this course are limits, derivatives, integrals, the Fundamental Theorem of Calculus, and series. We will investigate and analyze course topics using equations, graphs, tables, and words, with a particular emphasis on a conceptual understanding of calculus. Applications, in particular to solid geometry and physics, will be studied where appropriate.

The text will be the CALCULUS, EARLY TRANSCENDENTALS 6th edition by James Stewart and problems will be selected from the Princeton Review AP Calculus BC Exam book, 2018 Edition. There are many practice problem sets and practice exams in the book. In the class sessions, time will be spent explaining ideas that lie behind formulas, as well as teaching problem solving techniques.

- Chapters 1-4: Basic Differentiation, Applications of Differentiation
- Chapter 5-8: Basic Integration and Applications
- Chapters 9-11: More Advanced Topics and Infinite Series

The table on the next page provides an approximate daily schedule of the topics studied and the corresponding chapters of the textbook.

TENTATIVE OUTLINE

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Limits and Continuity	Derivative Definition and Derivative Rules	Trigonometric Functions, Implicit Differentiation	Rolle's Theorem, Mean Value Theorem	Maxima and Minima, Curve Sketching
Motion Problems, Log and Exponential Functions	Inverse Functions, Parametric Equations	L'Hopital's Rule, Differentials	Integration	Midterm
Areas, Definite Integrals and the Fundamental Theorem	Integrals of Exponential, Log, and Trig Functions	Areas and Volumes	Integration by Parts	Advanced Trig Integrals
Curve Length, Partial Fractions, Improper Integrals	Differential Equations	Taylor Series	Final	Review