Introduction

This guide tells you about the NCSSM Connect Program and our course offerings. NCSSM Connect courses are different from other video conference courses you may have taken. You'll collaborate and make friends with like-minded students across the state. We do our best to make class sessions engaging, interactive, and fun.

We encourage you to review the course schedule on the following page. Then, click on the course title links to see the course description, prerequisites, meeting time, course requirements, PowerSchool code, and course introduction video.

Contact your school counselor if you are interested in registering for one or more of these courses during the 2023-2024 school year!

About NCSSM Connect

NCSSM Connect courses are live, synchronous courses taught by NCSSM faculty to students in their home schools. During class, teachers use group activities and cutting-edge instructional technology to facilitate your active participation, with project-based learning and cross-site collaboration among peers around the state. You will be able to interact with students from the mountains to the coast, allowing you to personalize your learning by sharing real-life experiences and perspectives. All NCSSM Connect courses are tuition-free.

Registration is open to North Carolina Public Schools. Courses are open to students in grades 9-12.

Students/Parents should contact their school's counselor for more information. Only school personnel can register students for classes.

FALL SEMESTER – SYNCHRONOUS COURSES

Block 1	Block 2	Block 3	Block 4
Honors Aerospace Engineering 8:00AM - 9:10AM Monday - Friday	**Honors Genetics & Biotechnology** 9:50AM - 11:00AM Monday - Friday	**Honors Diseases: Dynamics of Epidemics** 12:05PM – 1:15PM Monday - Friday	**AP African American Studies** 1:30PM - 2:40PM Tuesday & Thursday
Honors Global Public Health and Infectious Disease 8:15AM - 9:25AM Monday - Friday	**Honors Forensic Science** 9:50AM - 11:00AM Monday - Thursday	**Honors Earth Science Applications** 11:40 AM – 12:50PM Monday - Friday	**Honors Creative Design for the Web** 1:30PM - 2:40PM Monday - Thursday
Honors Forensic Science 8:15AM - 9:25AM Monday - Thursday	**Honors Creative Design for the Web** 10:00AM - 11:10AM Monday - Thursday	**Honors Genetics and Biotechnology** 11:40 AM – 12:50PM Monday - Friday	**AP Calculus AB** 1:45PM - 2:55PM Monday - Friday
Honors Intro to Cybersecurity 8:10AM - 9:20AM Monday, Wednesday & Friday		**Honors Tech Art: Intro to Art, Technology, and World-Building in Video Games** 12:05PM – 1:15PM Monday, Wednesday & Friday	**Honors Race, Ethics, and Leadership** 1:30PM - 2:40PM Monday, Wednesday & Friday
		Honors Physics 11:40 AM – 12:50PM Monday - Friday	

SPRING SEMESTER – SYNCHRONOUS COURSES

Block 1	Block 2	Block 3	Block 4
Honors Forensic Science 8:15AM - 9:25AM Monday - Thursday	**Honors 21st Century Media Studies** 10:00AM - 11:10AM Monday - Friday	**Honors Anatomy and Physiology** 12:05PM – 1:15PM Monday - Friday	**Honors Global Public Health & Infectious Disease** 1:45PM - 2:55PM Monday - Friday
Honors Genetics & Biotechnology 8:15AM - 9:25AM Monday - Friday	**Honors Aerospace Engineering** 9:50AM - 11:00AM Monday - Friday	**Honors Entrepreneurial Problem Solving** 11:40 AM – 12:50PM Monday - Friday	**Honors Connected Computing: Solving Problems with Technology** 1:30PM - 2:40PM Monday, Wednesday & Thursday
Honors Intro to Computer Science & Computational Thinking (Grade 9 Only) 8:15AM - 9:25AM Monday - Friday	**AP Psychology** 9:50AM - 11:00AM Monday - Friday	**Honors Intro to Artificial Intelligence** 11:40 AM – 12:50PM Monday - Friday	**Honors Physics** 1:30PM - 2:40PM Monday - Friday
Honors Cryptography: Computer Programming & Secret Messages 8:10AM - 9:20AM Monday - Friday	**Honors Intro to Computer Science & Computational Thinking (Grade 9 Only)** 9:50AM - 11:00AM Monday - Friday		**AP Calculus BC** 1:45PM - 2:55PM Monday - Friday
AP Computer Science Principles 8:10AM - 9:20AM Monday - Friday	**Honors Biomedical Engineering** 10:00AM – 11:10AM Monday - Thursday		**AP African American Studies** 1:30PM - 2:40PM Tuesday & Thursday

AP African American Studies (Year-long Course, Two-Semester Course)

Grade Level: 10-12

Prerequisite(s): N/A

AP African American Studies Course Introduction Video

Join this course to be one of the first students to take the AP African American Studies course and the associated Advanced Placement exam. You not only have the chance to take this pioneering interdisciplinary course, but you will also have an opportunity to provide feedback about the course to the College Board and shape the future direction of the course nationwide.

Taking the pilot version of this course will provide you with **Honors credit, not AP credit**, for your NC grade point average. However, if you perform well on the AP exam, you may earn college credit, depending on the college that you choose to attend.

AP African American Studies is an interdisciplinary course that examines the diversity of African American experiences through direct encounters with authentic and varied sources. Students explore key topics that extend from early African kingdoms to the ongoing challenges and achievements of the contemporary moment. Given the interdisciplinary character of African American studies, students in the course will develop skills across multiple fields, with an emphasis on developing historical, literary, visual, and data analysis skills. This course foregrounds a study of the diversity of Black communities in the United States within the broader context of Africa and the African diaspora.

Requirements:
Materials/Textbook: N/A

Site Requirements: Students are expected to take the pilot AP African American Studies exam at their public high school in the spring of 2024.

Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 46015X0

AP Calculus AB

Grade Level: 10-12

Prerequisite(s): Completion of Precalculus with a grade of B+ or higher through your local high school or NCVPS.

AP Calculus AB Course Introduction Video

AP Calculus AB covers the material typically covered in first-semester college-level courses in Calculus. The course covers all of the topics in College Board's AP Calculus AB curriculum. We will cover functions, limits, derivatives and their applications, transcendental functions, and special integration methods and their applications. You will use multiple representations, such as graphical, numerical, analytical, and verbal to foster a more complete understanding of Calculus. Technology will be used to reinforce the relationships among the multiple representations of functions, confirm written work, facilitate experimentation, and assist with the interpretation of results.

Students registering for AP Calculus AB in the fall continue in the yearlong sequence by taking AP Calculus BC in the spring.

*Note: This course is designed to be a two-course sequence. A prerequisite to continue in the yearlong sequence in the Spring is a B or higher in AP Calculus AB.

Requirements:

Materials/Textbook: Textbook will be provided on loan from NCSSM.

Site Requirements: Students must have computer access with stable internet connection. Each student must have a TI-84, TI-84 Plus, or equivalent graphing calculator that they may take home. Students should also have access to the internet via smartphone, tablet, or personal computer to access additional instructional materials.

PowerSchool Course Number: 2A007X0

AP Calculus BC

Grade Level: 10-12

Prerequisite(s): Completion of AP Calculus AB with a grade of B or higher through your local high school or NCVPS.

AP Calculus BC Course Introduction Video

AP Calculus BC covers the material typically covered in second semester college-level courses in calculus. The course covers all the topics in College Board's AP Calculus BC curriculum not already covered in the AP Calculus AB curriculum. You should be comfortable with derivative and integration techniques, as you will use these fundamentals to build understanding of the calculus of polynomial approximations and series, vectors, polar functions, and parametric functions. During the semester, you will explore concepts graphically, numerically, and analytically to foster a more complex understanding. You should have a willingness to learn calculus at a very rapid pace and you will need exceptionally good study habits. This course will prepare you to take the Calculus BC Advanced Placement Exam in the spring by utilizing class time to complete AP review problem sets.

Requirements:
Materials/Textbook: Textbook will be provided on loan from NCSSM.

Site Requirements: Each student must have a TI-84, TI-84 Plus, or equivalent graphing calculator that they may take home. Students should also have access to the Internet via smartphone, tablet, or personal computer to access additional instructional materials.

PowerSchool Course Number: 2A017X0

AP Computer Science Principles

Grade Level: 10-12

Prerequisite(s): N/A

AP Computer Science Principles Introduction Video

AP Computer Science Principles is an introductory college-level computing course that introduces students to the breadth of the field of computer science. Students learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. They incorporate abstraction into programs and use data to discover new knowledge. Students also explain how computing innovations and computing systems—including the internet—work, explore their potential impacts, and contribute to a computing culture that is collaborative and ethical.

Requirements:

Materials/Textbook: N/A

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 0A027X0

AP Psychology

Grade Level: 10-12

Prerequisite(s): Completion of Biology with a grade of B or higher through your local high school or NCVPS.

AP Psychology Course Introduction Video

The purpose of AP Psychology is to introduce students to the study of behavior and mental processes of humans and animals. The course will involve nightly reading assignments, critical thinking questions, vocabulary development, labs, projects, and research investigations and experiments. In addition, there will be frequent reading quizzes and unit exams involving both multiple-choice and free-response components. The course will cover topics generally discussed in a college-level introductory psychology course. These topics include social psychology, history, careers, theories, research methods, biological bases of behavior, sensation/perception, consciousness, learning, memory, cognition, development, personality, stress, disorders, and treatments. Students will learn about the methods and ethical approaches of professional psychology.

Requirements:
Materials/Textbook: *Myers' Psychology for AP* by David G. Myers (2nd. Edition). ISBN:9781464113079
Barron's AP Psychology Study Guide. ISBN:9781438010694

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 4A057X0

Honors 21st Century Media Studies

Grade Level: 10-12

Prerequisite(s): N/A

Honors 21st Century Media Studies Introduction Video

21st Century Media Studies is an interdisciplinary cultural studies course in which students examine and interpret the ways various modes of media influence us. Students study media theory, analyze cultural and historical contexts, aesthetics of a variety of formats, examine how forms have shifted, and investigate the relationship between media and reality, ways that media influences and changes our culture, and how responses to media change over time. The course considers a variety of critical approaches that include: cultural, psychoanalytic, feminist, and others. Through these approaches, students contemplate issues and problems, considering such aspects as: technology, representations of reality, human meaning, identity politics, economics, self/other dynamics, gender/race/ethnicity, and community/belonging. This lens of analysis reverberates both within and outside of America.

Requirements:
Materials/Textbook: N/A

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 96105X0

Honors Aerospace Engineering

Grade Level: 10-12

Prerequisite(s): Completion of Math III or Integrated Math III with a B or higher through your local high school or NCVPS. Students should be able to relate lengths of sides of a triangle to angles using trigonometry.

Honors Aerospace Engineering Course Introduction Video

This course introduces students to the field of aerospace engineering, engineering design, and the core math and science concepts needed to solve problems related to aerospace and other engineering disciplines. The course is presented with historical context, and topics include spatial reasoning, properties of fluids, descriptions of 3-dimensional motion, the mechanics of flight, and basic aero and thermodynamic principles applied to the design and control of aircraft and spacecraft. Students have opportunities to experiment, calculate, compute, design and build as they explore and solve problems associated with the mechanics of flight, and are encouraged to earn course credit through aerospace-themed projects of their own design.

Requirements:
Materials/Textbook: Materials will be shipped on loan from NCSSM. The facilitator will need to receive the materials, distribute them to students, and collect them to return (or retain for future classes) at the end of the course.

Site requirements: Students must have computer access with stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 30205X0

Honors Anatomy and Physiology

Grade Level: 10-12

Prerequisite(s): Completion of a general biology course with a grade of B or higher through your local high school or NCVPS.

This course provides an in-depth study of the structure and function of the human body. The structure of the body systems, including integumentary, skeletal, muscular, cardiovascular, respiratory, endocrine, digestive, urinary, and reproductive systems, is put into context of how the body grows, maintains homeostasis, and responds to the disease state. The laboratory component includes microscopic analysis and dissection of relevant animal models and physiological concepts via experimentation.

Requirements:

Materials/Textbook: N/A

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 30205X0

Honors Biomedical Engineering

Grade Level: 10-12

Prerequisite(s): Completion of Math II Honors with a B or better, or in Math II with an A through your local high school or NCVPS.

Honors Biomedical Engineering Course Introduction Video

How are electrical signals from the heart measured outside the body? Is there a way to design high-heel shoes that don't hurt women's feet? How do engineers design heart valves that only allow blood to flow one way? This course introduces students to the different subspecialties of biomedical engineering including bioelectronics and instrumentation, biomaterials, biomechanics, and biochemical. Through written problems, hands-on and design activities, and reviewing literature in the field, students explore and experience biomedical engineering principles, the engineering design process, and problem-solving and troubleshooting.

Requirements:
Materials/Textbook: N/A

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 30205X0

Honors Connected Computing: Solving Problems with Technology

Grade Level: 10-12

Prerequisite(s): N/A

Honors Connected Computing: Solving Problems with Technology Course Introduction Video

This interdisciplinary course delves into the multifaceted implications, inherent biases, and potential of technology to shape the world and address global issues. Through research and critical examination, students will gain an in-depth understanding of the historical and future trajectory of technology, utilizing the full range of library resources at NCSSM. The course examines the ways in which access to technology shapes societal priorities and challenges commonly held notions of human-technology interactions, with a focus on utilizing technology for positive impact and problem-solving. Topics such as artificial intelligence and machine learning will be explored, as well as strategies for utilizing technology to address global challenges.

Requirements:
Materials/Textbook: Some equipment will be provided on loan from NCSSM; schools are responsible for materials. A list of additional needed materials will be provided.

Site Requirements: The instructor will provide a list of educational websites that students must be able to access during class, including but not limited to Google Drive. Please note that students may be accessing *gaming sites* that may normally be blocked by school computers. The site document will specifically list sites and tools students will need to access. Students must also have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 96105X0

Honors Creative Design for the Web

Grade Level:10-12

Prerequisite(s): N/A

Honors Creative Design for the Web Course Introduction Video

Unlock the secrets behind crafting captivating websites that leave a lasting impression. This course delves into the art and science of web design, exploring the principles of responsive design, HTML, CSS, and JavaScript. You will learn how to make informed decisions and put your creativity to the test as you design engaging and accessible websites. Benefit from insightful discussions and guest speaker sessions with experts from various fields of web design. This is your opportunity to turn your passion for design into tangible and impactful results. Join us on a journey to elevate your web design skills and make a mark in the digital world.

Requirements:
Materials/Textbook: N/A

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 96105X0

Honors Cryptography: Computer Programming & Secret Messages

Grade Level: 10-12

Prerequisite(s): N/A

Honors Cryptography: Computer Programming & Secret Messaging Introduction Video

This course introduces students to cryptographic methods used to encipher and decipher secret messages with an emphasis on using computer programming to automate the process. Through class discussions, problem-solving, group activities, and programming assignments, students will learn a variety of encryption schemes ranging from the Caesar cipher to modern public key encryption used to secure digital communications online. Students will learn introductory number theory and statistics to describe these methods and identify weaknesses that allow secret messages to be cracked without knowledge of the key. Students will also learn programming topics such as variables, functions, conditional logic, looping, and file input/output in the Python language to implement each cryptographic method. This course will utilize a blended learning environment with large portions of material being taught online while utilizing in-class time for working in groups.

Requirements:

Materials/Textbook: N/A

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 28005X0

Honors Diseases, the Dynamics of Epidemics

Grade Level:10-12

Prerequisite(s): N/A

Honors Diseases, the Dynamics of Epidemics Course Introduction Video

After covering the basics of immunology and pathogens, students will use a case study approach to study different epidemics. Students will look at the dynamics of childhood diseases, evolution of drug resistance, digital epidemiology, disease surveillance, vaccinations, and more. By looking at the history of epidemiological response to modern-day public health initiatives, students will analyze individual epidemics for their efficacy and in particular, the many equity issues surrounding those responses. This course will use case studies to promote a seminar-style course filled with discussion, research, and systems thinking.

Requirements:
Materials/Textbook: N/A

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 60195X0

Honors Earth Science Applications

Grade Level: 10-12

Prerequisite(s): N/A

Honors Earth Science Applications Course Introduction Video

Discover how geology relates to engineering, sustainability, and environmental problems. Students will focus on the core geologic processes and real-world scenarios with Earth processes (plate tectonics, cycling of materials, landslides, flood hazards) and Earth materials (minerals, energy resources, mined resources). Projects will focus on scaling problems over time and analyzing numerous variables. The real-world scenarios allow the application of skills in data/visualization, and determining and analyzing the factors to model a system. Key projects focus on applying soil properties to cite a real estate development, building a system model of raw materials, energy, and waste needed to manufacture consumer goods/foods, creating risk hazard maps for real locations in NC for hazards like flooding or landslides.

Requirements:

Materials/Textbook: Supplemental material will be provided on loan from NCSSM after the 10th day of class.

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 30205X0

Honors Entrepreneurial Problem-Solving

Grade Level: 10-12

Prerequisite(s): N/A

Honors Entrepreneurial Problem-Solving Course Introduction Video

In this course, students will build foundational skills to identify gaps/needs in the marketplace, design solutions, begin a start-up, and dive deep to understand and solve a business problem. Students will learn the teamwork and problem-solving skills required to solve real problems for real businesses. Students will work with real businesses and nonprofits to help them solve a real problem in their organization. Using the Teamship model of District C, small teams of students are coached to implement twelve tools of teamwork and problem-solving to present a solution their business can implement. Through a business partner, learners will be immersed in an industry, their business, and the problem by applying entrepreneurial and design thinking skills to deliver value to a business.

Requirements:

Materials/Textbook: N/A

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 96105X0

Honors Forensic Science

Grade Level: 10-12

Prerequisite(s): Completion of Language Arts/ English with a grade of "A", completion of Biology I and Math III through your local high school or NCVPS.

Honors Forensic Science Course Introduction Video

This course focuses on the application of basic biological, chemical, and physical science principles, and technological practices as they relate to judicial and civil issues. It includes the investigation of fingerprinting, fiber analysis, ballistics, arson, trace evidence analysis, poisons, drugs, blood spatters, and blood samples. In addition, students must incorporate technology, communication skills, language arts, art, family and consumer science, mathematics, and social sciences. Good writing skills are imperative. Through online lessons, virtual and hands-on labs, and analysis of fictional crime scenarios, students learn about forensic tools, technical resources, forming and testing hypotheses, proper data collection, and responsible conclusions.

Requirements:
Materials: Some equipment will be provided on loan from NCSSM; schools are responsible for returning materials. A list of additional needed materials will be provided.

Because of potential graphic material in some of the modules, parents are asked to sign a permission slip.

Site Requirements: Facilitator assistance will be required to set up labs and proctor assessments. The instructor will provide a list of educational websites that students must be able to access during class, including but not limited to Google Drive. Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 30205X0

Honors Genetics & Biotechnology

Grade Level: 10-12

Prerequisite(s): Completion of Biology I with a B or higher and completion of Math III through your local high school or NCVPS.

Honors Genetics & Biotechnology Course Introduction Video

What do crime scene investigations, agriculture, medicine, conservation biology, and manufacturing have in common? They have all been revolutionized by biotechnology! Almost every day, we read about new developments in the rapidly changing fields of genetics and DNA-based biotechnology. In this course, students will first explore classical genetics and then move on to examine the structure and function of DNA and proteins. With state-of-the-art laboratory experiments, students will analyze DNA fingerprints from a crime scene, genetically transform bacteria, and investigate their own DNA! Finally, they will survey the applications of biotechnology in many diverse fields and discuss in depth how biotechnology is changing our daily lives and our future. With the decline of traditional manufacturing in North Carolina, biotechnology is positioned to become a vital part of North Carolina's 21st-century economy.

Requirements:
Materials/Textbook: Textbooks must be provided by the partner school. We are transitioning to a new textbook, but if you have older textbooks, you may continue to use them. Old Textbook = *Essential Genetics: A Genomics Perspective* by Daniel L. Hart l Jones and Bartlett Press 4th or 5th edition ISBN: 0763773646 | ISBN 13: 9780763773649 If you are working with us for the first time, please purchase our new textbook: *Concepts of Genetics*, by Klug and Cummings from Pearson Education. The instructor will assign general readings and problem sets from old and new books during the transition.

Site requirements: Facilitator assistance will be required to set up labs. Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 30205X0

Honors Global Public Health and Infectious Disease

Grade Level: 10-12

Prerequisite(s): Completion of Language Arts/ English with a grade of "A" through your local high school or NCVPS.

Honors Global Public Health and Infectious Disease Course Introduction Video

This course introduces a range of topics and issues in public health, with an emphasis on global public health. Some possible topics of discussion include the health and welfare of women and children in low-income countries, the impact of emerging and re-emerging infectious diseases across the globe, food insecurity and malnutrition, demographic transition and immigration, global fertility and mortality, the stigma of mental health, and occupational health. This course will also address several impactful case studies and health and biomedical ethics controversies. As public health relies on a number of systems in order to serve diverse populations across the globe, this course will take a systems thinking and modeling approach, using authentic performance assessments with students working in teams to apply concepts learned throughout the term. This interdisciplinary course requires complex reasoning and critical thinking skills, extensive use of technology, communication, and problem-solving skills. Strong writing skills are imperative.

Requirements:
Materials/Textbook 1: *Public Health: What It Is and How It Works*, 6th edition by BJ Turnock, Jones and Bartlett Learning, 2015. ISBN 978-1-284-06941-9
Textbook 2: *Controversies in Public Health and Health Policy* by Jan K. Carney. Jones and Bartlett Learning, 2016. ISBN 978-1-284-04929-9
Materials: Some equipment will be provided on loan from NCSSM; schools are responsible for materials. A list of additional needed materials will be provided.

Site Requirements: Facilitator assistance will be required to set up labs and proctor assessments. The instructor will provide a list of educational websites that students must be able to access during class, including but not limited to Google Drive. Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number:60195X0

Honors Introduction to Artificial Intelligence

Grade Level: 10-12

Prerequisite(s): Completion of Math I or Integrated Math I with a B or higher through your local high school or NCVPS.

Honors Introduction to Artificial Intelligence Course Introduction Video

Artificial Intelligence, or AI, enables computer systems to perform tasks that usually require human intelligence, such as visual perception, speech recognition, and decision-making. In this class students will explore how and what types of data can be collected for AI systems, how computers can "learn" from this data and use what is learned to help interpret the world and make decisions. Students will identify and explore the implications of AI systems currently in everyday use in areas such as social media, mapping software, and financial institutions, and consider the emerging areas where AI will be applied. Topics also include how AI has been portrayed in popular culture, how AI systems interact with humans, and the ethical considerations surrounding potential societal harm from inappropriately designed, trained, and/or applied AI systems. Students will experiment and compute as they explore and solve AI-related problems.

Requirements:
Materials/Textbook: Some free software must be downloaded and installed on all student machines.

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 30205X0

Honors Introduction to Computer Science & Computational Thinking

Grade Level: 9th Grade ONLY

Prerequisite(s): N/A

Honors Introduction to Computer Science & Computational Thinking Course Introduction Video

This survey course covers concepts in computational thinking and computer science and is well suited to students that are interested in technology and want to get an overview of how computer science is used in different fields. In this hands-on class with multiple projects, students will learn about the principles of computer science by exploring topics like how algorithms shape our world, Artificial Intelligence, cybersecurity, and programming languages like Python, HTML, CSS, Scratch, and JavaScript. Students will meet mentors, leaders, and historic figures in a wide variety of STEM careers and discuss some of the obstacles they've faced. Students will leave the course with a solid foundation in computer science and computational thinking, and a passion and excitement for exploring the field further, and be ready to take on more advanced STEM coursework with confidence. This class is fun and challenging; students will leave excited about future possibilities for careers in STEM fields.

Course Objectives:

- Identify the role and impact of computer science and computational thinking in various industries and disciplines, and be aware of the different career opportunities available.
- Solve problems using computational thinking, both as an individual and in a team setting, and apply these skills across different disciplines.
- Create and implement functional programs using a variety of computer programming languages, such as Python, HTML, CSS, and JavaScript, adhering to best practices in code documentation.

Requirements:

Materials/Textbook: N/A

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 96105X0

Honors Introduction to Cybersecurity

Grade Level: 9-12

Prerequisite(s): N/A

Cybersecurity affects every individual, organization, and nation. This course helps build student experience to become responsible digital citizens by focusing on evolving technological environments where students will learn different ways of securing information, including personal, organizational, and national data. Introductory cybersecurity topics such as digital citizenship, cryptography, software security, and networking will develop an understanding of the multifaceted career field in cybersecurity.

Requirements:
Materials/Textbook: N/A

Site Requirements: The instructor will provide a detailed list of educational websites that students must be able to access during class, including but not limited to Google Drive. Please note that students may be accessing *gaming sites* that may normally be blocked by school computers. The site document will specifically list sites and tools students will need to access.

Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 96105X0

Honors Physics

Grade Level: 10-12

Prerequisite(s): Completion of Math III with a C or higher through your local high school or NCVPS.

Honors Physics Course Introduction Video

This course is a hands-on, inquiry-based introductory course that combines both conceptual and mathematical approaches to learning physics. The course covers mechanics (Newton's laws of motion and their applications) and other topics such as waves, electricity, and modern physics. Students will learn to solve real problems by investigating real systems. Investigations will cover physics topics that are fun and engaging for the students. Students will design experiments, use accurate measuring equipment, and construct and test conclusions based on accurate data. Some simple programming in Python will be taught.

Requirements:
Materials/Textbook: Textbook will be provided on loan from NCSSM.

Each student must have a graphing calculator (TI-83, TI-84 or TI-89) that they can take home.

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 30205X0

Honors Race, Ethics, and Leadership

Grade Level: 10-12

Prerequisite(s): N/A

Honors Race, Ethics, and Leadership Course Introduction Video

Students study profiles of leadership in relation to racial justice and equality. They also acquire a knowledge of ethics and apply that knowledge to historical and contemporary issues involving racial identity and racial justice in the United States. Topics addressed in the course include mass incarceration, race-based medicine, eugenics, racial profiling, gerrymandering, stereotype threat, racial privilege, and cultural appropriation. Course materials and activities include readings, discussions, video clips, and guest speakers.

Requirements:
Materials/Textbook: N/A

Site Requirements: Students will participate in live class sessions on Mondays, Wednesdays, and Fridays and will engage in online asynchronous learning activities during the other two days of the week. Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 48005X0

Honors Tech Art: Introduction to Art, Technology, and World-Building in Video Games

Grade Level: 10-12

Prerequisite(s): N/A

Honors Tech Art: Introduction to Art, Technology, and World-Building in Video Games Course Introduction Video

In this semester-long course you'll learn a little something about artistic and technical elements used in the creation of video games. In this survey course, you'll explore the history of video games, video gaming engines, traditional art principles, fundamentals of visual and audio design, and elements of visual storytelling. You'll start by analyzing the artistic design process and by creating original artwork based on your personal interests. You'll also create original sounds, 2D and 3D models, and use elements of AI and machine learning to create new art. Each unit will have both technical and creative challenges, mixing synchronous and asynchronous activities. You will be encouraged to explore your personal interests and create something you are passionate about by identifying real-world issues that need solving, creating solutions to problems through the design process, and ultimately building the type of virtual world you want to see. This course is for anyone who wants to know more about what goes into creating video games and how to create art in 3D spaces.

Requirements:
Materials/Textbook: N/A

Site Requirements: Students must have computer access with a stable internet connection and appropriate permissions for web conferencing. Students in shared spaces should have individual audio devices (headphones with microphones).

PowerSchool Course Number: 96105X0