

# 00-Intro to Calculus BC H

Content Area: **Math**  
Course(s):  
Time Period: **Full Year**  
Length: **Type Length of Unit**  
Status: **Published**

## General Overview, Course Description or Course Philosophy

This course is a continuation of Algebra 2 / Trigonometry H, with emphasis on the theoretical study of functions. Each topic will be covered in depth since this is the prerequisite course for AP Calculus BC. Techniques of differentiation and integration (including integration by parts and improper integrals) will be thoroughly explored. Limits and derivatives will be used to explore the characteristics of trigonometric, exponential and logarithmic, and polynomial functions. Derivatives will be used to solve PVA, optimization and related rates problems. Integration will be used to solve area, volume, and arc length problems. The convergence or divergence of infinite series will be determined.

### CURRICULUM SCOPE AND SEQUENCE

Content Area	Mathematics	Course Title/Grade Level:	Intro to Calculus BC H, Grades 10, 11, and 12
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### GENERAL OVERVIEW AND PACING

Topic/Unit Name	Suggested Pacing (Days/Weeks/Periods)
Topic/Unit 1 Limits and Continuity	12 Blocks
Topic/Unit 2 Derivatives: Differentiation Techniques, Implicit Differentiation, Logarithmic Differentiation	20 Blocks
Topic/Unit 3 Applications of Derivatives: Graphing, Optimization, Related Rates, PVA, L'Hopital's Rule, Intermediate Value Theorem, Extreme Value Theorem, Rolle's Theorem, Mean Value Theorem	24 Blocks
Topic/Unit 4 Antiderivatives/Integrals: Integration Techniques, Fundamental Theorem of Calculus, Integration by Parts, Improper Integrals	20 Blocks
Topic/Unit 5 Infinite Sequences and Series: Tests for Convergence	12 Blocks
Topic/Unit 6 Applications of Integrals: Areas, Volumes, Average Value, Arc Length	16 Blocks
Topic/Unit 7 Parametric and Polar Functions	12 Blocks
Topic/Unit 8 Mathematical Practices	On going

**OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS**

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**CONTENT AREA STANDARDS**

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**RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)**

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**STUDENT LEARNING TARGETS**

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**Declarative Knowledge**

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Students will understand that:

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**Procedural Knowledge**

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Students will be able to:

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**EVIDENCE OF LEARNING**

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## **Formative Assessments**

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## **Summative Assessments**

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## **RESOURCES (Instructional, Supplemental, Intervention Materials)**

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## **INTERDISCIPLINARY CONNECTIONS**

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## **ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS**

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See link to Accommodations & Modifications document in course folder.