Algebra II and Trigonometry

Yearlong 2019/20

Eligible Students:

Grades 9th - 12th: This course is designed for students who have successfully completed Algebra I or its equivalent.
Class Dates: Begin Wednesday, September 4, 2019; running through Friday, May 21, 2020
Class Times: MWF: 9:30am -10:45am (EST)
Instructor: John Dever
E-mail: jdever@scholeacademy.com

Schedule for Algebra II/Trigonometry:

Class Sessions Dates:

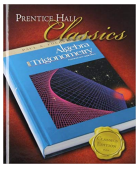
The school year is 32 weeks and the class meets weekly MWF **except for the following days**: September 2, November 25-29, December 16 - January 3, February 17-21, April 6-10
**Please note the above dates and times are the anticipated class sessions for this course. However, all dates are subject to change as the instructor's circumstances might dictate (e.g. illness, family emergency). Any classes canceled by the instructor will be made up at an alternate time designated by the instructor.*

Algebra II and Trigonometry Course Map:

Unit 1: Basics of algebra, terminology and axioms, functions and relations
Unit 2: Linear functions and systems of linear equations and inequalities, matrices
Unit 3: Quadratic functions and complex numbers, quadratic equations and graphs
Unit 4: Exponential and logarithmic functions, inverse functions
Unit 5: Rational and irrational algebraic functions, asymptotes, graphing, polynomial division, and radicals
Unit 6: Sequences and series, factorials, binomial theorem
Unit 7: Quadratic relations: circles, ellipses, hyperbolas, and parabolas, analytic geometry
Unit 8: The unit circle and trigonometric functions and identities
Unit 9: Triangle problems, vectors, and polar coordinates
Unit 10: Additional topics (time permitting): Matrices, linear programming, probability

Office Hours: In addition to scheduled class times, teachers will generally designate an optional weekly session as needed. During "Office Hours" students may raise questions, seek assistance, or review class material.

Required Materials:



- **Textbook:** *Algebra and Trigonometry: Functions and Applications* by Paul A. Foerster
- **Digital writing tablet:** We recommend Wacom Intuos tablets although similar products may be used.

- Dedicated notebook for class notes
- Paper for scratch-work and homework (white printer paper, notebook paper, or graph paper)
- Pencils
- Scientific calculator. A graphing calculator such as a TI-83 or Casio FX-9750 is recommended but not required.

Algebra II and Trigonometry Course Description:

Algebra II and Trigonometry is a foundational mathematics course both for any future mathematics course and also for applications of mathematics to science and engineering. Students learn about topics that include functions, graphing, polynomials and rational expressions, systems of linear equations, analytic geometry, exponential and logarithmic functions, trigonometry, and vectors. The textbook for the course includes many problems ranging from straightforward practice of skills to open-ended word problems that include practical and concrete applications of the material. Students attaining mastery in this course may go on to take an introductory Calculus course at the high school or college level (although some students may still prefer to take Pre-Calculus or College Algebra first).

Student Expectations: Executive Function Skills

Students enrolling in Scholé Academy's mathematics courses will be expected to show development of Executive Function Skills throughout the year. Executive Function Skills speaks to the following set of qualities and skill sets that students may develop and hone to better approach the courses, lectures, readings and teachers they will face in their future academic coursework.

1. An Engaged Student: One who is willing to step into the arena of class discussion, ask questions, supply answers, generate the internal dialogue necessary to determine if what's being discussed is important and necessary to himself.

2. Note Taking: A student who during and after being engaged with the class has been trained to note important and relevant content in an organized fashion. His notes would then be consulted, independently, for application in assignments and assessments.

3. Attention to Detail & Preparedness: These students are ones who consistently adhere to deadlines, submission requirements, adhering to style guides and codes, confirm technology is working prior to the start of class, be responsible to determine how to proceed after an absence, be responsible for consulting his course syllabus and adjusting as the class proceeds, etc.

4. Employ Critiques: These students are ones who receive feedback to one of their submissions, and then are sure to apply that feedback to future assignments rather than repeating mistakes. Also, such students may modify study practices as needed or make adjustments to the way work is shown or presented on assignments in response to feedback.

5. Initiative/Maturity: This student stays abreast of course content by studying outside of class, keeping up to date with readings of the course texts and notes, and budgeting appropriate amounts of time to complete assignments. This student is able to seek out appropriate sources of assistance, such as contacting the instructor to possibly schedule office hours, if he finds that he continues to struggle with course content or an assignment. This student is able to focus during class and not engage in distractions to himself or others.

Student Expectations In Action

In this class, students will be expected listen attentively, participate actively in class discussions and classwork. Students are expected to arrive to class on time and with all assigned material completed. The

instructor will facilitate learning for the student, but the responsibility for staying up-to-date with classwork and assignments ultimately falls to the student.

Success in this class requires active learning. Students are expected to read the relevant text sections each week, review notes, and work assigned practice or homework problems. It is recommend that students spend, outside of class time, at least 3 hours (although it varies by the needs of the student and course content of that week) every week studying, reviewing notes, and working assigned or optional practice problems. Additionally it is recommended that on class days students spend around 20 minutes reviewing the relevant text sections and notes.

Participation and student discussion is a cornerstone of the learning process for this class. Students are expected to regularly attend class, participate in class discussion, and engage in classwork if assigned. Additionally, students may be asked to complete in class practice problems or assessments, such as quizzes, during class time.

Thorough completion of homework problems is essential to the mastery of the course material. Homework solutions should be well thought out and show all relevant steps. All assignments will be due into the appropriate Schoology Assignment folder prior to the start of class each day. Students turning in late work will earn a 10% penalty for each day the assignment is late. Students will submit their work by scanning their homework pages and uploading it into the Schoology assignment window. Assignments should be submitted as one PDF file. Photographs of completed assignments will not be accepted as they are incredibly difficult to read.

Student Evaluation: Grading

While completing Algebra II and Trigonometry through Scholé Academy will be "restful" , we also recognize the need to provide grades for students who will be using this course as part of their prepared college transcript. It's a delicate balance to achieve both restful learning and excellent academic performance. Earning a specific grade should not overshadow achievement goals for mastery of this discipline. I may assign the following overall course grades, depending on your student's level of achievement: *magna cum laude* (with great praise); *cum laude* (with praise); *satis* (sufficient, satisfactory) and *non satis* (not sufficient).

Ideally, every student working diligently should do praiseworthy work (cum laude). Those who excel beyond this expectation will be the *magna cum laude* students. Students who do adequate but not praiseworthy work are designated *satis*. *Non satis* means lacking sufficiency or adequacy.

Inasmuch as you might be fully on board with this grading method in theory, there will undoubtedly be the need to complete a college transcript with either a numeric or traditional letter grade. Traditional percentage grades will be provided and will be readily accessed on the *Algebra II and Trigonometry* Schoology page. Additionally, the instructor will provide a transcript of that grade to the requesting parent at the end of the academic year.

Student Evaluation: Assignments, Types & Weights

Dr. Dever will communicate with students regarding assignment feedback and grading through the free online grading system, Schoology. The teacher will provide students with more detailed information on assignments and grading on the *Algebra II and Trigonometry* Schoology course page.

Students will be given the opportunity to correct individual homework assignments to replace a lower grade.

Numerical grades will be determined from the following percentages:

Classwork: 30%
Homework: 30%
Assessments: 40%

Student Evaluation: Academic Dishonesty

Students will often take assessment tests and/or quizzes privately at home. Students are on their honor to abide by Scholé Academy's Learning Philosophy which assumes the personal cultivation of Student-Virtues described in the Student-Parent Handbook.

Additionally, plagiarism on any assignment is a serious and punishable offense. Students may not consult any outside solution manuals or copy the solutions of others. A plagiarized assignment will result in a failing grade. Moreover, all work and necessary steps to solve a problem should be shown. Computer algebra systems may only be used to provide checks to solutions, not as methods to solve problems.

The Virtual Classroom:

We will be using the free online "virtual classroom" software provided by Zoom, one of the leading companies that provides such software. The virtual classroom will provide students with interactive audio, text chat and an interactive whiteboard in which texts, diagrams, video and other media can be displayed and analyzed. We will provide students with a link (via email) that will enable students to join the virtual classroom.

Specific information regarding the technology used by Scholé Academy (including required technology) can be found by visiting the Technology in the Classroom section of the Student Parent Handbook.

Students will submit documents by scanning and uploading them to their personal computer, then attaching those files as .pdfs to an email. They will submit their work to the *Algebra II and Trigonometry* Schoology assignment page (access granted after enrollment is secured).

About the Instructor:

Dr. John Dever earned a PhD in mathematics from Georgia Institute of Technology in 2018. Before that he earned both bachelor's and master's degrees in mathematics from the University of Mississippi. For the 2018-2019 school year he was a Visiting Assistant Professor at Bowling Green State University in Ohio. He has had over eight years of experience teaching a wide variety of mathematics courses at the college level. He has also taught middle school and high school mathematics for three years as a volunteer teacher and tutor at an Orthodox Christian school. He enjoys cultivating interest and curiosity in mathematics among students. He prioritizes student participation and discussion in class as means of helping students to build confidence and see the interconnections of the mathematical ideas under discussion. He hopes that students will begin to view mathematics as both a creative activity, in which they may be active participants, as well as a means of practical problem solving.