



***DRAFT VERSION OF 7-12 COURSE OFFERINGS, APRIL 2018***

**7-12 COURSE OFFERINGS**

The 7-12 curriculum provides students with grace-filled lessons in *Biblical studies*, a lifelong plan for *wellness and fitness*, a mastery-based foundation in *mathematics*, and a project-based, service-learning curriculum in *science, humanities, technology, media, and the arts*. Most courses are team-taught, integrating two or more subjects according to Common Core, Next Generation Science, and North American Division standards.

At NTCA, students take increased ownership of planning their credit and portfolio requirements, assuming responsibility for their short and long-term goals as they progress throughout high school. With our personalized education, students work closely with the guidance counselor to create a plan that provides them with what they need to achieve their college and career goals.

**BIBLE**

The primary purpose of the Encounter Bible Curriculum is for our students to have a solid, deep, and personal knowledge of the truths of the Bible; to respond to Christ's invitation to live in a vibrant, lifelong relationship with Him; and to be passionate about sharing their faith in serving the global community.

**Grade 7**

With a theme of "God transforms," students move from Old Testament scenarios of the Creation story and Lucifer's fall to seeing Jesus in the New Testament and committing to serve home, the community, and the world.

## **Grade 8**

Students study God's calls to the patriarchs of old, then move to the New Testament parables, and finally apply God's calling to their own lives in making wise choices, withstanding peer pressure, and having the courage to stand up to their own convictions.

## **Grade 9**

Students explore God's existence, what He is like, and how they can have a relationship with Him. Through Jesus' humble birth, His childhood, baptism, ministry, death, and resurrection, they are led to see the love of the Father through the ultimate gift of His Son. Students also study Old Testament stories and learn about the gifts of creation, Sabbath rest, grace, and identity.

## **Grade 10**

The focus of this course is on the Lordship and presence of God. Students begin by reading the dedication of Hosea and David, and then learn of Christ's appeal for His followers to pursue humility and service as outlined in the Sermon on the Mount. Finally, they explore the early church in the book of Acts as a model for committing to live for Christ in every aspect of their lives.

## **Grade 11**

The authenticity of the Bible is presented as the foundation for all truth. Students become acquainted with the prophecies of Daniel and Revelation and study the history of their faith.

## **Grade 12**

Christianity is compared and contrasted with world religions, emphasizing its central theme of salvation through Christ alone. Real-world issues of ethics, morality, dating, and a genuine relationship with Christ are explored.

## **HEALTH/ FITNESS/SPORTS**

In grades 7-10, students take classes in health, fitness, and sports to achieve the following goals:

1. Demonstrate competency in motor skills and movement patterns needed to perform a variety of physical activities;
2. Engage in varied sports using skills and strategies of the game;
3. Demonstrate understanding of movement concepts, principles, strategies, and tactics as applied to the learning and performance of each sport;
4. Apply biomechanical concepts and principles to analyze and improve performance of self and others;
5. Exhibit responsible personal and social behavior with respect for self and others;
6. Show responsibility when given leadership roles by supporting others working towards their achievements;
7. Value physical activity for health, enjoyment, challenge, self-expression, and social interaction;
8. Enjoy the satisfaction of meeting and cooperating with others of diverse backgrounds during physical activity.

## **HUMANITIES**

The humanities block provides students with cutting-edge tools for conducting authentic research, reading critically, writing persuasively, connecting with audiences around the world in real time, and addressing real-world problems. Diverse readings, both fiction and non-fiction, provide a context for empathy and understanding. Students learn to distinguish between authentic and biased sources, locate and use primary and secondary sources, publish work to a global audience, research and understand current and historical events from a Christian worldview, communicate effectively in verbal and written forms with varied audiences, and design and implement service projects to address humanitarian needs.

### **Grade 7. World History**

Students read world classics and study significant eras of human history while engaging with the global community. They create multimedia projects to captivate real audiences with a streamlined look at our world's history.

**Grade 8. United History**

Students explore literary sources that bring American history alive, tracing the development of our country as they discover and highlight ways to make the stories real for today's audiences.

**Grade 9. Principles of Research (.5)**

Based on Allan November's principles of research, this course teaches students how to identify genuine sources of information on the internet, employ ethical research practices, and conduct original research that will make a difference in their world.

**Grade 9. Geography (.5)**

Through online platforms, students connect with people around the world to discover the characteristics that make life unique in other places.

**Grade 10. U.S. History**

Students continue exploring the history of the United States, making connections with and highlighting the stories of community members who have played a role in our country's development.

**Grade 11. World History**

Students continue exploring the world's great themes, applying universal truths from their research to their own lives and issues in the world today.

**Grade 12. Government (.5)**

Students establish the policies and practices of NTCA's Student Governance System while engaging in real-world issues in city, state, and national arenas.

**Grade 12. Economics/Personal Finance (.5)**

Students set up a business, employing sound economic strategies as they learn how practices

such as supply and demand, market value, and production costs affect bottom-line profit.

### **Grades 7-12. Writing and Speaking for Real Audiences.**

Students apply their knowledge from other courses to produce blogs, wikis, podcasts, and published articles on relevant topics.

## **MATHEMATICS**

Math is taught in a blended, personalized, competency-based format, allowing for maximum learning for students of all abilities. Blended learning includes instruction by a team of on-site teachers as well as computer-aided learning. We provide consistent feedback for students to achieve mastery.

Students meet with teachers individually 4-5 times per quarter to discuss which competencies have been met and to develop a plan to reach unmastered competencies in an effective, timely manner. In most cases, pacing of direct instruction will allow students to complete competencies for the appropriate class by year's end. Students who do not achieve at least a basic understanding of the core competencies for math in grades 7-12 will be expected to demonstrate proficiency before credit for the course is received.

### **Grade 7. Math**

Culmination of elementary math, including:

1. Operations with integers
2. Rational number addition, subtraction, multiplication and division
3. Proportions and using proportional reasoning to solve practical problems
4. Percents, including increase, decrease, and interest
5. Surface area and volume of solids
6. Data analysis and probability
7. Exponents and scientific notation

## **Grade 8. Math**

Eighth grade math is a variable-paced Algebra 1 class with course pace adapted to student proficiency. Students who are well prepared for the rigors of Algebra 1, as demonstrated by initial testing, will complete Algebra 1 by the end of the eighth-grade year. Those who are not ready to meet with success in this format will take the same material but at a slower pace, completing Algebra 1 by the end of the ninth-grade year.

## **Algebra 1**

Introductory level class in academy-level mathematics, including:

1. Equations and inequalities
2. Functions
3. Systems of equations and inequalities
4. Exponents and polynomials
5. Finding solutions to quadratics
6. Exponential functions
7. Data analysis and probability

## **Geometry**

This course in Euclidean geometry and logical reasoning leads students to apply mathematical reasoning to a variety of authentic scenarios as they learn to make wise decisions based on analysis of facts. Two column proofs are used as a guide to prove simple concepts about plane and three-dimensional objects as the following topics are presented:

1. Introductory right angle trigonometry
2. Perimeter, circumference and area of two dimensional and three dimensional shapes
3. Parts of circles including segments, sectors, and any portion of a circle bounded by lines passing through circles
4. Geometric reasoning and beginning proof
5. Line relations: parallel, perpendicular, and skew
6. Properties and attributes of triangles, polygons, and quadrilaterals

7. Similarity as opposed to congruency

## **Algebra 2**

This course includes a brief summary of concepts learned in Algebra 1, then moves on to:

1. Linear equations and functions including matrices and systems of equations
2. Quadratic, polynomial, and radical functions, including inverses
3. Exponential and logarithmic functions
4. Rational functions
5. Conic sections
6. Discrete mathematics including sequences, series, probability, and statistics
7. Trigonometry: trigonometric functions, identities, and equations (introductory)

## **Precalculus**

Precalculus provides a transition from Algebraic reasoning to Calculus-based reasoning and includes the following concepts:

1. Power, polynomial, rational, exponential, logarithmic, and trigonometric functions
2. Trigonometric identities and proof (verification)
3. Systems of equations with a review of matrices, especially as related to vectors
4. Conic sections and parametric equations
5. Polar coordinates and complex numbers
6. Sequences and series including non-arithmetic and non-geometric series/sequences
7. Inferential statistics
8. Introduction to limits and derivatives

***Please note:*** Classes in Statistics and Calculus may be offered to students who have completed Precalculus prior to Senior year. Dual enrollment with local colleges may be explored as well.

## **MUSIC**

Students in Grades 7-8 must select *at least* one course in Music: Band or Choir. Students in Grades 9-12 may select any music courses as electives.

### **Intermediate Band (Grades 6-8)**

Intermediate Band is a year-long course offered for students in Grades 6-8. Beginning Band, or at least one year of band experience, is required for this class. Students develop the basic skills necessary for school and community performances. Fundamental topics include embouchure and tone development, basic music theory, sight-reading, conducting, composing, practice habits, and performing. Students in this class are highly recommended to take private lessons.

### **Intermediate Choir (Grades 7-8)**

Intermediate Choir is a year-long course offered for students in Grades 7-8. Choir members continue to develop their natural singing voice with proper vocal health. Students are introduced to basic music theory, sight-reading, a variety of choral literature, proper vocal technique, composing, and in-school or community performance opportunities.

### **High School Praise Band**

Praise band is a year-long course with an auditioned group of student leaders who desire to use their talents to lead others in worship. At least two years of instrumental experience are required as well as one year of Choir and/or vocal training. Instruments used in praise team may include wind instruments, guitar, bass, and percussion. Praise Band leads during weekly chapels, church services, and special events, as well as community performance opportunities.

### **High School Mixed Choir**

High School Mixed Choir is a one-year course with an auditioned group of students interested in using their talents in the community. The course focuses on developing the natural singing voice with proper vocal health and the use of music as service outreach. Students sing a variety of choral repertoire, sight-read, perform for special events, create community performances, and “Flash-Mobs.”

## **Handbell Ensemble**

Handbell Ensemble is a year-long course that meets after school. This course is for students in grades 7-12 interested in developing their musical skills and using their talent in the community. A minimum of one year of band or choir experience is required. Students play a variety of handbell music, develop proper handbell technique, perform for special events, and create community performance opportunities.

## **MODERN LANGUAGE**

*Note: Students who have already taken Spanish 1 and 2 who wish to pursue further levels of proficiency, or those who are interested in another language, may opt to take courses online.*

**Spanish 1** provides an introduction to the Spanish language and Spanish culture. The course objectives include learning beginning vocabulary, correct pronunciation, cultural information, grammatical instruction, and the ability to hold a simple conversation. Students engage in real conversations with Spanish speakers in live and online formats.

**Spanish 2** builds upon knowledge gained in Spanish 1. Increased mastery of functional vocabulary for communication is strongly encouraged. Students learn the past tenses, future, conditional, and subjunctive mood, and apply their knowledge of the language in writing and speaking to real-world audiences about authentic issues.

## **PERSONALIZED LEARNING**

Students at NTCA set goals to help themselves pursue personal interests, fill in educational gaps, move beyond grade-level expectations, and progress toward their career aspirations.

Mini-courses and internships are offered on Fridays and include diverse topics in the sciences, technology, humanities, media, arts, outreach, and health.

## **SCIENCE**

The science curriculum at NTCA is designed to help students identify Christian principles and values in correlation with science and to:

- Recognize God's power as Designer, Creator, Sustainer, and Redeemer in the universe;
- Acknowledge God as the Author of all scientific principles and laws regardless of man's interpretation;
- Develop stewardship and service attitudes toward health, life, and earth's environment;
- Apply Biblical principles of Christian morality, integrity, and ethical behavior to all aspects of life;
- Equip students with Christian perspectives on scientific issues.

### **Grade 7. Life Sciences**

The complexity, order, and design of living organisms provide strong evidence of God as the Designer, Creator, and Sustainer of life. There are four life science disciplinary core ideas in middle school:

1. From Molecules to Organisms: Structures and Processes
2. Ecosystems: Interactions, Energy, and Dynamics
3. Heredity: Inheritance and Variation of Traits
4. Life: Origins, Unity, and Diversity

The performance expectations blend core ideas with scientific and engineering practices, crosscutting concepts to support students in developing usable knowledge across the science disciplines.

### **Grade 8. Physical Science**

Matter and energy are organized and behave according to natural laws that cannot be explained by chance, but are consistent and give evidence of God as the Designer, Creator and Sustainer. Students continue to develop understanding of four core ideas in the physical sciences, blending scientific and engineering practices and crosscutting concepts to develop useable knowledge to explain real-world phenomena in the physical, biological, Earth, and space sciences. Students

develop and use models, plan and conduct investigations, analyze and interpret data, use mathematical and computational thinking, and construct explanations. Students are also expected to demonstrate understanding of several engineering practices, including design and evaluation.

### **Grade 9. Chemistry**

This course seeks to lay a foundation for the intricacies of the biological and physical domains. Students develop a deep understanding of the driving principles that allow matter to exist and function as it does in God's universe. They also gain knowledge of the natural world, both biological and non-biological, by learning about matter, how it is constructed, and how it interacts and combines with other matter to make up all the substances in the universe. The role of energy is explored in all of its complexity and implications for impacting systems.

### **Grade 10. Physics**

This Physics model course map is the second in a three-year course sequence that uses a customized version of the Modified High School Domains Model from NGSS. This course model assumes that students are grounded in the basics of chemistry. Physics begins by expanding upon what was learned in chemistry about matter and energy by taking a deeper look into matter and energy in God's universe and then on Earth. Course content includes the study of:

- Structure and properties of matter;
- Forces arising from the interactions between fields;
- Collisions at the macroscopic scale;
- Energy transfer and forces resulting from object interaction;
- The harnessing of energy transfer for communication purposes.

Throughout the course, relevant Earth and Space Sciences and Engineering Design principles are integrated.

### **Grade 11. Biology**

This Biology model course map is the last in a three-year course sequence that uses a customized version of the Modified High School Domains Model from NGSS. This course model assumes that students are grounded in the basics of chemistry and physics and have previously spent two years in high school developing their proficiency in the NGSS Science and Engineering Practices and Crosscutting Concepts.

The conceptual flow of this biology course model begins by building on the understanding that life on Earth today reflects a deep history. This course model includes performance expectations from Life Sciences, Earth/Space Sciences, and Engineering Design. These expectations allow students to develop a natural flow of understanding of how and why the abiotic and biotic realms are interwoven and interdependent, why living organisms share so many commonalities of structure and function, and the mechanisms that allow a rich diversity of life to exist within a wide variety of ecosystems. Students also consider the human species' place in, and effects on, Earth's living systems.

### **Grade 12. Environmental Immersion**

Students are expected to achieve all four High School Engineering Design performance expectations related to a single problem to understand the interrelated processes of engineering design. These include analyzing major global challenges; quantifying criteria and constraints for solutions; breaking down a complex problem into smaller, more manageable problems; evaluating alternative solutions based on prioritized criteria and trade-offs; and using a computer simulation to model the impact of proposed solutions.

The Environmental Immersion Program (EIP) is an intensive, year-long, interdisciplinary program open to both juniors and seniors who have a passion for understanding and preserving our natural environment. Students explore courses in Literature and the Landscape, Environmental Ethics, Economics and Policy, Photography, Biology, and Ecology, and complete their own Independent Research Project.

## **Grade 12. Science Research Program**

**(This course may be offered some years to qualifying students.)**

This intensive program offers motivated, independent science students the chance to step beyond the traditional classroom structure and explore their area of interest. Working under the guidance of a mentor scientist at a research facility the summer before senior year, students engage in cutting-edge research at university laboratories.

The Science Research Program (SRP) offers these students the opportunity to practice true laboratory science. Students will be trained in scientific methods and linked with a professional scientist, in whose lab the student will participate in ongoing research and experimentation.

### **Dual Enrollment College Credit (Pasco Hernando State College): Astronomy**

Astronomy is offered one evening per week on the Pasco Hernando State College campus for qualifying students. This course provides an exploration of our universe through descriptive studies of our solar system, planets, stars, constellations, black holes, galaxies, quasars, cosmology, and galactic and stellar evolution. Other topics included are artificial satellites, the space program, energy problems, and discussion about the possibility of extraterrestrial life. Emphasis is placed on the appreciation of astronomy through scientific reasoning, methodology and precision, and on the importance of astronomy as an integral part in an individual's everyday life.

## **TECHNOLOGY**

### **Technology/Computers**

Technology and computer standards are infused into integrated projects using tablets and computers. Students learn to utilize and integrate media as a tool for research, collaboration, creation, and presentation of their learning. They are taught appropriate usage and best practices for technology and internet utilization. This course introduces cloud computing, communication and collaboration, and data management, as well as coding and robotics, with opportunity for

students to develop individual plans for more advanced learning. Students are taught to develop an ethical, values-based approach and understanding of legal practices of technology usage.

## **VIDEO PRODUCTION**

### **Scriptwriting**

The purpose of the course is to learn about film and screenplay structure, analyze dramatic strategies in multiple genres, learn and apply correct script form, and creatively engage in the various stages of original scriptwriting.

### **Editing using Final Cut Pro X/Adobe Premiere**

**Video Editing** is a course designed to foster positive learning experiences while teaching the basic production and editing techniques of cinematography. Students actively work under time constraints of production deadlines for videos.

### **Cinematography/Lighting/Audio**

Students learn the basic operations of cameras, lighting equipment, lenses, and accessory equipment (audio). Techniques in cinematography are covered, including lighting, sound, exposure, camera types, and lenses. The class may also include instruction in the use of the jib arm, dolly, Smart Slate, and Steadicam.

### **Social Media**

This course explores the world of social media platforms and how to use them responsibly, emphasizing the benefits and drawbacks of social media. It's designed to build students' social media skills by utilizing projects that give students hands-on experience implementing social media marketing strategies. Upon completion, students are able to use social media technologies to create and improve marketing efforts for businesses.

### **Entrepreneurship (Video Marketing)**

This course allows students to explore the business of video marketing. Video Marketing is a component of an integrated marketing communications plan designed to increase audience engagement through social activity around a given video. Students engage in budgeting, pitching ideas, networking, proposal writing, and branding.

### **Advanced Video Production**

Advanced Video Production offers students the unique opportunity to develop multimedia production skills including scriptwriting, lighting, directing, filming, set design, and editing. Students refine practices in each component of production.

## **VISUAL and PRACTICAL ARTS**

### **2D/3D**

The visual and practical arts encompass the two-dimensional and three-dimensional areas of design.

### **Fabrication (Sculpture) - 3D**

This course features the construction of three-dimensional items from two-dimensional ideation sketches using additive and subtractive methods. Paper products, fabrics, foams, clay, and plaster are used to create positive and negative forms, exposing the designer/artist to many of the possible ways to solve problems requiring tangible solutions. The proper use of design terminology supports an understanding of methods and materials. Innovation and creativity is woven throughout the 2D and 3D design process to find the final solution.

### **Fabrication (Woodworking/Metal) - 3D**

The Woodworking/Metal portion of the three-dimensional design supports the solutions where structure is needed. Basic structure fundamentals using planar and linear methods are introduced and applied to most designs; projects requiring more advanced solutions are addressed on a project-by-project basis. Mechanical and adhesive fasteners are determined based on the solutions and applications.

### **Ceramics - 3D**

Ceramics is a hands-on class with an emphasis on aesthetic structure. Form and shape are addressed to give the artist/designer a broader experience, and design styles are showcased to bring out the personalities of each artist/designer. This class works with clay and glazes.

### **Drawing - 2D**

This class covers the basic fundamentals of drawing with the intention of supporting the fabrication portion of the curriculum. The emphasis is on composition, vocabulary, three-dimensional form, basic design, and light and shadow. With these techniques, visual communication is used for ideation, construction, and presentation. A basic understanding of orthographic drawings is introduced to further assist in the fabrication process. While the technical aspect of drawing will be important, the creative and innovative journey forms the foundation.

### **Painting - 2D**

This course covers the basics of art and drawing as it pertains to color. A basic understanding of color is introduced and applied throughout student projects. The use of colors and how they relate to each other are discussed and used within the curriculum. The use of digital software, as it pertains to color, is incorporated once the basic understanding of the color wheel, primary, secondary, and tertiary colors are achieved.

### **Digital Photo Design - 2D**

This class helps students obtain a basic understanding of photography in today's digital world. A working knowledge of photography vocabulary is crucial for the in-class critique. The elements that create good composition are consistent in photography and are addressed in this class. In-class critiques are mandatory and provide the best opportunity for students to apply their photographic vocabulary.



