



Course Overview

High School | AP Calculus BC - Last Updated on April 2, 2025

DESCRIPTION

K-12 Content Area | Mission & Philosophy Statement

- With confidence and perseverance, young people can tackle complex and novel mathematical challenges, becoming skilled problem solvers who take ownership over their learning process.
- Young people possess the ability to reason mathematically, make conjectures, solve problems and build understanding through effective dialogue and collaboration.
- Learners exhibit critical inquiry through the deliberate asking of questions and the integration of conceptual understanding, reasoning abilities, and procedural fluency.
- Strategically selecting materials, technology, and other resources support mathematical learning and aid in achieving mathematical goals. (NCTM, 2024)

Course Description

This course, for the enriched pathway, reinforces and extends the combined topics from AP Calculus AB and AP Calculus BC. The areas of study include limits, differentiation and integration of polynomial, rational, algebraic, exponential, logarithmic and trigonometric functions, an introduction to integration, area, volumes of rotation, separable differential equations, slope fields, and the Fundamental Theorem of Calculus. The additional “BC” areas of study include integration methods of integrating, infinite series, hyperbolic trigonometric functions, differentiation and integration of inverse trigonometric functions, indeterminate expressions, improper integrals, and Taylor polynomials. Applications include area, volume, arc length of curves, growth and decay situations, and principles of physics. A scientific calculator is needed for this course. Students enrolled in this course will be encouraged to take the AP Calculus BC Exam.

STANDARDS

College Board - AP Calculus AB - Objectives (2020)

CHA-1.A

CHA-2.A

CHA-2.B

CHA-2.D

CHA-3.A

CHA-3.B

CHA-3.C

CHA-3.D

CHA-3.E

CHA-3.F

CHA-4.A

CHA-4.B

CHA-4.C

CHA-4.D

CHA-4.E

CHA-5.A

CHA-5.B

CHA-5.C

LIM-1.A

LIM-1.B

LIM-1.C

LIM-1.D

LIM-1.E

LIM-2.A

LIM-2.B

LIM-2.C

LIM-2.D

LIM-3.A

LIM-4.A

LIM-5.A

LIM-5.B

LIM-5.C

FUN-1.A

FUN-1.B

FUN-1.C

FUN-2.A

FUN-3.A

FUN-3.B

FUN-3.C

FUN-3.D

FUN-3.E



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FUN-3.F

FUN-4.A

FUN-4.B

FUN-4.C

FUN-4.D

FUN-4.E

FUN-5.A

FUN-6.A

FUN-6.B

FUN-6.C

FUN-6.D

FUN-7.A

FUN-7.B

FUN-7.C

FUN-7.D

FUN-7.E

FUN-7.F

FUN-7.G

College Board - AP Calculus AB/BC - Skills (2020)

APCALCAB.IMP.1A

APCALCAB.IMP.1B

APCALCAB.IMP.1C

APCALCAB.IMP.1D

APCALCAB.IMP.1E

APCALCAB.IMP.1F

APCALCAB.CR.2A

APCALCAB.CR.2B

APCALCAB.CR.2C

APCALCAB.CR.2D

APCALCAB.CR.2E

APCALCAB.J.3A

APCALCAB.J.3B

APCALCAB.J.3C

APCALCAB.J.3D

APCALCAB.J.3E

APCALCAB.J.3F

APCALCAB.J.3G

APCALCAB.CN.4A

APCALCAB.CN.4B

APCALCAB.CN.4C

APCALCAB.CN.4D

APCALCAB.CN.4E

COURSE OBJECTIVES

This course is aligned to College Board Advanced Placement Calculus BC skills and objectives.

ASSESSMENT TYPES

The following assessment types will be used during the course:

- Formative Assessments
- Summative Assessments

SUGGESTED METHODS OF INSTRUCTION

Below is a list of suggested strategies for high-quality instruction in Mathematics:

- Instructional components outlined in the *Framework for Teaching by Charlotte Danielson*
- Teacher-Centered Instruction
- Inquiry-Based Learning
- Small Group Instruction
- Cooperative Learning
- Student-Centered/Constructivist Approach
- Project-Based Learning
- Flipped Classroom



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RESOURCES

District Approved Program Resources	District Approved Supplemental Resources	District Approved Technology Resources
<p>Larson, R, Battaglia, P. <i>Calculus for AP 1st Edition</i>. 2021 Cengage with WebAssign.</p>	<ul style="list-style-type: none"> • Korsunsky, R. <i>Multiple Choice Questions to Prepare for The AP Calculus BC Exam</i>. 2019 • Brock, D. and Hockett, S. <i>Barrons AP Calculus 2019 11th Edition</i> (Practice Workbooks) • Stewart, James. <i>Single variable calculus 5th Edition</i> 2003. Brooks/Cole. • College Board <i>AP Classroom</i> https://apclassroom.collegeboard.org/ • TI-Calculators Website <i>84Central</i> https://education.ti.com/en/84activitycentral/us/calculus • Teacher created materials • Khanacademy https://www.khanacademy.org/ 	<ul style="list-style-type: none"> • TI84CE Graphing Calculators (with software programs)