Urban SCHOLARS program

COURSE Descriptions and Common Core Alignment FOR the ACADEMIC YEAR 2013-2014

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| Winter 2014 | **Spoon River and Charles River Anthologies****Introduction to Robotics****Green Science****Rigging the Game****Writing Short Fiction** |
| Summer 2014 | **Geometry****Algebra I****Ecology****Introduction to French****Boston Strong****Chemistry****The Art of Improv****Own Your Voice!****Your Money and You****Biology** |
| Fall 2014 | **Multiculturalism on the American Stage****Civic Leadership** |

Fall Institute 2013

**Course Descriptions and Common Core Alignment**

**Computer Science I**

**Randy Westlund**

The goal of this course is to introduce the broad field of computing, basic programming concepts, and applications of computing. Students will gain an understanding of the workflow behind manufacturing with CAD tools, writing applications for computers, computer security, and how the field has evolved. Students shall be introduced to makerspaces, entrepreneurship, and startup culture.

* **CCSS.ELA-Literacy.W.9-10.1** Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. **Students will read articles on topics in modern computing and write an essay arguing for or against the author's main point.**
* **CCSS.ELA-Literacy.W.9-10.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. **Students will write about issues in modern computing in electronic document with proper formatting and structure.**
* **CCSS.ELA-Literacy.W.9-10.7** Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. **Students will conduct internet research to write essays on relevant issues in modern computing. For example, how the advent of cheap 3D printing has changed the face of home manufacturing and how the technology can be used in responsible or irresponsible ways.**
* **CCSS.ELA-Literacy.WHST.9-10.6** Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically. **Students will use Google Drive to collaborate on written assignments and research projects.**
* **CCSS.ELA-Literacy.RST.9-10.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics. **Students will read, interpret, and use symbols and technical jargon associated with programming and computing.**
* **CCSS.ELA-Literacy.RST.9-10.10** By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently. **Students will read and respond to technical articles in computing, and/or short academic papers.**
* **CCSS.ELA-Literacy.RH.9-10.10** By the end of grade 10, read and comprehend history/social studies texts in the grades 9–10 text complexity band independently and proficiently. **Students will read and respond to articles and texts about the history or computing and/or historical figures such as Ada Lovelace, Alan Turing, and Grace Hopper**.
* **CCSS.Math.Content.HSA-REI.B.3** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **Students will work with equations in the context of computer programming. For example, by creating a calculator or program that computes values in the Fibonacci sequence.**

**Physics, Calculus…Rollercoasters!**

**Elliot Chase**

This class will be an introduction to many important scientific (mostly Physics) and mathematical (mostly Calculus) concepts involved with riding and designing roller coasters, as well as other amusement park rides. Roller Coasters are fast, breathtaking and use a surprising amount of physics to make them as safe and enjoyable as possible. We will explore many of these topics, doing lots of fun demonstrations, experiments and problem-solving along the way, leading up to the design of your very own rollercoasters, using many of the key ideas and work from the semester.

* **CCSS.Math.Content.HSA-CED.A.2:** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **Often this term we will create equations that represent relationships between many physical quantities such as time and acceleration for objects in motion.**
* [**CCSS.Math.Content.HSA-CED.A.4**](http://www.corestandards.org/Math/Content/HSA/CED/A/4) :Re-arrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. **Students will often need to rearrange a known formula such as F=MA, to solve for the missing variable**.
* [**CCSS.Math.Content.HSF-LE.A.1b**](http://www.corestandards.org/Math/Content/HSF/LE/A/1/b) : Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. **Students will need to analyze the rate of change of various data sets to understand how one variable changes with regard to another, for example velocity and time (which forms the basis for differential calculus).**
* [**CCSS.Math.Content.HSF-LE.A.2**](http://www.corestandards.org/Math/Content/HSF/LE/A/2) :Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). **A essential tool in helping students understand how changes in both velocity and time underlies calculus is being able to take data from a graph and then construct a function from them.**
* [**CCSS.Math.Content.HSN-VM.A.1**](http://www.corestandards.org/Math/Content/HSN/VM/A/1): (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., ***v***, |***v***|, ||***v***||, *v*). **To realistically model Rollercoasters, it will be essential for students to understand the relationship and differences between vector and scalar quantities.**
* [**CCSS.Math.Content.HSN-Q.A.1**](http://www.corestandards.org/Math/Content/HSN/Q/A/1):Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. **As the students start to build their models (both on smaller projects and the culminating project) correct units are an essential check on their work and as a guide towards whether their work is accurate and realistic.**
* [**CCSS.Math.Content.HSN-Q.A.2**](http://www.corestandards.org/Math/Content/HSN/Q/A/2) Define appropriate quantities for the purpose of descriptive modeling. **As the students start to build their Rollercoasters models defining the appropriate quantities, with the appropriate variables, will be essential to a successful model.**

**Forensics: Speech, Communication, and Performance**

**Michelle Mount**

This course is designed to help students become skillful with public speaking, as well as to increase critical thinking in literary analysis. Students will participate in a series of forensic art exercises, including but not limited to: interpretative, limited preparation and public address events. The course samples a variety of public speaking activities, emphasizing the value of speech communication skills, both in content analysis as well as delivery.

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| Core Standard | Analyzing speech materials |
| *Key Ideas & Details* **RL.9-10.1** | Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. |

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| Core Standard | Analyzing speech materials |
| *Key Ideas & Details* **RL.9-10.2** | Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. |

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| Core Standard | Analyzing speech materials |
| *Craft and Structure* **RL.9-10.4** | Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone). |

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| Core Standard | Rehearsing speeches |
| *Comprehension & Collaboration* **SL.9-10.1** | Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively. |

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| Core Standard | Performing speeches |
| *Presentation of Knowledge & Ideas* **SL.9-10.6** | Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. |

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| Core Standard | Reading, rehearsing & performing speech materials |
| *Conventions of Standard English* **L.9-10.1** | Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. |

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| Core Standard | Reading, rehearsing & performing speech materials |
| *Knowledge of Language* **L.9-10.3** | Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. |

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| Core Standard | Reading, rehearsing & performing speech materials |
| *Vocabulary Acquisition and Use* **L.9-10.5** | Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. |

**Real World Math Octavio Vieira**

The purpose of this course is to expose students to the idea of exponential functions, and how it can be related to others kinds of functions such as linear and quadratics. Furthermore, students will apply algebra to their understanding and interaction with the real world through the study of finance, demographics, and the Fibonacci sequence.

**Unit One –Linear Function, Average Rate of Change, and Quadratic Functions**.

This week we would warm up and work with Linear Functions, Slopes, and its application in a real Life. Our major focus will be on how the function changes with input values. We will observe the behavior of the graph by inserting values which give us a clear understand of the relationship between slopes and the insertion of data.

**Unit Two –Quadratics Functions, Quadratics Formulas and its manipulations, Graphs, and Concavity.**

 We will continue working with quadratic functions. We would introduce the quadratic formula -b+/- (b^2 – 4ac) ^1/2.

**Unit Three –The introduction of an exponential Function.**

All we have seen, so far, is the bedrock to construct an exponential function. Therefore, the end project will be based on an exponential function.

**Unit Four – Exponential Functions, Population Growth, Graph, and Predictions, and the Time Value of Money.**

We will start with the question of the world population growth. We introduce graphs for showing population as a function of time. The notion of population growth rate will be introduced.

**Unit Five– Formula, Applications, and Time Value of Money**

The formula Y = ab^x will be introduced, and all its constituents will be closely interpreted. Each elements will be defined, and it will be showing in graph what happen if we alter the value of “a, b, and x”. We would also introduce the Time Value of Money.

**Unit Six– Time Value of Money (cont.), Future Values, and Predictions of a College Cost.**

Students will do many problems involving banking deposits. Student will work as a lender, borrower, and bank to see the relationship and the benefits. This week classes will be directly inclined to the final project.

**Unit Seven– Projects – Students will review course material, select topics, and complete projects.**

Winter Institute 2014

**Course Descriptions and Common Core Alignment**

**Spoon River and Charles River Anthologies**

**Michelle Mount**

This course is designed to engage students in reading, literary analysis, creative writing, and public speaking. Students will participate in a series of activities designed to foster learning and develop skills in creative thinking and writing, and speech communication. The course asks students to use critical thinking to decipher Edgar Lee Master’s characters’ monologues in *Spoon River Anthology*. Students will create an original adaptations of *Spoon River Anthology: Charles River Anthology* & *Spork River Anthology.* Students will select themes, develop unique characters, and write original monologues for their characters. Students will perform their monologues for an invited audience as a capstone project for the course.

**Massachusetts Arts Curriculum Framework**

1.10 Use vocal acting skills such as breath control, diction, projection, inflection, rhythm, and pace to develop characterizations that suggest artistic choices. **Students will practice the aforementioned skills when presenting monologues from *Spoon River Anthology, Charles River Anthology* (original work)*, & Spork River Anthology* (original work)*.* Students will rehearse these skills working in small groups throughout the term.**

1.12 Describe and analyze, in written and oral form, characters’ wants, needs, objectives, and personality characteristics. **Students will create original characters in modern adaptations of *Spoon River Anthology*. Students will be asked to address these topics in written format on a handout, followed by a discussion in a group setting.**

1.13 In rehearsal and performance situations, perform as a productive and responsible member of an acting ensemble (i.e., demonstrate personal responsibility and commitment to a collaborative process). **Students will be asked to collaboratively develop an original play. Students will work together as an ensemble, in the roles of playwrights and actors. Students will be asked to participate responsibly, with energy, positivity and respect for the creative process, one another, and the production as a whole.**

2.9 Drawing on personal experience or research, write a monologue for an invented, literary, or historical character. **The characters in the original adaptations of *Spoon River Anthology* will be based on students’ personal experiences and/or research. Students will be asked to create multiple characters, and students will write monologues for all of their characters.**

3.6 Rehearse and perform a variety of dramatic works for peers or invited audiences. **Students will perform texts from three dramatic works for their peers as well as an invited audience: *Spoon River Anthology, Charles River Anthology, Spork River Anthology.***

4.7 Create a sound environment, composed, live, or recorded, for a dramatic work and explain how the aural elements meet the requirements of and enhance the overall effect of the text. **Students will be asked to choose songs, which will play as an introduction to their characters before they recite their monologues. Students will be asked to write an essay of why they chose the songs they did, and to explain the relationship between the music and lyrics of the song with the characters they created.**

## Common Core Standards:

[CCSS.ELA-Literacy.W.9-10.3d](http://www.corestandards.org/ELA-Literacy/W/9-10/3/d/) Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. **Students will be accountable for specificity of language in their written monologues; language should accurately depict the tone and theme, and evoke the appropriate emotion for their characters’ circumstances.**

**Introduction to Robotics**

Chandler Goodale

The course will use LEGO NXT Mindstorms as a platform for the students at Urban Scholars to innovatively build and program a variety of custom-made robots. The robots will serve a variety of utilitarian and recreational uses ranging from robotic cake cutters, to ID-reading sentry guards, to web- shooting spiders and basketball bots for tournament competition. The curriculum is based on a three tiered approach, with overlapping mathematics, physics, and engineering techniques. They will learn to construct robots, combining mathematical skills with equation modeling, which will be coupled with teaching fundamental physics of projectiles, gravitational analysis, ballistics and culled together with engineering techniques of modeling. A stress on collaborative creative process in decision making and formation of the robots will be encouraged by breaking the students up into robotic teams with structured roles that will rotate throughout the course to ensure full participation. The course will not only emphasize the methods and processes involved in the development and programming of robots but will train the students to be able to articulate the conceptual content invested in the design and programming of their robots by giving a presentation with a live demonstration.

* [CCSS.ELA-Literacy.RST.9-10.3](http://www.corestandards.org/ELA-Literacy/RST/9-10/3/) Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

The students will learn to follow technical diagrams that illustrate blueprints for building robots. Students will document their own procedural steps as they adapt illustrations of various gear configurations as well as vertical and spring action mechanics, which they will integrate into their robot construction. They will also learn to follow and interpret long strings of Labview programming schematics to learn this computer language and effectively develop their own programs.

* [CCSS.ELA-Literacy.RST.9-10.9](http://www.corestandards.org/ELA-Literacy/RST/9-10/9/) Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

The students will utilize blueprinted designs from NXT Mindstorms text to influence their own robotic designs. They will incorporate illustrated concepts in building forms and programming and then critique and reform these concepts to suit their own robotic projects. They will also examine video clips of robots to inspire and critically influence the formation of their own robots.

* [CCSS.ELA-Literacy.RST.9-10.4](http://www.corestandards.org/ELA-Literacy/RST/9-10/4/) Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9–10 texts and topics*.

The students will be required to define a suite of engineering, physics and robotic terms to discipline their learning and expose them to the terminology necessary to express and understand the words in the field of robotics. They will be taught programming lingo as well as the symbols associated with programming and dimension analysis.

* [CCSS.ELA-Literacy.RST.9-10.5](http://www.corestandards.org/ELA-Literacy/RST/9-10/5/) Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., *force, friction, reaction force, energy*).

All robotic projects produced by the students will be accompanied by diagrams with notes, which will include classical physics diagrams that identify the forces, functionality, sources of energy , limitations, as well as error. The students will have to demonstrate the relationship between their conceptual planning and the final assembly and programming of their robot.

* [CCSS.ELA-Literacy.RST.9-10.7](http://www.corestandards.org/ELA-Literacy/RST/9-10/7/) Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

Each robotic project carries with it a classical mathematical and or physics puzzle. In order for the robots to effectively carry out their functions, a grasp of mathematical concepts such as sequencing, projectile motion with parabolic equation modeling, grasp of circle geometry, and center of gravity identification. In order to competently program and build the robots the students will be taught and expected to ascertain these concepts to comprehend how they are integral to the function of their robots.

**Green Science**

 Jason Davis

Think about your day so far today. Let’s assume you woke up, took a shower, got dressed, made a cup of coffee, ate breakfast, checked your email on your smartphone, and got in the car to head to work or school. Have you ever thought about the “behind the scenes” of all these routine activities? Where did the water come from for your shower? What kind of fuel heated the water? Who grew your coffee and what are their working conditions like?

Investigating these types of questions is the entry way into understanding environmental science and sustainability. As we will see, seemingly mundane activities are embedded in webs of relationships with the Earth, materials, energy, plants and animals, and people all over the world. Sustainability is a way of thinking that allows us to get under the surface of things and see connections in enlightening and sometimes surprising ways. In this 12-week course, we will explore how humanity intersects with the natural world.

* [CCSS.ELA-Literacy.RST.9-10.7](http://www.corestandards.org/ELA-Literacy/RST/9-10/7/) Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words. **Students have taken data from experiments and studies about the scientific method, ecosystems and trophic levels, and biomes and created charts and graphs to display the data in visual form.**
* [CCSS.ELA-Literacy.RST.9-10.3](http://www.corestandards.org/ELA-Literacy/RST/9-10/3/) Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. **Students have done experiments to analyze the content of owl pellets and will be carrying out experiments to measure and monitor water quality.**
* [CCSS.ELA-Literacy.W.9-10.7](http://www.corestandards.org/ELA-Literacy/W/9-10/7/) Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. **Students choose and carry out research projects about a variety of environmental science topics, including endangered species, biodiversity, and sustainable design.**
* [CCSS.ELA-Literacy.RI.9-10.8](http://www.corestandards.org/ELA-Literacy/RI/9-10/8/) Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning. **Students will analyze consumer advertising that emphasizes “green” products or lifestyles and evaluate how accurate the claims in the advertisements are.**
* [CCSS.ELA-Literacy.L.9-10.6](http://www.corestandards.org/ELA-Literacy/L/9-10/6/) Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. **Students learn and utilize core vocabulary terms in environmental science. Students will be able to use and discuss these terms in presentations and projects.**
* [CCSS.ELA-Literacy.RST.9-10.4](http://www.corestandards.org/ELA-Literacy/RST/9-10/4/) Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics. **Students learn and comprehend key scientific vocabulary in the course of their independent and group environmental science research projects.**

**Rigging the Game**

 Neil Horsky

Description

In this course students explore and analyze society, its systems, and the inequities and imbalances of power that dictate “how the world works”. Using metaphor, analogy and symbolism, students experiment with ways to alter the rules of various types of games (card games, board games and sports), to either reflect their observations about social inequality and injustice, or to transform them into a more cooperative game that reflects their vision for a more cooperative society.

Objectives

Students will expand their awareness of social structures, helping them to navigate and negotiate within society as they reach adulthood.

Students will gain facility with the use of metaphor, analogy and symbolism as vehicles for self‐expression, and as tools for teaching and learning.

Students will gain experience using art, play and experimentation as means to introduce, develop and convey complex ideas.

***Curricular Alignment***

**ELA grades 9‐10**

**Writing**

2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

*Students write original rules to commonly played games based on their observations of social dynamics, tensions and conflicts in various socio‐political contexts*

9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

*Topics addressed are inspired the by the work of local social justice organizations whose mission, history and accomplishments are read and analyzed by the class*

**Speaking & Listening**

1. Initiate and participate effectively in a range of collaborative discussions (one‐on‐one, in groups, and teacher‐led) with diverse partners on *grades 9–10 topics, texts, and* *issues,* building on others’ ideas and expressing their own clearly and persuasively.

*Students engage in a variety of discussions about the sociological subjects, related personal experiences and opinions, and potential rule alterations and their connections to the subject*

**History & Soc. grades 9‐10**

**Reading**

2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.

*Readings inform rule changes, and writings describe these changes and their connections to the subject*

**Writing**

2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

*Writings reference the histories of the local organizations and broader historical and socio‐political themes*

# Writing Short Fiction

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#  Debka Colson

**Course Description and Objectives**

This course focuses on the basic vocabulary, techniques, and traditions in short fiction and includes the discussion of short story literature. Students practice their writing craft through exercises and other assignments, many of which will be shared with the class in an introductory workshop setting. Emphasis will be on students’ original short stories (also known as “flash fiction”) to be presented to the rest of class for constructive feedback.

* **CCSS.ELA-Literacy.RL.9-10.4** Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).

**Students will read short stories and flash fiction and discuss the impact of the vocabulary, style, point(s) of view and voice that were used in each example.**

* [**CCSS.ELA-Literacy.W.9-10.3**](http://www.corestandards.org/ELA-Literacy/W/9-10/3/) Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences, including:
* [CCSS.ELA-Literacy.W.9-10.3a](http://www.corestandards.org/ELA-Literacy/W/9-10/3/a/) Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
* [CCSS.ELA-Literacy.W.9-10.3d](http://www.corestandards.org/ELA-Literacy/W/9-10/3/d/) Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
* [CCSS.ELA-Literacy.W.9-10.3e](http://www.corestandards.org/ELA-Literacy/W/9-10/3/e/) Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

**Students will be introduced to key elements of fiction including: character development, setting, conflict and plot, beginnings and endings, etc. Each week they will build on this knowledge using writing prompts focused on each element and on developing their own flash fiction stories.**

* [**CCSS.ELA-Literacy.W.9-10.4**](http://www.corestandards.org/ELA-Literacy/W/9-10/4/) Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

**Students will share their work with their peers for feedback on clarity, originality and language. They will then be encouraged to revise and strengthen their work and, once again, share it with their peers for additional feedback.**

* [**CCSS.ELA-Literacy.W.9-10.5**](http://www.corestandards.org/ELA-Literacy/W/9-10/5/) Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

**Throughout the course, student work will be critiqued (primarily by their peers). Each student will have the opportunity to revise their work based on the feedback received and on their growing knowledge of the elements of fiction. They will work toward ‘publishing’ at least one original piece for the final Project Showcase.**

* [**CCSS.ELA-Literacy.SL.9-10.1c**](http://www.corestandards.org/ELA-Literacy/SL/9-10/1/c/) Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.

**Students will work in small groups and as an entire class to discuss published short stories as well their own creative work. In all cases, we will work together to identify and discuss broader themes in the work.**

* [**CCSS.ELA-Literacy.SL.9-10.1d**](http://www.corestandards.org/ELA-Literacy/SL/9-10/1/d/) Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.

**Students will follow guidelines outlining best practices for offering productive and supportive feedback within a peer community of writers. Over time, they will gain an understanding that fiction can be seen and understood from more than one viewpoint. As students share their opinions and experiences through ‘warm-ups’ and discussions, as well as listen to the opinions of their peers, they will begin to make connections between their lives and the lives of characters in fiction.**

Summer Institute 2014

**Course Descriptions and Common Core Alignment**

**Geometry**

 Amanda Egan

This course is designed to provide opportunities for students to explore topics about the properties of triangles, special right triangles, polygons, area, and volume. Students will also learn to apply these concepts to numerous real-world models. This course is an inquiry-based introduction to the geometry course taught in high school and a foundation for creative sciences in college like engineering, design, and architecture.

Common Core Standards

[CCSS.Math.Content.HSG.CO.A.1](http://www.corestandards.org/Math/Content/HSG/CO/A/1/)
Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment. **(Students create a chart that organizes the descriptions, pictures, and notation of various geometric concepts)**

[CCSS.Math.Content.HSG.CO.D.12](http://www.corestandards.org/Math/Content/HSG/CO/D/12/)
Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line***. (Using only a straight edge-no ruler, and a compass students design a new logo for Oreo®)**

[CCSS.Math.Content.HSG.CO.C.9](http://www.corestandards.org/Math/Content/HSG/CO/C/9/)
Prove theorems about lines and angles. *Theorems include: vertical angles are congruent.*

**(Students make conjectures based on patterns they find when finding measures related to straight angles measuring 180º)**

[CCSS.Math.Content.HSG.CO.C.10](http://www.corestandards.org/Math/Content/HSG/CO/C/10/)
Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point*. **(Students make conjectures about the triangle sum theorem by cutting and pasting the angles of a triangle onto a line)**

[CCSS.Math.Content.HSG.CO.C.11](http://www.corestandards.org/Math/Content/HSG/CO/C/11/)
Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals*. **(Students make a family tree that compares and contrasts quadrilaterals)**

[CCSS.Math.Content.HSG.GMD.A.1](http://www.corestandards.org/Math/Content/HSG/GMD/A/1/)
Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. **(Students derive the formulas for circles, triangles, and quadrilaterals by cutting and pasting various shapes into rectangular figures)**

[CCSS.Math.Content.HSG.GMD.B.4](http://www.corestandards.org/Math/Content/HSG/GMD/B/4/)
Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects. **(Students will build 3D solids from 2D nets)**

[CCSS.Math.Content.HSG.MG.A.1](http://www.corestandards.org/Math/Content/HSG/MG/A/1/)
Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). **(Students will create a new Oreo® package in the shape of a 3D solid rather than its rectangular prism the cookie package currently is in)**

[CCSS.Math.Content.HSG.MG.A.3](http://www.corestandards.org/Math/Content/HSG/MG/A/3/)
Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints) **(Students will create a new Oreo® package in the shape of a 3D solid that holds the same volume of cookies as the current package)**

**Algebra I**

 **Amanda Egan**

This course is designed to provide opportunities for students to explore the number system and perform order of operations with rational numbers. Students will solve linear equations, graph linear functions, and solve systems of equations. This course is an inquiry-based introduction to the algebra I course taught in high school and a foundation for higher levels of math based courses at the college level.

Common Core Standards

[CCSS.Math.Content.HSN.RN.B.3](http://www.corestandards.org/Math/Content/HSN/RN/B/3/)
Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. **(Students learn a brief history of how numbers have been written throughout history and the breakdown of the sets in the number system)**

[CCSS.Math.Content.HSA.SSE.A.1.a](http://www.corestandards.org/Math/Content/HSA/SSE/A/1/a/)
Interpret parts of an expression, such as terms, factors, and coefficients. **(Students learn a brief history of math and are introduced to the use of variable and parts of an expression)**

[CCSS.Math.Content.HSA.SSE.B.3](http://www.corestandards.org/Math/Content/HSA/SSE/B/3/)
Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. **(Students complete the four-fours and five-fives challenge as a class activity over a week’s period of time)**

[CCSS.Math.Content.HSA.CED.A.1](http://www.corestandards.org/Math/Content/HSA/CED/A/1/)
Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions*. **(Students use a cost of company equation to determine the value of their money for their business after a determined amount of sales)**

[CCSS.Math.Content.HSA.CED.A.2](http://www.corestandards.org/Math/Content/HSA/CED/A/2/)
Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **(Using the present value loan formula students determine the monthly cost of a loan for their new business)**

[CCSS.Math.Content.HSA.REI.A.1](http://www.corestandards.org/Math/Content/HSA/REI/A/1/)
Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. **(Students participate in a write around and drop the chalk game to encourage student explanation of steps to solving equations)**

[CCSS.Math.Content.HSA.REI.B.3](http://www.corestandards.org/Math/Content/HSA/REI/B/3/)
Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **(Students will use their previous knowledge about the order of operations to solve equations by implementing the inverse order of operations)**

[CCSS.Math.Content.HSA.REI.C.5](http://www.corestandards.org/Math/Content/HSA/REI/C/5/)
Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions. **(Using linear equations that students form from their monthly cost of a new business and the number of sales the business can potentially make they determine the break-even point and the profit margin)**

**Biology (Ecology)**

 Kristen Davis

Over the 7 week period, students will gain a basic knowledge of how ecosystems function. Students will recognize how matter and energy are transferred from one organism to another, as well as understand the interrelationships that take place within and outside of each ecosystem. Students will be able to identify, analyze and explain significant factors that affect the growth and overall well - being of ecosystems, as well as explore alternatives to help sustain the environment. Students will also have the opportunity to perform several Inquiry – based activities, in which they will have to collect, calculate, analyze and interpret data. At the end of the Unit, students will be assigned a Final Project, in which they will utilize the skills that they had acquired in the summertime to come up with a persuasive presentation to make people more aware of the impact that they have on the environment and to persuade them to make lifestyle changes.

**Life Science (Biology) Grades 6 -8, Evolution and Biodiversity and Energy and Living Things**

(#10.) Give examples of ways in which genetic variation and environmental factors are causes of evolution and the diversity of organisms. **The final project consists of an environmental issue of the student’s choosing. Students first need a basic knowledge of ecology, and how NATURAL factors in the environment can effect organisms in their habitat.**

(#12.) Relate the extinction of species to a mismatch of adaptation and the environment. **Students need to acquire basic set of vocabulary skills in order to understand that generally, an organism will do whatever it can to survive, including adapting to its environment.**

(#14.) Explain the roles and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web. **In order for students to recognize that life in ecosystems is held in a delicate balance, they need to have a basic knowledge of food chains and food webs. A disturbance to the food chain/web due to human activity, natural disasters, etc. can create a domino effect and bring about an environmental issue.**

(#15.) Explain how dead plants and animals are broken down by other living organisms and how this process contributes to the system as a whole. **Decomposers are a part of the food web. Students need to recognize that nutrients in the soil are a crucial part of the food web.**

**Life Science (Biology) Grades 6 – 8 Changes in Ecosystems over time**

(#17.) Identify ways in which ecosystems have changed throughout geologic time in response to physical conditions, interactions among organisms, and the actions among humans. Describe how changes may catastrophic such as volcanic eruptions or ice storms. **The Students may discuss an environmental issue of their choosing. Most environmental issues have been brought on by humans. Students will recognize the positive and negative impacts humans have had on the environment, and will be able to formulate that into their projects.**

(#18.) Recognize that biological evolution accounts for the diversity of species developed through gradual processes over many generations. **The final project has students explore an environmental issue, however, students must recognize that over the course of time animals have adapted to their environment as a means**

**French**

 **Kristen Davis**

In this course, students will converse in the French language to provide and obtain information on thoughts, feelings, and opinions on culture. Students will improve their language and vocabulary skills by engaging in simple conversations and reading simple French texts. Later on in the Unit, Students will become more immersed in the French culture by being introduced to French food, geography, history, art, music, customs, etc., as well as become more knowledgeable and familiar with the culture of francophone countries and the French influence in the United States. At the end of the Unit, students will form groups and design a presentation on a Francophone country of their choosing.

**Massachusetts State Frameworks Standards for Foreign Languages:**

**Pre – K – 12 Standard 1: Interpersonal Communication**

**Stage #1**

(#1.1) Greet and respond to greetings. **Students will have a basic knowledge of the French language in order to cultivate an interest in the French and francophone culture, as well as aid them in their final projects on francophone countries.**

(#1.2) Ask and respond to introductions. **Students will have a basic knowledge of the French language in order to cultivate an interest in the French and francophone culture, as well as aid them in their final projects on francophone countries.**

(#1.3) Ask and respond to requests. **Students will have a basic knowledge of the French language in order to cultivate an interest in the French and francophone culture, as well as aid them in their final projects on francophone countries.**

(#1.4) Exchange information and knowledge. **Students will have a basic knowledge of the French language in order to cultivate an interest in the French and francophone culture, as well as aid them in their final projects on francophone countries.**

(#1.5) Express likes and dislikes. **Students will have a basic knowledge of the French language in order to cultivate an interest in the French and francophone culture, as well as aid them in their final projects on francophone countries.**

**Pre – K – 12 Standard 4 : Culture**

**Stage 4**

(#4.1) Use appropriate words, phrases, expressions and gestures in interactions such as greetings, farewells, school routines and other daily activities. **A basic knowledge of French is required in this class, and also aids in when studying culture.**

(#4.2) Interact appropriately in group cultural activities such as games, storytelling, celebrations and dramatizations. **In order to have students embrace the French culture, playing games, studying their traditions and customs can help students recognize the French influence everywhere and how it may overlap into their own lives. This will help them develop a deeper understanding of the culture and leave room for creativity when they research their own francophone country.**

(#4.3) Identify distinctive cultural products from the target culture such as toys, clothes, foods, currencies, games, traditional crafts and musical instruments. **Students will be able to compare and contrast the French culture/customs from their own by recognizing distinct features that are a part of the French influence, be it through art, toys, language, etc. This will further aid them when they design their own projects on the francophone countries.**

(#4.7) Demonstrate knowledge of the target culture’s geography by naming features such as rivers, mountains, cities and climate on maps. **Students that have a basic knowledge of geography and the locations of French influence will find this useful when preparing/researching for their projects on francophone countries.**

**Boston Strong**

Chris Kelly

**Course Description**:

Since the tragic Marathon Bombings, the media has put forth the idea that we live in a cohesive community in Boston, highlighted by the tagline: Boston Strong. But what does this mean to our students, many who have not lived in Boston all their lives, or are limited in their knowledge of the larger community that surrounds them. This course will help students to gain a greater sense of the importance of the city they now call home. We will focus on various topics throughout the summer such and try to help students get a better understanding of the city and its history. This course has strong literacy components, specifically through textual analysis and critical writing. Reading comprehension skills will be monitored in writing assignments and class discussions. This class is also an introduction to Sociology. Students will view Boston through various lenses to analyze the people and culture of Boston. Students will use *The Hub: Boston Past and Present* by Thomas O’Connor as their primary text.

**Common Core Standards**:

* [CCSS.ELA-Literacy.W.11-12.1](http://www.corestandards.org/ELA-Literacy/W/11-12/1/) Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. **Students will use the interviews that they conduct to develop claims about how people view Boston. They will analyze the data and use it as the evidence to support their claims.**
* [CCSS.ELA-LITERACY.W.11-12.7](http://www.corestandards.org/ELA-Literacy/W/11-12/7/) Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

 **The Final Project will involve students creating and evaluating a definition for Boston. This will include interviews with various people and analysis of various sources (texts, film).**

* [CCSS.ELA-Literacy.RI.11-12.1](http://www.corestandards.org/ELA-Literacy/RI/11-12/1/) Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

 **Students will use the book, *The Hub*, as a core text to analyze the history of Boston. In small groups, students will break down individual chapters to determine author’s purpose, main ideas and also create inferences on the impact on Boston. Students will create an epilogue focused on what has occurred since publication.**

* [CCSS.ELA-Literacy.RI.11-12.7](http://www.corestandards.org/ELA-Literacy/RI/11-12/7/) Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

 **Students will read and analyze various non-fiction texts (*The Hub*, *It Happened in Boston*), view and analyze films (*Eyes on the Prize*, *Whitey Bulger The Making of a Monster),* and analyze data from interviews they conduct. All of this work will help them create a final project based on the Voices of Boston.**

* [CCSS.ELA-Literacy.SL.11-12.1](http://www.corestandards.org/ELA-Literacy/SL/11-12/1/) Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.

 **Students will participate in Socratic Seminars about various topics such as Neighborhoods, Boston Strong, and Busing.**

* [CCSS.ELA-LITERACY.RI.11-12.6](http://www.corestandards.org/ELA-Literacy/RI/11-12/6/) Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.

 **Students will read and analyze Editorials on various subjects (Busing, Gentrification). In groups, students will determine the author’s purpose and analyze the strengths and weaknesses of the author’s argument.**

**Chemistry**

 Te-Ana Harris

The purpose of this course is to give students a brief introduction to chemistry in preparation for chemistry classes in the fall. Students will complete several labs and complete weekly packets of assignments designed reinforce concepts taught in class.

Massachusetts Frameworks for Chemistry

* 3.1  Explain the relationship of an element’s position on the periodic table to its atomic number. Identify families (groups) and periods on the periodic table. **Students were given their own periodic table and were asked to complete a worksheet that asked them to identify families, periods. Students also played jeopardy which included several questions about the atomic number of various elements. Students had to be able to look at the periodic table to answer these questions.**
* 3.2  Use the periodic table to identify the three classes of elements: metals, nonmetals, and metalloids. **Students also completed a worksheet that listed different elements and asked them to determine what class of element the element was. Students also were asked about properties of metals, nonmetals, and metalloids in their jeopardy games.**

Introduction to chemical reactions Acid- Base

4.1  Explain how atoms combine to form compounds through both ionic and covalent bonding. Predict chemical formulas based on the number of valence electrons. **Students will spend two weeks on the remaining concepts ( 4.1, 4.2, 5.1, 8.1). Students have various charts and worksheets available specifically addressing this.**

4.2  Draw Lewis dot structures for simple molecules and ionic compounds. **Students complete worksheets that allow them to practice drawing lewis dot structures for simple molecules and negative atoms in ionic bonds.**

5.1  Balance chemical equations by applying the laws of conservation of mass and constant composition (definite proportions). **Students have worksheets that that they will complete devoted entirely to balancing equations.**

8.1  Define the Arrhenius theory of acids and bases in terms of the presence of hydronium and hydroxide ions in water and the Bronsted-Lowry theory of acids and bases in terms of proton donors and acceptors. **Students will complete a lab on acids and bases to help observe their different properties and apply critical thinking skills to understand what is happening in the experiments they will complete.**

**The Art of Improv**

 **Michelle Mount**

In this college prep course, we will use improvisation to teach & help students develop their creative and collaborative skill sets. Students will learn and perform numerous improvisational games, activities, and exercises. The activities will be modeled after games played on the TV show: “Whose Line is It Anyway?” Students will discuss applications of the collaborative and creative skills learned in the course for their professional work as college prep students and beyond. After participating in the activities, students write a daily journal entry, reflecting on their experiences in the class. Students are asked to identify areas of their greatest interest(s) and challenge(s). Students are also asked to provide an update on the goal(s) they’ve established for themselves in the course. At the end of the course, students present a “Whose Line Is It Anyway?” style showcase presentation for an invited audience of their peers. Various content area skills will be touched upon in this class including, but not limited to: discussion, listening, questioning, contributing, oral presentation, vocabulary, making connections, language, acting, and writing.

**Common Core Standards**:

• CCSS.ELA-Literacy. SL.9-10.1

Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.

**Students initiate ideas of different characters for their scene work. Students build scenes using the golden rule of improv: Yes and; they build on one others’ ideas to shape their characters and their scenes.**

• CCSS.ELA-Literacy. SL.9-10.1d

 Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.

**In improv scenes, students are given opposing goals to complete. They must listen to each other and help all students in the scene achieve their goals, including their own. At times, they must concede a lead towards their goal in order to better understand their partner’s perspective and needs. The game is won when both partners achieve the other’s goals.**

• CCSS.ELA-Literacy. SL.9-10.4

Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

**Students construct logical arguments for their scenes to get buy in from the audience. Students must establish: who they are; what they’re doing; the relationship to others on stage; their objective; the conflict; and their tactics to achieve their objective.**

• CCSS.ELA-Literacy. SL.9-10.6

Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

**Students play a variety of different characters in their scenes and must adapt their speech to be appropriate to their characters. For example, students may be a child, a politician, a taxi driver, a college student, and a small frog all in the same day’s work. Students will choose words and voices to generate a speech pattern that matches the character of their scene.**

**Own Your Voice!**

 **Nathalie Ais**

The purpose of this course is to help students develop their voice so that when they speak people want to listen. In this course, we will be engaged in understanding how to effectively articulate your ideas. We will watch and analyze various speeches such as a graduation speech given by Steve Jobs and one given by a young male high school student to TED Talks given by Sarah Kay, a young adult poet. Students will utilize effective writing skills, figurative language, developing strong arguments with specific supporting reasons and examples as well as vocal and body language techniques to construct and deliver their own Final Oral Project. The oral projects need to include persuasion, narrative, information and explanation to move your audience. Developing one’s voice is one of the most empowering experiences one can possess.

This course will help develop the foundation in effective literacy, literary and English language arts skills essential for life and college. Being college ready means being able to speak, write, think, and read effectively, clearly, critically and creatively. While our main vehicle in building these skills is through your **voice**, which can be a fun medium, we will be using tools in writing effectively, critical and creative thinking and strong reading principles. Therefore we will be doing textual analysis, speaking drills, developing strong arguments and theses, written assignments and the like.

**MA Curriculum Standards for ELA:**

**Writing Standard:** Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence AND Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. **Throughout the summer, students will write their own speeches that will require them to develop their own argument with supporting and relevant details, reasons and examples. They will engage in the writing process of revising and editing their speeches to improve the quality.**

**Reading Standard**: Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text AND determine an author’s point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power,

persuasiveness, or beauty of the text.  **Students will be viewing, analyzing and evaluating speeches, poetry performances and written speech text, identifying the topic, arguments, reasons, and details throughout the speech. They will also be utilizing an oral presentation rubric to evaluate the effectiveness of the speech. (TEDxTeen/Youth talks, Presidential acceptance speeches, etc.)**

**Speaking and Listening Standard**: Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.  **Students will engage in multiple instances to present their speeches through different speech writing prompts, speaking drills, group presentations and activities and videotaped performances to improve how they present and speak publically.**

**Your Money and You**

 Rachael Perry

Class Description: Your money and you is a personal finance and financial literacy course for high school students. Students learn about the history and uses of money, earning money, the importance of goal setting, saving and spending smart, ways to pay for college and the basics of investing and building wealth. These topics are grounded in an ongoing discussion about how to budget correctly.

Common Core Alignments for Literacy:

* [CCSS.ELA-LITERACY.CCRA.R.7](http://www.corestandards.org/ELA-Literacy/CCRA/R/7/)

Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

* + This course uses a variety of presentation methods, including lecture, videos, interactive computer modules, group discussion, and projects. Students must integrate all the ideas into a capstone assignment.
* [CCSS.ELA-LITERACY.CCRA.SL.1](http://www.corestandards.org/ELA-Literacy/CCRA/SL/1/)

Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

* + Small group and partnered work is used extensively during this course to encourage students to discuss ideas and come to conclusions about good strategies for using their money.
* [CCSS.ELA-LITERACY.CCRA.SL.4](http://www.corestandards.org/ELA-Literacy/CCRA/SL/4/)
* Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
	+ Students present their ideas throughout the course, but most importantly they have to present and explain their capstone assignments.

Common Core Alignments for Mathematics:

* [CCSS.MATH.PRACTICE.MP4](http://www.corestandards.org/Math/Practice/MP4/) Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace.

* + Students use math to do financial calculations like calculating compound interest or determining which car to buy based on the price and interest rates. It also uses math to create a budget
* [CCSS.MATH.PRACTICE.MP1](http://www.corestandards.org/Math/Practice/MP1/) Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals.

* + For their capstone assignment students must create a budget as if they have graduated college that considers their career and education choices, the type of home and car they want, and their financial goals. All these pieces must be a coherent picture that fits into a realistic budget.
* [CCSS.MATH.PRACTICE.MP3](http://www.corestandards.org/Math/Practice/MP3/) Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples.

* + After creating the budget, students must defend or explain their choices, explaining how one decision might have effected their other decisions.

**Biology**

This course is designed to serve as an introduction to broad concepts and ways of thinking present in the study of Biology. This will help students better understand concepts such as biodiversity, genetics, and evolution. In addition, the course will involve Socratic Seminars (structured academic conversations), research, presentations, and literacy. Finally, the course is designed for hands-on, experiential learning whereby the students are engaged in discovering and applying their learning through laboratory work and scientific investigations.

3. Genetics

*Central Concepts:* Genes allow for the storage and transmission of genetic information. They are a set of instructions encoded in the nucleotide sequence of each organism. Genes code for the specific sequences of amino acids that comprise the proteins characteristic to that organism.

5. Evolution and Biodiversity

*Central Concepts:* Evolution is the result of genetic changes that occur in constantly changing environments. Over many generations, changes in the genetic make-up of populations may affect biodiversity through speciation and extinction.

SIS1. Make observations, raise questions, and formulate hypotheses.

* Observe the world from a scientific perspective.
* Pose questions and form hypotheses based on personal observations, scientific articles, experiments, and knowledge.

SIS2. Design and conduct scientific investigations.

* Articulate and explain the major concepts being investigated and the purpose of an investigation.
* Select required materials, equipment, and conditions for conducting an experiment.
* Identify independent and dependent variables.
* Write procedures that are clear and replicable.
* Employ appropriate methods for accurately and consistently
	+ making observations
	+ making and recording measurements at appropriate levels of precision
	+ collecting data or evidence in an organized way
* Properly use instruments, equipment, and materials (e.g., scales, probeware, meter sticks, microscopes, computers) including set-up, calibration (if required), technique, maintenance, and storage.
* Follow safety guidelines.

SIS3. Analyze and interpret results of scientific investigations.

* Present relationships between and among variables in appropriate forms.
	+ Represent data and relationships between and among variables in charts and graphs.
	+ Use appropriate technology (e.g., graphing software) and other tools.
* Use mathematical operations to analyze and interpret data results.
* Assess the reliability of data and identify reasons for inconsistent results, such as sources of error or uncontrolled conditions.
* Use results of an experiment to develop a conclusion to an investigation that addresses the initial questions and supports or refutes the stated hypothesis.
* State questions raised by an experiment that may require further investigation

SIS4. Communicate and apply the results of scientific investigations.

* Develop descriptions of and explanations for scientific concepts that were a focus of one or more investigations.
* Review information, explain statistical analysis, and summarize data collected and analyzed as the result of an investigation.
* Explain diagrams and charts that represent relationships of variables.
* Construct a reasoned argument and respond appropriately to critical comments and questions.
* Use language and vocabulary appropriately, speak clearly and logically, and use appropriate technology (e.g., presentation software) and other tools to present findings.
* Use and refine scientific models that simulate physical processes or phenomena.

Fall Institute 2014

**Course Descriptions and Common Core Alignment**

**Multiculturalism on the American Stage**

This course strengthens students’ reading, writing, speaking, and listening skills through an exploration of drama featuring multiculturalism on the American stage, including: an overview of musicals featuring people of color in leading roles and the main course text, *A Raisin in the Sun*. This course has a strong reading and writing literacy components, specifically through textual analysis of dramatic works, a required research paper, and a final course project. Reading comprehension skills will be developed through class discussion. Language acquisition will be determined through writing assignments. The course focuses on emphasizing students’ critical and creative thinking skills through research, performance, and presentation opportunities throughout the term.

**Common Core Standards**:

[CCSS.ELA-LITERACY.RL.11-12.1](http://www.corestandards.org/ELA-Literacy/RL/11-12/1/)
Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

**Students must infer characters’ subtext using the dialogue surrounding specific scenes as well as the stage directions. During group discussions, students must reference the exact line(s) from the text to support their arguments. Assessment based on instructor’s observation and interaction during group discussion.**

[CCSS.ELA-LITERACY.RL.11-12.6](http://www.corestandards.org/ELA-Literacy/RL/11-12/6/)
Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).

**In *A Raisin in the Sun,* Linder tells the Younger family that his offer to keep them from moving into Clybourne Park is not related to racism. Students are asked to discuss the differences in the ways in which Linder and the Youngers perceive the situation. Students must identify the ways in which racism is prevalent in Linder’s offer despite his insistence to the contrary.**

[CCSS.ELA-LITERACY.RL.11-12.2](http://www.corestandards.org/ELA-Literacy/RL/11-12/2/)Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.

**Students analyze main ideas presented in the texts of *A Raisin in the Sun* as well asthe *New York Times* article from 2013*, Discrimination in Housing Against Nonwhites Persists Quietly, U.S. Study Finds.* Students are asked to identify the parallel theme with in both works and to complete summaries of both texts with worksheets provided by the instructor.**

[CCSS.ELA-LITERACY.W.11-12.1](http://www.corestandards.org/ELA-Literacy/W/11-12/1/)
Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

**Students prepare a two-page essay paper regarding the persistence of modern day racial discrimination in housing in American referencing studies presented in an article in the *New York Times* from 2013*, Discrimination in Housing Against Nonwhites Persists Quietly, U.S. Study Finds.***

[CCSS.ELA-LITERACY.W.11-12.9](http://www.corestandards.org/ELA-Literacy/W/11-12/9/)
Draw evidence from literary or informational texts to support analysis, reflection, and research.

**Students incorporate ideas from *A Raisin in the Sun* using direct lines and text from the work in a 2-page research essay assignment on modern day housing discrimination in America.**

[CCSS.ELA-LITERACY.SL.11-12.3](http://www.corestandards.org/ELA-Literacy/SL/11-12/3/)
Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.

**Students analyze characters’ points of views by reading dialogue and stage directions from the text, *A Raisin in the Sun* as well as watching and listening to segments of clips from a filmed version of the production. Students to infer speakers’ points of views from syntax of dialogue, specifications in the stage directions, and examples demonstrated from the film.**

**Civic Leadership**

The Civic Leadership Course (CLC) is a challenging youth development course, focused on giving students opportunities to discover their own place in the world and their capacity to make a difference. The CLC course integrates biweekly workshops, community service, facilitated debates and discussions, and individual mentorship, with the aim of developing students into civic leaders. The course is designed to enhance students’ civic leadership skills and help them better engage as leaders in their community and abroad and equip students with skills and resources needed to pursue opportunities in education or competitive careers.

The Common Core anchor standards and high school grade-specific standards work in tandem to define college and career readiness expectations. The CLC course integrates these standards by closely aligning itself to the Common Core framework, promoting these standards through class activities and preparation for the service project.

#### College and Career Readiness Anchor Standards for Writing: Range of Writing: [CCSS.ELA-LITERACY.WHST.9-10.10](http://www.corestandards.org/ELA-Literacy/WHST/9-10/10/) Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Students have then responded to multiple sources providing information about homelessness in 1 page essays, explaining what their responsibility to the homeless is and supporting their reasoning with factual information and personal opinions.

**Comprehension and Collaboration:**[**CCSS.ELA-LITERACY.SL.9-10.1**](http://www.corestandards.org/ELA-Literacy/SL/9-10/1/)
Initiate and participate effectively in a range of collaborative discussions- In the CLC course we have had class discussions on what is civic engagement, why it’s important, and how can people engage in service in their community.

**Presentation of Knowledge and Ideas:**[**CCSS.ELA-LITERACY.SL.9-10.4**](http://www.corestandards.org/ELA-Literacy/SL/9-10/4/)
Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task. In the CLC course, though, one of goals of the class is to eventually have students design and manage a service project, the first few classes helped the students to understand what it means to serve, and how it benefits the community and personal development. Ideas were presented in a way that indicates that the next step from learning what it means to civically engage is to actually create service projects.

[**CCSS.ELA-LITERACY.SL.9-10.5**](http://www.corestandards.org/ELA-Literacy/SL/9-10/5/)

Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest. Every class has multimedia aspects. The first 5 minutes of CLC consists of a travel video of somewhere in the world so students can understand that their personal opportunities are not limited to their community. Also, I used Ted Talks and other videos to motivate students on the topic for the day.

**Craft and Structure:**[**CCSS.ELA-LITERACY.RH.9-10.4**](http://www.corestandards.org/ELA-Literacy/RH/9-10/4/)
Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science. –In CLC course, we read excerpts of the Bill of Rights and discussed the meaning behind certain rights and freedoms guaranteed to citizens.

Text Types and Purposes:[CCSS.ELA-LITERACY.CCRA.W.1](http://www.corestandards.org/ELA-Literacy/CCRA/W/1/) Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

Students have written pitches, 3 min statements that defines the problem of homelessness, convey to the audience how they intend on addressing those problems.

**[CCSS.ELA-LITERACY.SL.9-10.6](http://www.corestandards.org/ELA-Literacy/SL/9-10/6/)**
Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. Students practice making pitches about homelessness problem and their service project to address these concerns in 3 minutes and 30 seconds speeches.