



Curriculum Map

Entering to Excelling

Spring 2019

Navigation Key

Target Standards: Students will have opportunities to demonstrate proficiency in these graduation standards at the prescribed level during this course. It is possible for students to demonstrate a higher level before the end of the course.

Course Name: Use this code and name to look up information about this course in the Program of Studies, Infinite Campus, or Slate.

Description: A succinct description of the content and topics of the course, including any prerequisite standards.

Essential Questions: This course will guide students toward developing authentic answers to these questions.

- [Math](#)
- [Science](#)
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Unless otherwise noted, all courses scheduled into one-semester.

Math

Target Standards	Course Name	Description	Essential Questions
EN/PR Algebra Functions Statistics	MAT100 STEM	An integrated math/science course for incoming 9 th graders to explore the topics in algebra, functions, statistics, and geometry, and provide evidence for placements. Depending on student choices and teacher recommendation,	How do we collect and analyze data for an experiment? How do we measure the variation in the data? How might we use algebraic functions

<p><i>this course also offers students an opportunity to meet Science standards</i></p>		<p>topics may include applications of linear functions, applications of quadratic functions, applications of exponential functions, data collection and analysis, and right triangle trigonometry. Students will be expected to collect data, use appropriate functions to model the data, and create solve equations to make predictions from the data.</p> <p><i>Prerequisite: None</i></p>	<p>to represent the data and make predictions?</p>
<p>PR/GB Design Process</p> <p>GB Geometry</p>	<p>GIS 100 Introduction to GIS</p>	<p>An introduction to Geographic Information Systems (GIS) as a tool to analyze and present geographic data. This course will involve tutorials, labs and self directed projects. The successful completion of this course will provide students with a proficiency in GIS that will allow them to apply GIS to their coursework in other classes</p> <p><i>Prerequisites: None</i></p>	<p>How can a GIS software aid in the analysis and presentation of spatial data?</p> <p>How does a GIS software capture and utilize geographic and other datasets?</p>
<p>PR Algebra Statistics</p>	<p>MAT150 Intermediate Algebra</p>	<p>Designed for students who finish the STEM class mostly at the Entering level and need more time with linear, quadratic, and exponential functions. Topics of study continue with applications of linear, quadratic, and exponential functions, depending on the</p>	<p>How can the structure of an equation help with solving it? (from basics to solving systems)</p> <p>How might we use algebraic functions to represent the data and make predictions?</p>

		<p>student's needs. A focus will be on algebraic structure and how it helps solve equations.</p> <p><i>Prerequisite: Working on EN in Algebra, and Statistics & Probability</i></p>	
<p>PR</p> <p>Algebra Functions</p>	<p>MAT200 Advanced Algebra</p>	<p>Designed for students who finish the STEM class at the Entering level for Algebra, but are not ready for Math 300. Topics of study include solving systems of linear equations, linear programming, function notation, linear and exponential functions.</p> <p><i>Prerequisite: EN in Algebra and Functions standards</i></p>	<p>What methods can we use to solve systems of equations? How might constraints impact the solution to a system?</p> <p>How are linear and exponential functions similar and different?</p> <p>What situations are best modeled using exponential functions?</p>
<p>GB</p> <p>Algebra</p> <p>PR</p> <p>Functions Geometry</p>	<p>MAT300 Algebraic Techniques</p>	<p>Designed for students who finish the STEM class at the Progressing level for Algebra, but are not ready for Math 320. Topics of study include quadratic functions and applications, solving quadratic equations, finding different forms of quadratic functions, working with zeros and factors, transforming geometric shapes, including graphs of quadratic functions.</p> <p><i>Prerequisite: PR in Algebra standard, EN in Functions and Geometry standards</i></p>	<p>What are quadratic functions and what are their applications?</p> <p>How does the graph of a quadratic function relate to various forms of the expression defining it?</p> <p>What are the various ways to write a quadratic expression and how are they related?</p> <p>How is transforming geometric shapes like transforming quadratic functions?</p>

<p>GB/AD Algebra Functions</p> <p>GB Geometry</p>	<p>MAT320 Functional Analysis</p>	<p>Investigations into function families and the algebra supporting them. Families will extend from linear, exponential, and quadratic to rational, polynomial, absolute value, and square root. Function families will be developed, explored, and applied to appropriate contexts. Additionally, properties of circles and similarity will be integrated into the transformation of functions.</p> <p><i>Prerequisite: GB in Algebra standard and PR in Functions and Geometry standards, or permission of instructor</i></p>	<p>How are functions organized into families?</p> <p>What are the characteristics of those function families?</p> <p>How might we identify and apply functions to specific contexts?</p> <p>How are geometric transformations applied to functions?</p>
<p>GB/AD Statistics</p>	<p>MAT330 Designing Statistical Studies</p>	<p>An extension of statistics focusing on statistical studies and survey techniques. Topics include random variables, types of statistical studies, normal distributions, two-way tables, conditional probability, hypothesis testing, confidence intervals, and survey analysis.</p> <p><i>Prerequisite: PR in Statistics</i></p>	<p>How do we determine if a new treatment is effective?</p> <p>How do we measure public opinion?</p> <p>What's the difference among types of studies, when is it appropriate to use each type, and what might we conclude from the results?</p>
<p>AD/EX Algebra Functions Geometry (possibly)</p>	<p>MAT400 Precalculus</p>	<p>Intensive review of function families with the addition of trigonometric, logarithmic, and parametric functions. Introduction to complex numbers. Topics will also include a careful look at conic sections (circle, ellipses,</p>	<p>What are trigonometric and logarithmic functions?</p> <p>How are they applied to specific contexts?</p> <p>What is the value of representing</p>

		<p>parabolas, and hyperbolas) from their geometric definitions and extending in their algebraic representations, as time allows.</p> <p><i>Prerequisite: GB in Algebra and Functions standards</i></p>	<p>functions parametrically?</p> <p>What are complex numbers and what are the possible mathematical operations?</p>
<p>AD/EX</p> <p>Statistics & Probability</p>	<p>MAT430 Social Decision Making</p>	<p>A careful look at the ways that groups make fair decisions through voting methods, division, and apportionment.</p> <p><i>Prerequisite: GB in Statistics standard</i></p>	<p>What are different voting methods and which works best in a given situation?</p> <p>How do weighted voting systems work and are they a good idea?</p> <p>How might we divide property in a fair way?</p>
<p>EX/BA</p> <p>Algebra Functions</p>	<p>MAT500 Calculus</p>	<p>Calculus introduces the concept of limit and applies it to the definition of derivative and integral of a function of one variable. The rules of differentiation and properties of the integral are emphasized, as well as applications of the derivative and integral. Additional topics include techniques of integration, indeterminate forms and L'Hopital's Rule, improper integrals, infinite series, conic sections, parametric equations, and polar coordinates.</p> <p><i>Prerequisite: AD in Algebra and Functions standards</i></p>	

Science

Target Standards	Course Name	Description	Essential Questions
<p>PR Forces & Motion</p> <p>Matter & Energy</p> <p><i>this course also offers students an opportunity to meet Math standards</i></p>	<p>SCI100 STEM</p>	<p>An integrated math/science course for incoming 9th graders to explore the topics in science and provide evidence for placements.</p> <p><i>Prerequisites: None</i></p>	<p>How is estimation important in measurement?</p> <p>How do I make measurements in science and represent those measurements?</p> <p>How do we collect and model data?</p>
<p>PR Heredity & Evolution Climate Change Matter & Energy Forces & Motion</p>	<p>SCI150 Foundations of Science</p>	<p>This course will focus on developing the introductory topics for the sciences as they apply to the world around us. Students will learn the appropriate terminology in chemistry as well as develop a beginning understanding of conservation of mass. Students will begin looking at the role of DNA in adaptations and biology as well as how matter flows throughout Earth's systems. Finally, students will learn ways to represent forces on objects and make predictions about how those forces influence motion.</p>	<p>How do matter, energy and information cycle through biological and physical systems?</p> <p>How can we predict the behaviors of objects and the results of physical processes?</p>

		<i>Prerequisites: EN in Heredity & Evolution and Matter & Energy standards, plus EN in Climate Change or Forces & Motion standard</i>	
PR Heredity & Evolution Matter & Energy	SCI200 Life Science	This introductory course to core concepts in biology & ecology. Topics include biomolecules, cellular biology, biodiversity, evolution, and ecology. Skills in laboratory-based inquiry, tracing inputs and outputs, and introductory balancing of chemical interactions will be emphasized. <i>Prerequisites: EN in Heredity & Evolution and Matter & Energy standards</i>	How does the study of biology build upon chemical and physical foundations? How does the structure and function of cells enable organs and organisms to live, grow, and respond to their environment? How do organisms develop, reproduce, and pass on genetic information? How does trait variation in combination with environmental factors affect survival and reproductive success?
Students use their background from Life Science 1 to pick 1 of 3 project based courses. <i>Prerequisites: PR in Heredity & Evolution, Climate Change, and Matter & Energy standards</i>			How do subunits within a system communicate with each other to transfer energy, matter, and information in order to maintain equilibrium?
GB Heredity & Evolution	SCI301 Ecology	This course addresses the EQ's through the lens of Maine's varied and complex ecosystems. Students will learn about ecological relationships, as well as the	What evidence is there that ecosystems do or do not have the capacity to recover from disruptions? In what ways do humans affect the

Climate Change		ways in which energy, matter, and information flow within and between ecosystems. There will be an emphasis on identifying and addressing ways in which humans can alter their impact on the environment.	trajectory of biological systems?
GB Heredity & Evolution Matter & Energy	SCI302 Immunology	This course addresses the EQ's through the lense of immunology. Students will learn about the immune response, the cell biology of the immune system, the nature of antigens, antibodies, B and T cells. The nature of tumor immunology and cancer development will also be covered, with an emphasis on the role of the immune system to maintain homeostasis in an organism.	
GB Heredity & Evolution Matter & Energy	SCI303 Developmental Biology	This course addresses the EQ's through the lens of developmental biology. Students will learn about embryonic development in a variety of model organisms with a how cells communicate with each other to develop stable, viable organisms. Students will use their understanding of developmental processes to answer questions about evolutionary divergence and the tree of life.	

<p>PR Forces & Motion Climate Change</p>	<p>SCI250 Physical Science</p>	<p>An introductory course to core concepts in chemistry and physics. With an emphasis on conservation of mass, motion and energy, and on predicting the outcomes of various physical scenarios.</p> <p><i>Prerequisites: EN Climate Change standard, plus PR in Matter & Energy and Forces & Motion standards</i></p>	<p>How do objects transfer energy to one another?</p> <p>How do we know that energy and matter are conserved in interactions?</p> <p>How do forces affect motion?</p> <p>How can we predict the results of a physical interaction?</p>
<p>GB Climate Change Matter & Energy Forces & Motion (Please see individual course descriptions for specific standards assessed)</p>	<p>Students use their background from Physical Science to pick 1 of 2 (or 3) courses.</p> <p><i>Prerequisite: PR in Climate Change, Matter & Energy, and Forces & Motion standards</i></p>		<p>How do objects transfer energy to one another?</p> <p>How do we know that energy and matter are conserved in interactions?</p> <p>How do forces affect motion?</p> <p>How can we predict the results of a physical interaction?</p>
	<p>SCI351 River and Stormwater Analysis: F+M, M+E</p>	<p>This semester course will look at the forces acting within the flow of rivers and stormwater runoff. It will also cover topics in chemistry relating to pH, pollution the impact to ecology.</p>	
	<p>SCI352 Nuclear Chemistry and Electromagnetism</p>	<p>This course addresses the EQs through investigations surrounding the electromagnetic spectrum, the relationship between magnets and electricity, Coulomb's Law, Gravitation, planetary systems, and Nuclear chemistry topics such as fission and fusion. Students will also investigate potential careers in nuclear chemistry</p>	

		applications.	
	SCI353 Oceanography F+M, Climate Change	This course looks at traditional physics questions from the view of ocean sciences. The interaction of matter and energy lead to integration of organisms and living systems so interesting to aspiring oceanographer.	
GB Forces & Motion Music Aesthetics & Meaning	SCI360 Physics of Music	This interdisciplinary course explores the natural intersection between music and physics through an understanding of sound waves, music theory, and the cultural differences that surround this intersection.	
GB/AD Climate Change Civics and Government	SCI375 The Gulf of Maine System	This interdisciplinary course will examine the Gulf of Maine (GoM) as a complex climate and human system. The GIS prerequisite for this course will allow students to utilize their GIS skills to analyze the GoM through a variety of spatial, geographic, and political lenses. The GoM climate and humans are inextricable; this course looks at the intersection of people and their environment through a policy and solutions lens. <i>Double Blocked Course</i>	How can a GIS software be utilized to analyze the GoM as both a climate and human system? How does the GoM climate and weather impact the people who live and work there? How do people impact the GoM weather and climate, and vice versa? How do human and climate systems behave as feedback loops, directly and indirectly affecting the function of one another? What can we do to ensure the health

		<p><i>Corequisite: SOC375</i></p> <p><i>Prerequisite: PR in Climate Change, Geometry & Spatial Reasoning, Civics and Government and Design Process standards</i></p>	<p>and vitality of the Gulf of Maine's human and ecological communities in the future?</p>
<p>AD/EX Matter and Energy</p>	<p>SCI401 Advanced Chemistry Lab</p>	<p>A course for students who have demonstrated ability at the benchmark level or above and wish to explore advanced chemistry topics through laboratory investigations. This course will focus on reaction kinetics, equilibrium, predicting products of reactions, redox reactions, thermodynamics, and an introduction to organic chemistry.</p> <p><i>Prerequisite: GB in Matter & Energy standard</i></p>	<p>How can we predict the results of chemical interactions?</p> <p>How do variables affect the results of a chemical reactions?</p> <p>How does matter and energy flow in reactions?</p>

<p>AD/EX Heredity & Evolution Matter & Energy</p>	<p>SCI402 Forensics</p>	<p>A course focused on the overlap between chemistry and biology and how both are used to solve problems in forensics. Students will participate in labs to try to answer questions about epidemiology and crime scenes. The course will focus on DNA analysis, fingerprinting, organic chemistry, polymer/fabric analysis, anatomy, microbiology, epidemiology, and genetics. A student leaving this course should understand the connection between gene expressions and specific anatomy and physiology, how to read results from a variety of laboratory tests, and how to analyze data about the spread of disease.</p> <p><i>Prerequisite: GB in Matter & Energy and Heredity & Evolution standards</i></p>	<p>How do genes alter anatomy and physiology?</p> <p>How can we compile biological and chemical information to answer questions?</p> <p>How can we make predictions about the spread of disease and use that info to help prevent that spread?</p>
<p>AD/EX Climate Change Matter & Energy</p>	<p>SCI403 Geochemistry</p>	<p>Students will be able to: Explain the overall chemical makeup and chemical cycling of the planet. Investigate and support a claim about the chemical and physical cycles of matter that drive cycles on multiple different scales. Support a claim about how human involvement in matter and energy cycles affects those cycles.</p>	<p>How do matter and energy cycle through natural processes on the planet?</p> <p>How do matter and energy cycle through anthropogenic processes?</p>

		<p><i>Prerequisite: GB in Matter & Energy and Climate Change standards</i></p>	<p>How does human activity affect the cycles of matter and energy on the planet?</p> <p>What chemical reactions are involved in the natural and anthropogenic cycling of matter and energy on the planet?</p>
<p>AD/EX Climate Change Heredity & Evolution</p>	<p>SCI404 Paleoclimatic Models</p>	<p>Students will be able to: Explain the current climate changes in light of past climate science. Construct arguments based in evidence explaining why and how particular species survived past extinction events</p> <p><i>Prerequisite: GB in Climate Change and Heredity & Evolution standards</i></p>	<p>How has global climate changed in the past?</p> <p>How have living things dealt with that climate change?</p> <p>How does climate change affect evolution?</p> <p>How does evolution affect climate change?</p>
	<p>SCI405 Trophic Cascades</p>	<p>This course engages students in the radiating effects that occur when part of an ecosystem changes. Students will learn to study and analyze what happens when apex predators, fragile microhabitats, and keystone species are removed from ecosystems. This course emphasizes skills related to field work, data analyses, and drawing connections between causes and effects.</p>	<p>How do subunits within a system communicate with each other to transfer energy, matter, and information in order to maintain equilibrium?</p> <p>What evidence is there that ecosystems do or do not have the capacity to recover from disruptions?</p> <p>In what ways do humans affect the trajectory of biological systems?</p>

		<i>Prerequisite: GB in Climate Change and Heredity & Evolution standards</i>	
AD/EX Climate Change, Forces and Motion	SCI406 Extraplanetary Climatic Modeling	Students will be able to: Explain the evidence for past climate changes on Mars, Venus and other celestial bodies in our solar system. Explain and demonstrate the interactions between various astronomical objects and phenomena. Investigate the effects that various astronomical objects and phenomena have on one another and on Earth. <i>Prerequisite: GB in Climate Change and Forces & Motion standards</i>	How was the solar system formed? How do the objects in the solar system affect one another? How do scientists study objects off planet? How do objects in (and out of) the solar system affect one another? How do scientists predict these interactions?
	SCI442 Advanced Biology Lab	A course for students who have demonstrated ability at the benchmark level or above and wish to explore advanced biology topics through in depth molecular analysis of pertinent biological topics at the advancing and excelling level. This course will study topics primarily through lab investigations. This course will focus on metabolism (physiology), biological mutations (cancer), neurobiology, microbiology, epigenetics and developmental biology. The course will adapt to the interests of the students	How is genetic expression regulated? What happens if these regulations mutate? How does metabolism/physiology affect the ability of organisms to survive and reproduce? How do organisms develop? What are the factors that regulate proper development?

		<i>Prerequisites: GB in Matter & Energy, Heredity & Evolution standards</i>	
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World Language

Target Standards	Course Name	Description	Learning Goals
PR Interpersonal Interpretive	SPA100 Spanish I <i>(full year)</i>	<p>Introductory course for complete beginners emphasizing development of active language learner skills. Students will become familiar with the sound landscape and cultivate a comfort with the unique intonation. Class is designed using comprehensible input (CI) prioritizing language acquisition over traditional study of grammar. This method helps students acquire language naturally rather than learning it consciously.</p> <p><i>Prerequisite: None</i></p>	Become acquainted with the soundscape of the language and develop the sound habits of a active language learner.
GB Interpersonal Interpretive Presentational	SPA200 Spanish II <i>(full year)</i>	<p>Continuation of language acquisition through cultural awareness. Class blends authentic materials and discussion on topics relating to the Spanish speaking world. Students develop a familiarity with listening and responding in the target language and continue to hone their active language learner skills.</p> <p><i>Prerequisite: PR in Interpersonal and Interpretive standards</i></p>	Acquisition of baseline vocabulary in order to be functional in target language/culture.

<p>AD Interpersonal Interpretive Presentational</p>	<p>SPA300 Spanish III <i>(full year)</i></p>	<p>Course for motivated learners accessing deeper understanding of language and culture. Through frequent references to current events, social movements, and cultural traditions, students explore a deeper appreciation of the speakers of the language and the language itself.</p> <p><i>Prerequisite: GB in Interpersonal, Interpretive, and Presentational standards</i></p>	<p>Understand the usage and applications of the language through a development of cultural empathy.</p>
<p>EX Interpersonal Interpretive Presentational</p>	<p>SPA400 Spanish IV <i>(full year)</i></p>	<p>Nuanced course incorporating an emphasis on student initiated topics of study. Student choice drives the direction of discussion while exploring authentic materials on complex cultural issues and current events.</p> <p><i>Prerequisite: AD in Interpersonal, Interpretive, and Presentational standards</i></p>	<p>Transition from classroom learner to lifelong learner and user of target language.</p>
<p>PR Interpersonal Interpretive</p>	<p>FRE100 French I <i>(full year)</i></p>	<p>Introductory course for complete beginners emphasizing development of active language learner skills. Students will become familiar with the sound landscape and cultivate a comfort with the unique intonation. Class is designed using comprehensible input (CI) prioritizing language acquisition over traditional study of grammar. This method helps students acquire language naturally rather than learning it consciously. Introductory course for complete beginners.</p>	<p>Become acquainted with the soundscape of the language and develop the sound habits of a active language learner.</p>

GB Interpersonal Interpretive Presentational	FRE200 French II <i>(full year)</i>	Continuation of language acquisition through cultural awareness. Class blends authentic materials and discussion on topics relating to the French speaking world. Students develop a familiarity with listening and responding in the target language and continue to hone their active language learner skills. <i>Prerequisite: PR in Interpersonal and Interpretive standards</i>	Acquisition of baseline vocabulary in order to be functional in target language/culture.
AD Interpersonal Interpretive Presentational	FRE300 French III <i>(full year)</i>	Course for motivated learners accessing deeper understanding of language and culture. Through frequent references to current events, social movements, and cultural traditions, students explore a deeper appreciation of the speakers of the language and the language itself. <i>Prerequisite: GB in Interpersonal, Interpretive, and Presentational standards</i>	Understand the usage and applications of the language through a development of cultural empathy.
EX Interpersonal Interpretive Presentational	FRE400 French IV <i>(full year)</i>	Nuanced course incorporating an emphasis on student initiated topics of study. Student choice drives the direction of discussion while exploring authentic materials on complex cultural issues and current events. <i>Prerequisite: AD in Interpersonal, Interpretive, and Presentational standards</i>	Transition from classroom learner to lifelong learner and user of target language.
PR Interpersonal	MAN100 Mandarin I <i>(full year)</i>	Introductory course for complete beginners emphasizing development of active language learner skills. Students will become familiar with	Become acquainted with the soundscape of the language and

Interpretive		the sound landscape and cultivate a comfort with the unique intonation. Class is designed using comprehensible input (CI) prioritizing language acquisition over traditional study of grammar. This method helps students acquire language naturally rather than learning it consciously. Introductory course for complete beginners.	develop the sound habits of a active language learner.
GB Interpersonal Interpretive Presentational	MAN200 Mandarin II <i>(full year)</i>	Continuation of language acquisition through cultural awareness. Class blends authentic materials and discussion on topics relating to the Chinese speaking world. Students develop a familiarity with listening and responding in the target language and continue to hone their active language learner skills. <i>Prerequisite: PR in Interpersonal and Interpretive standards</i>	Acquisition of baseline vocabulary in order to be functional in target language/culture.
AD Interpersonal Interpretive Presentational	MAN300 Mandarin III <i>(full year)</i>	Course for motivated learners accessing deeper understanding of language and culture. Through frequent references to current events, social movements, and cultural traditions, students explore a deeper appreciation of the speakers of the language and the language itself. <i>Prerequisite: GB in Interpersonal, Interpretive, and Presentational standards</i>	Understand the usage and applications of the language through a development of cultural empathy.
EX Interpersonal	MAN400 Mandarin IV <i>(full year)</i>	Nuanced course incorporating an emphasis on student initiated topics of study. Student choice drives the direction of discussion while exploring	Transition from classroom learner to lifelong learner and user of target language.

Interpretive Presentational		authentic materials on complex cultural issues and current events. <i>Prerequisite: AD in Interpersonal, Interpretive, and Presentational standards</i>	
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Humanities: English

Target Standards	Course Name	Description	Essential Questions/Themes
EN Reading Writing Speaking & Listening	ENG100 English 1	In this course, students will address themes related to social contracts and power and work to answer questions about their identities, beliefs, and the formation of societies. Students will master the reading skills of citing appropriate evidence from fiction and non-fiction texts and use the writing process (including outlines and peer revision) to develop claims and formulate well-structured pieces of writing that synthesize big ideas. Students will also participate in multiple whole and small group discussions in order to learn how to participate in high-level text-based conversations. <i>Prerequisite: None</i>	Theme: Social Contract/Power Who am I? What do I believe? How are societies/states formed? What is the relationship of the individual to society/government? How do societies create and amend power structures? What role does environment (natural, social, political, etc.) play in driving innovation (philosophical, political, economic, technological, artistic, etc.)?

<p>PR Reading Writing Speaking & Listening</p>	<p>ENG201 Science Fiction</p> <p>ENG202 Young Adult Literature</p>	<p>In this course, students will address themes related to social awareness and work to address questions about their own perspectives, understanding of systems, and the role of individuals in creating and sustaining change. Students will choose to answer these questions through the lens of either Science Fiction or Contemporary Young Adult (YA) novels. Students will be introduced to the process of close reading by learning to identify foundational elements of craft and structure and connect them to central themes and/or main ideas. In this course, students will focus on organizing their writing by including strong claims, sophisticated reasoning, and supporting their stance on an essential questions. Students will practice verbalizing their ideas in front of their peers and drive text-based discussions by asking open-ended questions of their peers.</p> <p><i>Prerequisites: EN in Writing, Reading, and Speaking & Listening standards</i></p>	<p>Theme: Awareness</p> <p>How do I see the world around me?</p> <p>How do people become aware of the systems in which they operate?</p> <p>What is the role of the individual in creating and sustaining systemic change?</p> <p>What the relationship between the self and a changing world?</p> <p>What do I do with a newfound awareness of the world around me?</p>
<p>PR Writing Speaking & Listening</p>	<p>ENG250 Digital Storytelling</p>	<p>In this course, students will practice the art of multimedia storytelling, whether personal, journalistic, persuasive, or fictional, through the use of audio and video technology. Students will be expected to produce their own work and, whenever possible, to publish, submit, or exhibit their work to an authentic audience.</p> <p><i>Prerequisites: EN in Writing, Reading, and Speaking & Listening standards</i></p>	<p>What makes a story compelling?</p> <p>How can digital media be used to enhance a story?</p>

<p>PR Reading Writing Speaking & Listening</p>	<p>ENG260 Introduction to Creative Writing</p>	<p>In this course, students will learn the craft of creative writing. Students will be expected to produce and share their own original work, and analyze and consider how published poets and fiction writers effectively use literary devices. The course will primarily focus on the genres of poetry, the short story, and flash fiction.</p> <p><i>Prerequisites: EN in Writing, Reading, and Speaking & Listening standards</i></p>	<p>What makes a story or poem compelling?</p> <p>How do authors use literary devices to craft artful stories or poems?</p> <p>What are my strengths as a writer or poet, and how can I develop my own voice and style?</p>
<p>GB</p>	<p>ENG300 Short Stories</p>	<p>This course is designed for juniors and seniors who are still working on earning GB evidence in reading, writing, and/or speaking & listening standards. The course will explore the short story genre through analysis of how a writer's craft influences the text's meaning. Students will read short stories written 150 years ago, as well as contemporary stories that were published just last year. We'll explore how our reading (and rereading) of these condensed stories changes our understanding and interpretation of fiction. Equally important, we will work through the writing process in order to become more confident in crafting analytical essays and persuasive pieces. Class discussions will use the Harkness model, and conversations will be guided by student questions and observations. Students will also build presentation skills through implementation of a variety of speaking strategies.</p>	

		<i>Prerequisites: Junior/Senior working on PR in Writing, Reading, and Speaking & Listening standards (Recommendation from an ELA teacher or advisor)</i>	
GB Reading Writing Speaking & Listening	ENG301 Dystopia / Utopia ENG302 Multicultural Lit	In this course, students will address themes related to perspective and work to address questions about the impact of point of view on the definition of history, formation of literature, and social relationships between individuals and groups. Students will choose to answer these questions through the lens of either Dystopian/Utopian literature or Multicultural Literature. At this level, students will engage in rigorous close reading exercises in order to understand how an author’s choice of craft and structure conveys meaning. In this course, students will select essay questions, craft their own outlines, develop claims that connect observations across texts, and evaluate their own drafts. Students will participate in student-facilitated Harkness discussions in order to address nuanced themes in a collective manner. <i>Prerequisites: PR in Writing, Reading, and Speaking & Listening standards</i>	Theme: Perspective Why does perspective matter when defining/writing “history”? What happens when groups or individuals change perspective? How do we challenge our assumptions?
GB/AD Reading Writing Speaking &	ENG360 Advanced Creative Writing	In this course, students will learn the craft of creative writing. Students will be expected to produce, workshop, and perform their own original work, as well as analyze and consider how published poets and fiction writers effectively use	What makes a story, poem, or piece of writing compelling?

<p>Listening</p>		<p>literary devices. The course will primarily focus on the genres of poetry and fiction writing,, though students may choose independent projects in play-or screenwriting, interactive fiction, narrative podcasts, creative nonfiction, or graphic novels. This is an elective course, and students should expect to produce a lot of writing.</p> <p><i>Prerequisites: At least 2 pieces of GB evidence in Writing, Reading, Speaking & Listening.</i></p>	<p>How do authors use literary devices to craft artful narratives or poems?</p> <p>What are my strengths as a writer or poet, and how can I develop my own voice and style?</p>
<p>GB/AD Reading Writing Speaking & Listening Optional: Research</p>	<p>ENG401 Science, Tech, & Ethics</p> <p>ENG402 Lit Seminar</p>	<p>In this course, students will address themes related to their social and ethical impact and work to address questions about their rights, responsibilities, and responses to pressing issues in today’s world. Students will read personal essays as mentor texts, work to develop their own unique voices, and use these experiences to write their own, original narratives. Then, students will choose to read and discuss either non-fiction texts related to science and technology issues or canonical literary works connected by a common theme. At this level, students will independently engage in close reading practices, expanding upon their knowledge of craft, structure, author’s purpose, and theme. Students will plan and lead text-based discussions.</p> <p><i>Prerequisites: PR/GB in Writing, Reading, Speaking & Listening.</i></p>	<p>Theme: Impact</p> <p>What moral and ethical issues confront me in today’s world?</p> <p>What impact will I have on the world around me?</p> <p>What are my rights and responsibilities?</p>

<p>GB/AD Reading Writing Speaking & Listening</p>	<p>ENG451 Shakespeare Seminar</p>	<p>In this course, students will be introduced to a selection of Shakespeare's sonnets and plays. Students will have the opportunity to analyze a number of Shakespeare's works through close reading, performance, critical lenses, and scholarly perspectives.</p> <p><i>Prerequisites: GB in Writing and Reading standards</i></p>	
<p>GB/AD Reading Writing</p>	<p>ENG452 Film Studies</p>	<p>Students will understand how to read a film as a text and a work of art. They will view, analyze, discuss, and critique films, while learning about the technology, craft, and cultural context that have guided the development of this artform.</p> <p><i>Prerequisites: GB in Reading and Writing standards</i></p>	
<p>GB/AD Writing Speaking & Listening</p>	<p>ENG453 Advanced Public Speaking</p>	<p>This course will introduce students to the art of public speaking and storytelling. Students will learn the skills of effective verbal communication - from body language and eye contact to rhetoric and story structure. Students will develop stories and workshop them throughout the semester, building up to a final performance in front of an outside audience.</p> <p><i>Prerequisites: GB in Speaking & Listening and Writing standards</i></p>	

Humanities: Social Studies

Target Standards	Course Name	Description	Essential Questions/Themes
EN Historical Thinking Research Civics & Government Economics	SOC100 Early Civilization	This course will focus on basic research and the introduction to historical thought. In addition, students will understand how early societies organized themselves to make decisions, solve problems, and produce goods. Students will do this through the study of early civilizations. <i>Prerequisites: None</i>	Theme: Social Contract/Power How are societies/states formed? What is the relationship of the individual to society/government? How do societies create and amend power structures? What role does environment (natural, social, political, etc.) play in driving innovation (philosophical, political, economic, technological, artistic, etc.)?
PR Historical Thinking Research Civics & Government Economics	SOC200 American Studies	This course will focus on analysis of historical documents and founding ideals of the United States. In addition, students will examine the American experience from the perspective of groups that historically lacked access to power/resources. <i>Prerequisites: None</i>	Theme: Awareness How do I see the world around me? How do people become aware of the systems in which they operate? What is the role of the individual

			<p>in creating and sustaining systemic change?</p> <p>What the relationship between the self and a changing world?</p> <p>What do I do with a newfound awareness of the world around me?</p>
<p>GB Historical Thinking Research Civics & Government Economics</p>	<p>SOC300 Global Perspectives</p>	<p>Students in this course will expand their skills with historical thought and advanced research. Students will focus on the global transfer of goods and wealth and the political implications thereof.</p> <p><i>Prerequisites: PR in Historical Thinking, Research, Economics, and Civics & Government</i></p>	<p>Theme: Perspective</p> <p>Why does perspective matter when defining/writing “history”?</p> <p>What happens when groups or individuals change perspective?</p> <p>How do we challenge our assumptions?</p>
<p>GB Economics¹ Speaking & Listening</p>	<p>SOC351 Entrepreneurship</p>	<p>This course presents major business concepts and analysis while also developing important entrepreneurial traits. Students learn business concepts through classroom discussions and will then apply these concepts to complete classroom assignments. Students will learn how to evaluate and analyze various business concepts. In addition, each student will develop a business idea by writing a Business Summary, Business Plan and developing a Google Slides presentation. The final course</p>	<p>What do I need to start a business?</p> <p>How do I raise money and finance a business?</p> <p>How do I write a business plan?</p>

		<p>project is to present the business idea including financial projections to the class and a panel of reviewers. Students will use oral presentation skills and projection media to describe their business idea while also answering questions from the class and the review panel.</p> <p><i>Prerequisites: PR in Speaking & Listening, Writing, and Economics standards</i></p>	
<p>GB Economics¹ Speaking & Listening</p>	<p>SOC352 Personal Finance</p>	<p>The focus of this course is understanding the events in each student's life that will impact them financially. Students will assess their costs, their sources of income, and how to build a solid financial future. Major projects for this course will focus around applying and interviewing for a job, understanding college debt, and creating and managing a budget. There will not be a lot of writing or project work outside of class (other than those projects already mentioned), but there will be readings, videos, and podcasts that students will need to tackle in order to be prepared for in-class activities.</p> <p><i>Prerequisites: PR in Speaking & Listening, Writing, and Economics standards</i></p>	<p>How do I navigate financial aid?</p> <p>How do I apply for a job?</p> <p>How do I manage my money for long-term success?</p>
<p>GB Civics & Government Research</p>	<p>SOC353 Model UN</p>	<p>Model UN is designed to simulate the United Nations, the international government agency created at the end of WWII to help solve the world's problems and stave off global conflict. In this class we will study the role and inner workings of the</p>	<p>How do countries manage the complex interrelationships that define the world?</p> <p>How can we propose solutions for these issues?</p>

Writing		<p>United Nations. Students take on the role of diplomat and represent their country's interests on the world stage throughout the course. The course culminates in participation at the Maine Model UN conference held on USM's Gorham campus in mid-May.</p> <p><i>Prerequisites: PR in Speaking & Listening, Writing, and Civics & Government standards</i></p>	
<p>GB/AD Civics & Government</p>	<p>SOC375 The Gulf of Maine System</p>	<p>This interdisciplinary course will examine the Gulf of Maine (GoM) as a complex climate and human system. The GIS prerequisite for this course will allow students to utilize their GIS skills to analyze the GoM through a variety of spatial, geographic, and political lenses. The GoM climate and humans are inextricable; this course looks at the intersection of people and their environment through a policy and solutions lens.</p> <p><i>Double Blocked Course</i></p> <p><i>Corequisite: SCI375</i></p> <p><i>Prerequisite: PR in Climate Change, Geometry & Spatial Reasoning, Civics and Government and Design Process standards</i></p>	<p>How can a GIS software be utilized to analyze the GoM as both a climate and human system?</p> <p>How does the GoM climate and weather impact the people who live and work there?</p> <p>How do people impact the GoM weather and climate, and vice versa?</p> <p>How do human and climate systems behave as feedback loops, directly and indirectly affecting the function of one another?</p> <p>What can we do to ensure the health and vitality of the Gulf of Maine's human and ecological</p>

			communities in the future?
AD Historical Thinking Research Civics & Government Economics	SOC400 Citizenship in Action	Students in this course will study rights and responsibilities of citizens, in theory and practice. The focus will largely be on how rights change and evolve over time, and how citizens can interact with their political systems to affect change. <i>Prerequisites: GB in Historical Thinking, Research, Civics & Government, and Economics standards</i>	Theme: Impact What moral and ethical issues confront me in today's world? How will I impact the world around me in a positive way? What are my rights and responsibilities?
GB/AD Aesthetics & Meaning Historical Context	SOC451 Art History	This course will survey the history of western art from the cave paintings at Lascaux and the ancient works of the Mediterranean region, through the major eras of European art including Medieval, Romanesque, Gothic, Renaissance, and Baroque and into the Modern movements of America and Europe (Impressionism, Expressionism, DaDa, Fauvism, among others). Through study, analysis, and critique of artworks, students will gain insight into the connections between cultural/societal values and aesthetic decisions that artists make. Students will deepen their understanding of each era of history while developing fluency and facility with the process of art analysis. Students will also develop an appreciation of art which enables them to move comfortably and knowledgeably through the world's great museums. <i>Prerequisites: GB in Historical Context standard</i>	How does art reveal the nuance and depth of history and values beyond what is articulated in written text? What is the artists' cultural and creative intent as evidenced in form, subject, and execution of work?

<p>GB/AD Research Historical Context</p>	<p>SOC452 Historical Practices Seminar</p>	<p>This college-level seminar will focus on historical research with a grounding in historical philosophy and theory. Students will learn professional practices, including research skills and historiography. Content focus will vary.</p> <p><i>Prerequisites: Historical Context & Research standards at GB.</i></p>	
<p>GB/AD Civics & Government Research</p>	<p>SOC453 Advanced Public Policy</p>	<p>Students will learn about public policy through engaging with the policy process. This course will focus on the main principles of policy development, examining how our questions, ideas, needs, hopes, and fears lead to policy formation and the role that this process plays in our society. The course will focus, in particular, on the importance of narrative and storytelling in the creation and implementation of public policy. Whenever possible, students will partner with local organizations to take part in authentic public policy initiatives.</p> <p><i>Prerequisites: GB in Civics & Government and Research standards</i></p>	
<p>GB/AD Economics Research Civics & Government</p>	<p>SOC454 Financial Weapons of Mass Destruction- A Study of Financial Disasters and</p>	<p>Warren Buffett famously referred to derivatives as “financial weapons of mass destruction.” In this course, students will examine the corrosive effects of risk reduction and the concept of “moral hazard” (paying special attention to the events surrounding the 2008 financial crisis). At the same time, students will learn about the important role of risk analysis and mitigation in the evolution and</p>	<p>Do private actors have a public obligation?</p> <p>What is the proper role of government in reducing private risk?</p>

	Risk Mitigation	<p>advancement of economics. This course will focus on the concept of risk and the connection between risk mitigation and economic growth. Students will study concepts such as limited liability, insurance, probability, and derivatives. By the end of the course, students will be able to select appropriate risk mitigation strategies for a range of economic scenarios, provide detailed rationales for those strategy choices, produce narrative projections of probable outcomes, and suggest policy responses to adverse outcomes.</p> <p><i>Prerequisites: GB in Economics and Research standards</i></p>	Does the elimination of risk create moral hazards?
<p>GB/AD Civics & Government Historical Context</p>	SOC455 Confronting Genocide	<p>This course will introduce students to genocides of the 20th century. Students will explore four genocide case studies: Armenian, the Holocaust, Cambodia, and Rwanda in order to understand the genocides, their historical context, and the U.S. and international responses to the genocides. Additionally, students will explore the treatment of Native Americans in the United States as a means of learning about the concept of “cultural genocide.” This foundation will provide a historical lens as students analyze possible genocide policy and present their own solutions to confronting genocide.</p> <p><i>Prerequisites: GB in Civics & Government and Historical Context standards</i></p>	<p>Does the moral imperative of confronting genocide outweigh other, more practical considerations?</p> <p>What, if anything, should the international community do to preemptively prevent genocide?</p>

**Humanities/Social Studies Notes:
1: Money management indicator only**

Design

Target Standards	Course Name	Description	Essential Questions
<p>EN Speaking & Listening Fabrication</p> <p>PR Design Process</p>	<p>DES100 Introduction to Design</p>	<p>An introduction to engineering and fabrication concepts and practices.</p> <p><i>Prerequisites: None</i></p>	<p>How do you use tools safely?</p> <p>How do you use the design process to generate innovative solutions?</p> <p>How do you present information for and audience in an engaging and informative manner?</p> <p>What is engineering?</p>
<p>EN/PR Aesthetics & Meaning Design Process</p>	<p>DES105 Design Thinking</p>	<p>An introduction to design thinking in one of several disciplines. Students will research, design, test and improve works using industry standard design processes. Design thinking prepares students for advanced level design courses.</p> <p><i>Prerequisites: None</i></p>	<p>What can art and design teach us about culture and society? How is art a form of communication?</p> <p>How do creators use tools and techniques to express their ideas? How can understanding others help make better stuff?</p>
	<p>DES201 Woodworking</p>	<p>Self-directed projects focusing on the design process and understanding woodworking joinery and tools.</p>	<p>How do we use wood species and engineered materials to build products?</p> <p>What types of woodworking joinery work</p>

		<i>Prerequisites: PR in Design Process and Fabrication standards</i>	best for what applications? How do we set up and maintain tools?
GB Design Process Fabrication	DES202 Mechanisms	Self-directed projects focusing on understanding simple machines, mechanical advantage and how things work. <i>Prerequisites: PR in Design Process and Fabrication standards</i>	What are simple machines and how do they work? What is mechanical advantage and how do we transmit power? How do we approach the design of complex systems and machinery?
GB Design Process Fabrication	DES203 Composites	Self-directed projects focusing on understanding composite structures, tooling and mold-making <i>Prerequisites: PR in Design Process and Fabrication standards</i>	What is a composite matrix? How do we calculate strength and stiffness in a composite design? How do we work with composites, composite tooling and specialized materials?
GB Fabrication GB/AD Design Process PR CAD	DES204 Product Design	A course in Design Thinking, the design process and model making. Students will use the fab lab to create and iterate on their products. <i>Prerequisites: PR in Design Process and Fabrication standards</i>	How do we use the design process and how does it inform our work? How do we communicate our design details and design intent? How can the design process help generate new ideas and innovative solutions to problems?

<p>GB Design Process</p> <p>AD Fabrication</p>	<p>DES301 Luthiery (Musical Instrument Building & Restoration)</p>	<p>Musical instrument construction and repair as well as other advanced woodworking techniques.</p> <p><i>Prerequisites: PR in Design Process standard and GB in Fabrication standard</i></p>	<p>What properties do specific species of wood have that make them suitable for tone production?</p> <p>How do we bend and shape wood to a pattern?</p> <p>What are the mechanical properties of adhesives and when and why do we use them?</p>
<p>AD Design Process Fabrication</p>	<p>DES302 CAM (Computer Aided Machining)</p>	<p>An introduction to Computer aided Machining: CNC routers, CNC vertical Machining center, Laser engraving and 3d Printing.</p> <p><i>Prerequisites: GB in Design Process and Fabrication standards</i></p>	<p>What is the difference between additive and reductive manufacturing?</p> <p>What is Gcode and how does it work?</p> <p>What are feed rates and how do they affect part quality?</p>
<p>EN Music¹</p> <p>EN/GB Aesthetics & Meaning</p>	<p>MUS101 Music Ensemble</p>	<p>What are the inner workings of performing and responding in the ensemble setting. <i>Course may be repeated.</i></p> <p><i>Prerequisites: None</i></p>	<p>How do musicians participate in an ensemble setting on an instrument of your choice?</p> <p>How do various genres of music affect ensemble playing?</p>
<p>EN/GB Music¹</p>	<p>MUS102 A Cappella</p>	<p>Explore the fundamentals of unaccompanied vocal music.</p> <p><i>Prerequisites: None</i></p>	<p>How can we analyze and orchestrate vocal music to breath new life into songs we are familiar with?</p>

EN/GB Aesthetics & Meaning			
EN Music ¹ Aesthetics & Meaning	MUS103 Guitar Lab	An introduction to playing guitar. <i>Prerequisites: None</i>	How does the guitar function in an ensemble setting? What are the primary skills and concepts to playing the instrument?
EN/GB Music ² Aesthetics & Meaning	MUS104 Music Comp & Tech	Introduction music composition using a Digital Audio Workstation (DAW). Students are guided through a series of increasingly complex projects, putting music fundamentals into practice while building a portfolio of work. No musical experience is necessary for this course. <i>Course may be repeated in order to work on more complex projects and topics.</i> <i>Prerequisites: None</i>	How can technology be used in order for all students to have access to music creation?
PR/GB Theatre Aesthetics & Meaning	THE201 Theatre: Performance	Students will work on developing a compelling, multi-layered performance, and sustainable performance. The course includes individual and group work, functional terminology and techniques, and scripted and improvisational performance. <i>Course may be repeated</i>	What are the elements of an exemplary performance? What methods can be employed to build and present a complex character?

		<i>in order to work on more complex projects and topics.</i> <i>Prerequisites: None</i>	What are the most effective techniques to prepare for a live performance?
EN/PR Aesthetics & Meaning Visual Arts	ART100 Art Fundamentals	An introduction to visual arts concepts and practices. <i>Prerequisites: None</i>	What are the fundamental methods of producing art? How can we use tools and techniques to express ideas?
PR/GB Aesthetics & Meaning Visual Arts	ART201 Drawing I	Detail-oriented course in both the technical and creative aspects of drawing practices. <i>Prerequisites: EN in Visual Arts and Aesthetics & Meaning standards</i>	What hand drawing techniques can we use to create a visual representations of what we observe?
GB/AD Aesthetics & Meaning Visual Arts	ART301 Drawing II	Advanced instruction on observational and design drawing practices, and encourages independent development toward an area of interest. <i>Prerequisites: PR in Visual Arts and Aesthetics & Meaning standards</i>	How can we use our observational skills to accurately execute tone, perspective, proportion and intent using hand drawing techniques?

<p>PR/GB Aesthetics & Meaning Visual Arts</p>	<p>ART202 Graphic Design I</p>	<p>Explore the fundamentals of graphic design including shapes, color, texture, typography, and imagery and then use this to produce original commercial work.</p> <p><i>Prerequisites: EN in Visual Arts and Aesthetics & Meaning standards</i></p>	<p>How does good design affect our purchasing preferences? Why do we ascribe value to consumer objects based on advertising? How can we alter perceived value through design?</p>
<p>GB/AD Aesthetics & Meaning Visual Arts</p>	<p>ART302 Graphic Design II</p>	<p>Through advanced exploration of the designer-audience relationship, students will develop type, logos and layouts for specific purposes, including branding and packaging.</p> <p><i>Prerequisites: PR in Visual Arts and Aesthetics & Meaning standards</i></p>	<p>How do we create a cohesive design aesthetic that moves through a variety of promotional materials?</p> <p>How do we convey the feeling unique to certain eras or geographies?</p>
<p>GB Aesthetics & Meaning Visual Arts</p>	<p>ART203 Digital Art</p>	<p>Students will develop a high level of proficiency with Adobe Suite products and produce multiple, original pieces demonstrating their knowledge and ability. There will also be doughnuts.</p> <p><i>Prerequisites: EN in Visual Arts and Aesthetics & Meaning standards</i></p>	<p>How can we use Digital Graphical programs to create otherwise difficult or impossible visualizations?</p> <p>How can we determine if Raster Imaging or Vector is correct in individual circumstances?</p>

<p>GB/AD Aesthetics & Meaning Visual Arts</p>	<p>ART204 Illustration</p>	<p>Curriculum focuses on interpretation of existing text or material in a visual presentation with Consideration to the author’s vision.</p> <p><i>Prerequisites: PR in Visual Arts and Aesthetics & Meaning standards</i></p>	<p>How do we determine what is important to create a visual narrative from existing writing?</p> <p>How do we convey expression and intent in facial and physical forms?</p>
<p>AD Aesthetics & Meaning Visual Arts</p>	<p>ART303 Animation</p>	<p>Use of manual and digital animation techniques with focus on stop motion and Adobe Animate.</p> <p><i>Prerequisites: GB in Visual Arts and Aesthetics & Meaning standards</i></p>	<p>How do we prepare images for animation?</p> <p>What is frame rate and how does it affect the final animated work?</p> <p>How do we achieve depth in animation?</p>
<p>AD Aesthetics & Meaning Visual Arts</p>	<p>ART304 Printmaking</p>	<p>Covering monoprints, wood block, intaglio and reduction and movable type printmaking.</p> <p><i>Prerequisites: GB in Visual Arts and Aesthetics & Meaning standards</i></p>	<p>What is the process for creating art intended for hand printing?</p> <p>How do we think reductively when it comes to printing?</p> <p>What is the practicality of printing art?</p>
<p>PR/GB Design Process</p> <p>GB Geometry & Spatial Reasoning</p>	<p>GIS 100 Introduction to GIS</p>	<p>An introduction to Geographic Information Systems (GIS) as a tool to analyze and present geographic data. This course will involve tutorials, labs and self directed projects. The successful completion of this course will provide students with a proficiency in GIS that will allow them</p>	<p>How can a GIS software aid in the analysis and presentation of spatial data?</p> <p>How does a GIS software capture and utilize geographic and other datasets?</p>

		to apply GIS to their coursework in other classes <i>Prerequisite: None</i>	
PR/GB Computer Science	COS100 Introduction to Computer Science	An introduction to the hardware and software aspects of a computer. Students will have a brief experience with circuits and hardware structure. Then they will move on to the fundamentals of programming. Using the CodeHS platform, students will be allowed to pursue their choice of programming language (JavaScript, Python, or HTML/CSS). Students who wish to access the GB level of the standard will participate in the professional practices of the class. <i>Prerequisite: None</i>	How does a computer work? How can I write a program to do a specific thing? What are some of the basic structures of programming and how do they make a program flow better?
GB Computer Science Design Process Aesthetics and Meaning	COS150 Computer Project Development	Guided project work. Given a project concept from the teacher, students begin working with an eye towards how to manage their own workflow and direction. <i>Prerequisites: PR in Design Process and Computer Science standards</i>	How can I plan for work I don't know how to do yet? What meaning can be conveyed through interactivity?
GB/AD³ Computer Science	COS200 Programming Studio I	Self directed projects with a focus on using the tools and techniques of a professional programming.	How can I plan for work I don't know how to do yet?

Design Process		<i>Prerequisites: PR in Design Process and Computer Science standards</i>	What meaning can be conveyed through interactivity?
AD³ Computer Science Design Process	COS300 Programming Studio II	Self directed programming with opportunities to lead group projects. Held in same space as 200 <i>Prerequisites: GB in Design Process and Computer Science standards</i>	How do you coordinate multiple people working in the same space? When does a meeting save time and when does it waste it? How can you scale a small project into a large one?
GB Design Process Computer Science	ELE300 Advanced Electronics	This course will teach advanced electronics concepts using an “Internet of Things” platform, gathering real world data from various types of sensors, sending this data up to the cloud, then processing the data for display. Students will be able to select which concepts they want for their concentration. <i>Prerequisite: None</i>	How can I access and use real-world data available on the Internet of Things? How can I optimize the access, processing, and display of IoT data?
EN/PR Design Process	ELE100 Electronics I	Learn basic electronic concepts. Use online circuit simulator to design, build and test electronic circuit concepts. <i>Prerequisite: None</i>	How can I calculate the various parameters of an electronic circuit? How can I optimize the design?

GB/AD Design Process	ELE200 Electronics II	This is an advanced course in Electronics that involves learning filter design, Operational Amplifier circuits and power transistors. <i>Prerequisites: PR in Design Process standard</i>	How do I go about designing an electronic system? What tools and concepts can I use to test the performance of the circuit?
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Design Notes:

1: Performance indicator only

2: Composition indicator only

3: Students have the option to demonstrate GB/AD proficiency in the Aesthetics & Meaning standard

Wellness

Target Standards	Course Name	Description	Essential Questions
PR Health Goal Setting Physical Fitness	WEL100 Wellness I	3 days a week of Health Ed, one day of Phys Ed for 9th and 10th graders. <i>Prerequisite: None</i>	What does living a healthy lifestyle look like here in Portland and at Baxter? How do I best advocate for myself in order to achieve a healthy lifestyle as a young teenager? How do I support those around me in living their best lives?
GB Health Goal Setting Physical Fitness	WEL200 Wellness II	3 days a week of Health Ed, one day of Phys Ed for 11th and 12th graders <i>Prerequisites: PR in Health, Goal Setting, and Physical Fitness standards</i>	What does a healthy adult look like? How do I navigate the challenges of living a healthy life outside of Baxter?

			How do I support those around me in living their best lives?
GB Physical Fitness Goal Setting	WEL205 Yoga and Mindfulness I	Through a combination of movement, mindfulness practice, discussion, and reflection, students will explore the connection between mind and body to support their own wellness.	What is the connection between body and mind? How can I use practices of mind and body to support my own wellness?
AD Physical Fitness Goal Setting	WEL305 Yoga and Mindfulness II	This class builds on Yoga and Mindfulness I by exploring more vigorous yoga postures and extended mindfulness practice.	What is the connection between body and mind? How can I use practices of mind and body to support my own wellness? How can I use challenging physical postures and mental exercises to strengthen my wellbeing?
GB Physical Fitness Goal Setting	WEL210 Couch to 5k	This class prepares students to run a 5k through a consistent training schedule and regular reflection on fitness progress. <i>Prerequisites: PR in Goal Setting and Physical Fitness standards (if Wellness I was already taken)</i>	How can I achieve my fitness goals to improve my health and wellbeing? How do I overcome obstacles and challenges to my fitness goals?
AD+ Health Speaking &	WEL401 Advanced Human Sexuality (Offered in spring 2020)	An upper level elective course focusing on sexuality, development, societal influences, gender, sex, peer advocacy, and how to create the most	What does science tell us about why we are the way we are? How do I make our community safe for everyone, regardless of their upbringing,

Listening Research	** Guardian permission required for this course**	healthy environment at Baxter Academy and in Portland in regards to the above. <i>Prerequisites: Wellness I, II, and/or permission from eSBe.</i>	gender expression, sexuality, religion, etc...? How does society influence our views, identification, expressions, etc...?
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Engineering Pathway

Target Standards	Course Name	Description	Essential Questions
PR Algebra Geometry Forces & Motion	EPS150 9th grade Physics	This course is an introductory combination math and science course geared towards the fundamentals of math applied to physics with the goal of developing analytical thinking. Math topics that will be covered include solving systems of equations, working with linear and quadratic functions and applying trigonometry. Science will begin with Newtonian mechanics. <i>Prerequisite: None</i>	How do we use math to model the world around us? How can we solve for variables in equations and inequalities? How can the measure of the segments of triangles be applied to real world situations? How can we use forces and the laws of motion to understand the motion of objects?
GB Functions Algebra	EPM310 Algebraic Techniques	A continuation of introductory math topics needed for engineering. This course will focus on practicing algebraic problem solving to real world scenarios. Topics will include modeling with functions, probability,	How do we use math to model the world around us? How we use algebra to help us solve real world problems? How can we gather, represent, and

<p>PR Statistics & Probability</p>		<p>and working with polynomials. <i>Prerequisite: None</i></p>	<p>interpret data?</p>
<p>GB Geometry & Spatial Reasoning AD Functions Algebra</p>	<p>EPM400 EP PreCalculus <i>(full year)</i></p>	<p>A year long course on advanced algebra including polynomials, complex numbers, trigonometry, and logarithmic and exponential functions. Will introduce the topics of parametric equations, polar form, continuity and limits in order to prepare students to take Calculus. <i>Prerequisites: GB in Functions and Algebra</i></p>	<p>What skills do we need to be able to simplify algebraic expressions and solve equations and systems of equations? How do you represent and manipulate complex numbers? How do we increase our problem-solving repertoire to include polynomial, trigonometric, logarithmic and exponential equations, and what are their applications?</p>
<p>EX Functions Algebra Geometry & Spatial Reasoning</p>	<p>EPM500 Calculus <i>(full year)</i></p>	<p>A year long course focused on derivatives, integration, series and sequences, and introducing multivariate calculus techniques. Students will learn what the derivative and integral are and how to use them to solve problems such as area under a curve, average value of a function, and how to derive the formulas for volumes of 3d shapes.</p>	<p>How can calculus be used to solve problems in other fields? How can we make inferences about the behavior of the graph of the derivative or antiderivative of a function based on the features of the original? How can calculus help us make sense of other mathematical and scientific concepts?</p>

		<i>Prerequisites: AD in Functions and Algebra</i>	
BA Functions Algebra	EPM550 Differential Equations and Linear Algebra (full year)	A year-long introduction to topics that are typically covered in the first two years of college. The course will emphasize first and second order differential equations, and advanced problem solving with matrices and determinants. <i>Prerequisites: EX in Functions and Algebra</i>	How are differential equations used to represent physical phenomena? What do we need to know to solve basic types differential equations and evaluate the correctness of our solutions? Why are the methods of linear algebra useful for understanding large real-world systems? What basic linear algebra skills do we need to master to orient ourselves in this vast subject?
PR Climate Change Heredity & Evolution	EPS250 Earth Science	Students will learn about ecosystems on Earth and the adaptations that populations have developed over time to survive in those ecosystems. Topics in the course will include natural selection, an introduction to genetics, and types of cycles on Earth (water cycle, rock cycle, nitrogen cycle etc.). <i>Prerequisite: None</i>	How are systems on Earth interrelated? How do matter, energy, and information flow within and between systems? How can we model changes in a system over time? How is a living organism the sum of all its parts?

<p>GB Matter & Energy Climate Change</p>	<p>EPS300 Chemistry I</p>	<p>A semester course focused on the basics of chemistry. The course will cover ionic reactions, stoichiometry, electron configurations, precipitation reactions, models of the atom and periodic trends.</p> <p><i>Prerequisite: None¹</i></p>	<p>How can one explain and represent the structure, properties, and interactions of matter?</p> <p>How can we predict what will occur in a chemical reaction?</p> <p>How does Chemistry play a role in other physical processes?</p>
<p>AD Heredity & Evolution Climate Change</p> <p>GB Statistics</p>	<p>EPS400 Biology</p>	<p>A semester course focused on the fundamentals of Biology. Topics that will be covered include cellular structure, genetics, inheritance, natural selection in populations and ecosystems, and interactions between these systems. Students will apply their knowledge through analysis of readily available data and through research projects such as studying genetic diseases and epidemiology.</p> <p><i>Prerequisite: PR in Matter & Energy¹</i></p>	<p>How does life result from cellular structure and function?</p> <p>How is the hereditary information in genes inherited and expressed?</p> <p>How do organisms interact and depend on each other and their environment for survival?</p>
<p>AD Matter & Energy</p>	<p>EPS410 Chemistry II</p>	<p>A semester course focused on the connection between chemistry and our impact on earth. Will focus on nuclear chemistry, thermodynamics, kinetics, and predicting the products of reactions. Students will be connecting their knowledge of chemistry to learn about and propose solution surrounding alternative energy</p>	<p>How are matter and energy interrelated?</p> <p>How do variables affect reactions?</p> <p>How can we predict the products of reactions?</p>

		sources. <i>Prerequisite: GB in Matter & Energy standard</i>	
GB/AD Forces & Motion	EPS450 Algebra Based Physics <i>(full year)</i>	An algebra based year long physics course to introduce a wide range of physics topics to students. The topics covered include kinematics, Newton's laws, circular and rotational motion, energy, momentum, oscillations, waves, and sound. <i>Prerequisite: GB in Algebra standard²</i>	How can we model forces in science? How does force influence motion? How can we predict the behavior of physical objects?
AD/EX Forces & Motion	EPS500 Calculus-Based Physics <i>(full year)</i>	A calculus based physics course aligned to the first semester of a college physics course. The focus is on solving challenging mechanics problems, to prepare students to be successful in a first-year college physics course. The course will include some labs, with an emphasis on error analysis. <i>Prerequisite: AD in Functions and Algebra standards²</i>	What do we need to know to successfully solve physics textbook problems at a high level? How can we explain uncertainty in our measurements of physical quantities?
PR/GB Historical Context Civics & Government	EPH200 American Studies + Constitutional Literacy	This course will focus on analysis of historical documents and founding ideals of the United States. In addition, students will examine the American experience from the perspective of	How do people become aware of the systems in which they operate? What is the role of the individual in creating and sustaining systemic

<p>Reading Speaking & Listening⁵</p>		<p>groups that historically lacked access to power/resources. Students will also study rights and responsibilities of citizens, in theory and practice. The focus will largely be on how rights change and evolve over time, and how citizens can interact with their political systems to affect change.</p> <p><i>Prerequisites: EN in Historical Thinking, Research, Civics & Government, Economics, Reading, Writing, and Speaking & Listening standards</i></p>	<p>change?</p> <p>What do I do with a newfound awareness of the world around me?</p>
<p>GB/AD Historical Context Civics & Government Research Economics³</p>	<p>EPH300 Global Perspectives</p>	<p>Students in this course will expand their skills with historical thought and advanced research. Students will focus on the global transfer of goods and wealth and the political implications thereof.</p> <p><i>Prerequisites: PR in Historical Thinking, Civics & Government, Reading, and Speaking & Listening standards</i></p>	<p>Why does perspective matter when defining/writing “history”?</p> <p>What happens when groups or individuals change perspective?</p> <p>How do we challenge our assumptions?</p>
<p>AD/EX Historical Context Research Economics⁴</p>	<p>EPH400 Entrepreneurship</p>	<p>Students will begin the year by writing their college essays.</p> <p><i>Prerequisites: GB in Historical Context, Civics & Government, Research, and Economics</i></p>	

<p>PR Geometry & Spatial Reasoning</p> <p>GB/AD CAD</p>	<p>EPE200 CAD & Geometry</p>	<p>In this class we learn how to use CAD and how to unitize it as a Design Tool. We will start by learning through tutorials, then move on to more creative design problem. We will also learn the fundamentals of Euclidean geometry through design project that use CAD.</p> <p><i>Prerequisite: None</i></p>	<p>What is CAD?</p> <p>How can CAD be used as a design tool?</p>
<p>PR Computer Science</p> <p>GB Design Process Engineering Speaking & Listening⁶</p> <p>AD CAD</p>	<p>EPE300 Engineering I</p>	<p>In this class students will learn how to work through larger engineering problems. To solve these problems, Students will have to apply the design process. Additionally they will learn a variety design tools. These tools include CAD, Excel, 3D printers.</p> <p><i>Prerequisite²: GB in CAD standard</i></p>	<p>How can the engineering design process be beneficial to solve problems?</p> <p>How do engineers apply math, science to solve problems?</p> <p>How do engineers create and use tools to solve problems?</p>
<p>GB Computer Science</p> <p>AD/EX Engineering</p>	<p>EPE400 Engineering II</p>	<p>This class builds off the EP10 Engineering Semester 1 course. The problems will be more complex and at a significantly higher level. Students will also explore microcontrollers and basic programming. The course will culminate in a final project were</p>	<p>How can the engineering design process be beneficial to solve problems?</p> <p>How do engineers apply math, science to solve problems?</p> <p>How do engineers create and use tools to</p>

EX CAD		<p>students develop solutions for a real world problem.</p> <p><i>Prerequisite²: PR in Design Process standard and GB in CAD standard</i></p>	<p>solve problems?</p>
EX Design Process Engineering	EPE500 Advanced Engineering	<p>The class centers around preparing students for college level Engineering. We will study college level problem in areas of Statics, Mechanics of materials, and others. Students will also work through complex problems that require them to build their own design tools using programming and CAD. Students will need an understanding of Calculus.</p> <p><i>Prerequisites²: GB in CAD, Engineering, and Design Process standards, plus AD in Functions and algebra standards</i></p>	<p>How can the engineering design process be beneficial to solve problems?</p> <p>How do engineers apply math, science to solve problems?</p> <p>How do engineers create and use tools to solve problems?</p>
AD/EX Design Process Computer Science	EPC200 Computer Science I	<p>Learning the science of computers, operating systems, and the internet. Hardware, client-server, cloud.</p> <p><i>Prerequisites: GB in Computer Science and Design Process standards</i></p>	<p>What is an operating system and why does it exist?</p> <p>How do computers store information?</p> <p>How do they follow instructions?</p> <p>How do websites and apps work?</p>
EX Design Process	EPC300 Computer Science II	<p>Advanced topics in the science of computers: networking, encryption, potential road to certifications.</p>	<p>How do computers and networks function?</p> <p>What can we gain by knowing the</p>

Computer Science		<i>Prerequisites: AD in Computer Science and Design Process standards</i>	<p>physical basis of computing?</p> <p>How do computers talk to each other?</p> <p>What are the benefits and risks of networked communication?</p>
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Engineering Pathway Notes

- 1: Students coming from off team will be counseled based on current standards levels.**
- 2: Prerequisite(s) may be waved on teacher recommendation**
- 3: Macroeconomics indicator only**
- 4: Macroeconomics and microeconomics indicators only**
- 5: Discussion indicator only**
- 6: Presentation indicator only**