SAN LEANDRO UNIFIED SCHOOL DISTRICT
COURSE PROPOSAL: Course of Study
SECTION A. COVER PAGE

1. Course Title: Medical Chemistry **If Title Change, Previous Title:**_____	**7. Action** **X** New Course ▢ Course Revision ▢ Title Change Only
2. Date Submitted:	**8. Grade Level**(s) X10 X11 X12
3. Transcript Title/Abbreviation(s)	**9. Prerequisites** (Please list.) ▢Recommended ⇒ Algebra (C or higher) ⇒ Biology (C or higher) ⇒ Concurrent enrollment in Geometry
4. Transcript Course Code/Course Number :	**10. Seeking Program Distinction?** ▢ YES (Check one below.) **X** NO ▢Honors ▢ AP ▢Other
5. Subject Area: Science (BioHealth Pathway)	**11. Is this a CTE course?** ▢ YES **X** NO **If YES, complete Section C**
6. Department: Science (BioHealth Pathway)	12. **Previously approved by UC?** **X** YES ▢ NO ▢ NA for 6th-8th Year approved Year removed
13. UC ELIGIBILITY **Already eligible?** ▢ NA for 6th-8th **X YES** ▢**NO** **a** ▢ **b**▢ **c**▢ **d X** **e**▢ **f**▢ **g**▢ **Proposing eligibility?**▢ NA for 6th-8th **XYES** ▢**NO** **a** ▢ **b**▢ **c**▢ **d**▢ **e**▢ **f**▢ **g**▢ Please mark one for approved eligibility or proposed eligibility.	**14. Unit Value/Course Credit/Length of Course** ▢ 0.5 (semester or half-year **X** 1.0 (one year equivalent) ▢ 2.0 (two-year equivalent) ▢ Other
15. School Contact and Course Developer Name: Juanita Abundiz, Gaia Pine and Reginald Richardson Phone: 510-618-4600 Email: jabundiz@slusd.us, gpine@slusd.us, and regrichardson@slusd.us Position: Teacher/Curriculum Writer, Instructional Coach, Principal	
16. Approval Signatures: **Date:** _____ Department Chair: Sarah Kayler	**DISTRICT OFFICE USE ONLY** **Date approved by Board Curriculum Committee 1-24-18** **Date approved by Board**

SECTION B. COURSE CONTENT

17. Course Description

This is an alternative to Chemistry in Earth's System for students interested in the BioHealth pathway and in medical and biotech fields. Medical Chemistry will meet the same Next Generation Science Standards (NGSS) as Chemistry in Earth's System and will connect chemistry to the students' everyday life. Students will investigate and apply chemistry and biotechnology concepts to address issues related to essential human needs. Students will learn how to figure out a patient's medication dosage, create an IV solution, how gas laws that help us to breath, how medications work, in addition to studying water quality and how to protect it for human health, the chemistry of food and how it is utilized in our body, genetically modified foods and their potential health and environmental impact, environmental pollutant production and the effects on human health, pharmacology and how drugs work to to treat disease states, and issues related to waste production and management by humans. Focus will be on researching and developing solutions to areas of need using chemistry or biotechnology methods. Medical Chemistry is a lecture and laboratory based study of the human body using chemistry. This course satisfies the first year of physical science requirement for college A-G standards (Biology is first year for life science). Successful completion of this course results in 10 credits. The course is broken into 8 units. Each section studies a different topic relating chemistry under the lens of human health.

18. Course Goals and/or Major Student Outcomes

Cognitive: Students will understand …

a. the introductory principles of general chemistry
b. how to interpret and analyze data to make predictions and/or defend conclusions
c. how to assess the reliability of sources of information according to scientific standards
d. the importance of accuracy in measuring and calculations to prevent dangerous error in medical drug dosage
e. the language of chemistry and its symbology to ensure a universally understood language

Affective: Students will …

a. experience reactions ranging from curiosity, wonder, disillusionment, concern, etc. to the impact human use and manipulation of chemicals has had on people groups, economies, environment, human health and disease states.
b. internalize their own relationship to the chemicals they use everyday and how to be more aware of the pros and cons of each of them
c. listen to and try to understand their peer's reaction to perspectives on major controversial topics in chemistry: nuclear energy, GMO's, chemical fertilizers, etc.

Psychomotor: Students will be able to …

a. design and/or evaluate a scientific investigation using evidence of scientific thinking and/or problem solving
b. demonstrate safe practices in a chemistry laboratory and interpret hazard labels
c. use the metric system and be able to convert key measurements from U.S. to metric
d. identity the tools of chemistry labs and how to use them correctly and safely
e. safely set-up and perform key chemistry labs such as titrations, filtration, chromatography, calorimetry, etc.
f. evaluate the merits of scientific explanations produced by others

18. Course Objectives (standards)

***Common Core State Standards Connections:* ELA/Literacy -**

RST.11-12.1	Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account. (HS-LS1-1)
RST.11-12.9	Synthesize information from a range of sources into a coherent understanding of a process, phenomenon, or concept resolving conflicting information when possible.
WHST.9-12.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. (HS-LS1-1)
WHST.9-12.7	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. (HS-LS1-3)
WHST.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and over-reliance on any one source and following a standard format for citation. *(HS-LS1-3)*
WHST.9-12.9	Draw evidence from informational texts to support analysis, reflection, and research. (HS-LS1-1)
SL.11-12.5	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. *(HS-LS1-2)*

Next Generation Science Standards –

*** Note: Standards are listed the first time they are discussed but many are repeated in later units in more depth and/or in the Physics in the Universe course.*

Unit 1: Introduction to Medical Chemistry

HS-PS1-2. Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.

Unit 2: Elements of the Human Body

HS-PS1-1. Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.

HS-PS1-7. Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.

HS-PS1-8. Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

Unit 3: Holding it All Together

HS-PS1-3. Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.

Unit 4: Human Biochemistry

HS-PS1-4. Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.

HS-PS3-1. Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.

HS-ESS2-6. Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.

Unit 5: Food, Fuel and Feces – The Chemistry of Human Metabolism

HS-PS1-5. Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

HS-PS1-6. Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.

HS-PS3-2. Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as either motions of particles or energy stored in fields.

HS-PS3-4. Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).

HS-PS3–5. Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Unit 6: Chemistry of Human Disease and Pharmacology

HS-ETS1-4. Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.

HS-PS1-5. Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

HS-PS2-4. Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Unit 7: Environmental Human Chemistry and Toxicology

HS-ESS2-2. Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth's systems.

HS-ESS2-3. Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.

HS-ESS3-2. **E**valuate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios

Unit 8: Human Impact on Oceans

HS-ESS2-4. Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.

HS-ESS3-5. Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.

HS-ESS3-6. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.

20. Course Outline (40 Weeks)

1st Quarter
Unit 1: Intro to Medical Chemistry
Unit 2: Elements of the Human Body

2nd Quarter
Unit 3: Holding Us All Together
Unit 4: Human Biochemistry

3rd Quarter
Unit 5: Food to Feces - Chemistry of Human Metabolism
Unit 6: Chemistry of Human Disease and Pharmacology

4th Quarter
Unit 7: Environmental Human Chemistry and Toxicology
Unit 8: Humans Impact on Ocean

Unit 1: Introduction to Medical Chemistry
Duration: 5 weeks
Textbook: Chapters 1-2 pages 2-31, & supplemental materials
Description: This introductory unit focuses on connecting students to how chemistry is involved in every area of their life, health and the global economy. Students will learn how chemistry is organized into key branches with an introduction to matter and the elements, molecules and compounds made from it in addition to the various states. Students will also explore how our understanding of chemistry has paved the way for understanding disease states, the chemical factors that cause disease, methods of treatment and how chemistry plays a role in the development of drugs from both synthetic and natural sources.

Lecture/Classwork Topics	Laboratory Activities and Projects
1. Chemistry a Human Science 2. Lab Safety and MSDS 3. History of Chemistry in Human Health and Medicine 4. Organization and Language of Chemistry 5. Science and Engineering Practices and Measurements 6. Why Metric? 7. Nature of Matter: Mass, Volume, Density, Conservation of Mass 8. Case Study: Ethnobotany - How indigenous people paved the way for medical drugs 9. Case Study: Evidence for chemical reactions - reflecting on a burning candle or sodium reactions	1. Project: Chemicals You Can't Live Without (Develop) 2. Project: MSDS Design for Environmental or Food Substance 3. Group Unit Project: Impact of Key Chemical on Global/Social Scale 4. Lab: Chemistry Lab Skills and Equipment Safety (Holt) 5. Lab: Reading Hazards Labels (Flinn) 6. Lab: Language of Chemistry: Identify 18 vials (Chemistry of Life pages 23-26) 7. Lab: Drug Dosage Calculations – Using mass, weight, density and metric (Online Nurse Resources) 8. Lab: Testing Plant Substances for Potential Medicines (Online)

Unit 2: Elements of the Human Body
Duration: 5 weeks
Textbook: Chapters 3-5 pages 50-140, plus additional supplemental materials
Description: This unit will investigate the building blocks of the human body and use those to learn atomic structure and organization on the periodic table. Isotopes will be investigated in the context of nuclear medicine. Ions, valence electrons, electrolytes and conductivity will be explored by looking at how the human body uses electricity for vital processes like muscle and neuron function.

Lecture/Classwork Topics	Laboratory Activities and Projects
1. Elements of the Human Body 2. Periodic Table Trends: Families and Properties 3. Valence Electrons and Configuration 4. Nuclear Medicine: Study of Isotopes 5. Electricity in the Human Body: Study of Ions 6. Case Study: Heavy Metal Toxicity and Metal Reactivity	1. Project: Elements of Human Body Brochure 2. Activity: Periodic Table of Human Elements 3. Project: Beauty Chemistry Research 4. Lab: Half-Life of Pharmaceuticals (ANS) 5. Lab: Discovering Isotopes of Pennium (HASPI) 6. Lab: Flame Test (Chemistry of Life text) 7. Lab: Lipstick Chromatography (Chemical Principles)

Unit 3: Holding Us All Together
Duration: 3 weeks
Textbook: Chapters 6-8 pages 146-240, plus additional supplemental materials
Description: This unit will focus on how matter is held together forming bonds. Students will investigate the main bonds that hold together all molecules, cells, tissues and organs in the human body and in matter in general. They will look at the importance of each type of bond in our internal chemistry and what happens when things go wrong in bonding.

Lecture/Classwork Topics	Laboratory Activities and Projects
1. Holding it all Together: Bonds! 2. Properties of Matter: Melting point, boiling point, vapor pressure, surface tension 3. Ionic Bonding 4. Covalent Bonding 5. Hydrogen Bonding 6. Metallic Bonding 7. Chemical Formulas 8. Molar Mass 9. Case Study: Mutations in DNA	1. Lab: Analysis of Electrolyte Drinks (Vernier) 2. Lab: Determining Bonding Types Lab (HASPI) or Classifying Substances by Solubility and Conductivity (Textbook) 3. Lab: Intermolecular Forces Round Robin (HASPI) 4. Lab: Modeling Molecules (HASPI)

Unit 4: Human Biochemistry
Duration: 5 weeks
Textbook: Chapters 9 pages 241-252 plus supplemental materials
Description: This unit focuses on why carbon is the main ingredient of organic molecules by exploring how it creates bonds and their role in forming all the macromolecules. The importance of water to humans will introduce polarity and electronegativity and how these interact within the human body. The chemistry of how we smell will help students explore and make connections between how these key chemical properties determine what "scents" we can distinguish. Each of the 4 macromolecules will be investigated with a special emphasis on proteins, their importance in the human body and how their unique bonding structure determines their function and how errors can lead to diseases and disorders.

Lecture/Classwork Topics	Laboratory Activities and Projects
1. Why Carbon? Science of Building Carbon-Based Life Forms 2. Life, Water, and Polarity 3. Macromolecules: Carbohydrates 4. Macromolecules: Proteins 5. Macromolecules: Lipids 6. Macromolecules: Nucleic Acids 7. Chemistry of Smell 8. Case Study: Why Only Left-Handed Amino Acids?	1. Project: Design a Personalized Nutrition Plan 2. Lab: Hydrated Crystals (HASPI) 3. Lab: Molecules of Life (HASPI) 4. Lab: DNA Extraction (developed) 5. Lab: Building Isomers (Online Virtual or Models) 6. Lab: Smell Lab – Receptors in Action (HASPI)

Unit 5: Food, Fuel and Feces – Chemistry of Human Metabolism
Duration: 6 weeks
Textbook: Chapters 18-22 pages 482-601 plus supplemental materials
Description: This unit focuses on how changes in matter are accompanied by changes in energy. Using the human metabolism as case study of these energy changes and chemical reactions students will investigate endothermic and exothermic reactions in the body such as sweating and sugar metabolism. Using the various fuel sources available to humans in the forms of carbohydrates, lipids, and protein students will explore the rate of reaction of all these in energy production and assess common diet fads. Students will learn key chemical reactions and how to balance them starting with the most familiar: cellular respiration.

Lecture/Classwork Topics	Laboratory Activities and Projects
1. Energy Changes and Thermodynamics (quantitative and conceptual) 2. Exothermic and Endothermic 3. Kinetic and Potential Energy 4. Photosynthesis and Respiration 5. Heat and Calories (Combustion) 6. Chemical Reactions 7. Balancing Chemical Reactions	1. Lab: Reaction Rates Inquiry (HASPI) 2. Lab: Calorimetry Design Project (HASPI) 3. Lab: Hot Pack Calorimetry (HASPI) 4. Lab: Alka-seltzer Reaction Rates (HASPI) 5. Lab: Photosynthesis and Cellular Respiration (HASPI) 6. Lab: Counting Calories Calorimetry

8. Stoichiometry 9. Gases in Body 10. Case Study: Free Radicals and Antioxidants	7. Lab: Conservation of Mass (Developed) 8. Optional Lab: Lung Capacity Boyle's Lab Pressure vs. Volume (Online)

Unit 6: Chemistry of Human Disease and Pharmacology
Duration: 6 weeks
Textbook: Chapters 10-12 pages 294-348 and supplemental materials
Description: This unit will focus on chemical processes in the human body and what happens when these processes are disrupted leading to imbalance and disease states. This unit will also introduce drugs, their need, design, development, distribution and target points within the human body. The relationship between chemically caused disease states and the pharmacological solutions that are used to treat them will connect students to the intricacies of maintaining homeostasis in the body and how chemical synthesis has changed the world of medicine and human quality of life. When possible, labs will include computer modeling to investigate the impact of proposed solutions to a complex real-world problems and interactions between systems.

Lecture/Classwork Topics	**Laboratory Activities and Projects**
1. Body Fluids: Electrochemical forces in Solubility and Mixtures 2. Heartburn: Acids and Bases and Buffers 3. Case Study: Metabolic Acidosis and Alkalosis 4. Pressure and Temperature in human metabolic processes and Le Chatelier's Principle (quantitative and conceptual) 5. Enzyme Activity 6. What is a drug and why do we need new ones? 7. Drug Targets (Enzymes, Rates of Reaction, Receptors, Nucleic Acids) 8. Agonists vs. Antagonists 9. Drug Distribution Around Body 10. Drug Discovery, Design and Development 11. Case Study: Diabetes and the Development of Synthetic Insulin	1. Project: Disease States Caused by Body Chemical Imbalance (Develop) 2. Lab: Heartburn and Antacid Effectiveness (Developed) 3. Lab: Aspirin Titration (HASPI) 4. Lab: Precipitation Reaction and Kidney Stones (Online and PPT) 5. Lab: IV Drips making Molar Solutions 6. Lab: Stomach Acid Buffer Lab (Developed) 7. Lab: Aspirin – Regular vs. Buffered (AAAS Online) 8. Lab: Blood and Urine Analysis (Developed) 9. Lab: Stomach Stoichiometry (HASPI) 10. Lab: Catalase Enzyme Activity (Developed)

Unit 7: Environmental Human Chemistry and Toxicology
Duration: 4 weeks
Textbook: Chapters 13-17 pages 354-477 and supplemental materials
Description: This unit focuses on what toxins are in air, water, and land and how they affect human health. Students will explore the opportunities and hazards of the chemical synthesis revolution in changing human quality of life. This unit connects chemistry to earth science in exploring how matter is cycles through the earth and how biomagnification of toxins can wreak havoc on living systems.

Lecture/Classwork Topics	Laboratory Activities and Projects
1. Environmental Toxins 2. Toxicology and Human Health 3. The Struggle for Global Human Access to Clean Water 4. Chemical Synthesis Revolution: Pros and Cons 5. Agriculture and Eutrophication 6. Case Study: Plastics and Our Planet	1. STEM Project: Design a Low-Cost Water Purification System (Surviving on an Island and NASA) 2. STEM Project: Runoff Water Contamination Model (Develop) 3. Lab: Environmental Tobacco Smoke and Lung Development 4. Lab: Testing Local Fresh Watersheds and residential tap water (Develop, possible PBL in partnership with EBMUD)

Unit 8: Human Impact on Oceans
Duration: 4 weeks
Textbook: Chapter 23-24 pages 608-657 and supplemental materials
Description: This unit explores the global impact human activity and chemical synthesis have on the homeostasis of our oceans. It will look at the interdependence we have with ocean ecosystems and how they directly affect human health and disease states. Students will explore the chemistry and toxicology of the oceans and explore solutions for addressing major problems.

Lecture/Classwork Topics	Laboratory Activities and Projects
1. Ocean biochemistry 2. Carbon Dioxide levels and Ocean Acidification 3. Energy in Marine Systems - natural cycling and the impacts of human activities 4. Ocean Pollution 5. Ocean Ethnobotany 6. Oceans and Human Health	1. Lab: Testing Water Around the Bay (Develop) 2. Lab: Blood and Sea Buffer (HASPI) 3. Final Project: Human Caused Ocean Problems – A STEM solution activity using chemical principles (Develop)

21. Instructional Materials:
Board approved required text: Living by Chemistry 2nd Edition, W.H. Freeman and Company/BFW

Supplementary materials

a. HASPI Lab curriculum
b. Enrichment Activities from internet
c. Unit and Lab Packets
d. Chromebooks
e. Guest speakers
f. Field trips to local community colleges and universities/colleges

22. Instructional Methods and/or Strategies (Key Assignments)

Key Assignments

1. Unit packets will be developed by instructor and will include all Cornell notes pages, practice worksheets, space for opening daily practice problems, enrichment activities from internet, key vocabulary and roots, in addition to a unit packet rubric and student's assessment page so students can evaluate their own learning and progress. This will keep students organized and provide all the unit work up front so that students can see the direction the unit will take and eliminate the use of notebooks or binders with taped/glued in worksheets and notes that is time-consuming and easily disorganized. Packets will be stamped when work is completed and turned in at the end of the unit and graded holistically based on the rubric in five main areas: Complete/Organized/On-time, Cornell Notes, Practice Problems, Daily Bell Work Questions, and Enrichment Activities. The strategies used in this unit packet were developed using AVID, GLAD, and Cornell Notes taking techniques.

2. Lab packets will also be developed by instructor and will include all labs with instructions, pre-lab questions, data tables, calculation and/or graphing space, and conclusion and analysis questions. Lab packets will be stamped when complete and turned in at the end of the unit. Focus is on helping both instructor and students stay organized.

3. Projects will be in two distinct categories: STEM and PBL and research/presentation based. Both will prompt student inquiry and autonomy in directing their own learning by delving deeper into key areas of need and either engineering solutions or analyzing know findings while hypothesizing some of their own. Emphasis in these projects will be on developing good research skills, evaluating and citing sources, and clearly and succinctly presenting ideas.

General Approach to Instruction

1. The purpose of this course is to engage students in the discovery and learning processes of chemistry. This approach requires active student engagement and participation with the teacher acting as facilitator.

a. Learning will occur through lab experiences and analysis, readings, discourse, lecture and projects focusing on real world relevant topics and community engagement.
b. Whole class activities will involve sharing ideas, knowledge, careful consideration and challenge of others' ideas, and supporting claims with evidence and reasoning.
c. Individual study will be self-directed with support from teacher. Teacher will meet with individual students frequently to monitor progress and guide the process of self discovery.
d. While the majority of the learning will be student centered, teacher planning and organization remain valuable requirements. In addition, as the learning is to be student led, the teacher must continuously assess, adjust, amend, and supplement lessons and activities to meet the needs and interests of the students.
e. **AVID, PBL, GLAD**, and **Digital Literacy** teaching strategies will be interspersed throughout the course to aid in helping students access and understand key concepts and principles.

Modifications, Accommodations and Differentiation to include all students:

1. Notes are typed and given at the beginning of lecture so that students with various learning abilities, auditory and visual impairments and ELL students all have access to all lesson information.
2. Lecture information has bolded terms to aid students in identifying and highlighting key concepts
3. Difficult terms will be broken down into their roots and prefixes to help students understand etymological origins that can be applied to other terms or to their native language (especially Spanish).
4. Digital copies of all lectures and activities will be posted online for students to access anytime they need.
5. Links to tutorial based-sites, instructional videos, and other tools will be posted online so students can access to review difficult topics and subjects.
6. Homework assignments will be posted online so students can access it anytime especially when absent.
7. All students are allowed to retake tests or quizzes (different version) as long as students demonstrate reflection and revision efforts or meet with instructor in one-on-one tutoring during office hours.
8. Additional resources and extension practice/projects will be available to students who want to go deeper.
9. Students with IEPs or 504 plans are given additional time and can test in tutorial rooms with notes/book per their modification stipulations

23. Assessment Methods and/or Tools

Students will be assessed using multiple measures:

a. Unit Exams and Quizzes
b. Lab Practical Exam

c. Formal Lab Reports (In Google Docs with Graphing in Google Sheets)
d. Unit Packets (with Cornell Notes, Worksheets, Article Summaries, Enrichment Activities, and claim/evidence/reasoning conclusion summaries)
e. Lab Packets (with lab data tables, analysis questions, claim/evidence/reasoning conclusion summaries)
f. Projects (Research Papers, Brochures, Etc)
g. Presentation (in person or Google Slides) using clear rubrics for both individual and group

24. Grading Policy

Grading will follow the San Leandro Unified School District's policy.

SECTION C

25. Context for Course (optional)

San Leandro High School is developing a BioHealth Pathway. This course was created to fill an area that does not exist here at San Leandro High School: an introductory course providing the information, education and skills to explore, understand the science of medicine. This course will lay a solid foundation to prepare students for the upper level courses in the pathway and open up possible career pathways in the health and medical fields that most students never get exposure to. It will also satisfy the physical science requirement for chemistry thus enabling students to take more elective pathway course.

26. History of Course Development (optional)

This course was developed by doing extensive research on courses offered throughout the SF Bay Area and California that have Health or Medical Pathways. Ideas were taken from various courses that have medical chemistry themes and applied these to the NGSS standards. The current Chemistry course offered at SLHS was also investigated along with the textbook to ensure students are learning the same standards with a medical emphasis tied into the curriculum. Curriculum was designed using content from the upper level courses in the BioHealth Pathway to ensure that medical chemistry provides a solid foundation for students to excel in these courses.