



VIRGINIA BEACH CITY PUBLIC SCHOOLS
CHARTING THE COURSE

Department of Teaching & Learning
Parent/Student Course Information

DUAL ENROLLMENT APPLIED CALCULUS

(TC 3174)

TIDEWATER COMMUNITY COLLEGE

(MTH 270)

One-half VBCPS credit, 3 TCC credits, One semester

Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.

COURSE DESCRIPTION

Applied Calculus is a dual enrollment, one semester course providing the successful student with three college semester credits and one-half Virginia Beach City Public Schools (VBCPS) elective credit. This course provides an overview of calculus for students in the fields of business, economics and certain sciences. It covers limits, differentiation and integration of algebraic, exponential and logarithmic functions and introduces the calculus of several variables. It emphasizes the use of these concepts in various application problems.

*Tuition, fees and textbook fees are the responsibility of the student in accordance with the dual enrollment regulation (5-30.2).

PREREQUISITE

MTH 163 or appropriate score on the placement test

Objectives for MTH 270: Applied Calculus

Chapter 2: Derivatives and Their Uses

- 2.1 Limits and Continuity
- 2.2 Rates of Change, Slopes and Derivatives
- 2.3 Some Differentiation Formulas
- 2.4 The Product and Quotient Rules
- 2.5 Higher Order Derivatives
- 2.6 The Chain Rule and Generalized Power Rule
- 2.7 OMIT

Chapter 3: Further Applications of Differentiation

- 3.1 Graphing Using the First Derivative
- 3.2 Graphing Using the First and Second Derivative
- 3.3 Optimization
- 3.6 Implicit Differentiation and Related Rates
- 3.7 Differentials, Approximations and Marginal Analysis (cover lightly)

Chapter 4: Exponential and Logarithmic Functions

- 4.3 Differentiation of Logarithmic and Exponential Functions
- 4.4 Two Applications to Economics: Relative Rates and Elasticity of Demand

Chapter 5: Integration and Its Applications

- 5.1 Antiderivatives and Indefinite Integrals
- 5.2 Integration Using Logarithmic and Exponential Functions
- 5.3 Definite Integrals and Area (Just Cover the Definite Integral)
- 5.4 Further Applications of Definite Integrals: Average Value and Area between Curves
- 5.5 Two Economic Applications: Consumers' Surplus and Income Distribution
- 5.6 Integration by Substitution

Chapter 6: Integration Techniques and Differential Equations

- 6.1 Integration by Parts
- 6.3 Improper Integrals

Chapter 7: Calculus of Several Variables

- 7.1 Functions of Several Variables
- 7.2 Partial Derivatives

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Produced by the Department of Teaching and Learning.
For further information, please call (757) 263-1070.

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Title IX Notice: Complaints or concerns regarding discrimination on the basis of sex or sexual harassment should be addressed to the Title IX Coordinator, at the VBCPS Office of Student Leadership, 641 Carriage Hill Road, Suite 200, Virginia Beach, 23452, (757) 263-2020, Mary.Dees@vbschools.com (student complaints) or the VBCPS Department of School Leadership, 2512 George Mason Drive, Municipal Center, Building 6, Virginia Beach, Virginia, 23456 (757) 263-1088, Elizabeth.Bryant@vbschools.com (employee complaints). Additional information regarding Virginia Beach City Public Schools' policies regarding discrimination on the basis of sex and sexual harassment, as well as the procedures for filing a formal complaint and related grievance processes, can be found in School Board Policy 5-44 and School Board Regulations 5-44.1 (students), School Board Policy 4-4 and School Board Regulation 4-4.3 (employees), and on the School Division's website at **Diversity, Equity and Inclusion/Title IX**. Concerns about the application of Section 504 of the Rehabilitation Act should be addressed to the Section 504 Coordinator/Executive Director of Student Support Services at (757) 263-1980, 2512 George Mason Drive, Virginia Beach, Virginia, 23456 or the Section 504 Coordinator at the student's school. For students who are eligible or suspected of being eligible for special education or related services under IDEA, please contact the Office of Programs for Exceptional Children at (757) 263-2400, Plaza Annex/Family and Community Engagement Center, 641 Carriage Hill Road, Suite 200, Virginia Beach, VA 23452.

The School Division is committed to providing educational environments that are free of discrimination, harassment, and bullying. Students, staff, parents/guardians who have concerns about discrimination, harassment, or bullying should contact the school administration at their school. Promptly reporting concerns will allow the school to take appropriate actions to investigate and resolve issues. School Board Policy 5-7 addresses non-discrimination and anti-harassment, Policy 5-44 addresses sexual harassment and discrimination based on sex or gender. Policy 5-36 and its supporting regulations address other forms of harassment.

Alternative formats of this publication which may include taped, Braille, or large print materials are available upon request for individuals with disabilities. Call or write the Department of Teaching and Learning, Virginia Beach City Public Schools, 2512 George Mason Drive, P.O. Box 6038, Virginia Beach, VA 23456-0038. Telephone 263-1070 (voice); fax 263-1424; 263-1240 (TDD) or email him at George.Coker@vbschools.com.

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