

2021 Advanced Placement® Calculus BC

About the AP® Calculus BC Summer Institute

The AP Calculus BC Summer Institute is designed to help teachers build a strong and successful calculus course and AP Program. Emphasis will be placed on rigor of content required for students to be successful on the AP exam, focusing on BC topics, and available resources. The course audit, course syllabus requirements and AP Classroom will all be reviewed during this APSI. Both new and experienced teachers will be given the opportunity to deepen their understandings of the BC course content, as well as explore and create resources that can be used in their classroom. Time will be allotted each day to share best practices and ideas as a group.

Course Objectives:

The participants will:

- Review of AP Calculus BC Exam, CED's and use of AP Classroom
- Review and discuss BC Curriculum topics:
 - Advanced integration techniques such as integration by parts, using linear partial fractions, and evaluating Improper integrals.
 - Logistical Models with differential equations and using Euler's Method
 - Applications of Integrations including the Arc length and distance traveled.
 - Vector valued functions and parametric equations
 - Polar coordinates and differentiating in polar form, finding area of polar regions bounded by a polar curve, and area between two curves.
 - Defining series as convergent or divergent, and convergence testing on series.
 - Power series, Maclaurin and Taylor series, radius of convergence and error bounds
 - Representing functions as power series.
- Understand and learn to use the IPR (Instructional Planning Report) to reflect on improving student outcomes.
- Prepare a course syllabus, outline and pacing guide that meets the requirements outlined by College Board.
- Develop proficiency and use of AP Classroom to enhance student learning and exam preparedness.
- Understand how to use the data provided by AP classroom.
- Acquire and develop activities, formative and summative assessments to build student understanding and proficiency.
- Develop a library of digital resources, including videos, games and traditional resources for use in your classroom.

Tentative Agenda:

Day 1:

Introductions & Setting Norms

Introduction to the CED's- Scavenger Hunt

Series

- Introduction to series presentation
- Taylor approximations
- Power series

- Tools for determining Convergence
- The AP course and exam descriptions

Day 2:

More with series

- Alternating series bound
- LaGrange Error Bound

Parametric Equations

Vectors

Arc Length and distance traveled

AP Community resources

Day 3:

Polar Equations

Odds and Ends

- Advanced integration techniques
- Improper integrals
- Logistic Models
- Euler's method

AP Exam and the Reading

Day 4:

Using AP Classroom

- PPC's
- Topic Questions
- Videos
- Creating assessments

Grading FRQ's & data provided from past exams.

Day 5:

Helping Students Learn

- Tools and resources to support struggling learners
- Investigating Online resources and building activities
- Best practices and favorite activities
- Focus on Continuous Improvement using the IPR

Fostering a community of learners

Homework assignments will be focused on:

- creating a scope and sequence to use in the coming year
- creating a library of resources
- practice with using resources that are presented during the course.

****Changes may be made to the course agenda based on participant need and interest.****

What to bring:

- A favorite activity, demonstration or simulation that you have found useful in your classroom to share (teachers new to AP Calculus BC should bring an activity that they have used successfully in another course)
- A lesson or activity that you would like to improve upon.
- Your CED Binder- a digital version can be found in AP Classroom or on the College Board website.
- A blank calendar to create your outline and pacing guide for the upcoming year.
- An academic calendar for your school.

Instructor:

Ingrid Pariseau has been teaching mathematics for over 20 years and has taught all levels of secondary mathematics from 7th grade through Calculus. She holds a B.S. in Mathematics from the State University of NY at Albany and a M.Ed. in Curriculum and Instruction from Chapman University. She has lived and taught in several states around the country, spending the majority of her teaching career in Texas and Tennessee. She first started teaching AP Calculus in 2006. Actively involved in professional development at the district level throughout her career, in 2017 she began consulting for NMSI working with AP Calculus teachers. She presented at APAC in 2019, is an AP Calculus reader and a consultant for the College Board. She is happily married with 2 adult children and, in her free time, enjoys traveling, reading, watching movies and sports, hiking, biking and running.

