

CALCULUS

North Valley Baptist Schools
Mathematics Department
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Who hath measured the waters in the hollow of his hand, and meted out heaven with the span, and comprehended the dust of the earth in a measure, and weighed the mountains in scales, and the hills in a balance? - Isaiah 40:12

"The chief aim of all investigations of the external world should be to discover the rational order and harmony which has been imposed on it by God and which He revealed to us in the language of mathematics." - Johannes Kepler

"From the intrinsic evidence of His creation, the Great Architect of the Universe begins to appear as a pure mathematician." - Sir James Jean

COURSE DESCRIPTION: This course consists of a full year of calculus comparable to that taught in the freshman year of college. The concepts of calculus (functions, graphs, limits, derivatives, and integrals) are taught providing experience with its methods and applications, and emphasizing these concepts geometrically, numerically, analytically, and verbally. Graphing calculator use is an integral part of the course wherever applicable. Topics covered are review of functions, review of trigonometry, limits, graphing calculators, derivatives, integrals, optimization problems, techniques of integration, polar functions, area between two curves, inverse functions, motion analysis, applications of integrals, solids of revolution, continuity, L'Hôpital's rule, logarithmic differentiation, parametric functions, Mean Value Theorem, Newton's method, trapezoidal rule, series, tests of convergence, slope fields, Euler's method, logistic growth, and arc length.

In addition to its numerous, obvious practical applications, the study of mathematics offers the Christian school student confirmation of absolutes, preparation for life, practice in logical thinking, and the development of problem-solving skills. Mathematics is not difficult. It is just different. If mathematical concepts are practiced for a long time, they become familiar concepts, and familiar concepts are not troublesome. The goal of this course is to teach the fundamental concepts and skills necessary for students to succeed not only in calculus, but also in disciplines that are mathematically based, such as chemistry and physics.

PREREQUISITE: Successful completion of Trigonometry

TEXTBOOK: *Calculus*, Saxon Publishers (2nd. Ed.)

GRADING SCALE:

A	92 - 100	<i>Excellent</i>
B	84 - 91	<i>Above Average</i>
C	75 - 83	<i>Average</i>
D	66 - 74	<i>Below Average</i>
F	0 - 65	<i>Unsatisfactory</i>

GRADING FACTORS:

Quizzes	1/3 of final grade
Tests	1/3 of final grade
Final Exam	1/3 of final grade

To ensure your success, I require that you bring the following items to class daily:

1. Your textbook--please write your name in your book. To protect your book, you must use an appropriate book cover.
2. A separate binder for the course with dividers labeled Class Notes, Handouts, Homework, and Quizzes and Tests.
3. A pencil with a good eraser--I will not accept any work done in ink.
4. One red ballpoint pen
5. Loose-leaf **8.5 x 11 graph paper or college-ruled** binder paper
6. Compass
7. Protractor
8. 12-inch ruler
9. A scientific calculator (TI-30 or better)

Failure to meet these requirements will result in demerits for being unprepared for class.

SPECIAL PROJECTS/PRESENTATIONS: There may be special projects, presentations, and research papers assigned throughout the course. Topics, length, proper formatting, due dates, and other details will be addressed when these projects are assigned. There will be at least 1 special project due during the second semester.

MAKEUP WORK FOR EXCUSED ABSENCES: Students are expected to make up all missed work within the time limit prescribed in the NVBS Student Handbook. The student is responsible to ask Miss Hussin for any information regarding any work he has missed.

LATE WORK: Any homework assignment turned in late will receive an automatic 50% deduction. Any other type of assignment turned in late will receive a 10-point deduction for each day the assignment is late.

NOTE: This syllabus is subject to change at the discretion of the instructor.
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