



Secondary Math and Physics

Overview

We're looking for a teacher with the ability to teach a variety of Math and/or Physics classes. There is some flexibility about the specific assignment, based on the strengths of the teacher we hire. Some courses are offered every 2 years to multiple grades to reduce preps for teachers. Our complete set of secondary Math and Science classes is as follows:

Grade	Math	Science
7	Math 7 or Pre-Algebra	Life Science or Earth Science
8	Pre-Algebra or Algebra 1	Life Science or Earth Science
9	Algebra 1 or Geometry	Biology or Physical Science
10	Geometry or Algebra 2	Biology or Physical Science
11	Algebra 2 or Pre-Calculus	Chemistry or Physics
12	Pre-Calculus or AP Calculus AB	Chemistry or Physics

Qualifications

- 4-year degree in Chemistry, Physics, Mathematics, Secondary 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
- 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, a sample schedule is as follows:

Time	Period	Class	Notes
7:30-7:40	0H	Homeroom, devotional	10-15 students; same gender as teacher

7:43-8:33	1	Physics	Two sections of same class; 11th-12th grade students
8:36-9:26	2	Physics	Two sections of same class; 11th-12th grade students
9:26-9:41	Break		
9:41-10:31	3	Geometry	
10:34-11:24	4	Geometry	
11:24-11:54	Lunch		
11:54-12:44	5	Planning Period	
12:47-1:37	6	Physics Lab	Lab on Wed and Thu
1:40-2:30	7	Planning Period	

Math Curriculum

For all core secondary math courses, we use Prentice Hall student and teacher textbooks. In addition to the resources that accompany the teacher's edition of the textbook, we have very well-developed lesson plans, supplemental resources, and access to web resources for every course. 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 integers, fractions and decimals, number theory, 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. Required materials: scientific calculator, 3-ring binder, loose-leaf graph paper. The textbook is Pearson Hall Mathematics: Course 2.

Pre-Algebra: Students will 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. Required materials: scientific calculator, 3-ring binder, loose-leaf graph paper. The textbook is Pearson Hall Prealgebra.

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. Graphing calculator required. The textbook is Pearson Hall Algebra 1.

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. Geometric patterns and special theorems that are useful throughout a student's math career are also covered. Graphing calculator required. The textbook is Pearson Hall Geometry.

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 arithmetic and geometric growth, sets and fields, complex numbers and fractal geometry, 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. Graphing calculator required. The textbook is Pearson Hall Precalculus.

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. Graphing calculator required. The textbook is Prentice Hall Calculus.

AP Statistics*: The AP Statistics course is equivalent to a one-semester introductory, non-calculus based college course. The course explores four main topics: exploring data, sampling and experimentation, anticipating patterns, and statistical inference. Classroom activities and discussions, as well as projects, are important parts of the course. Graphing calculator required. The textbook is McGraw Hill Elementary Statistics. *Embedded into the first semester of the course is a non-AP Statistics option available to seniors who do not wish to take the year-long AP Statistics course.

Science Curriculum

We have developed our own school-level learning standards for science at all grade levels. For most science classes, we are using Prentice Hall student and teacher editions. In addition to the resources that accompany the teacher's edition of the textbook, we have very well-developed lesson plans, supplemental resources, several written lab procedures and some lab equipment available to guide the students through formal lab experiments and studies. Descriptions of specific classes are provided below. We use a rotating curriculum in secondary science, which is designed to reduce the number of different classes for which the teacher is planning during a given school year. As such, one set of classes is taught during "odd years" (like 2019-2020) and another set is taught during "even years" (like 2020-2021).

Odd Years (2019-2020)

Earth Science 7-8: This standard middle school science course is taught in alternate years to students in seventh and eighth grade (two sections, approximately 25 students per class). Beginning with an introduction on a Biblical framework for studying science, the course includes units of study on astronomy and the Earth: lithosphere (plate tectonics; earthquakes and volcanoes; rocks and minerals; weathering, erosion, and deposition), hydrosphere, atmosphere, climate, and geological history. The primary text for the course is Glencoe Earth Science (2013). A wealth of resource materials from the previous teacher includes PowerPoint presentations, hands-on activities, and materials to foster student engagement in the study of science.

Physical Science 9-10: Designed for ninth and tenth graders, this course is taught in alternate years (two sections, approximately 25 students per class). Built on the Biblical framework for studying science which is developed in middle school, this course features units of study on the scientific method, electricity and magnetism, motion, forces, work and energy, sound and light waves, and introductory units in chemistry (matter, atomic theory, chemical reactions and solutions; acids, bases, and salts). The primary text for the course is Glencoe Physical Science (2012). Resources for the class include thoroughly prepared lesson plans and materials for hands-on lab activities and experiments.

Physics 11-12: The same class is taught twice (two sections; approximately 25 students per class). All juniors and seniors are required to take this class. The study of physics includes an overview of motion in one and two dimensions, vectors and scalars, dynamics, circular motion, work and energy, momentum, periodic motion, and light and reflection. The curriculum is Bob Jones: Physics for Christian Schools (2004), and the teacher edition includes a wealth of lesson plans, supplemental activities and other resources.

Physics Lab 11-12: In addition to daily classes in physics, juniors and seniors have a lab class once a week during 6th period. This 50-minute period is used to either perform or follow up on an experiment. Our goal is for students to do lab experiments every 2 weeks throughout the year. Lab experiments are a challenge in this country because it is more difficult or expensive to purchase needed supplies, but lab activities are still part of our program and expectations.

Even Years (2020-2021)

Life Science 7-8: In Genesis we read about how God created the world and all living things. This course will focus on the study of living organisms. Students will learn about various topics and concepts in life science. These concepts will center around the five living kingdoms: Monera, Protista, Fungi, Plantae, and Animalia. Students will study the scientific method and use it throughout the year to make observations about living things. The class will see how all of the kingdoms interact with each other and how we, as Christians, should interact with the world He has given us.

Biology 9-10: Biology is a science course for Bible believing Christians to study God's general revelation, which is the creation around us. Between true science and the Bible there are no contradictions. The one who wrote the Bible also created the things that scientists can observe. Christian Biology students must consider the information provided by science in light of God's word. Biology is the study of life. The main topics cover in this course are cells, genetics, microbiology, botany, zoology, and human anatomy and physiology. Life science is a pre-requisite to enroll in this course.

Chemistry 11-12: The same class is taught twice (two sections; approximately 25 students per class). All juniors and seniors are required to take this class. The study of chemistry includes an overview of the Periodic Table, chemical reactions, stoichiometry, states of matter, and acids and bases. The curriculum is Pearson Hall Chemistry (2012), and the teacher edition includes a wealth of lesson plans, supplemental activities and other resources.

Chemistry Lab 11-12: In addition to daily classes in chemistry, juniors and seniors have a lab class once a week during 6th period. This 50-minute period is used to either perform or follow up on an experiment. Our goal is for students to do lab experiments every 2 weeks throughout the year. Chemistry experiments are a challenge in this country because it is more difficult or expensive to purchase needed supplies, but lab activities are still part of our program and expectations.