



# Secondary Math

## Overview

In our secondary program (grades 7-12), we have two full-time Math teachers and sometimes part-time or multidisciplinary teachers to cover additional needed math classes. Students are on a split track after sophomore year based on their math abilities and goals. The sequence of math classes is shown below:

Grade	Math Class
7	Math 7
8	Math 8
9	Algebra 1
10	Geometry
11	Algebra 2 or Algebra 2 combined with Pre-Calculus
12	AP Calculus, AP Statistics, or Pre-Calculus

## Qualifications

- 4-year degree in Mathematics, Secondary Mathematics Education or related field
- Teacher certification and 2 years experience preferred
- Evangelical Christian testimony with active local church experience
- Sense of calling to serve in a developing nation
- Creativity, willingness to grow as a teacher, willingness and ability to teach both middle and high school students, attention to detail, good interpersonal skills and excellent organizational abilities
- Willingness to make a three (or more) year commitment
- Full fluency and expertise in English; conversational Spanish preferred but not required

## Sample Schedule

Although the actual assignment will be created based on the strengths of the teacher and availability of the other teachers, a sample schedule is as follows. We do follow a schedule in which there are seven classes yet only six meet each day. We also have secondary chapel on Wednesdays and late starts every Monday for professional development.

Time	Period	Class	Notes
7:15-7:30	0H	Homeroom, devotional	8-10 students, same gender, mixed grades 7th-12th
7:34 - 8:31	1	Math 7	Approximately 22-28 students
8:36 - 9:33	2	Algebra 2 or PreCalculus	Approximately 24 students
9:33-9:48	Break		
9:48-10:45	3	AP Stats or PreCalculus for Seniors	Approximately 8-10 students
10:50-11:47	4	Math 8	Approximately 20-24 students
11:47-12:18	Lunch		
12:18 -1:14	5	Planning Period	May also have an elective class or a Bible class.
1:19 - 2:15	6	Planning Period	

## Math Curriculum

For all core secondary math courses Math 7 through Algebra 2, we use Open Up Resources. In addition to the resources that accompany the teacher's edition available online, we have very well-developed lesson plans written by teachers who have taught at NCAI in the past. Students are graded on mastery of the content shown through daily classwork and homework assignments, regular quizzes, tests, in-class projects, and class participation. Descriptions of specific classes are provided below.

Math 7: Students will build a foundation for higher-level math classes. Major themes include working with ratios, proportions, geometry, measurement and data analysis. Using hands-on and interactive lessons, as well as incorporating organizational skills, are vital for student success in this course.

Math 8: Students will continue to build a foundation for higher-level math classes. Major themes include communicating with variables and signed numbers and expressions; using formulas and solving equations; rates and proportion, similarity, scaling, and basic trigonometry; probability; dependent relationships and linear functions; working with coordinate graphs, spreadsheets, and graphing and analyzing data; symmetry, transformations and patterns; spatial relationships, nets, surface area and volume.

Algebra 1: Algebra I is the principle course in the high school mathematics sequence at NCA. It is an introduction to working with variables in many forms. This course emphasizes data organization and analysis, numerical patterns as a means of understanding functions, as well as solving and graphing equations. Students will learn to express mathematical relationships graphically, symbolically, and verbally. Additional topics include linear functions, linear inequalities, systems of equations, matrix solutions, polynomials, quadratic functions and quadratic equations.

Geometry: Geometry focuses students on understanding the properties and relationships that govern shape and size in our everyday lives. Beginning with an introduction to logical thinking, topics in geometry include angles, arcs, chords, parallel lines and transversals, triangles, polygons, circles, area, surface area, volume, rotation, transformation, and optimization. Proofs are used throughout the course to encourage students to think logically and sequentially.

Algebra 2: Algebra II builds on and reinforces the skills and concepts covered in Algebra I. This course challenges students with new material such as exponential growth, logarithms, conic sections, permutation and combination, exponential and logarithmic functions, and finally trigonometry. Graphing calculator required. The textbook is Pearson Hall Algebra 2.

Pre-Calculus: This comprehensive Pre-Calculus course is designed to prepare students for further Calculus study whether at NCA or in college. Combining topics from Algebra, Trigonometry, and Geometry, Pre-Calculus unifies and develops a student's understanding of the world through mathematical models and allows students to solve complex problems and make predictions using their models. Graphical and algebraic representations of topics are stressed throughout the course.

AP Calculus AB: The AP Calculus course is designed to prepare students for college calculus courses with a heavy emphasis on the AP Exam which is typically administered in early May. The four main topics explored in this course are limits, derivatives, indefinite integrals, and definite integrals. Students are expected to master the concepts of these topics graphically, numerically, and analytically both with and without the aid of a graphing calculator.

AP Statistics: The AP Statistics course is designed to encourage students to think critically about the data and information that is presented around them through the news, social media, and more. Students will explore how to collect and analyze data, anticipate patterns, and make statistical inferences. This course will utilize activities, discussions, and projects. Graphing calculators are required.