Centreville High School
Core Course Options and Expectations

This document is intended to provide you with information and expectations about student core course options in the following departments to assist you with course selections during academic advising.

ENGLISH

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: English 9 **Course Number:** 113000 **Grades:**9 **Credits:** one **Duration:**36 weeks (year) **Prerequisite:** English 8	Students read and analyze a variety of literary and nonfiction texts, exploring the characteristics of different forms and the techniques authors use to achieve their intended purpose. In addition to a study of print texts, students evaluate, analyze, and create media messages to develop media literacy. Language study extends students' vocabulary through learning about connotations, denotations, word origins, and structures in authentic texts. Students apply their understanding of grammar, capitalization, punctuation, spelling, sentence structure, and paragraphing to varied and frequent writing assignments. Through narrative, expository, and persuasive writings, students build on their understanding of writing as a process of prewriting, drafting, revising, and publishing. In the research process, students find, evaluate, and select appropriate sources to create research products. They also develop communication skills by evaluating presentations and creating and delivering their own, both collaboratively and individually. (This is a	● Students do the majority of the reading in-class. ● Literary skills are guided with lots of modeling. ● Assignments are required to be completed in class with teacher guidance. ● Reading: in-class and PLUS time is provided each week for their choice reading and a project is completed at the end of the quarter. ● Everything is modeled and practiced in smaller chunks and in greater depth than in an honors class. ● The focus is on skills, not how many pieces of literature or writing a class gets through.

	Standards of Learning aligned course, which is tested in 11th grade.)	
Course Information **Course Title:** English 9 HN **Course Number:** 113036 **Grades:**9 **Credits:** one / weighted +0.5 **Duration:**36 weeks (year) **Prerequisite:** English 8	**Course Description** Students extend their language skills through deep reading and purposeful written and oral communication. Students read, analyze, and compare a variety of literary and nonfiction texts, exploring the characteristics of different forms and the purposeful ways authors use language and techniques to achieve their intended effect. Through the study of authentic texts, students build a sophisticated vocabulary by applying their knowledge of connotations, denotations, word origins, and structures. In addition to a study of print texts, students evaluate, analyze, and create media messages to better understand the impact and role of media in society. Students apply their understanding of language to engage in varied and frequent oral and written assessments including research products. Through these tasks, they engage in personal inquiry to develop their own views on topics and craft writing for specific audiences and purposes. (This is a Standards of Learning aligned course, which is tested in 11th grade.)	**Workload and Course Expectations:** ● Students will read additional literature and are expected to finish more quickly—majority of the reading is done at home. ● Literary skills are modeled at the beginning of the year and then students utilize them on their own. ● Assignments require a higher level of analysis. ● Students use PLUS time for reading of choice and have a project due at the end of the quarter. ● The overall pace is quicker in an honors class. ● Overall expectations are higher in that students will move forward at a more rapid pace and be able to function independently without constant teacher interaction.
Course Information **Course Title:** English 10 **Course Number:** 114000 **Grades:**10 **Credits:** one **Duration:**36 weeks (year) **Prerequisite:** English 9	**Course Description** Students read and analyze a variety of literary and nonfiction texts, comparing and contrasting the techniques authors use in literature of different cultures and eras. In addition to a study of print texts, students examine similarities and differences among a variety of media messages as they develop media literacy. Language study continues to extend students' vocabulary through learning about connotations, denotations, word origins, and structures. Students apply their understanding of grammar, capitalization, punctuation, spelling, sentence structure, and	**Workload and Course Expectations:** ● Students do the majority of the reading in-class with guidance from the teacher ● Students will practice persuasive and analytical writing in a variety of ways in preparation for upcoming EOC assessments given in the following grade. ● Students will engage in the research process throughout the school year.

	paragraphing to varied and frequent writing assignments. Students expand their understanding of writing as a process and develop their skills in revising to address a specific audience and purpose, with an emphasis on expository and analytical writing. In the research process, students collect, evaluate, organize, and present accurate and valid information to create research products. They also improve communication and collaboration skills through small and large group discussions and presentations. (This is a Standards of Learning aligned course, which is tested in 11th grade.)	● Students will frequently collaborate with other students and give presentations while engaging with a variety of media to strengthen communication skills. ● Students may be expected to complete long term, independent projects outside of the classroom.
Course Information **Course Title:** English 10 HN **Course Number:** 114036 **Grades:**10 **Credits:** one / weighted +0.5 **Duration:**36 weeks (year) **Prerequisite:** English 9	**Course Description** Students deepen their analysis of literary and nonfiction texts to examine the purposeful ways authors use language and techniques to shape meaning. As they explore a variety of world literature texts, students compare themes among literature, history, and culture. In addition, students explore nonfiction texts to gain insight into topics, themes, and conflicts presented in literature and society. Students also critique media messages, analyzing the strategies used to impact a targeted audience. Through the study of these varied, authentic texts, students build a sophisticated vocabulary by applying their knowledge of connotations, denotations, word origins, and structures. Students apply their understanding of language to the writing process to provide analysis on a variety of topics. They build expertise in collaboration and communication skills as they deepen their understanding of language. They also engage in personal inquiry through the research process and synthesize information from a variety of perspectives to develop research products. (This is a Standards of Learning aligned course, which is tested in 11th grade.)	**Workload and Course Expectations:** ● Students are expected to read inside and outside the classroom independently ● Students are expected to engage in a variety of writing, some of which is intended to prepare students for the AP curriculum. These rigorous writings may include timed writes and literary analysis essays along with other forms of persuasive and analytical writing. ● Students will engage in the research process throughout the school year. ● Students will frequently collaborate with other students and give presentations while engaging with a variety of media to strengthen communication skills.

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: English 11 **Course Number:** 115000 **Grades:**11 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**English 10	Students read and analyze a variety of literary and nonfiction texts, comparing various works to analyze themes, make inferences, and draw conclusions. To further their media literacy, students evaluate sources to determine author's purpose and intended effect. Language study extends students' vocabulary through applying understanding of connotations, denotations, word origins, and structures. Students apply their understanding of grammar, capitalization, punctuation, spelling, sentence structure, and paragraphing to varied and frequent writing assignments, with an emphasis on persuasive writing. Students apply their skills and adapt content, vocabulary, voice, and tone to a specific audience and purpose. In the research process, students analyze, evaluate, synthesize, and organize information from a variety of sources to produce research products. They also refine their oral communication skills through gathering and organizing evidence to support a position in informative and persuasive presentations. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	● Students will read one whole-class novel per quarter in the classroom guided by the teacher(s) as opposed to bringing them home. ● Students will read choice books during dedicated reading time in-class, but are also expected to read these books at home. ● Class time is used for all assignments. ● In-class opportunities for all students to upgrade/revise assignments ● Students will be expected to present to large groups or small groups ● Students will write and present assignments using the MLA research process ● Students will have parameters, exemplars, and models to help them plan. ● Students will write one essay per quarter with outlines, scaffolds, and teacher/peer feedback. Essays will primarily be persuasive in nature. ● Students will prepare for and take the Business Writing Workkeys (state test, Writing credit needed to graduate) in January ● Students will prepare for and take the End of Course Reading SOL (Reading credit needed to graduate) in April or May ● Students will learn grammar concepts through NoRedInk
Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: English 11 HN **Course Number:** 115036	Students build expertise in their analysis of literary and non-literary texts and apply persuasive techniques to craft	

Grades:11 **Credits:**one / weighted +0.5 **Duration:**36 weeks (year) **Prerequisite:**English 10	written and oral communication. Throughout the course, students engage in deep analysis of the ways authors make stylistic choices to create specific effects as they examine the ways literature helps make sense of the American experience. Through the study of nonfiction texts, students analyze patterns of rhetoric and organization to determine how rhetorical devices function to inform and persuade an audience. In addition, students analyze and evaluate media messages to examine how the media strategically influences beliefs and behaviors. Through the study of these varied, authentic texts, students build a sophisticated vocabulary by applying their knowledge of connotations, denotations, word origins, and structures. Students apply their understanding of rhetoric to craft independent arguments in oral presentations and writing that reflect personal communication styles appropriate to the audience and purpose, with an emphasis on persuasion. They also engage in the research process to generate new understandings or solve problems through the synthesis of information on a variety of topics. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	● Students will read whole-class novels in the classroom guided by the teacher(s) and may expect to read more texts at home on their own without the direction of teacher(s) ● Students will read one full length text per quarter as a whole group independently and in a classroom setting ● Increased rigor for oral presentations to prove proficiency as a communicator with FCPS Portrait of a Graduate skills ● Students will sometimes choose free reading books to read at home and in class ● Class time is used for all assignments and students may anticipate 30 minutes of at home work per class period in honors ● In-class opportunities for all students to upgrade/revise assignments ● Students will be expected to present to large groups or small groups ● Students will write and present assignments using the MLA research process ● Students will have parameters, exemplars, and models to help them plan. ● Students will write one essay per quarter with outlines, scaffolds, and teacher/peer feedback. Essays will primarily be persuasive in nature. ● Students ● Students will prepare for and take the Business Writing Workkeys (state test, Writing credit needed to graduate) in January ● Students will prepare for and take the End of Course Reading SOL (Reading credit needed to graduate) in April or May

		• Students will learn grammar concepts through NoRedInk
Course Information **Course Title:** AP English Lang/Comp **Course Number:** 119605 **Grades:**11 **Credits:** one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:** English 10	**Course Description** Students study prose analysis and advanced composition at a level equivalent to that of a full-year introductory college course. With an emphasis on nonfiction, students read and analyze texts from a variety of eras and styles to develop skills in recognizing rhetorical context, author's purpose, and the use of the strategies of language. In refining their awareness of language and the writer's craft, students apply purposeful rhetorical strategies to their writing, and compose for a variety of purposes. Completion of this course fulfills the English 11 course requirement. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved. Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	**Workload and Course Expectations:** • This course is designed for students who want to be challenged in reading and writing at the **college level**. • We use challenging American literature and nonfiction as the basis for developing vocabulary, analyzing rhetorical devices, writing essays, and fostering class discussions. • Students are expected to read and write during class and at home extensively and are expected to use strategies and feedback towards progressive improvement. • The course prepares students to take a state Writing test (either the Writing SOL or the Business Writing Workkeys), the Reading SOL **and** the AP exam at the end of the year.
Course Information **Course Title:** English 12 **Course Number:** 116000 **Grades:**12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**English 11	**Course Description** Students read and analyze a variety of literary texts within their historical contexts. Through the study of nonfiction texts, students further develop their inferential, evaluative, and synthesis skills as they critically evaluate information to solve problems, answer questions, and generate new knowledge. To deepen their media literacy, students evaluate sources to determine author's purpose and intended effect. Language study expands students' general and specialized vocabulary through speaking, listening, reading, and viewing. Writing	**Workload and Course Expectations:** • Students will read a variety of texts (novels, short stories, poems, fiction & nonfiction, etc.) in the classroom guided by the teacher(s) as opposed to bringing them home. • Students will read choice books during dedicated reading time in-class, but are also expected to read these books at home. • Class time is used for all assignments.

	includes the development of externally supported informational, expository, and persuasive/argumentative essays that demonstrate knowledgeable judgments. In addition, students apply research skills to write documented papers. They also apply oral communication skills to craft formal presentations and further develop their listening skills as they analyze the relationships among purpose, audience, and content of presentations.	● In-class opportunities for all students to upgrade/revise assignments ● Students will be expected to present to large groups or small groups ● Students will write and present assignments using the MLA research process ● Students will have parameters, exemplars, and models to help them plan. ● Students will write one essay per quarter with outlines, scaffolds, and teacher/peer feedback.
Course Information **Course Title:** English 12 HN **Course Number:** 116036 **Grades:**12 **Credits:**one / weighted +0.5 **Duration:**36 weeks (year)	**Course Description** Students analyze the ways authors use language and techniques to shape meaning in literary and nonfiction texts, and they consider how texts provide insight to our complex and changing world. In addition to print texts, students analyze and evaluate how media messages influence beliefs and behaviors across time, place, and culture. Through the study of these varied, authentic texts, students build a sophisticated vocabulary by applying their knowledge of connotations, denotations, word origins, and structures. Students apply their language and communication skills to create texts for authentic audiences and purposes, and they use writing as a tool for personal inquiry and communication. Students also communicate through oral presentations and small-group collaboration specific to authentic situations. Throughout the course, students develop a formal research paper that analyzes complex issues through the synthesis of diverse sources.	**Workload and Course Expectations:** ● Students will read a variety of texts (novels, short stories, poems, fiction & nonfiction, etc.) in the classroom guided by the teacher(s) and may expect to read more texts at home on their own without the direction of teacher(s) ● Students may be assigned to read one full length text per quarter as a whole group independently and in a classroom setting ● Increased rigor for oral presentations to prove proficiency as a communicator with FCPS Portrait of a Graduate skills ● Students will sometimes choose free reading books to read at home and in class ● Class time is used for all assignments and students may anticipate 30 minutes of at home work per class period in honors ● In-class opportunities for all students to upgrade/revise assignments ● Students will be expected to present to large groups or small groups

		● Students will write and present assignments using the MLA research process ● Students will have parameters, exemplars, and models to help them plan. ● Students will write one essay per quarter with outlines, scaffolds, and teacher/peer feedback. Essays will primarily be persuasive in nature.
Course Information **Course Title:** AP English Lit/Comp **Course Number:** 119504 **Grades:**12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**English 11	**Course Description** Students study composition and literary analysis at a level equivalent to that of a full-year introductory college course. Through in-depth study of literary works, students sharpen their awareness of language and their understanding of the writer's craft. They establish critical standards for analyzing and evaluating literature. Students work to master college-level literary analysis writing, as well as to hone their narrative, persuasive, and research writing skills. Completion of this course fulfills the English 12 course requirement. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved.**	**Workload and Course Expectations:** ● Students will read a variety of texts (novels, short stories, poems, etc.) both in the classroom and at home on their own. ● Students will sometimes choose free reading books to read at home and in class. ● Class time is used for all assignments and students may anticipate up to 1 hour of at home work per class period. ● Students will be expected to self-motivate and work independently, whether in the classroom or at home on their own. ● Students will have multiple opportunities to engage in different aspects of the writing process as they develop the skills necessary for college level literary analysis. ● Students will write multiple timed essays per quarter with outlines, scaffolds, and teacher feedback. ● Students will have parameters, exemplars, and models to help them analyze literature and engage in a prewriting process. ● Students are expected to engage in small group and large group discussions and discourse with a focus on literary analysis

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: English 12 Comp DE **Course Number:** 1160DE **Grades:**12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**English 11	This course provides the opportunity for students to earn credit for English 111 and 112 (College Composition I and II) through Northern Virginia Community College. During the first semester, students enroll in English 111 to deepen their understanding of the writing process and research skills through the creation of effective texts for college and the workplace. During the second semester, students enroll in English 112 to extend these skills with increased emphasis on critical essays, argumentation, and research. **To enroll in this course, students must meet the college admission criteria. For more information about dual enrollment courses, visit www.fcps.edu/academics/high-school-academics-9-12/advanced-academics/dual-enrollment.**	● This is a writing-intensive class with an emphasis on working through the writing process to produce and revise college-level papers for a variety of purposes and audiences. ● Students will regularly meet with classmates to give and receive peer feedback to strengthen and improve their work. ● Students will write a minimum of 15 pages of revised, polished work (papers) per semester. ● Teachers will model writing expectations for students for each assignment. ● Students are provided with class time to begin, work on, and conference about all writing assignments. They may anticipate up to an hour of work time outside of class per class meeting to continue work on their assignments for class depending on how wisely in-class time is used. ● The course is focused on composition rather than literary analysis. To that end, students will read essays, articles, and other short non-fiction rather than novels, poetry, etc.. These readings will serve as models for strong writing. Reading is expected to be completed outside of class time. ● Additionally, course readings will provide opportunities for students to engage in critical thinking and discussion. Students will develop communication skills through participation in regular Socratic seminars.

		● Students will be expected to self-motivate and work independently, whether in the classroom or at home on their own.

MATH

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Algebra 1 **Course Number:** 313000 **Grades:**8, 9, 10, 11 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Mathematics 7 and/or Pre-Algebra	This course extends students' knowledge and understanding of the real number system and its properties through the study of variables, expressions, equations, inequalities, and analysis of data derived from real-world phenomena. Topics include linear equations and inequalities, systems of linear equations, relations, functions, polynomials, and statistics. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction, especially to allow students to explore graphical, numerical, and symbolic relationships. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	● Classwork is issued everyday for students to practice and gain knowledge of the material they previously were taught. ● Homework will be given 2-3 times a week on material taught during the class lesson. ● All assignments will have strict deadlines. Late homework/classwork assignments will delay learning experience. ● Students will need to have an introduction to variables, algebraic expressions, equations, inequalities and functions. ● Introduction to exploring and solving real-world application problems, demonstrate the appropriate use of calculators (DESMOS) and communicate mathematical ideas clearly. ● Course will cover all topics stated in the VDOE Curriculum and Guidelines For Algebra 1 to prepare students to take the SOL at the end of the year as a Graduation Requirement. **HONORS EXPECTATIONS** ● Students are expected to have strong foundation and skills in arithmetic

		computations without a calculator. (Adding, subtracting, multiplying and dividing integers, decimals and fractions) ● Students should expect to spend no less than 30 minutes per each class period on completing their homework assignments and reviewing the lesson.
Course Information **Course Title:** Geometry **Course Number:** 314300 **Grades:**9, 10, 11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Algebra 1	**Course Description** In this course, students develop reasoning skills through the exploration of geometric relationships including properties of geometric figures, trigonometric relationships, and mathematical proofs. In this course, students use various types of reasoning, justification, and methods of direct and indirect proof and interpret and determine the validity of conditional statements. There is an emphasis on two- and three-dimensional reasoning skills, coordinate and transformational geometry, and the use of geometric models to solve problems. Technology tools and dynamic geometry applications will be used to assist in teaching and learning. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	**Workload and Course Expectations:** ● Homework/Classwork needs to be done when assigned to promote success on timed assessments. Homework /Classwork is regularly assigned and takes approximately 30 minutes to complete. ● Active in seeking extra help when necessary (ex. tutor.com) ● Pay attention during class and willing to ask questions ● Students will be expected to write equations from diagrams and from vocabulary ● Students should be able to show steps of solving multi-step equations ● Students can be expected to memorize essential formulas and exercise note taking skills. ● Students may use handheld calculators or DESMOS on assessments
Course Information **Course Title:** Geometry HN **Course Number:** 314336 **Grades:**8, 9, 10 **Credits:**one / weighted +0.5	**Course Description** The depth and level of understanding expected in Geometry Honors is beyond the scope of Geometry. In this course, students develop reasoning skills through the exploration of geometric relationships including properties of geometric	**Workload and Course Expectations:** ● Multiple homework assignments per week ● Students should plan to spend time outside of class on assignments ● Required Prior Knowledge:

Duration:36 weeks (year) **Prerequisite:**Algebra 1	figures, trigonometric relationships, and mathematical proofs. In this course, students use various types of reasoning, justification, and methods of direct and indirect proof and interpret and determine the validity of conditional statements. There is an emphasis on two- and three-dimensional reasoning skills, coordinate and transformational geometry, and the use of geometric models to solve problems. Technology tools and dynamic geometry applications will be used to assist in teaching and learning. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	○ Strong Algebra 1 Foundational skills, which include ■ Solving Equations by hand ■ Systems of Equations by hand ■ Factoring by hand ● Students will be asked to think abstractly when reasoning and developing proof ● Students may use handheld graphing calculators on assessments ● Students will be expected to work together to solve problems
<u>Course Information</u> **Course Title:** Alg Func Data Analysis **Course Number:** 313400 **Grades:**10, 11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Algebra 1 and Geometry	**<u>Course Description</u>** This course provides an opportunity for students to develop understanding of the role of mathematics in the world around them. It is designed for students who have completed Algebra 1 and Geometry and may benefit from additional support in their transition to Algebra 2 and higher level mathematics courses. Within the context of mathematical modeling and data analysis, students will study functions and their behaviors, systems of inequalities, probability, experimental design and implementation, and analysis of data. Data will be generated through practical applications arising from science, business, and finance. Students will solve problems that require the formulation of linear, quadratic, exponential, or piecewise-defined equations or a system of equations. Through the investigation of mathematical models and interpretation/analysis of data from relevant, applied contexts and situations, students will strengthen conceptual understandings in mathematics and further develop connections between algebra and statistics. Students should	**<u>Workload and Course Expectations:</u>** ● AFDA is a class that bridges Algebra 1 and Algebra 2. The year begins with Data Analysis and Probability then moves into Algebra concept. ● One quarter is dedicated to data analysis then a quarter of algebra 1. Second semester is dedicated to the first few units of Algebra 2. ● All work is done in class. There is no work expected to be done outside of class unless the student does not finish in class. ● There is one major project in this class. Most grades come from quizzes and unit tests. ● Only hand held calculators are used.

	use the language and symbols of mathematics in representations and communication, both orally and in writing, throughout the course.	
Course Information **Course Title:** Algebra 2 **Course Number:** 313500 **Grades:**9, 10, 11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Algebra 1 and Geometry	**Course Description** Algebra 2 provides a thorough treatment of algebraic concepts through the study of functions, polynomials, rational expressions, complex numbers, exponential and logarithmic equations, arithmetic and geometric sequences and series, and data analysis. Emphasis is placed on the mechanics of algebra with real world applications and modeling. A transformational approach to graphing is used with families of related graphs. Numerical, graphical, and algebraic solutions are considered for all problems as applicable. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction, especially to allow students to explore graphical, numerical, and symbolic relationships. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	**Workload and Course Expectations:** ● Slower pace than honors (and less content) ● Desmos/TI calculator allowed on assessments ● SOL course (have to more strictly hold to the curriculum) ● No homework but whatever classwork is begun in class and not completed, is completed at home ● No unit test/quizzes only; Quarter Tests which cover the units from the given quarter ● Average background of Algebra 1 skills such as multiplication facts, fractions, factoring ● Starts with a review unit (Unit 0)
Course Information **Course Title:** Algebra 2 HN **Course Number:** 313536 **Grades:**8, 9, 10, 11 **Credits:**one / weighted +0.5 **Duration:**36 weeks (year) **Prerequisite:**Algebra 1 and Geometry	**Course Description** The depth and level of understanding expected in Algebra 2 Honors is beyond the scope of Algebra 2. Students are expected not only to master algebraic mechanics but also to understand the underlying theory and to apply the concepts to real-world situations in a meaningful way. A thorough treatment of advanced algebraic concepts is provided through the study of functions, polynomials, rational expressions, complex numbers, matrices, exponential and logarithmic equations, infinite	**Workload and Course Expectations:** ● Students should anticipate spending time outside of class completing homework assignments. ● Solid foundation of Algebra 1 skills such as multiplication facts, fractions, and factoring ● Fast pace (new concepts introduced each period with minimal review) ● A unit assessment/two quizzes for every unit

	geometric sequences and series, permutations and combinations, data analysis, and selected topics in discrete mathematics. Emphasis is on modeling, logic, and interpretation of results. A transformational approach to graphing is used with families of related graphs. Numerical, graphical, and algebraic solutions are considered for all problems, as applicable. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction, especially to allow students to explore graphical, numerical, and symbolic relationships. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	● Timed assessments ● No Desmos/TI calculator allowed on assessments ● Conics/Matrices are extensions that the other two (Algebra 2/AFDA) don't do ● Many units go more in depth than Algebra 2- for example, Algebra 2 does some transformations and Algebra 2 Honors does all of them
Course Information **Course Title:** Prob & Statistics **Course Number:** 319062 **Grades:**11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Geometry and Algebra 2 or Geometry and AFDA	**Course Description** Probability and Statistics is an activity-based introduction to statistics that emphasizes working with data, graphs, and statistical ideas including the use of statistical software. Students are expected to develop and present professional quality statistical analyses. Course content includes theory of probability, description of statistical measurements, sampling and experimental design, probability distributions, and statistical inference. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction, especially to allow students to explore graphical, numerical, and symbolic relationships.	**Workload and Course Expectations:** ● Time given in class to support work completion. ● Each of the 5 units will have at least 2 quizzes and a test. ● TI 84 calculators used for all assessments (no desmos).
Course Information **Course Title:** Trigonometry/Discrete Math **Course Number:** 315032/315432	**Course Description** Trigonometry topics include circular functions, right triangle ratios, solving trigonometric equations, inverses, identities, the Laws of Sines and Cosines, graphing trigonometric functions,	**Workload and Course Expectations:** ● The course is similar to PreCalculus but moves at a slower pace. ● The class is structured to complete all work in

Grades:11, 12 **Credits:**one-half each **Duration:**18 weeks (semester) each **Prerequisite:** Geometry and Algebra 2	and applying trigonometric techniques to solving real-world problems. A transformational approach to graphing is used with families of related graphs. Numerical, graphical, and algebraic solutions are considered for all problems as applicable. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction, especially to allow students to explore graphical, numerical, and symbolic relationships. Discrete mathematics requires problem-solving strategies be applied to real-world application, develops verbal and written skills in the process of problem-solving, and promotes mathematical connections across disciplines. Course content includes management science, the mathematics of apportionment, matrix operations and applications, recursion, and discrete applications in the natural and social world. The course also includes theory of probability, description of statistical measurements, probability distributions, and statistical inference. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction, especially to allow students to explore graphical, numerical, and symbolic relationships.	class if the student remains on schedule. ● The UNIT CIRCLE is a main component that we learn. ● There are some calculator restrictions pending the unit we are covering. ● There are no time restrictions on tests (within reason). ● There will be a minimum of two quizzes per unit as well as one test.
<u>Course Information</u> **Course Title:** Precalculus w/Trig **Course Number:** 316000 **Grades:**10, 11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Geometry and Algebra 2	**<u>Course Description</u>** Precalculus with Trigonometry includes all the topics of Trigonometry and a thorough treatment of functions through the study of polynomials, rational functions, logarithmic, exponential, and inverse functions. Topics include continuity, maximum and minimum points, an intuitive approach to limits, and rates of change. A transformational approach to graphing is used with families of related graphs. Numerical, graphical, and algebraic solutions are considered for all problems as applicable. Emphasis will be placed on problem solving techniques. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction,	**<u>Workload and Course Expectations:</u>** ● 30-minutes of homework per class ● Some calculator use, but not Desmos ● Must have a strong algebra foundation: ○ Basic computation (including fractions) ○ Factoring ○ Solving equations (linear/quadratic/rational/logs/exponential) ○ Graphing (lines/quadratics) ● Minimal review of Algebra 2 concepts ● This course is preparation for Applied Calculus

	especially to allow students to explore graphical, numerical, and symbolic relationships.	
Course Information **Course Title:** AP Precalculus BC **Course Number:** 316004 **Grades:**10, 11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**Geometry and Algebra 2	**Course Description** In AP Precalculus BC, students explore everyday situations and phenomena using mathematical tools and lenses. Content of this college-level course corresponds to all four units in the College Board Course and Exam Description for AP Precalculus . Students will study polynomial, rational, exponential, and logarithmic functions, trigonometry, and functions involving polar, parametric, vector, and matrix representations. An emphasis will be placed on developing the mathematical practices of procedural and symbolic fluency, multiple representations, and communication and reasoning. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved.**	**Workload and Course Expectations:** ● Daily homework (no Mathspace, all worksheets) ● All assignments have strict deadlines. Late homework assignments will delay learning experience. ● Assessments have calculator and non-calculator sections (no Desmos) ● No review of Algebra 2 concepts ● Roughly two units tests per quarter ○ Roughly four quizzes per unit ● Fast pace with a large portion being application problems ● FRQ timed and graded ● All assessments are timed in line with AP College Board requirements and expectations. ● This course is preparation for AP Calc AB or AP Calc BC
Course Information **Course Title:** Applied Calculus **Course Number:** 319910 **Grades:**11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Precalculus with Trigonometry or AP Precalculus	**Course Description** This course provides a conceptual introduction to calculus. Students will investigate the big ideas of differential and integral calculus through applications in business, engineering, and physical and life sciences. They will work individually and collaboratively to engage in research and problem solving, and an emphasis will be placed on communication about their ideas. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction, especially to	**Workload and Course Expectations:** ● All work and practice is done in class ● Minimal large assessments ○ There are a few unit tests, but most of the assessments are in the form of quick quizzes ● Significant group work and in-class projects ● Students can be expected to work collaboratively with peers ● Calculators and other relevant technology

	allow students to explore graphical, numerical, and symbolic relationships.	tools will be used when appropriate to support instruction ● Students benefit when they have strong algebra fundamentals ○ Basic computation (including fractions) ○ Factoring ○ Solving equations (linear/quadratic/rational/logs/exponential) ○ Graphing ● Students can be expected to apply calculus concepts to practical real-life problems ● Students are encouraged to retake assessments until they are comfortable with the content ● This course is a preparation for a college Calculus or Business Calculus course
Course Information **Course Title:** AP Calculus AB **Course Number:** 317004 **Grades:**11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**Precalculus with Trigonometry or AP Precalculus	**Course Description** This course emphasizes a multi-representational approach to calculus. Concepts, results, and problems are expressed graphically, numerically, analytically, and verbally. Topics include concepts and applications of differential and integral calculus, limits, and elementary differential equations. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction, especially to allow students to explore graphical, numerical, and symbolic relationships. Content of this college-level course corresponds to the College Board Course and Exam Description for AP Calculus AB .	**Workload and Course Expectations:** ● Students should expect to spend time outside of class completing their homework assignments. ● All assignments have strict deadlines. Late homework assignments will delay learning experience. ● All assessments are timed in line with AP College Board requirements and expectations. All assessments contain two parts: calculator active and non-calculator. ● Fluency with a graphing calculator is highly recommended to adhere to College Board expectations. ● Strong background in AP Precalculus or Honors

	Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved.	Precalculus is helpful to be successful in AP Calculus AB.
Course Information **Course Title:** AP Calculus BC **Course Number:** 317704 **Grades:**11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**Precalculus with Trigonometry Honors or AP Precalculus BC or AP Calculus AB.	**Course Description** This course includes all topics of Advanced Placement Calculus AB with additional topics. This course emphasizes a multi-representational approach to calculus. Concepts, results, and problems are expressed graphically, numerically, analytically, and verbally. Topics include concepts and applications of differential and integral calculus, sequences and series, and elementary differential equations. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction, especially to allow students to explore graphical, numerical, and symbolic relationships. Content of this college-level course corresponds to the College Board Course and Exam Description for AP Calculus BC.	**Workload and Course Expectations:** ● AP Calculus BC is equivalent to two college semesters of Calculus: Calculus I and Calculus II. Students should anticipate spending time outside of class completing homework assignments. ● Designed for those who have successfully completed Honors or AP Pre-Calculus, additional independent study may be required for those not enrolled in those courses. This is because the advanced topics in those curricula are foundational for this class, but are not part of the BC Calculus curriculum and therefore not covered again as new content. ● All assignments have strict deadlines. Due to the fast pace and cumulative nature of the course, late homework submissions delay the learning experience and can inhibit the understanding of upcoming content ● All assessments are timed in accordance with AP College Board requirements and expectations. ● Fluency with a graphing calculator is highly recommended to adhere to College Board expectations which prohibit the use of web-based platforms such as Desmos ©.

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Multivar Calculus AV/Linear Algebra AV **Course Number:** 317860/319800 **Grades:**11, 12 **Credits:**one-half each / weighted +1.0 **Duration:**18 weeks (semester) each **Prerequisite:**AP Calculus BC or Calculus 1 & 2 DE or IB Mathematics Analysis and Approaches HL 2	Multivar is a third semester college-level calculus course, multivariable calculus is the calculus of three dimensions and includes the study of partial differentiation, multiple integrals, and line integrals. Linear Algebra is a college-level course that includes the study of systems of linear equations, vector spaces, linear dependence, linear transformations and matrix representation, orthogonal reduction, determinants, eigenvectors and eigenvalues, and a variety of applications. This course will receive a weighted grade and may be taken for college credit for a fee through a dual-enrollment agreement with George Mason University.	
Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: AP Statistics **Course Number:** 319204 **Grades:**10, 11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**Algebra 2	Advanced Placement Statistics includes graphical and numerical techniques to study patterns and explore data, strategies for developing a plan to conduct a study based on data analysis, probability as a tool for predicting distribution of data, and techniques of statistical inference. Graphing utilities and other relevant technology tools will be used when appropriate to support instruction, especially to allow students to explore graphical, numerical, and symbolic relationships. Content of this college-level course corresponds to the College Board Course and Exam Description for AP Statistics.	● Rigor of coursework and tests will be on par with AP Calc AB. ● Very fast paced class ● Time management is crucial as students will have multiple assignments (unit long problem sets, projects, nightly homework, studying for tests) ● All assessments are timed in line with AP College Board requirements and expectations. ● Fluency with a graphing calculator is highly recommended to adhere to College Board expectations.

SCIENCE

Considerations for Standard and Advanced Diploma:

Students working for the 22 credit (standard) diploma must have three credits (one verified) from two different areas: biological science, chemical science, earth science, and physical science.

Students working for the 26 credit (advanced) diploma must have four credits (one verified) from three different areas: biological science, chemical science, earth science, and physical science.

Biological Sciences

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Environmental Science **Course Number:** 426500 **Grades:** 9 **Credits:** one **Duration:** 36 weeks (year)	Environmental Science is a foundational science course intended for 9th grade students. This course builds on student investigations that began in grades K-8 and integrates biology, earth science, chemistry, and engineering to study many components of our environment. Course outcomes focus on scientific inquiry, the physical world, the living environment, resource conservation, human impact on the environment, as well as legal and civic responsibility. Students will focus on data collection and analysis through laboratory experiences and field work, including descriptive and comparative studies. Through a variety of learning experiences to include career education opportunities, students will gain foundational scientific process skills and environmental literacy to engage the community and provide diverse points of view about the management of natural resources.	● Taught in two parts; Earth Science and Biology. ● Complete notes during class, complete labs and activities, and use reading comprehension skills to analyze problems to find solutions.

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Biology 1 **Course Number:** 431000 **Grades:** 9, 10, 11, 12 **Credits:** one **Duration:** 36 weeks (year)	In Biology 1, students engage in scientific inquiry through lab work as they explore biological processes. All class and laboratory activities focus on life processes that occur within organisms or cells as well as the characteristics of life including: reproduction, development, and adaptation to environments. Major topics of study include molecular biology, cells, genetics, organisms, evolution and ecology. If dissections are a part of the laboratory experience, alternatives are available. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	● Complete assignments in class with teacher guidance. ● Organize classroom materials (notes, quizzes, labs, worksheets, etc.) aided by provided binders. ● Complete labs in class with teacher guidance, including pre-lab and post-lab analysis. ● Take unit exams covering one unit of content to allow students to focus on smaller chunks of information.
Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Biology 1 HN **Course Number:** 431036 **Grades:** 9, 10, 11, 12 **Credits:** one / weighted +0.5 **Duration:** 36 weeks (year)	In Biology 1 Honors, students engage in scientific inquiry as they explore biological processes. All class and laboratory activities focus on life processes that occur within organisms or cells as well as the characteristics of life including: reproduction, development, and adaptation to environments. Major topics of study include molecular biology, cells, genetics, organisms, evolution and ecology. Students in honors Biology investigate some topics at a deeper level than the general education curriculum, including biotechnology, and health and environmental issues. If dissections are a part of the laboratory experience, alternatives are available. Students will participate in an externally-moderated experimental/research project. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	● Complete assignments in class with teacher guidance and extension assignments outside of the classroom. ● Maintain organization of classroom materials (notes, quizzes, labs, worksheets, etc.). ● Complete labs in class with teacher guidance, but some aspects such as pre-lab and post-lab analysis will be completed outside of the classroom. ● Take quarterly exams that cover two units of content. ● Complete an individual research project (IRP) during the 4th quarter of the course. ● Complete assignments independently, both inside and outside of the classroom.

Course Information **Course Title:** AP Biology **Course Number:** 437004 **Grades:**11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**Biology 1 and Chemistry 1	**Course Description** After completing the core science curriculum, students pursue a more advanced and specialized study of biology topics. Students conduct standard first year college-level laboratory research as well as analyze and interpret biological data. Students engage in authentic science practices and examine biology content within four big ideas: 1) the process of evolution drives the diversity of life, 2) biological systems utilize energy and molecular building blocks to grow, reproduce and maintain homeostasis, 3) living systems retrieve, transmit, and respond to information essential to life processes, and 4) biological systems interact, and these interactions possess complex properties. If dissections are part of the laboratory experience, alternatives are available. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved.**	**Workload and Course Expectations:** ● Complete tasks independently with college-level communication and work skills using a college textbook and readings. ● Read 10-20 pages per week in a college level textbook. ● Read and study 1-2 hours outside of class. ● Complete weekly quizzes with questions of the same intensity of College Board Exam Questions. ● Participate in labs, class discussions, independent readings and assignments with college level work. ● Maintain organization of classroom materials (notes, quizzes, labs, worksheets, etc.). ● Complete labs in class with teacher guidance, however pre-lab and detailed post-lab analysis will be done independently. In-depth, formal lab reports are required for some labs. Pre-labs are mandatory for participation in the lab. Statistical analysis of labs/data is a large component of lab write ups.
Course Information **Course Title:** Biology 2 DE **Course Number:** 4370DE **Grades:**11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**FCPS Prerequisite: Biology 1 and Chemistry 1 NVCC	**Course Description** This year-long course provides the opportunity for students to earn 4 credits for BIO 101 through Northern Virginia Community College. After completing the core science curriculum, students pursue a more advanced and specialized study of biology topics. Students conduct standard first year college-level laboratory research as well as analyze and interpret biological data. Students engage in authentic science practices and examine biology content within four big ideas: 1) the process of	**Workload and Course Expectations:** ● Complete tasks independently with college-level communication and work skills using a college textbook and readings. ● Participate in labs, class discussions, independent readings and assignments with college level work. ● Read and study 1-2 hours outside of class.

Prerequisite: C or higher in any HS math course	evolution drives the diversity of life, 2) biological systems utilize energy and molecular building blocks to grow, reproduce and maintain homeostasis, 3) living systems retrieve, transmit, and respond to information essential to life processes, and 4) biological systems interact, and these interactions possess complex properties. If dissections are part of the laboratory experience, alternatives are available. **To enroll in this course, students must meet the college admission criteria. For more information about dual enrollment courses, visit www.fcps.edu/academics/high-school-academics-9-12/advanced-academics/dual-enrollment.**	● Read 10-20 pages per week in a college level textbook. ● Participate in labs, class discussions, independent readings and assignments with college level work. ● Complete labs in class with teacher guidance, however pre-lab and detailed post-lab analysis will be done independently. In-depth, formal lab reports are required for some labs. Pre-labs are mandatory for participation in the lab. Statistical analysis of labs/data is a large component of lab write ups.
Course Information **Course Title:** AP Environmental Science **Course Number:** 427004 **Grades:**11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**Biology 1 and Chemistry 1	**Course Description** The AP Environmental Science course is designed to be the equivalent of a one-semester, introductory college course in environmental science and is designed to stress scientific principles and analysis. The course includes a laboratory component. Students examine how science is a process, how energy conversions underlie all ecological processes, and how the Earth is one interconnected system. Students will explore how humans alter the natural system and the cultural and social context of environmental problems. Major topics include earth systems and resources, the living world, population, land and water use, energy resources and consumption, pollution, and global change. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved.**	**Workload and Course Expectations:** ● Complete assigned readings/videos outside of class, and review concepts and materials outside of class regularly in preparation to apply environmental concepts during class time through participation in classroom assignments, labs, and activities. ● Collaborate with peers to complete labs and specified assignments during class time; however, students can be expected to work independently, both inside and outside of class. ● Maintain organization of classroom materials (notes, quizzes, labs, worksheets, etc.). ● Demonstrate environmental stewardship, and are required to participate in community service by completing one volunteer activity

		with the Northern Virginia Soil and Water Conservation District.
Course Information **Course Title:** Human Anatomy & Phys **Course Number:** 433000 **Grades:**11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Biology 1 and Chemistry 1	**Course Description** Human Anatomy and Physiology provides students with an in-depth understanding and working knowledge of the human body. It covers human body systems with an emphasis on the mechanisms that maintain homeostasis. Lab activities cover both the physiological and anatomical aspects of human biology. Students have the opportunity to explore careers in the medical sciences. If dissections are part of the laboratory experience, alternatives are available.	**Workload and Course Expectations:** ● Complete one large summative assignment per unit (exam or project) ● Maintain organization of classroom materials (notes, quizzes, labs, worksheets, etc.).. ● Complete assignments in class with teacher guidance. ● Complete labs in class with teacher guidance, including pre-lab and post-lab analysis. ● Collaborate with peers to complete labs and dissections.

Chemical Sciences

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Chemistry 1 **Course Number:** 441000 **Grades:**10, 11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Biology 1 and Algebra 1	Chemistry 1 provides students the opportunity to develop their critical thinking skills as they acquire a better understanding of the chemical nature of our world. Students investigate the composition, properties, and reactions of matter. The approach is inductive, mathematical, and conceptual. Laboratory experiments and subsequent classroom analysis are integral components of the course. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	● Apply critical thinking and problem solving skill sets. ● Maintain organization of classroom materials (notes, quizzes, labs, worksheets, etc.). ● Complete labs in class with teacher guidance, including post-lab questions. ● Complete unit exams that cover one unit of content. ● Application of acquired skills is critical to success.

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Chemistry 1 HN **Course Number:** 441036 **Grades:**10, 11, 12 **Credits:**one / weighted +0.5 **Duration:**36 weeks (year) **Prerequisite:**Biology 1 **Corequisite:**Algebra 2	Chemistry 1 Honors provides students the opportunity to utilize their strong critical thinking skills and apply their mathematical knowledge as they investigate the composition, properties, and reactions of matter in depth. Laboratory experiments and subsequent classroom analysis are integral components of the course. Students, either individually or with a team, will participate in an externally-moderated experimental/research project. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).** **Work Load:**	● Apply critical thinking and problem solving skill sets. ● Solve algebraic problems independently. ● Maintain organization of classroom materials (notes, quizzes, labs, worksheets, etc.). ● Complete labs in class with teacher guidance, however pre-lab and detailed post-lab analysis will be done independently. ● Complete exams covering one quarter of content (typically 2 units). ● Application of acquired skills is critical to success. ● Complete an end of the year Research Project covering a majority of the content from the year.
Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: AP Chemistry **Course Number:** 447004 **Grades:**11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**Chemistry 1 and Algebra 2	Advanced Placement Chemistry is a second-level, laboratory-centered course that provides an opportunity for students to undertake a more comprehensive investigation at a level above Chemistry 1. It is designed for students who have completed a core science curriculum and are now ready to pursue more advanced and specialized studies. Advanced Placement Chemistry represents a full year (two semesters) of college chemistry. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved.**	● Nightly problem sets to work on that reflect test and quiz questions. ● Pre and post lab reports that require detailed explanations on error analysis and conceptual understandings. ● Daily lectures with notes packets ● Students should possess the ability to ask for help outside of the classroom time from the teacher or other source. ● Optional practice problems outside of classroom time are highly recommended for mastery of content.

Physical Sciences

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Active Physics **Course Number:** 451050 **Grades:**9, 10 **Credits:**one **Duration:**36 weeks (year)	Active Physics is a physics course for students who have not yet passed Algebra I or were weak in Algebra I during the previous school year. This course has a strong emphasis on experimentation. The units of study focus on predictions, algebraic patterns, and real-world applications. Students study mechanics, electricity, wave phenomena, energy, and forces through hands-on investigations. The physics content is presented in a problem-solving manner to strengthen both science and mathematics content knowledge and skills.	● Complete assignments in class and homework consists of any work not completed during class time and studying for quizzes and tests ● Complete in class laboratory experiments and analyze the results. Relate the scientific data to real life situations. ● Complete in class daily work including word problems that apply previous math knowledge to real life situations in physics. ● Complete projects both individual and group, researching a Physics topic describing and explaining those concepts to the class in a clear, concise, and interesting manner. ● Complete unit quizzes and tests.
Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Physics 1 **Course Number:** 451000 **Grades:**11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Biology 1, Chemistry 1 **Corequisite:**Algebra 2	Physics 1 introduces the central concepts of physics, including kinematics, dynamics, the conservation laws (mass, energy, and momentum), electricity, magnetism, and waves. This laboratory-centered course utilizes an approach that is inductive and mathematical as well as conceptual.	● Complete assignments in the form of sample problems from the units. ● Complete labs to connect content to the real world to include writing lab reports. ● Complete the end of unit tests.
Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Physics 1 HN **Course Number:** 451036	Physics 1 Honors introduces the most central concepts of physics, including the dual wave-particle nature of light,	● Complete assignments in the form of sample problems from the units.

Grades:11, 12 **Credits:**one / weighted +0.5 **Duration:**36 weeks (year) **Prerequisite:**Biology 1 and Chemistry 1 **Corequisite:**Precalculus with Trigonometry or IB Mathematics Analysis and Approaches I	kinematics, dynamics, the conservation laws (mass, energy, and momentum), electricity, magnetism, and waves. This course is laboratory-centered and employs the methods of scientific inquiry. Students, either individually or with a team, will participate in an externally moderated experimental/research project.	● Complete labs to connect content to the real world to include writing lab reports. ● Complete the end of unit tests. ● Includes extension lessons. ● Complete an individual research project (IRP) during the 4th quarter of the course.
<u>Course Information</u> **Course Title:** AP Physics C M **Course Number:** 457504 **Grades:**11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**Biology 1 and Chemistry 1 **Corequisite:**AP or DE Calculus	**<u>Course Description</u>** Advanced Placement Physics C - Mechanics is a calculus-based course which surveys a selection of physics topics dealing only with Mechanics at a level above Physics 1. It is designed for students who have completed a core science curriculum and are now ready to pursue more advanced and specialized studies in mechanics. AP Physics C serves as the foundation in physics for students who wish to pursue physical science or engineering degrees. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved.**	**<u>Workload and Course Expectations:</u>** ● This is a second year physics course that builds on what is learned in Physics 1 or Physics 1 Honors. ● Follows the curriculum and course requirements specified by College Board. ● Requires time outside of class to complete practice problems and lab write-ups ● Uses basic Calculus ● Involves regular collaboration in small groups to solve challenging problems

Earth Sciences

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Geosystems **Course Number:** 422000 **Grades:**11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Biology 1 and one other laboratory science course	Geosystems utilizes content from geology, astronomy, oceanography, and meteorology to investigate, both qualitatively and quantitatively, the major earth systems (atmosphere, hydrosphere, lithosphere, biosphere) and their dynamic inter-relationships. Students explore concepts with the same tools professional scientists use including computers, Geographic Information Systems (GIS), image processing software, and probeware. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	● Complete assignments in class. Some projects or presentations may take more than class time. These assignments are finished at home. All classwork is computer driven and should not take more than 30 minutes outside of class per week. ● There are a number of labs that correspond to this course, strong computer skills are helpful
Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: Geosystems HN **Course Number:** 422036 **Grades:**11, 12 **Credits:**one / weighted +0.5 **Duration:**36 weeks (year) **Prerequisite:**Biology 1 and Chemistry 1, Must be on the honors math tract which means student must have completed Algebra 2 before enrollment	Geosystems Honors utilizes content from geology, astronomy, oceanography, and meteorology to investigate, both qualitatively and quantitatively, the major earth systems (atmosphere, hydrosphere, lithosphere, biosphere) and their dynamic interrelationships. Students explore concepts with the same tools professional scientists use including computers, Geographic Information Systems (GIS), image processing software, and probeware. Students will investigate some topics at a deeper level and will participate, either individually or with a team, in an externally-moderated experimental/research project.	● Complete assignments in class. Some projects or presentations may take more than class time. These assignments are finished at home. All classwork is computer driven and should not take more than 30 minutes outside of class per week. ● There are a number of labs that correspond to this course, strong computer skills are helpful ● Complete an independent research project given outside of class. It is designed to take about 5-6 additional hours. This time interval is spread out over several months.

	Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).	
Course Information **Course Title:** Geospatial Analysis AV **Course Number:** 422067 **Grades:**11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year) **Prerequisite:**Three laboratory science classes, must be a senior.	**Course Description** This course is offered as a dual enrollment class with James Madison University. Students spend the year completing a community-based research project that involves spatial reasoning and decision-making. It is a data analysis/map making class in which students develop critical thinking, spatial reasoning, communication, and collaboration skills, while addressing a problem that is important to their community. GIS is a high in demand field. A final presentation of their project to local community leaders and to faculty at their home school and JMU is required. Students can earn JMU credit at a reduced fee.	**Workload and Course Expectations:** ● Complete project based assignments in class. If students do not finish in class it becomes homework. The average amount of out of class time to work on this project is about 1 hour per week. ● Collaborate with peers on assignments. Much of the work takes several days to complete and students have more academic freedom than a traditional class.
Course Information **Course Title:** Astronomy **Course Number:** 426000 **Grades:**11, 12 **Credits:**one **Duration:**36 weeks (year) **Prerequisite:**Geosystems or Any Physics Course	**Course Description** Astronomy deals with topics such as the universe, universal laws, galaxies, stellar evolution, the solar system and its motion, and the exploration of space. This course is designed to be an in-depth and mathematical survey of astronomy concepts.	**Workload and Course Expectations:** ● Complete assignments in class and homework consists of any work not completed during class time and studying for quizzes and tests. ● Complete computer simulations to investigate various astronomical concepts as a way to help describe and understand how they behave. ● Complete projects both individual and group investigating different Astronomical concepts then present that information to the class in a clear and concise manner. ● Complete unit quizzes and test.

SOCIAL STUDIES

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: World Hist/Geog 1 **Course Number:** 221900 **Grades:**9, 10 **Credits:**one **Duration:**36 weeks (year)	This is the first of a two-year, chronologically and thematically organized study of world history and geography. In this first year, students study the world from ancient times to 1500 CE. The course highlights relationships between the geography and history of Europe, Africa, Asia, and Latin America. Students refine and expand critical thinking skills, practice decision making and problem solving, and formulate questions to guide research. Additionally, students will apply social science skills -historical thinking, geographic analysis, economic decision making, and responsible citizenship – to course content. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	In this course, students can expect: ● The majority of work will be completed in class. ● Homework will mainly consist of any work not completed during class time. ● To read a section of the textbook to prepare for the next class, on occasion. ● To learn skills to help them study for quizzes and tests independently. ● To develop their critical thinking skills through writing assignments and be introduced to academic research and primary source analysis.
Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: World Hist/Geog 1 HN **Course Number:** 221936 **Grades:**9, 10 **Credits:**one / weighted +0.5 **Duration:**36 weeks (year)	This is the first of a two-year, chronologically and thematically organized study of world history and geography. In this first year, students study the world from ancient times to 1500 CE. The course highlights the relationship between the geography and history of Europe, Africa, Asia, and Latin America. Students examine the relationship among social, economic and geopolitical developments across time and place. They use the processes of conceptual and critical thinking to analyze historical and contemporary issues. Students are encouraged to think independently while developing group process skills. Additionally, students will apply social science skills -historical	In this course, students can expect: ● More independent work and work outside of class than is expected in the standard level class. ● To regularly utilize reading and time management skills. ● To demonstrate their learning and thinking through written assignments. ● Homework on a regular basis. ● To develop and refine high-level critical

	thinking, geographic analysis, economic decision making, and responsible citizenship – to course content. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	thinking skills. ● To develop the skills needed to be prepared for *AP World History* and *World History & Geography II Honors.*
Course Information **Course Title:** World Hist/Geog 2 **Course Number:** 222100 **Grades:**9, 10 **Credits:**one **Duration:**36 weeks (year)	**Course Description** This is the second of a two-year, chronologically and thematically organized study of world history and geography. In this second year, students study the world from 1500 CE through the present. The course weaves together the skills and content of both history and geography so that students may learn how both affect the world around them. Regions of study include North and South America, Europe, Asia, and Africa. Students continue to refine and expand critical thinking skills, practice decision making and problem solving, and formulate questions to guide research. Additionally, students will apply social science skills -historical thinking, geographic analysis, economic decision making, and responsible citizenship – to course content. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	Workload and Course Expectations: In this course, students can expect to: ● Demonstrate their critical reading, writing, and geography skills. ● Utilize time management, organization, and study skills.
Course Information **Course Title:** World Hist/Geog 2 HN **Course Number:** 222136 **Grades:**9, 10 **Credits:**one / weighted +0.5 **Duration:**36 weeks (year)	**Course Description** This is the second of a two-year, chronologically and thematically organized study of world history and geography. In this second year, students study the world from 1500 CE through the present. The course weaves together the skills and content of both history and geography so that students may	Workload and Course Expectations: In this course, students can expect to: ● Engage in independent reading, analysis, and note-taking.

	learn how both affect the world around them. Regions of study include North and South America, Europe, Asia, and Africa. Students continue to examine the relationship among social, economic, and geopolitical developments across time and place. Students are encouraged to think independently while developing group process skills. Additionally, students will apply social science skills -historical thinking, geographic analysis, economic decision making, and responsible citizenship – to course content. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	● Come to class prepared to debate and discuss content from independent reading assignments. ● Utilize time management, organization, and study skills. ● Demonstrate reading analysis skills and proper syntax and grammar when completing written assignments.
Course Information **Course Title:** AP World History: Modern **Course Number:** 234004 **Grades:**10, 11, 12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year)	**Course Description** In Advanced Placement World History students investigate significant events, individuals, developments and processes in four historical periods from approximately 1200 C.E.. to the present. Students develop the skills, practices, and methods employed by historians. This course may be used to satisfy the World History and Geography II requirement. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved. Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	**Workload and Course Expectations:** In this course, students can expect to: ● Spend 2 - 3 hours per week outside of class reading and studying. ○ Reading involves completing note-taking guides using a college level textbook (along with other resources). ● Engage in independent studying for unit assessments as well as long-essay and document-based questions. ● Learn large amounts of content at a fast pace. ● develop high level critical thinking, reading and writing skills. ● Be graded primarily based on how they perform on AP level assessments, which are considerably more challenging than

		assessments in standard and honors level classes. ● Be prepared to sit for the AP exam in May.
Course Information **Course Title:** US VA History **Course Number:** 236000 **Grades:**11 **Credits:**one **Duration:**36 weeks (year)	**Course Description** Students examine the political, economic, social, and cultural changes of the United States, including the role of Virginia. Students study major historical developments and their impact on contemporary society and on the individual. Geography skills, critical thinking, writing, research, and group-process skills are refined. Additionally, students will apply social science skills -historical thinking, geographic analysis, economic decision making, and responsible citizenship – to course content. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	**Workload and Course Expectations:** In this course, students can expect to: ● Work collaboratively and independently analyzing primary source documents, content readings, and complete projects. ● Complete the majority of assignments in class with some work done outside of class. ● Utilize time management skills to complete assignments in a timely fashion to minimize work outside of class.
Course Information **Course Title:** US VA History HN **Course Number:** 236036 **Grades:**11 **Credits:**one / weighted +0.5 **Duration:**36 weeks (year)	**Course Description** Virginia and United States History Honors deepens and advances the curriculum of Virginia and United States History. Students examine the political, economic, social, and cultural changes of the United States, including the role of Virginia. Students study major historical developments and their impact on contemporary society and on the individual. Geography skills, critical thinking, writing, research, and group-process skills are refined. Additionally, students will apply social science skills -historical thinking, geographic analysis, economic	**Workload and Course Expectations:** In this course, students can expect to: ● Work independently. ● Take responsibility for their share in collaborative work. ● Complete independent assessments include analyzing primary source documents, content readings with follow-up formative assessments, asynchronous vocabulary

	decision making, and responsible citizenship – to course content. **Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	assignments and unit performance-based assessments. ● Manage their in-class time wisely while being willing to work outside of class, plan ahead and meet goals, display self-control, follow multiple-step directions, etc.
Course Information **Course Title:** AP US History **Course Number:** 231904 **Grades:**11 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year)	**Course Description** In this course students develop the factual knowledge and analytical skills necessary to deal with the issues and problems of American History. They do in-depth analysis of major developments; become familiar with primary sources; assess historical materials, evidence, and interpretations; and learn to write research papers. Completion of this course fulfills the graduation requirement for one credit in Virginia and United States History. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved. Students are required to complete one or more VDOE approved assessments if required for federal accountability or for use as a verified credit (high school credit courses only).**	**Workload and Course Expectations:** In this course, students can expect to: ● Read and complete reading comprehension assignments at home, approximately 1 chapter (about 30 pages) per week. ● Come to class with an understanding and comprehension of their reading. ● Be assessed on stimulus-based prompts including multiple choice, short-answer writing, and long essay writing questions, as well as vocabulary and content knowledge. ● Complete projects throughout the year. ● Be prepared to learn large amounts of content at a fast pace. ● Develop high level critical thinking, reading and writing skills. ● Spend approximately 2-3 hours per week studying outside of class to ensure academic success.

Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: US VA Government **Course Number:** 244000 **Grades:**12 **Credits:**one **Duration:**36 weeks (year)	Students examine both the structure and function of American government at the international, national, state, and local levels. The course focuses on political decision-making, comparative political and economic systems, and the student's role as a citizen. Critical thinking, writing, research, and group-process skills are refined. Additionally, students will apply social science skills -historical thinking, geographic analysis, economic decision making, and responsible citizenship – to course content.	In this course, students can expect: ● Daily formative assignments aligned with the lesson. ● Summative assessments include research projects, multiple choice tests, and other assessments graded using the Social Studies Standard 1 rubric. ● Ample time to complete all assignments and assessments in class. ● Minimal work to be done outside of class, if using time wisely in class.
Course Information	**Course Description**	**Workload and Course Expectations:**
Course Title: US VA Government HN **Course Number:** 244036 **Grades:**12 **Credits:**one / weighted +0.5 **Duration:**36 weeks (year)	Virginia and United States Government Honors deepens and advances the curriculum of Virginia and the United States Government. Students examine both the structure and function of American government at the international, national, state, and local levels. The course focuses on political decision-making, comparative political and economic systems, and the student's role as a citizen. Critical thinking, writing, research, and group-process skills are refined. Additionally, students will apply social science skills -historical thinking, geographic analysis, economic decision making, and responsible citizenship – to course content.	In this course, students can expect: ● Daily formative assignments aligned with the lesson. ● Summative assessments include research projects, multiple choice tests, and other assessments graded using the Social Studies Standard 1 rubric. ● Ample time to complete all assignments and assessments in class. ● Minimal work to be done outside of class, if using time wisely in class. ● Monthly current event assignments. ● To utilize rigorous analytical and critical thinking.

		● To demonstrate their learning and thinking through writing.
Course Information **Course Title:** AP Government **Course Number:** 244504 **Grades:**12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year)	**Course Description** This study of the American government is an introduction to the discipline of political science. Students study required US foundational documents and Supreme Court decisions to gain an understanding of the relationships and interactions among political institutions, processes and behaviors. Students learn and apply the skills of data interpretation, comparison, application and development of an argument. In addition, students will complete a political science research or applied civics project. Completion of this course fulfills the graduation requirement for one credit in Virginia and the United States Government. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved.**	**Workload and Course Expectations:** In this course, students can expect to: ● Learn course content through texts and notes. ● Use time outside of class to study and memorize content specific vocabulary. ● Spend 60 - 90 minutes a week studying for this course outside of class.
Course Information **Course Title:** AP US & Comp Government **Course Number:** 244567 **Grades:**12 **Credits:**one / weighted +1.0 **Duration:**36 weeks (year)	**Course Description** This course includes a study of comparative government as well as American government and politics. In the study of American government, students interpret national, state, and local government and politics through a study of both general concepts and specific case studies. In the study of comparative government, emphasis is placed on understanding the world's diverse political structures and practices, as well as on interpreting and analyzing the key political relationships found in national governments. This course prepares students to take both the Advanced Placement examination for United States Government and Politics and the Advanced Placement	**Workload and Course Expectations:** In this course, students can expect: ● To learn course content primarily during class time. ● To use time outside of class to acquire course specific vocabulary in preparation for exams. ● A faster pace since this course is a dual AP, preparing students for both the AP Government Exam and the AP Comparative Government exam.

	examination for Comparative Government. Completion of this course fulfills the graduation requirement for one credit in Virginia and the United States Government. **Students who complete this course are encouraged to take the associated Advanced Placement examination and may earn college credit if a qualifying score is achieved.**	● To spend 60 - 90 minutes a week studying for this course outside of class.
Course Information **Course Title:** US VA Government DE **Course Number:** 2440DE **Grades:**11, 12 **Credits:** one / weighted +1.0 **Duration:**36 weeks (year)	**Course Description** This course provides the opportunity for students to earn credit for PLS 135 through Northern Virginia Community College. The course deepens and advances the curriculum of Virginia and the United States government. Completion of this course fulfills the graduation requirement for one credit in Virginia and the United States Government. Students examine the structure and function of American government at the international, national, state, and local levels. Course topics include political decision-making, the branches of government, comparative political and economic systems, and the student's role as a citizen. Critical thinking, writing, research, and group-process skills are refined. **To enroll in this course, students must meet the college admission criteria. For more information about dual enrollment courses, visit www.fcps.edu/academics/high-school-academics-9-12/advanced-academics/dual-enrollment.**	**Workload and Course Expectations** In this course, students can expect to: ● Complete tasks independently with college-level communication and work skills. ● Participate in writing position papers, reading lists, and constructive debate on current events/issues for their primary summative assessments. ● Spend 60 -90 minutes a week reading/studying for this course outside of class. ● Engage in current events and make real-life connections to the content covered in the course.