**Public Health Solutions**

**Life Academy High School**

**(also at Oakland HS)**

Publ Hlth Solut

Full year

College Preparatory Elective (g)

Using an interdisciplinary approach to the subject of Public Health, students sharpen their reasoning and analytical skills to become effective researchers and advocates for public health in their community.  The course, **Public Health Solutions** presents seven thematic units that hone student’s ability to read, research, write and create a variety of texts and multimedia presentations for a variety of audiences including those who directly benefit from public health services to the political, government and community leaders who have the ability to change attitudes and policies.  A discussion of Public Health is not complete without an introduction to Epidemiology, the science of Public Health.  Students gain an understanding of the identifying associations that affect the health of their communities including culture, socioeconomic factors, community, personal behaviors, medical care, and the environment.  As a result of their examinations, research, and collaborations, students generate a variety of projects that address and evaluate health promoting and disease preventing interventions appropriate to the needs of their community.

The purpose of **Public Health Solutions** is to provide students with a foundation in English Language Arts, Science and Social Science through the lens of Public Health. By adopting an interdisciplinary approach and using reading, writing, listening and speaking skills and the scientific method to evaluate and study informational texts students will gain an understanding of the art and science of disease prevention and the promotion of health through organized community efforts.  Students taking this course understand that Public Health, unlike traditional medicine, is an abstract concept of disease prevention, protection, and intervention that benefits an entire population and is not focused on the individual. Using the scientific method, students become “disease detectives” and conduct research in disease distribution, patterns, causes and outcomes.   Using inductive and deductive reasoning students then generate and test hypotheses and communicate their research to varied audiences and purpose. Students who complete this course develop an understanding of how complex social issues like race, poverty, environment, and even terrorism play a role in public health issues and how they as individuals may affect social change in their communities by becoming professionals in the field of Public Health.

**Unit 1: What is Public Health?**

**Community Mapping Research Project Phase 1-Resources and Partners:** Using appropriate investigative techniques students will document the available public health community resources and potential partners in their community.  Using the data collected students will conduct a gap analysis to identify deficits in community resources and services and then convert their research into statistical data to create charts and graphs to demonstrate their research and increase audience understanding of the data.  Students will then understand how to analyze this information to look for relationships between community resource gaps and possible connections related to social factors like race, gender and socioeconomic factors.  They will propose potential solutions to address these gaps in services and share their research with identified community partners who act as advisors and mentors.

**Choose one of the following research papers**

**Public Health vs. Human Rights Research Paper:** Write a 5-7 page expository/reflective paper on the how concerns over human rights affect the ability of  public health care workers to address public health issues like immunization, the spread of HIV, and obesity. Students will reflect on how human rights have changed over time and how specific human rights issues have helped or hindered the way in which public health workers use education, information and persuasion to affect health behaviors and government policies focused on health.

**Public Health vs. Human Rights Research/Analysis Paper**: Write a 3-5 page compare/contrast analysis of two public health careers explaining the differences and similarities and how and why human rights are significant in those careers.  Students will detail the similarities and differences between the two careers citing their research sources and referencing career related articles, websites, and personal interviews with mentors and advisors.  Students will explain why and how ethics, morals, and personal and professional integrity are essential in these career fields and give examples of how they may play into the day-to-day work of the public health professional.  Finally, students will reflect on the impact that a career in public health could potentially have on their personal life choices and their own belief system.

**The Big Picture-Global Health and Human Rights Cause and Effect Essay:** Write a 5-7 page essay analyzing the following prompt from Betrayal of Trust: The collapse of Global Public Health by Laurie Garrett *“The importance of public health elsewhere in the world to our own society may not at first be obvious.  Our grandparents grew up in an era when infectious diseases were a frightening reality; when to survive infancy was an accomplishment; when giving birth in and of itself was an invitation to death.  At times it seems we have forgotten all this.  We now live in comfortable ignorance about the health and well being of people in faraway places.  But in truth we are never far away from the experiences of our forebears.* In their essay students will be expected to analyze to what extent they agree or disagree with Garrett, and cite specific examples from their own experience, observations and readings from this text to support their position.  In addition, students will review public health cases where the ability of health care officials to quarantine individuals was paramount to their efforts to control outbreaks and the human rights issue that quarantine raise amongst individuals and societies.

**Unit 2: Analytical Methods of Public Health**

**The Most Dangerous Woman in America**

**Cause and Effect Essay:** This assignment will combine the study of human rights from Unit 1 and introduce students to the elements of investigation used in epidemiology through examination of the historical case of Typhoid Mary.  Students will record a case history while viewing the NOVA video *Typhoid Mary: The Most Dangerous Woman in American* .  Student will explore the historical use of quarantine as a method for disease prevention. Students will choose three cases and will write a cause and effect essay that discusses the effectiveness of quarantine in preventing the spread of disease.  As part of their discussion they will also identify any major social and political issues that may have factored into the quarantine being issued against a particular person or social group.

**Historical Case Analysis:** In this assignment students will analyze the specific case of Typhoid Mary, who was quarantined for life after being identified as a carrier of Typhoid.  Using historical documents to re-create the case of Mary Mallon aka Typhoid Mary, students will conduct research on the public health practices of the time that created conflict between the competing priorities of civil liberties and public health.  Students will then develop and write equitable public health policies that recognize and respect the situation and point of view of the individual sufferers like Mary Mallon while still protecting the public health.  Students will compose a 1-2 page persuasive letter to the Public Health Officials of the City of New York lobbying for the adoption of these public health policies that would treat the infected with compassion recognizing their civil rights and providing support services (job training, counseling, health care) in the hope that they would be more likely to cooperate with officials trying to stem the spread of disease.   As an additional extended assignment students could look closer to home and explore the situation of Chinese immigration and quarantine at Hospital Cove (Ayala Cove) on Angel Island from 1910-1940.

**Disease Detectives:** Using the NOVA website Http://www.pbs.org/wgbh/nova/body/disease-detective.html students will read the case histories to compile the information and data necessary to scientifically determine the cause of an infectious disease outbreak at a campground.  While this case is not complex in nature students will have to be detailed in their reading of the case histories and evaluate critical events at the campground to support and defend their conclusions.

**Milestones in Public Health:** Working in collaborative groups and using the text *Milestones in Public Health* students will select a milestone case and create a multimedia presentation (iMovie, Google site, Prezi, Adam) that explains the historical significance of their case to current practices in public health.  Students will chronicle the epidemiological research and tools used to identify the cause of disease and formulate a public health response in their case and discuss the importance of their chosen historical case to the practice of public health in the 21st Century.

**Risk Assessment/Risk Perception:** In partnership with mentors from the community health center on their high school campus, students will create a survey to study and collect data on the perception of health risks amongst their peers.  Using a multi-step process that uses ethical and legal principles in the collection, use and dissemination of data students will administer the risk assessment and perception survey to their peers and analyze that data to make predictions on future health issues affecting their peers.  As part of this study, students will create a blog site or journal log documenting the work completed and reflecting on the interactions with their peers and health center mentors as the survey progresses.  Using the data from their survey students will create a written report along with 7-12 PowerPoint slides to highlight their findings with recommendations to a lay audience (school site council) as well as an audience of public health professionals (health center mentors).

**Community Mapping Research Project Phase 2-Public Health Issues in the Community:** In phase 2 of the Community Mapping project students will use the core skills of research and communication to identify the illnesses, both chronic and acute, that affect their communities.  Students will use appropriate listening, speaking, reading and writing skills to communicate with a diverse population of community members and public health care professionals to collect and analyze data on the environment, socioeconomic and cultural factors that affect the incidence of disease in their community.  As part of their research students will also examine how the financing and delivery of private health care and public health services impact community health.  They will create a multimedia presentation that uses a variety of charts to compare how national and local funding over a 10 year period affects changes in the incidence of the three most common preventable diseases in their community.  Using the data collected on health care resources in the unit 1 mapping assignment students will interpret statistical data and information on the incidence of disease and the access, or lack of, to health care resources in the community

**Epidemiology Case Study:** In this case study on Legionnaires’ disease students will integrate and evaluate the multiple sources of information presented to collect data for a case control epidemiology study.  Students will be required to employ close reading of complex technical documents like patient histories, lab reports, and select readings from medical journals on microbiology.  Using the data collected they will calculate the relative risk or odds ratio of infection for confirmed and suspected cases of the disease. Finally students will hypothesize the source for the infection and create a public health warning that effectively and ethical describes the risk, how to avoid infection and what to do if they suspect infection.

**Unit 3: Biomedical Basis of Public Health**

**Scientific Inquiry and Research Methods through History:** Students will analyze a complex set of ideas or sequence of scientific inquiry and research methods in the history of vaccine development and the process of vaccination.  Through their research students will create connections between the people and events and explain how those events led to the routine vaccination process for diseases like measles, diphtheria, and hepatitis.   Using the history of the smallpox, measles and polio vaccines as models, students will create a persuasive piece for the development of a vaccine against the HIV vaccine.  In their piece they will acknowledge the differences between the viruses responsible for the measles, smallpox and polio and the unique characteristics and challenges of the HIV virus.

**Intimate Strangers**-**Friends of Foes?**:  Students will work in collaborative groups to create an awareness campaign for elementary age children on the dangers and benefits of microbes.   They will compare and contrast “good” bacteria and “bad” bacteria and explain to their audience, with the use of a visual, how each either helps or hurts the human body.  Students will then create an age appropriate visual and a children’s story to explain the chain of infection and deliver the health professions message that proper hand washing is the number one method for the prevention of the spread of microbes.

**Socratic Seminar/Fishbowl Discussion:** Students will closely read and annotate selected readings on emerging diseases from the textbook *Introduction to Public Health*.  In selecting a specific emerging disease students will be prepared to discuss, formally summarize and evaluate the threat these diseases pose to populations in the United States.  These discussions will be scored using a rubric that will outline the requirement that students come to the discussion prepared to cite evidence from their readings and other research on the topic.  This exercise is designed to both inform and stimulate a thoughtful discussion on the future threats to Public Health from diseases in today’s global environment.

**Dying too Young**:  While public health has been largely successful in fighting infectious disease, chronic diseases like cancer and heart disease continue to rise and are no longer just diseases of the elderly.  Unlike infectious diseases the causes of chronic diseases are much more complex and include a combination of genetics, personal behaviors and societal issues like poverty and discrimination.   Using the text *Essentials of Public Health Biology* as a primary source, students will determine the key genetic determinants to heart disease and the most common types of cancer in their communities.  Based on their readings students will develop a five-step action plan to promote awareness of these genetic factors and the need for early detection through testing and awareness of the family history of disease.  Working in collaborative groups, students will design an awareness campaign by selecting and presenting the most significant and relevant facts around the prevention and detection of heart disease and cancer.  Their campaign will provide examples of interventions  appropriate to audience knowledge of the topic.  Students will have the opportunity to work with community partners to develop this campaign and begin collecting data for their CACHE (Cultural Awareness Community Health Education) project.

**Unit 4: Social and Behavioral Factors in Health**

**The Real Cause of Disease**: In order to better understand the connection between emerging disease  and societal ills like drug use, prostitution, contaminated food and water, and lack of adequate housing students will participate in a “book club” discussion supported by online collaboration (Google drive, Moodle, ONews blog),  Students will collaboratively read the book *The Coming Plague: Emerging Disease in a World Out of Balance* and analyze the authors argument that only through addressing these societal issues can deadly epidemics be controlled.  Students will discuss and analyze evidence from the text in order to recognize how individuals and groups can use the basic nontechnological factors of clean water, clean air, elimination of waste, nutritious foods, and adequate housing to combat emerging diseases.  Students will be asked to examine ideas and events and determine how they relate to one another and develop through the case studies in the text.  Students will summarize their readings with a three- minute public service multimedia presentation that draws attention to the issues presented in the text.

**Educate or Regulate Argumentative Essay**:  In this assignment students will research and then argue the two most common methods for addressing behavioral changes related to health; Education and Regulation.  Using the text *Essentials of Public Health Communication* students will review past successful public awareness campaigns (dangers of smoking, alcohol consumption during pregnancy and HIV transmission) and analyze the central ideas of the campaigns to determine how they interact and build on the theme of education and regulation of health behaviors.  Students will then write an argumentative essay and produce knowledgeable claims in support of either educational campaigns or regulation to promote healthy behaviors.  Using evidence from their readings and research students will address counterclaims and point out the strengths and weaknesses of their argument during a classroom debate on the effectiveness of each method for changing the social and behavioral factors of health.  .

**CACHE (Culturally Aware Community Health Education) Project**: In collaboration with local community health care agencies students will research, design and deliver a culturally competent, culturally relevant health information presentation to a medically underserved cultural group in their community.  Students will draw evidence from local health care agencies as well as data sources like the county health department statistics on chronic diseases prevalent in specific cultures in their community (ie higher rates of diabetes in Latino populations or higher rates of hypertension in African American populations).  Students will produce a presentation for their cultural group using a variety of diverse formats and make strategic use of digital media to enhance understanding and add interest to their presentation.  In their work as cultural ambassadors students will use culturally appropriate eye contact, volume and pronunciation in a way that is sensitive and effective to the message of health education in a medical underserved population.

**An ounce of Prevention Agenda**: Students will write and present a one page agenda item for a school site council meeting that presents information on the links of race, gender, income,  education and risky behaviors to the most common preventable injuries (automobile accidents, firearms accidents, poisoning) suffered by youth in the community.  Students will use effective rhetorical strategies to create awareness of this issue and address possible interventions and solutions.  As an extension of the assignment students can produce an iMovie as a public service announcement.

**Unit 5: A Clean Environment: The Basis of Public Health**

**Environmental Treaty Research Paper:** Students will produce a 15-20 page research paper analyzing an international environmental agreement or treaty, the history and development of the treaty or agreement from inception to adoption and its effectiveness in addressing the environmental issue.  Students will be required to synthesize a variety of information, including opinions and scientific studies, in an effort to understand the process involved in creating an environmental treaty as well as its impact on the issue.  This assignment promotes college readiness in reading and writing by requiring students to produce a college-length, MLA formatted research paper that demonstrates the ability to use language in terms of task, purpose and audience and to maintain the flow of ideas between the history of the treaty and its currents use in today’s global environment.

**Silent Spring Opinion Paper:**

Students will choose one of the following scenarios and write  a 500-750 word opinion paper .  Students will support their opinion with concrete examples from the text and other readings (web sites, scientific journals, magazine, newspaper)

1. You are an instructor of an environmental chemistry or biology course, would you require your students to read Silent Spring? Why or why not?  Given that many of the toxins in this book have since been banned do you believe this book is still relevant to today’s environmental situation? Do you believe that Carson’s prediction of a “silent spring” is too extreme, rightfully justified, or not extreme enough?

2. You are the scientific advisor for a prominent politician. She is being pressured from lobbyists regarding the use of a certain pesticide/ herbicide vs. massive crop loss and famine due to an invading beetle/ weed. She values your opinion regarding scientific and environmental issues and consults with you on this issue.  This issue has caused an uproar in the community and there are environmental groups, farmers, and food processing plants lobbying on the issue.   Choose one of the insecticides/ herbicides (excluding DDT) mentioned in Silent Spring. Find its chemical formula and structure. Does it have any other uses besides insecticide/ herbicide? Is it currently legal for use as an insecticide/ herbicide in the US?  What is the physiological impact on the environment and plant and animal life?  Are there any long term studies available? What would you advise that your boss do about this matter considering the cost versus benefit of either banning or using the product on crops?

**Risk- Benefit Policy Paper:** Working in collaborative groups students will conduct a cost benefit analysis on the implementation of a school site environmental or health policy like recycling or creation of a school garden for example.  Students will write a 2-3 page policy paper detailing the most significant and relevant facts, provide a concluding statement on the risk-benefit cost of the policy, and make a recommendation to student council on implementation.

**Unit 6: Medical Care and Public Health**

**Biographical Case Study:** With the adoption of the Patient Protection and Affordable Care Act (PPACA) students need to be aware of the effect of this act and the role that Public Health in the delivery of medical care in the United States.  In order for students to gain a global perspective on the national health care debate they will conduct research on the structure, benefits, and challenges to the four basic global models for health care delivery.  Students will compare and contrast the health care delivery systems in eight industrialized countries and create and present a biographical case study of a typical family and their interaction with the health care system.  The case study will include information on the composition of the family, their interaction with the health care system and their level of satisfaction with regards to access to medical care and the costs involved.

**National Health Policy Essay:** In 1965 the United States, under President Lyndon B. Johnson, passed legislation for Medicare which provides insurance for the elderly and Medicaid which provides insurance coverage for the poor.  In 1992, under President Bill Clinton, congress passed the Children’s Health Insurance Program, to insure children in low to middle income families who lack access to health care coverage through employers.  Until the passage of the Patient Protection and Affordable Care Act in 2010 under President Obama the medical profession has resisted the adoption of a national health care policy.  In this assignment students will analyze the reasons and the arguments that the medical profession have offered to the integration of public health into the medical treatment system.  Students will write a 3-5 page essay explaining and analyzing to what extent they agree or disagree with the arguments, drawing examples from their own (or their families experience) with gaining access to medical care. Prior to beginning the writing process students will participate in a Socratic seminar to help them identify, clarify, and explain their position on the issue.  This assignment will help students identify some of the ethical and moral issues of both the private medical care system and the public health care system and how those issues play a role as future public health care providers.

**Public Health in the 21st Century**

**Healthy People 2020:** In this assignment students will research the national health initiative Healthy People 2020 through the website www.healthypeople.gov .  In collaborative groups of six, all students in the group will research the framework and goals of the initiative and then create a work plan that assigns individual students to research each of the tabs on the website: Topics and Objectives, Data, Learn, Implement, Get Involved, and Leading Health Indicators.  Each student will compile a report based on their research and report back to the group. Their report will include information on the content as well as suggestions/ideas for how the information contained in the website will be used in the culminating Community Mapping project.  Students will also bring back suggestions on how, as future Public Health Care practitioners, they can get involved in the initiative to improve the health of the nation.

**Aging with Grace Interviews**: In this assignment students will use their communication skills and public health care knowledge to interview active seniors about their health and lifestyle patterns in order to identify key strategies to address the demands that an increasingly elderly population places on the public health care system. Students will apply their knowledge of therapeutic communication and the ethical practices of patient confidentiality and HIPAA laws to their interviews and compile data to summarize the most promising practices for improving health and preventing disease and disability in the elderly.   These reports will be disseminated and shared with the local non-profit organizations and health care facilities to serve the needs of the elderly.

**Be Prepared-Crisis Intervention Team:** In this assignment students will work with their school administrators and district health and maintenance administrators to review the current disaster preparedness plan at their school sites.  Students will review the plans with the specific lens of how public health pathway students could be involved in supporting the safe evacuation and care for the injured during an emergency.  As an extension of this assignment students will review recent natural disasters and acts of terrorism in the United States and the effectiveness of the response of local school districts.  They will conduct a gap analysis of the current services available and what may be necessary in a given community or population of citizens.  The results of their study and analysis of services will be a multimedia presentation made to the district and school site administrators as well as city officials and will include recommendations for not only improvement of the plan itself but the inclusion of a student crisis intervention team composed of public health pathway students.

**Community Mapping Culminating Project and Presentation:** Students will return for the final time to complete their Community Mapping Project. In phase I of this project students were required to conduct a gap analysis on the public health resources in a given community and to analyze the human rights and social issues (socioeconomic status, ethnicity, age, culture,) at play in the availability of those resources.  In Phase 2 of the project students researched the connection between public health financing and the effectiveness of public health campaigns to change behaviors and improve health outcomes.  In the final phase of this project students will synthesize all of their research into a print and multimedia presentation portfolio that demonstrates an understanding of their role in the community as future public health care providers to affect change and promote healthy behaviors through the use of research, risk assessment, investigation, data, and education.  This collection of student work will include various course assignments that demonstrate competence in each of the four public health domains:

1. Human Culture and Health:  Identification of the role that culture, gender, race and other social demographics play in the availability and delivery of personal and public health care services.

1. Intellectual and Practical Skills: Identification and practice of the methods of epidemiology.  Demonstrate the ability to analyze and assess the quality and effectiveness of health information, including policies and legislation.
2. Personal and Social Responsibility: Identify and collaborate with stakeholders to engage communities in addressing health disparities and participate in the political and social changes necessary to improve the health outcomes for underserved communities.  Identify the skills, knowledge and education necessary for professional success in a variety of careers in public health.
3. Integrated and Applied Learning: Demonstrate the ability to synthesize knowledge and skills and apply solutions to non-routine, real-world complex problems using multiple steps and sources. Evaluate the effectiveness of solutions and make modifications as necessary.

The final component of the Community Mapping Project and Portfolio will be an 8-10 page reflective essay that outlines student growth and identifies challenges and plans for improvement as they progress through the Public Health Pathway and into their post secondary education.  Student argument and evidence will be graded on quality of evidence, sequence of ideas and ability to persuade and support their argument with proper grammar, spelling, diction and style for audience.

Unit 1: What is Public Health?

In this unit, students will examine the complex ways in which economics, politics, government and the rights of the individual impact public health.  In reading *Public Health and Human Rights by Chris Beyrer, MD,* students will analyze public health issues through the lens of human rights in addition to being exposed to specific examples of how race, gender, poverty, marginalization and discrimination can hinder effective response to public health crisis.   Using a variety of research sources students will also examine the role that human rights has on specific public health careers as well as the personal lives of public health care workers.

Using the text *Introduction to Public Health,* students will examine and debate the argument that the public good must take precedence over the rights of the individual in cases of public health.   By reading *Betrayal of Trust; The Collapse of Global Public Health by Laurie Garrett* students will examine the role that government plays in protecting public health on a global scale.  Students will explain the significance of the threat that the availability of worldwide travel has on public health and what happens when public health systems collapse leaving citizens exposed to diseases far removed from the places where they live.  Through the course of this unit, students will compare and contrast the roles and responsibilities of  the U.S. public health care system  at the federal, state, and local levels.   Using examples of collaboration from the text *Essentials of Public Health by Bernard J. Turnock*, students will create a community resource map identifying the public health resources available within their local community.  As part of a multi-step community mapping project students will use their research and communication skills to identify opportunities for collaboration and potential new resources to address the public health needs of the community.  While this unit focuses on the social side of public health it will set the stage for the addition of data and science to the study and practice of public health.

Unit 2: Analytical Methods of Public Health

Having examined the societal issues, and the role that individuals, government agencies, and the community play in the art of Public Health, students will now turn their attention to the science of Public Health, Epidemiology.

In this unit, students will use epidemiologic methods and career specific scientific language to investigate the cause of disease, identify trends and occurrence of illness, and collect data necessary to formulate a hypothesis that might explain those trends.  As part of their community mapping research project, students will begin to identify key health issues in their immediate community and will use this information and data to begin the creation of a plan to empower parents, peers, and community stakeholders to take action and advocate for improvement.

Using the text *Introduction to Public Health* as a case study, students will examine early examples of the science of epidemiology and how it works to identify the complex factors involved in the causes and prevention of disease.  In the document “*Milestones in Public Health*” published by Pfizer, students will read historically significant case studies in public health and explore the impact that epidemiologic research and interventions have in the prevention and treatment of disease.  Referencing the text *An Introduction to Public Health and Epidemiology* students will distinguish between the types of epidemiological design studies currently in use and given epidemiology questions (examine the cause of death, the effect of exposure to chemicals, or the effectiveness of a media campaign) will identify the most effective design study to answer the epidemiological question.

The important role of data and statistics in Public Health will be introduced to students through a review of current data available, including data from the World Health Organization (WHO), the National Center for Health Statistics (NCHS) and the Centers for Disease Control (CDC) as well as local health department data and reports.  While the role of data and statistics is covered in depth in the senior capstone class, students will have an initial exposure through this unit’s culminating project in which students will tackle the much more complicated and difficult investigation of chronic disease in their community.  As part of this project they will design and implement a multi step procedure to administer a risk assessment and risk perception study of their peers, analyze the results and present their findings and solutions to a panel of industry and their peers.  The data and statistics learned will give students the basics for documenting and tracking the causes of both acute and chronic diseases which they will explore in the next unit.

Unit 3: Biomedical Basis of Public Health

The early successes of public health against infectious disease led to a change in the major causes of illness and premature death beginning in the 1920s.  Infectious disease like cholera, smallpox, typhoid and polio that were the leading cause of death in the early 19th century have given way to chronic degenerative diseases, especially heart disease and cancer, as the leading causes of death in the United States. Prevention of disease requires an understanding of the cause, whether it is a single pathogen like the virus that causes HIV or the much more difficult understanding of the causes of chronic diseases like cancer or heart disease.  In this unit, students will again study the history of public health by reading specific case histories from *Milestones in Public Health* and will cite specific evidence how scientific inquiry and research methods were used to discover and treat both infectious disease and chronic illness.  Students will also examine the role of public health in awareness campaigns on topics as diverse as automobile safety, safe food supply and lead poisoning.

Students will compare and contrast how viruses and bacteria cause illness and will analyze the sequence of replication and the chain of infection in order to identify the appropriate means of controlling infectious disease.   Referencing current data from organizations like the World Health Organization and the Centers for Disease Control students will choose an emerging infectious disease such as drug resistant bacteria, prions, or SARS and complete a 5-7 page research paper that traces the origin, occurrence, available treatments, and the public health response.  By reading *The Coming Plague: Emerging Disease in a World Out of Balance* student will analyze the author’s argument that changing social and environmental conditions around the world have fostered the spread of new and potentially devastating viruses and diseases.  They will analyze and evaluate the author’s argument that only through addressing societal ills such as prostitution, drug use, deforestation, and climate change can the microbes that cause deadly epidemics be controlled.

In most cases chronic diseases have multiple causes and therefore require a multi-pronged approach to address biological and cultural risk factors, behaviors, interventions and prevention.  Using the text *Essentials of Public Health Biology* as a primary source, students will read and evaluate additional sources on the subject of behavioral determinants.  Based on their readings students will develop a five step action plan that will be used to promote change around a chronic health issue in the community.  Students will continue the community mapping project from unit 1 and through working with community partners (Alameda County Public Health, Public Health Institute) begin to document and identify the occurrence of chronic disease in their community.  This data and the five step action plan will prepare students to examine the role that education plays in promoting health and wellness and set the stage for unit 4 work on their group CACHE (Cultural Awareness Community Health Education) project.

Unit 4: Social and Behavioral Factors in Health

In this unit students will address the essential question “Do people choose their own health?”  In 2007, seven of the nine leading causes of premature death were rooted in the behavioral choices of individuals.  Through readings and research students will address the controversial issue of how to persuade people in a democratic society to change their behaviors when the public message brings into question the political, economic, and moral rights of the individual.

Using the text *Essentials of Public Health Communication* and building upon the five step action plan written in unit 3 students will analyze and evaluate the effectiveness of the two most common methods for addressing behavioral changes: Education and Regulation.  Students will begin their exploration of these complex issues by first reviewing past health campaigns such as the awareness on the dangers of smoking, the prevention of HIV transmission, or the affects of consuming alcohol during pregnancy.  Student will evaluate the reasoning behind the message and debate its effectiveness in changing individual behaviors.  From a review of past campaigns students will now address the complex psychology of the most common change theories used to persuade or change behaviors and write arguments to support their claims of effectiveness using valid reasoning and sufficient evidence.

Having examined the effectiveness of influence and persuasion in changing health behaviors students will now turn their attention to the importance of policy and advocacy with special emphasis on addressing public health issues for those either underrepresented, underserved or especially vulnerable.  Using the text *Public Health and Human Rights* as a case study, students will examine the intersection between health and human rights on the ability of public health workers to assist populations at higher risk due to race, culture, and poverty.  In the group project called CACHE (Cultural Awareness Community Health Education) students will collaborate and participate effectively to analyze data from a variety of sources in order to identify both communities and populations that are medically underserved (inadequate health care facilities, limited access, high patient/provider ratio).  Based on an analysis of this data students will gather relevant information from multiple sources on a chosen public health issue that is prevalent in a community or amongst a population that are medically underserved in California.  Drawing evidence from informational texts students will create an awareness and advocacy campaign that will include a policy paper and presentation that makes strategic use of digital media to express ideas clearly and persuasively.

Personal behaviors are determined by a complex mix of psychosocial factors such as personality, cognition, impulsivity, spirituality and coping skills.  Injuries are the number one cause of premature death in ages 1-44 and have traditionally been thought of as accidents; unavoidable random occurrences.  Injuries are, often though, the result of antisocial or incautious behaviors.  Students will synthesize multiple sources on the subject of youth health and wellness and apply their research and comprehension of the links between race, gender, income and education to the cause of injuries in youth.  Students will apply their knowledge and comprehension of the epidemiology of injuries to create an agenda for a community meeting that will create awareness of the issue and address possible interventions and solutions. Finally, students in small groups will analyze the causative factors of specific injuries prevalent in youth (motor vehicle accidents, firearm accidents, poisoning) and produce a digital media public service announcement that will create awareness of the issue and present possible solutions and interventions.

Unit 5: A Clean Environment: The Basis of Public Health

Traditionally in the United States, the responsibility for environmental health has fallen squarely on local, state and national government agencies.  However, beginning in the 1960s Americans became increasingly aware of the threat that human activities worldwide were having on the environment.  Climate change, the use of pesticides and depletion of the ozone layer transcend national boundaries and caused nations to address these concerns through policy changes, bans, and environmental agreements and treaties.  While these treaties and agreements are designed to bring these environmental problems under control, there is currently no way of enforcing these agreements.

In this unit students will explore the genesis and impact of the environment social movement and how that movement has lead to changes in government policy.  In addition to synthesizing information about the history of the environmental movement and a discussion of current environmental concerns, students will examine the impact of literature through the ground breaking book *Silent Spring* by Rachel Carson as it sheds light on the cumulative effects of toxins in the environment.  Students will examine how the effective use of argument in literary and expository texts impact social movements and the means by which the process of engaging a community through education leads to advocacy at local to national levels.

Students will synthesize information from a variety of print and digital sources to create a 15-20 page college level research paper on an environmental agreement or treaty established as a result of environmental advocacy.  Students will trace the history and development of the agreement from inception to adoption and demonstrate understanding of the topic under investigation by completing an analysis on the effectiveness of the agreement on the environment (what evidence is there that the Clean Water Act of 1972 has actually improved water quality).

An additional issue or question that frequently develops around environmental issues is the analysis of risk-benefit.  The essential question “How safe is safe?” is often debated when addressing environmental issues.   The argument also made is that protection of the environment must be balanced against other societal goals, including economic well being.  In a cost-benefit analysis, students will estimate the cost of implementing a policy around an identified school-wide environmental health issue, for example; does the benefit of installing hand sanitizers to reduce colds and flu amongst the student body outweigh the cost of maintenance and supplies for the sanitizers, or does the cost of recycling or composting garbage outweigh the benefits.  Students will develop a short 2-3 page policy paper detailing the most significant and relevant facts and provides a concluding statement on the risk-benefit factor of policy implementation.  This unit will serve as a preview of the final two units which will focus on the public health care system in the United States and the challenges facing public health in the 21 century.

Unit 6: Medical Care and Public Health

Even is an ideal world, where the public health care system functioned perfectly, there would be a need for medicine.  The medical system provides preventative care like health screenings for early detection of disease.  Medical care saves lives and prevents suffering and disability and therefore must be considered necessary for public health.  However, medical care is expensive and many cannot access regular care, instead relying on emergency care during acute illness.  Public health has always seen a role for itself as the provider of last resort offering medical care to those who cannot afford to pay for it.  This is indeed one of public health’s core functions.

In this unit students will research and discuss some of the complex moral and ethical issues facing public health.  Students will analyze the complex ideas and arguments on issues ranging from right-to-die, allocation of resources, abortion, and genetic engineering.   Through the analysis of case histories cited in the textbook *Introduction to Public Health* students will identify two or more central ideas common to each issue and explain how those ideas and the individuals involved interact over the course of the case.  They will look for incongruities in argument and evidence in the text where the resolution of the case(s) is inconsistent or uncertain.

Access to health care and the systems in place to provide are as varied as the citizens who require it.  Students will examine the different health care delivery systems in the United States, including state and federal health care programs, managed care and private health insurance and conduct research about the structure, delivery system, benefits and drawbacks to each program.  In order to gain a global perspective on health care delivery systems, students will research the health care systems of eight countries. Using the four basic models of health care systems in use throughout the world (Beveridge, Bismarck, National Health Insurance, Out-of-Pocket model) students will synthesize the main points of each system and create an informational display highlighting the similarities and differences in each system. For each country studied, students will create a biographical case study of a typical family and explain how their typical family would access and pay for basic health care services under the medical care delivery system of that country.

Unit 7: Public Health in the 21st Century

In this culminating unit students will prepare to demonstrate and communicate the intellectual and practical skills necessary to help their communities reach its goal of providing access to public health care resources and information in order to improve the quality of life through improved health outcomes.

Returning to their community mapping research project in which students identified a public health issue in their community and using the national report *Healthy People 2020* and the website www.healthypeople.gov students will create a guide that will outline the efforts necessary to mobilize partners, assess community need, create and implement a program plan, and track community progress toward established public health goals.

Students will employ previous knowledge and understanding of the role of government policies, social movements, socioeconomic factors and psychosocial behaviors to address continuing community needs.  Students will work in diverse teams to plan and implement various forms of public presentations to community members that will utilize data, research evidence, and previous course work and culminate in a five step plan and presentation that will include a 1) public service announcement 2) a multimedia application  3) proposal for a local governmental policy  4) communication plan and 5) call to action and advocacy.

Students will also look to the future of public health, both on a local and global scale by researching, discussing and writing about two key issues facing the future of public health: an aging population and the threat of terrorism and natural disaster.

The population is getting older by a number of measures.  The median age of the population has increased from 22.6 years of age in 1900 to 35.3 in 2000 and is predicted to reach 39.0 by 2030.  In 2006 only 12 percent of the population was over age 65, by 2030 that is expected to increase to over 20 percent of the population.  An increasingly elderly population places demands on the public health system both fiscally and in providing adequate care and the challenge to public health is twofold 1) improve the health of older people through education and prevention of disease and disability and 2)  confronting the issue of how health care costs can be controlled in an equitable and humane way.  Students will research these two challenges by reviewing national data on the leading causes of death and disability in the elderly and by researching the behaviors of the active elderly.

Finally, students will explore the role that public health plays in emergency preparedness post 9/11.  Students will deconstruct the public health response to the natural disaster of Hurricane Katrina and the response to the 9/11 attack on the World Trade Center and categorize the social and behavioral issues at play in the response by government agencies and nonprofit organizations to each disaster.  To complete this assignment students will gather information from a variety of resources on the threat of Bioterrorism and conduct research in how local health care facilities are prepared to respond in this situation.

**Unit 1: What is Public Health?**

Through a variety of writings students will address the complex relationship and interaction of the individual, community, government and medical groups responsible for public health outcomes.  Research papers and presentations will be graded on MLA conventions, proper grammar, spelling, diction, and appropriate style for audience as well as evidence and the variety of resources used in their research. Arguments and persuasive essays will be graded on the structure and logic of ideas and appropriate use of rhetorical devices.

**Community Mapping Project** (Units 1, 2 and 7): This project assesses students ability to conduct short as well as more sustained research into the public health resources available in a given community and to participate effectively in a range of conversations and collaborations with diverse partners from the community, government, and public health field.  Students will present information, findings, evidence that is appropriate to audience and follows a line of reason, organization and style.  They will make strategic use of data from multiple sources and integrate that information to create meaning from the data.

**Human Rights Research Paper**: This paper assesses student’s ability to use MLA conventions and synthesize research from a variety of sources to reflect on the struggles caused by the conflicting interests of human rights versus public health and how education and policy can be used to the benefit of both.  Students will be evaluated on how well they use relevant evidence to persuade, inform or move audience.

**Unit 2: Analytical Methods of Public Health**

Through historical and on the ground research students will explore how science and art come together in the field of Public Health through the study of the cause of disease.  Epidemiology examines the needs of the community, the causes of disease and the preventative measures that Public Health officials must take to protect the public. Students draw evidence from historical significant public health cases and apply that research to today’s public health practices. Using medical case histories they will acquire and use a wide range of academic and career specific language to interpret data and calculate risk and present their findings using digital media to enhance understanding of their evidence.

**Cause and Effect Essay:** This essay will assess student’s ability to use domain specific language to record a case history that includes both subjective and objective patient findings.  Using evidence from multiple case histories students will synthesize and evaluate information to advocate and inform an audience of the issues of using quarantine as a solution to the spread of infectious disease.

**Historical Case Analysis:** Students will produce clear and coherent writing and appropriate style in composing a letter to persuade and advocate for the adoption of public health policies that protect the public as well as the rights of the individual.

**Media Presentations**:  Students present evidence and research in a variety of multimedia including iMovie, PowerPoint, and Prezi.  Students will be assessed on the effectiveness of their use of multimedia to persuade and inform audience and the validity of their research and the impact of their presentation.

**Epidemiology Case Study**: Utilizes the skills of reading and comprehension to research and interpret both qualitative and quantitative data and how this data interacts throughout the case study.  Students must determine the relevance of the data as evidence in their writing and draw conclusions or create a hypothesis.

**Unit 3: Biomedical Basis of Public Health**

Because disease is a combination of behavior and biology public health professionals must have an understanding of the inter-relationship of these two causative factors.  This unit will require students to effectively write explanatory texts to examine and convey complex ideas and to collaborate with diverse partners. Students will take part in structured conversations and present to a wide variety of audience. They will be required to make connections with their research and the community they will serve as public health professionals.

**Scientific Inquiry through History:** Students will be assessed on their ability to analyze how and why individuals, events, or ideas develop through their study of historical events related to the development of the vaccination process. Students will draw on evidence from informational texts to formulate a hypothesis and create a public announcement bulletin on the need for a vaccine of school age children.  They will interpret words and text including technical and scientific meaning and will use these terms in their writing.

**Intimate Strangers:** Students will first be assessed on their ability to effectively collaborate with a diverse group of peers to promote effective discussions and establish project goals and deadlines as necessary.  The second half of this assignment, students will be assessed on their ability to adapt their speech and context to an elementary school audience with the purpose of educating school age children on the importance of practicing good hygiene. Students will produce a children’s narrative that uses effective technique, well-chosen details and well-structured event sequence appropriate to this age group.

**Socratic Seminar**: Students will be assessed on their preparation and participation in discussions on the material read and researched in class.  They will be expected to site evidence from material under study and contribute to a thoughtful and well-reasoned exchange of ideas.  They will respond to questions effectively and push on the reasoning and evidence of others in a way that is respectful and courteous.

**Dying too Young**: In this assignment students will be assessed on their ability to bring meaning to their research by connecting their research findings to the health care issues in their community.  Focused on heart disease and cancer, students will use their critical writing skills to create an awareness campaign on the importance of early disease detection and prevention.  They will be assessed on the validity of their research and their ability to inform and persuade their audience.  They will use multimedia tools in enhance the meaning and understanding of their material.

**Unit 4: Social and Behavioral Factors in Health**

In this unit students will use close reading of a variety of texts to examine the relationship between behavior and society to health outcomes.  The assignments in this unit will require students to demonstrate their ability to collaborate with their peers as well as members of the community and their public health mentors to address how specific behaviors and societal ills affect the health of a given community and culture.  Students will be assessed on their ability to be culturally sensitive and responsive as they work to address the needs of the underserved in their community.

**Real Cause of Disease:** Students will be assessed on their ability to delineate and evaluate the argument and specific claims of the author and to site evidence from close reading of the text to defend their claims.  They will use technology appropriately and ethically to express their ideas in an online book club discussion. They will be assessed on their ability to come to the discussion prepared to examine ideas and events referenced in the text and how they relate to and reinforce the author’s argument.

**CACHE Project**: Students will be assessed on their ability to collaboration with their peers to create a work plan and a timeline to ensure the timely completion of this project.  Student’s ability to conduct ethical and effective interviews with community members and in their collaboration with local public will be assessed as they create a presentation that will be used in their work as Cultural Ambassadors in health.  Students will be evaluated on their ability to synthesize data from a variety of local, county, and state public health care agencies and to integrate that information into a presentation for a specific cultural group in the community.

**Prevention Agenda:** Students will be assessed on their ability to write a concise text that introduces and informs the audience.  They will demonstrate the ability to effectively use evidence in their writing to persuade and create a call to action.  Public speaking skills will also be assessed as they present their agenda item to an audience of teachers, parents and community members on the school site council.

**Unit 5: A Clean Environment: The Basis of Public Health**

**Environmental Treaty Research Paper**:  In this college level research paper students will be assessed on use of MLA conventions, proper grammar, spelling and punctuation as well as their ability to use planning, revision, and editing to improve and strengthen their writing.   They will be assessed on their ability to use language to convey ideas and argue opinions. They will demonstrate the ability to use language to create a flow of ideas and integrate information from a variety of sources.

**Opinion Paper:** Students will be assessed on the organization of their opinion and their ability to support their opinion with concrete examples from a variety of sources. The will be assessed on the thoroughness of their response to each of the questions raised in the scenarios.  Papers are expected to have a hook to engage the reader, evidence to support the opinion and a concluding statement that summarizes both evidence and opinion.

**Risk-Benefit Policy Paper:** Students will be assessed on their ability to persuade a diverse group of school site community members by using effective rhetorical devices and data.  They will be assessed on their ability to use data and facts to support their proposed health policy and provide evidence on the cost-risk factor of their proposal.  They will also be assessed on their presentation skills and use of technology to effectively convey ideas and inform audience.

**Unit 6: Medical Care and Public Health**

In this unit students will produce a variety of writings on the connections between private medical care and public health.  They will use case studies and reflect on personal experiences as they analyze the effectiveness of both the private care delivery system and the public health care system.

**Case Study**: Students will be assessed on their ability to compare and contrast the variety of health care models using evidence from a variety of sources including government reports, independent studies and personal patient case histories.  They will analyze the effectiveness of different health care models, with a specific focus on each system’s ability to provide care to the underserved or disenfranchised in the community. In the creation of their case study, students will be evaluated on their ability to create a narrative that is detailed and structured.

**Health Policy Essay:** Assesses students ability to cite evidence effectively and analyze the reasons and arguments on the resistance of the private medical profession to the inclusion of public health into the delivery of medical care through the creation of the Patient Protection and Affordable Care Act.

**Unit 7: Public Health in the 21st Century**

In this final unit students will demonstrate proficiency of understanding of the strengths and challenges to Public Health and the increasing demands of the system to deliver care at a time of economic uncertainty, the threat of terrorism and the demands of an aging population.  Students will be assessed on their ability to synthesize a multiphase project into one cohesive essay that reflects on their growth as students and individuals.  Evidence and argument will be evaluated as well as English language conventions and style.

**Community Mapping Project and Reflective Essay**: This culminating multiphase project will assess students ability to synthesize and apply their learning to demonstrate proficiency in the four domains of Public Health.

I. **Human Culture and Health**:  Students will be assessed on their ability to examine and convey complex ideas about the connections between culture, health and social demographics clearly and accurately through analysis of a variety of text and content.

II. **Intellectual and Practical Skills**: Students will be assessed on their ability to analyze and assess information on health information, including public policies and legislation and to summarize key points and ideas.

III. **Personal and Social Responsibility:** Students will be assessed on their ability to collaborate and work effectively with diverse groups and to participate in discussions and presentations that engage their audience to address health disparities and improve health outcomes for underserved communities.

IV. **Integrated and Applied Learning:** Students will be assessed on their ability to use their knowledge and skills to apply solutions to real-world situations and assess the impact of those solutions, and then revise or modify those solutions to improve outcomes.

In the final reflective essay, students will be assessed on their ability to use language to express their ideas with clarity and coherence and to supply valid reasoning and insight to their observations.

**Crisis Gap Analysis**:  Students will be evaluated on their ability to collaborate effectively with school leadership to produce valid evidence on the current level of disaster preparedness at their school site.  Students will analyze the needs versus availability of resources and propose a plan for the inclusion of a student crisis intervention team.  They will use supporting evidence and technology appropriate to their task, purpose and audience to enhance their presentation.

**DIRECT INSTRUCTION**

1. **Lecture/PowerPoint**
2. **Guided Notes**
3. **Vocabulary activities**
4. **Guided Practice**

Teacher facilitated discussions include Socratic methods of open-ended questions, critical thinking, reading, and text analysis.  Guided notes and graphic organizers will be used throughout the course to record key ideas and drive inquiry.  Cornell notes will assist students in the synthesis of information from a variety of sources including guest speakers, texts, lectures, and research. Guided Practice is a teaching method that assists students in developing their ability to critically analyze both informational and literary texts read in Units 1, 2, 3, 4 and 5 and to help them make connections between the literature and ideas.  Vocabulary activities in Unit 2 build students understanding of career specific scientific language used in epidemiology reports and investigations. In Unit 7 students will practice therapeutic communication skills modeled by their teachers and public health care mentors during their senior interview assignment.

**INDIRECT INSTRUCTION**

**Reflective Discussions**: This instructional strategy is used in Unit 3 to encourage students to listen and reflect on evidence and opinions expressed during a fishbowl exercise on the causes and implications of emerging diseases on the global environment.

**Independent Study**

1. **Graphic Organizers**
2. **On Line Research**
3. **Close Reading**
4. **Journal Response**
5. **Progress/Project Check**
6. **Index Cards**

Throughout the course students will use graphic organizers like essay outlines, guided notes and index cards to structure their main ideas and organize their thoughts/ideas and assist them in writing essays and research papers. Journal responses and prompts help students reflect and brainstorm in writing to build metacognition.  Close reading of text prompts students to analyze text, integrate ideas and other readings and think critically about the reading and the author’s purpose.

**INTERACTIVE INSTRUCTION**

* **Class Discussions**
* **Small Group Work: Get One, Take One, Jigsaw Reads**
* **Work Plans**
* **Peer Review**
* **Projects including multimedia and Community Mapping Project**
* **Book Club**
* **Socratic Seminars**
* **Debate**
* **Brainstorming**

Teachers should use cooperative group work whenever appropriate to reinforce the essential skills of communication and collaboration necessary for success as a member of a Public Health team.  Work plans are used on all major projects and collaborations to assist in the assignment of roles and responsibilities and to ensure timely completion of all projects.  Peer review provides students with opportunities to practice the CTE Career Ready Practices of critical thinking and communication as well as opportunities to model cultural competence and responsibility around the use of information and research.  Class discussions allow for students to listen to other viewpoints and ideas to promote reflection and analysis and creative thinking around the complex issues involved in Public Health.

Project-based learning is used in all units to promote communication, collaboration and use of multimedia technologies.  The Community Mapping Project is an example of the best of project based learning that requires students to conduct an in-depth study of their community, to collaborate as a team, create an presentation that engages and informs, and respond with next steps to engage their community in improving health outcomes.

Debates and brainstorming activities engage students in deeper discussions about controversial issues and broadens their thinking, and builds their communication skills, specifically around persuasion and argumentation with evidence.

**EXPERIENTIAL LEARNING**

* **Guest Speakers**
* **Interviews**
* **Role Plays**
* **Portfolio**
* **Job Shadows**

Guest speakers and industry panels will provide opportunities for students to explore and gain deeper understanding of the education and skills necessary for success in the field of public health.  Job shadows will expose students to the wide range of careers in public health as well as the types of facilities and the various roles within a public health team.  Job shadows bring together public health professionals to mentor students around difficult concepts like medical ethics, confidentiality, and the health care system.  In case studies, role play is used to promote an understanding and create empathy for clients and to provide opportunities for students to practice clinical skills like report writing, data collection, and interviewing skills.

The Community Mapping Project requires students to explore their community and engage public health partners to recognize and address the needs of the underserved.  Students will examine the variety of public health services and conduct research on the relationship of culture on health and wellness.  The portfolio project encourages students to self, reflect on their learning and demonstrate progress to meeting the public health learning outcomes.  Students can then create a plan that addresses their challenges and creates an opportunity for additional learning and personal growth.

Textbook

Introduction to Public Health – Mary-Jane Schneider

Milestones in Public Health – Barbara a. Dupuono, M.D. MPH

Silent Spring – Rachel Carson

Supplemental materials

Essentials of Public Health

An Introduction to Public Health and Epidemiology

Essentials in Public Health Communication

Betrayal of Trust: The Collapse of Global Public Health

The Coming Plague: Emerging Diseases in a World Out of Balance

Public Health and Human Rights

Essentials in Public Health Biology

Healthy People 2020 Improving the Health of Americans

Centers for Disease Control and Prevention

California Department of Health Services

Disease Detectives PBS/Nova