



# DISCOVERY PRECALCULUS

## PREPARATION FOR CALCULUS

In Discovery Precalculus, students will deepen and extend their knowledge of functions, graphs, and equations from their high school algebra and geometry courses so they can successfully work with the concepts in a rigorous university-level calculus course. This course is designed to push students well beyond “drill and kill” type exercises, with an emphasis on unpacking mathematical definitions and making logical arguments to their peers.

Each unit consists of a series of explorations designed to engage students and empower them to develop their problem-solving skills alongside the teacher. In each exploration, students will create connections with prior concepts in developing the current topic. Students will experience high-quality curriculum designed by the faculty at the University of Texas at Austin. The pedagogy of the course, Inquiry-Based Learning, encourages students to take an active role in the construction of their learning.

# DISCOVERY PRECALCULUS

## BIG IDEAS



### **FUNCTIONS AND PATTERNS**

Exploring the definition and properties of functions in a tabular, analytical, and graphical manner

### **ALGEBRA AND GEOMETRY**

Exploring conics from their definitions, modeling with matrices, and understanding exponential functions

### **TRIGONOMETRY**

Exploring the conceptual transformation from right triangles to identities to circles to graphs to rotational motion

### **RATES OF CHANGE AND LIMITS**

An introduction to Differential Calculus by exploring limits and rates

### **OTHER COORDINATE SYSTEMS**

Exploring motion with parametric and polar functions, and making connections to vectors and complex numbers

### **SEQUENCES AND SERIES**

Understanding and applying sequences and series to the concept of convergence, binomial theorem, and induction

## TRANSFERABILITY

TCCN: MATH 2412

UT Course Code: M 305G

3 College Credits

Tarleton Course Code: MATH 2412\*

4 College Credits

## PRE-REQUISITES

Algebra II

Geometry

## TECHNOLOGY

Computer, Laptop, Chromebook, or Tablet Access

## PEDAGOGY

Inquiry-Based Learning

*\*Coming Fall 2022*