

DEPARTMENT: MATHEMATICS
NAME OF COURSE: CALCULUS
GENERAL DESCRIPTION:

Calculus is primarily concerned with developing students' understanding of the concepts of calculus and providing experience with its methods and applications. The courses emphasize a multi-representational approach to calculus with concepts, results, and problems being expressed geometrically, numerically, analytically, and verbally. The connections among these representations also are important.

Broad concepts and widely applicable methods are emphasized. The focus of the courses is neither manipulation nor memorization of an extensive taxonomy of functions, curves, theorems, or problem types. Thus, although facility with manipulation and computational competence are important outcomes, they are not the core of these courses.

Technology is used regularly by students and teachers to reinforce the relationships among the multiple representations of functions, to confirm written work, to implement experimentation, and to assist in interpreting results.

Through the use of unifying themes of derivatives, integrals, limits, approximations, and applications and modeling, the course becomes a cohesive whole rather than a collection of unrelated topics.

PREREQUISITES

Before studying calculus, all students should have completed four years of secondary mathematics designed for college-bound students: courses in which they studied algebra, geometry, trigonometry, analytic geometry, and elementary functions. These functions include those that are linear, polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric, and piecewise defined. In particular, before studying calculus, students must be familiar with the properties of functions, the algebra of functions, and the graphs of functions. Students must also understand the language of functions (domain and range, odd and even, periodic, symmetry, zeros, intercepts, and so on) and know the values of the trigonometric functions of common angles such as 0 , $\frac{\pi}{6}$, $\frac{\pi}{4}$, $\frac{\pi}{3}$, and $\frac{\pi}{2}$.

TEXTBOOK: Calculus 6th edition, Howard Anton

GRADING PROCEDURES:

The grade for each of the four marking periods is determined by unit exams, quizzes, a cumulative quarterly examination, and timely completion of homework assignments. Students will take a departmental midyear exam which will count as 20% of their second quarter grade. A final exam will be given and will be used to determine their fourth quarter grade. The final average will be determined by averaging the four quarter grades.