

COURSE SYLLABUS

Precalculus

Instructor: _____
Toi Graham, MA

Hello, and welcome!

Did you know that the whole universe is governed by the laws of mathematics? Math determines how atoms form and interact with one another. It also explains how the cosmos came into being. Between those tiny and giant details, math is everywhere. You can find it in down-to-Earth challenges like balancing budgets and building bridges. It also determines the path of a football and how our bodies react to medicine. Sometimes all that math can seem overwhelming. Fear not! Our goal in precalculus is to build on what you already know. Then you'll be prepared for the everyday math you will encounter in life.

Abigail Adams once wrote, "You will not teach them what to think, but how to think, and they will then know how to act." Math teaches you how to think, and to do so differently.

Be open-minded, don't shy away from the work, and you will succeed. We'll help you every step of the way!

Course Description and Competencies

You have likely heard of literacy. How about numeracy?

Numeracy is the ability to understand and use numbers. In this course, you will improve your numeracy and your ability to perform four basic operations: addition, subtraction, multiplication, and division. With these operations, you will use not only whole numbers, but also integers, fractions, decimals, variables, and algebraic expressions. If those terms are not familiar to you, don't worry! You will get to know them as you go. You will also learn to use data, functions, and graphs to analyze information and solve problems.

In this course, you will explore and practice these operations. Like exercise, the best way to get better at math is through repetition. And you will have lots of chances to do that in this course. Once you are comfortable with the concepts, you will apply them to solve real-world problems you might face at work or at home.

By the end of this course, you will be able to:

1. Use algebraic operations to solve problems.
2. Analyze the relationship between data, functions, and graphs.
3. Describe the behavior and properties of linear, quadratic, rational, exponential, logarithmic, polynomial, and trigonometric functions.
4. Use these functions to predict outcomes and solve problems.
5. Solve applications using conic sections.

15 quizzes

1 midterm exam

1 final exam

3 competency units

Note: Practice assessment scores will not count toward your final grade. These results are meant only to give you feedback on how you are doing.

Course Outline

Module:	Upon completion of this module, you will be able to:
1 The Language of Mathematics: Algebraic Expressions	<ul style="list-style-type: none">A. Perform math operations on polynomials.B. Find principal square roots.C. Use rational exponents to solve problems.
2 The Art of Problem Solving: Solving Equations	<ul style="list-style-type: none">A. Translate words into algebraic expressions to solve problems.B. Perform operations using rational exponents.C. Solve equations.
3 Great Relationships: Functions Part 1	<ul style="list-style-type: none">A. Define a function.B. Explain the relationship between data, functions, and graphs.C. Evaluate functions.D. Compose functions.
4 Great Relationships: Functions Part 2	<ul style="list-style-type: none">A. Define inverse functions.B. Find the inverse of a function.C. Use symmetry to graph inverse functions.
5 Making Predictions: Linear Functions	<ul style="list-style-type: none">A. Write linear functions to model applications.B. Graph linear functions to predict outcomes.C. Solve linear equations.D. Solve systems of linear equations.
6 Curve Balls: Quadratic Functions	<ul style="list-style-type: none">A. Describe the characteristics of a quadratic function.B. Factor quadratic functions.C. Solve quadratic equations.D. Graph quadratic functions.
7 Conic Sections	<ul style="list-style-type: none">A. Identify the parts of conic sections.B. Graph conic sections.C. Apply symmetry to the graphs of conic sections.

Course Outline (cont.)

Module:	Upon completion of this module, you will be able to:
8 Transformations	<ul style="list-style-type: none">A. Identify transformations.B. Apply transformations to graphs.C. Identify the domain and range of a transformed function.
9 Exponential Functions	<ul style="list-style-type: none">A. Define exponential functions.B. Graph exponential functions.C. Evaluate exponential functions.
10 Logarithmic Functions	<ul style="list-style-type: none">A. Define logarithmic functions.B. Graph logarithmic functions.C. Evaluate logarithmic functions.
11 Patterns in Nature: Sequences and Series	<ul style="list-style-type: none">A. Identify and use arithmetic sequences and series to solve problems.B. Identify and use geometric sequences and series to solve problems.
12 Preparing for Trigonometry	<ul style="list-style-type: none">A. Convert between degrees and radians.B. Identify types of angles.C. Calculate the perimeter and area of circular sectors.
13 Hidden in Plain Sight: Trigonometry	<ul style="list-style-type: none">A. Define the six trigonometric functions.B. Define trigonometric identities.C. Find inverse trigonometric functions.D. Solve equations involving trigonometric functions.
14 Graphing Trigonometric Functions	<ul style="list-style-type: none">A. Graph trigonometric functions.B. Transform the graphs of trigonometric functions.C. Identify the domain and range of trigonometric functions.
15 Applications of Trigonometry	<ul style="list-style-type: none">A. Solve triangles using trigonometric functions.B. Apply the law of sines.C. Apply the law of cosines.

Technology Requirements

We want you to have the tools to succeed! Since this course includes at least one proctored test, please be sure to have a working microphone, speakers, and an external webcam. Unfortunately, an internal webcam (built into many laptops) is not acceptable. For other details about the technology you'll need, review the [Computer System and Technology Requirements](#). If you have questions about your setup, contact support@academy.wgu.edu.

Key Contacts

Your Fellow Learners

Check out the Precalculus Lobby in this course site. In this online community, you can ask questions and explore ideas. You can connect with your fellow learners. You will also find helpful videos and exercises. When you use this site, you will realize that other learners may have the same questions you have. You can all benefit from learning together!

Your Instructor

You can connect and [schedule time with your Course Instructor \(CI\)](#). Your CI is here to help you every step of the way.

Tutor.com

If you need academic support, don't hesitate to contact [Tutor.com](#). There, you have access to thousands of tutors. And they are available 24/7 from any internet-ready device. You can also benefit from instructional videos, study tools, and other assistance.

Technical Support

If you encounter technical issues, be sure to contact the Help Desk. Just submit a [Support Request](#) for assistance.

Program Support

Do you have questions about your account? Our Academy Support Team has answers. They can help with billing, switching courses, and other requests. You can contact them at (888) 320-0540 or support@academy.wgu.edu.

Accommodations

WGU Academy provides compliant and accessible learning experiences. If you require accommodation, please contact us at the start of the course. You can email StudentAffairs@academy.wgu.edu or call (888) 320-0540. We are committed to ensuring that all students with disabilities have equal access to WGU Academy's services and materials. We strive to use best practices for accessibility. Our goal is to conform to existing U.S. laws. These include the Americans with Disabilities Act and Section 504 and Section 508 of the Rehabilitation Act. Our learning management system (LMS) platform is Open edX. Open edX's commitment to accessible content is published on their [Website Accessibility Policy](#).