

## AP\* INSTITUTES in Mathematics and Computer Science

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**July 8-11, 2024**

### AP Computer Science Principles

(Instructed by Michele Roberts)

### AP Calculus AB

(Instructed by Dickie Thomasson)

### AP Calculus BC

(Instructed by Nancy Stephenson)

### AP Precalculus

(Instructed by T.J. Onen)

### AP Computer Science A

(Instructed by Kymberly Ayodeji)

### Registration:

*Pre-Registration for any of the institutes is **required** and may be accomplished online. The registration fee for each AP Institute is \$595. The fee includes all materials used throughout the week, breakfast pastries, refreshments during breaks, and a light lunch. The institutes will start promptly at 8:00 a.m. each morning with dismissal at 4:30 p.m. each of the four days.*

### Questions?

Contact **Cara Barton**, Conference Coordinator, @ 845-2915 or [cbarton@tamu.edu](mailto:cbarton@tamu.edu)  
Or, **Sandra Nite**, AP Summer Institutes Director, @ [s-nite@tamu.edu](mailto:s-nite@tamu.edu)

This AP Summer Institute  
has been endorsed by



AP Institutes  
Texas A&M University  
Department of  
Mathematics

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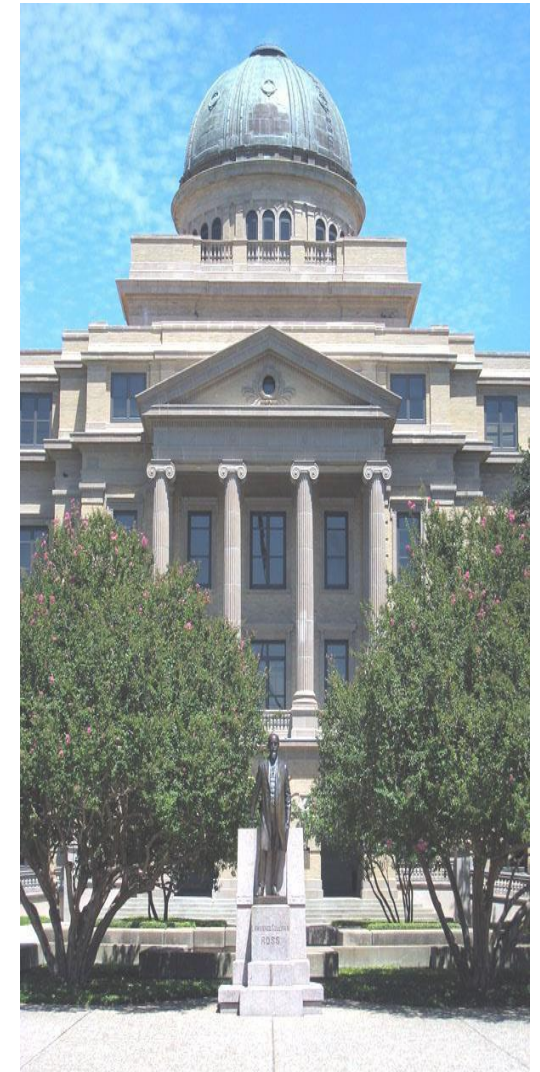
ATTENTION: Cara Barton

[www.math.tamu.edu](http://www.math.tamu.edu)

## TAMU Mathematics

### 29<sup>th</sup> Annual Advanced Placement Institutes

Summer 2024



Texas A&M University Academic Building

## INSTITUTES OFFERED:



### AP CALCULUS BC INSTITUTE

Participants will receive materials to use in the classroom including teaching notes, discovery lessons using the graphing calculator, worksheets, and AP practice problems. Discussion of how to fit the topics into the school year and how to review for the AP exam will be included as well as a review of new insights gained from the AP reading. Topics include arc length, Euler's method, techniques of integration (including integration by parts and by partial fractions), logistic growth, L'Hopital's Rule, improper integrals, parametric equations and vectors, polar equations, series of constants, Taylor polynomials, error bounds for polynomial approximations, and Taylor series.

### AP Computer Science A

Advanced Placement Computer Science A introduces students to computer science with topics including problem solving, design strategies and methodologies, organization of data (data structures), approaches to processing data (algorithms), analysis of potential solutions, and the ethical and social implications of computing. Object-oriented and imperative problem solving and design are emphasized.

### AP COMPUTER SCIENCE PRINCIPLES INSTITUTE

Computer Science Principles (CSP) is a new approach to teaching computer science, focusing on computational thinking practices and built around seven "big ideas" of computing: Abstraction; Algorithms; Programming; the Internet; Data and Information; Creativity; and Global Impact. CSP is designed to broaden participation in computer science, with an engaging curriculum constructed to encourage participation of non-traditional computing students with hands-on course content such as problem solving, software engineering, data analysis, cybersecurity, internet operations and more. The course focus includes domain content as well as best practice teaching methods to ensure classroom success.



### AP PRECALCULUS INSTITUTE

AP Precalculus is a new course beginning 2023. Participants will receive materials to use in the classroom. Topics that lay the foundation for calculus are included. These include polynomial, rational, exponential, logarithmic, trigonometric, polar functions, and functions involving matrices, vectors, and parametrics.



### AP CALCULUS AB INSTITUTE

Advanced Placement Calculus AB content is covered with an emphasis on approaching the material graphically and intuitively with heavy emphasis on conceptual analysis. The AP exam requires mathematical rigor in the justifications on the free response questions, and this will be addressed. Hints and practice for the AP test, the use of graphing calculators, and grading free response questions using the grading standard are also included. Internet and computer resources for calculus are included, as well as hands-on activities that increase student comprehension.

