UC a-g	Course Code	Title	Credits
d,g	R021	Science 1C	5
d,g	R022	Science 2C	5

This is a two-semester college preparatory course. A laboratory oriented program of academic challenge, emphasizing both earth and physical sciences with life science included. Although not limited to the 9th grade level, this course is primarily designed for highly capable and motivated 9th grade students to insure a four-year science experience for these students. This course will meet the Physical Science graduation requirement as well as the UC “d” science and “g” elective requirements.

d,g	R023	Science 1 Sheltered	5
d,g	R024	Science 2 Sheltered	5

This is a two semester standards based course for English Language Development students. A laboratory oriented program of academic challenge, emphasizing both earth and physical sciences with life science included. Although not limited to the 9th grade level, this course is primarily designed for highly capable and motivated 9th grade students to insure a four-year science experience for these students. This course will meet the Physical Science graduation requirement as well as the UC “d” science and “g” elective requirements. Prerequisites: none

R033	Earth Science Requirement 1R	5

This is a one-semester course for remedial students in grades 10, 11, and 12. Topics in astronomy, meteorology, and earth and space science will be covered. Laboratory demonstrations will be presented. This course will meet one semester of the Physical Science graduation requirement if taken with Physical Science Requirement 1R. Prerequisite: This course must be taken with Physical Science Requirement (1R).

R035	Earth Science Requirement 1, Bilingual	5

This is a one-semester course open to bilingual students, non-English speakers, and limited-English speakers in grades 10, 11, and 12. Topics in astronomy, meteorology, and earth and space science will be covered in this activity-based program. There will be selected laboratory experiences. This course will meet one semester of the Physical Science graduation requirement if taken with Physical Science Requirement 1, Bilingual. Prerequisite: This course must be taken with Physical Science 1, Bilingual.

R037	Physical Science Requirement 1R	5

This is a one-semester course for remedial students in grades 10, 11, and 12. Topics in physics, electronics, and chemistry will be covered. Laboratory demonstrations will be presented. This course will meet one semester of the Physical Science graduation

UC a-g	Course Code	Title	Credits

requirement if taken with Earth Science Requirement 1R. Prerequisite: This course must be taken with Earth Science Requirement 1R.

	R039	Physical Science Requirement 1, Bilingual	5

This is a one-semester course open to bilingual students, non-English speakers, and limited-English speakers in grades 10, 11, and 12. Topics in physics, electronics, and chemistry will be covered in this activity-based course. There will be selected laboratory experiences. This course will meet one semester of the Physical Science graduation requirement if taken with Earth Science Requirement 1, Bilingual. Prerequisite: This course must be taken with Earth Science Requirement 1, Bilingual.

g	R045	Coordinated Science 1C	5
g	R046	Coordinated Science 2C	5
d, g	R047	Coordinated Science 3C	5
d, g	R048	Coordinated Science 4C	5
g	R065	Coordinated Science 1 - Sheltered	5
g	R066	Coordinated Science 2 - Sheltered	5
d, g	R067	Coordinated Science 3 - Sheltered	5
d, g	R068	Coordinated Science 4 - Sheltered	5

A four-semester program designed to meet the two-year science requirement of the State of California and the GUHSD. Throughout the four semesters of the program, students will be exposed to integrated science content from the life, earth, and physical sciences. Although designed as a non-tracked course, the level of instruction allows Coordinated Science 3/4C and 3/4S to fulfill the University of California “d” requirement of a laboratory science class and the “g” requirement of elective courses. This course is designed following the guidelines of the State of California Scope, Sequence, and Coordination Project. Any one of these courses does not meet the Life or Physical Science graduation requirement. Taking four (4) semesters will meet BOTH the Life and Physical Science graduation requirement.

	R062	Introduction to Forensic Science 1	5
	R063	Introduction to Forensic Science 2	5

This is an introductory course in elementary principles of inorganic and general chemistry with application to the field of criminal justice. Students will learn basic chemical terminology, problem solving techniques and chemical explanations of our environment. Emphasis will be placed on forensic applications of topics covered, including the study of

UC a-g	Course Code	Title	Credits

physical evidence such as hair, fibers, glass, fingerprints, and paint. Organic and inorganic techniques for analyzing evidence will be studied, with practical applications in the laboratory.

g	R075	~~Coordinated Science 1H~~	5
g	R076	~~Coordinated Science 2H~~	5
	R077	~~Coordinated Science 3H~~	5
	R078	~~Coordinated Science 4H~~	5

This is an honor level offering of the Coordinated Science core program. Students receive an integrated science program with content from the life, earth, and physical sciences presented in heterogeneously grouped classrooms. The course follows the guidelines of the State of California Scope, Sequence, and Coordination Project. The intent of the honor program is to maintain heterogeneous grouping with the entire coordinated science program. The depth and type of assignments completed will challenge students enrolled in this level and additional readings and additional requirements for individual projects. Coordinated Science 1/2H fulfills the University of California "g" requirement of elective courses. Completion of four (4) semesters of Coordinated Science will meet both the Life and Physical Science graduation requirement. **This course is currently inactive and no longer meets UC "a-g" requirements. Please contact the Curriculum Department for information before using this course.l**

R100	Introduction to Health Careers 1	5
R101	Introduction to Health Careers 2	5

This a course designed for students who wish to pursue careers in health/medical related fields. It is intended to provide a foundation of knowledge that health care professionals need before entering a training program. Students will explore the education and experience requirements for a variety of healthcare careers. This course also meets a prerequisite requirement for the Health Professions Pathway/Academy.

R102	Healthcare Essentials 1	5
R103	Healthcare Essentials 2	5

This course serves as a prerequisite for most health career programs offered at the Health Occupations Center. It consists of 10 modules that cover content addressing strategies for success, interpersonal dynamics, medical terminology, growth and development, safety and health maintenance, body structure and function, ethical and legal responsibilities, employment literacy, and computer literacy. Students are encouraged to take other

UC a-g	Course Code	Title	Credits

programs adding to their skills without the need to repeat this course. Prerequisite: Biology or current enrollment in biology.

g	R110	Earth Science 1C	5
g	R111	Earth Science 2C	5

This is a yearlong course, and it is being offered to provide another avenue for students to meet the state and GUHSD requirements for physical science. The course content follows the curriculum standards for Earth Science stated in the California Content Standards for Earth Sciences. Laboratory demonstrations will be presented. This course meets the University of California “g”elective requirement.

R113	Astronomy 1	5
R114	Astronomy 2	5

This course emphasizes principles of Earth and Physical Sciences. It is intended as a third year science elective that will include studies in cosmology, stellar formation and evolution, the solar system, as well as astronomical measurements and techniques. This course does not meet the Physical Science or Life Science graduation requirement. Prerequisite: One year of Physics with a “C” grade or higher or concurrent enrollment.

R150	Lab Assistant 1	5
R151	Lab Assistant 2	5
R152	Lab Assistant 3	5
R153	Lab Assistant 4	5

A course designed for students who have demonstrated unusual capabilities in science and wish to assist the instructors in preparing and conducting a variety of lab experiences as an assistant to the instructor. This course WILL NOT MEET the Life Science or Physical Science graduation requirement. Lab Assistant is open to students in grades 11 and 12 only.

R171	Biology 1R	5
R172	Biology 2R	5

This is a two-semester course for remedial students in grades 10, 11, and 12. This course includes laboratory demonstrations in the life sciences. This course will meet the Life Science graduation requirement.

d, g	R183	Biology 1, Bilingual	5
d, g	R184	Biology 2, Bilingual	5

This is a two-semester course in basic biology for bilingual students, non-English speakers, and limited-English speakers in grades 10, 11, and 12. This laboratory-oriented

UC a-g	Course Code	Title	Credits

course will cover concepts in botany, genetics, human biology, zoology, and ecology. There is an emphasis on vocabulary and language skills. This course will meet the Life Science graduation requirement, as well as the UC “d” science and “g” elective requirements.

d, g	R185	Biology 1 Sheltered	5
d, g	R186	Biology 2 Sheltered	5

This is a two-semester standards based course in basic biology for English Language Development students. This laboratory-oriented course will cover concepts in botany genetics, human biology, zoology, and ecology. There is an emphasis on vocabulary and language skills. This course will meet the Life Science graduation requirement, as well as the UC “d” science and “g” elective requirements.

d, g	R191	Biology 1C	5
d, g	R192	Biology 2C	5

This is a two-semester course in basic biology for college preparatory students in grades 10, 11, and 12. This laboratory-oriented course will cover concepts in botany, genetics, human biology, zoology, and ecology. This course will meet the Life Science graduation requirement, as well as the UC “d” science and “g” elective requirements. Prerequisite: Algebra I.

d, g	R201	Biology 1H	5
d, g	R202	Biology 2H	5

This course is open to gifted college preparatory students who have demonstrated an interest and ability in science. The course will differ from the college preparatory R191 and R192 courses in its text coverage, its greater emphasis on chemistry and physics, and its final direction toward basic concepts in biology. This course will meet the Life Science graduation requirement, as well as the UC “d” science and “g” elective requirements. Prerequisite: Algebra 1C recommended.

	R211	Biology 3C	5
	R212	Biology 4C	5

This course is open to college preparatory students in grades 11 and 12 who have completed two years of science with top grades, and who have demonstrated both high aptitude and interest in the biological sciences. Emphasis of the course is on advanced topics in biology. This course DOES NOT MEET the Life Science or Physical Science graduation requirement. Prerequisite: Appropriate level of biology.

UC a-g	Course Code	Title	Credits
d, g	R221	Biology 3H	5
d, g	R222	Biology 4H	5

This is a two-semester course open to 11th and 12th grade students who have successfully completed Biology 1C and 2C. An introductory chemistry course is highly recommended as a prerequisite. Emphasis is placed on physiological patterns and processes in cells, plants, and animals, as well as energy flow in the ecosystem. Students completing this course should be prepared to take the Advanced Placement Examination in biology. This course DOES NOT MEET the Life Science or Physical Science graduation requirement; however, it does meet the UC “d” science and “g” elective requirements.

R223	Applied Microbiology and Biotechnology 1C	5
R224	Applied Microbiology and Biotechnology 2C	5

This two-semester course in applied microbiology and biotechnology is designed for 11th and 12th grade students who are in a health science pathway and who have previously passed biology, chemistry and algebra I. This laboratory-based course will give students a strong background in basic microbiology knowledge and skills as well as a strong background in basic biotechnology knowledge and skills. Topics covered will include microbial structure, microbial growth and how it is affected by environmental conditions, microbial identification using both physical and biochemical tests, bioinformatics, DNA isolation and transformation, cell culture, protein structure, and isolation and electrophoresis of both DNA and protein. There is a strong emphasis of the synergistic nature of biology, chemistry, physics and mathematics in the interdisciplinary nature of the course, as well as active development of student problem-solving skills and laboratory skills. Prerequisite: Biology, Chemistry and Algebra I

R225	Applied Microbiology and Biotechnology 1H	5
R226	Applied Microbiology and Biotechnology 2H	5

This two-semester course in applied microbiology and biotechnology is designed for 11th and 12th grade students who are in a health science pathway. This laboratory-based course using a college-level textbook is rigorous in depth and breadth of microbiology and biotechnology knowledge of skills. Using many individual labs, students will learn about microbial structure, microbial growth and how it is affected by environmental conditions, microbial identification using both physical and biochemical tests, bioinformatics, DNA isolation and transformation, cell culture, protein structure, and isolation and electrophoresis of both DNA and protein. There is a strong emphasis on the synergistic nature of biology, chemistry, physics and mathematics in the interdisciplinary nature of this

UC a-g	Course Code	Title	Credits

course, as well as active development of student problem-solving skills and laboratory skills. This honors course will emphasize the higher order thinking skills for diagnostic and problem solving as compared to a college preparatory course. Prerequisite: Honors Biology, Honors Chemistry, and Algebra I with a "B" or better or with instructor recommendation.

d, g	R231	Biology 1 Advanced Placement	5
d, g	R232	Biology 2 Advanced Placement	5

This is a two-semester course designed to provide the capable student with the opportunity to take part in a college/university level course while attending high school. The curriculum is consistent with the Advanced Placement Description published by the College Board. This course DOES NOT MEET the Life Science or Physical Science graduation requirement; however, it does meet the UC "d" science and "g" elective requirements. Prerequisites: Completion of Biology 1, 2 and completion of, or concurrent enrollment in, Chemistry or Physics.

d, g	R233	Biology 1 International Baccalaureate HL1	5
d, g	R234	Biology 2 International Baccalaureate HL1	5

This course of biological study is designed to provide students with a through knowledge and understanding of life as it exists on our planet. The curriculum will include but is not limited to science as a process, structure and function complementarity, interdependence of living organisms in nature, scale and structure, energy flow, systemic regulation at all levels of organization, continuity and diversity, evolution, and applications to our society and humankind. Additional curriculum will include cells, nucleic acids, protein synthesis, genetics, reproduction, diseases, classification, the nervous system, muscular and excretory systems and plants. Chemistry, evolution, structure and function relationships and ecology will also be addressed. This course meets UC "d" science and "g" elective requirements.

d, g	R235	Biology 3 International Baccalaureate HL2	5
d, g	R236	Biology 4 International Baccalaureate HL2	5

This course is designed to provide necessary lab hours required for Biology 1, 2 HL IB course. The course will incorporate interdisciplinary group 4 projects. It will also cover the concept of cell biology and genetics. Prerequisites: Biology 1C, 2C or Biology 1H, 2H or Chemistry 1C, 2C or Chemistry 1H, 2H. This course meets UC "d" science and "g" elective requirements.

UC a-g	Course Code	Title	Credits
d, g	R238	Biology 1 International Baccalaureate SL	5
d, g	R239	Biology 2 International Baccalaureate SL	5

This is a biology course in the International Baccalaureate Program. The year-long course requires two outside Internal Assessments to complete the IB diploma. Topics studied in greater depth are Neurobiology and Behavior, Applied Plant and Animal Science, Evolution, Ecology and Conservation. These topics are beyond the core IB curriculum of cells, chemistry of life, genetics, ecology and evolution, and human health and physiology. This course DOES NOT MEET the Life Science or Physical Science graduation requirement. This course meets UC “d” science and “g” elective requirements. Prerequisite course is Chemistry or Physics at the college prep or honors level.

R272	Biology/Chemistry 3C	5
R273	Biology/Chemistry 4C	5

This is a one-year college preparatory course that provides for advanced studies in biology and chemistry. This course provides a third year science program for students who have completed the two-year integrated science program. It is designed for students who want to participate in advanced science but do not desire honor credit. In addition to regular course work, individual student projects are emphasized during second semester. Recommended for students planning to take three or four years of science in high school and for students interested in careers in engineering, computer science, mathematics, or science. Prerequisites are completion of biology and chemistry or two years of integrated science. This course does not meet the Life Science or Physical Science graduation requirement.

d, g	R274	Biology/Chemistry 3H	5
d, g	R275	Biology/Chemistry 4H	5

This honor level year course provides for advanced studies in biology and chemistry. It is designed to benefit seniors who anticipate a science curriculum in college. In addition to regular course work, individual student projects are emphasized during second semester. This course DOES NOT MEET the Life Science or Physical Science graduation requirement, however, it does meet the UC “d” science and “g” elective requirements. Prerequisites are completion of biology, chemistry and current enrollment in physics.

d, g	R281	Chemistry 1C	5
d, g	R282	Chemistry 2C	5

UC a-g	Course Code	Title	Credits

This is a two-semester course in chemistry for college preparatory students in grades 10, 11, and 12. This laboratory-oriented course includes concepts on the structure of matter, energy relationships, periodicity of elements, equilibrium, and chemical notation. This course will meet the Physical Science graduation requirement, as well as the UC “d” science and “g” elective requirements. Prerequisite: Algebra 1C and recommended concurrent enrollment in an advanced math course.

d, g	R291	Chemistry 1H	5
d, g	R292	Chemistry 2H	5

A two-semester laboratory science course planned for the academically talented. It is a study of matter pertaining to its composition and changes that occur in composition. There is more detailed and mathematical treatment than in the 1C course. The same content is covered, and when time allows an introduction to qualitative and quantitative chemical analysis is given. This course will meet the Physical Science graduation requirement, as well as the UC “d” science and “g” elective requirements. Prerequisite: Algebra 1

R301	Chemistry 3C	5
R302	Chemistry 4C	5

This is an advanced chemistry course designed to meet the objectives of general college level chemistry concerning itself with the fundamental assumptions and logical structure of chemistry. The emphasis is on chemistry as an intellectual subject and on the rigorous training in fundamentals needed in preparation for future work in chemistry and related fields. This course DOES NOT MEET the Life Science or Physical Science graduation requirement. Prerequisite: The appropriate chemistry course.

d, g	R321	Chemistry 1 Advanced Placement	5
d, g	R322	Chemistry 2 Advanced Placement	5

A two-semester laboratory science course designed to provide the capable student with the opportunity to take part in a college/university level course while attending high school. The curriculum is consistent with the Advanced Placement Course Description published by the College Board. This course will meet the Physical Science graduation requirement, as well as the UC “d” science and “g” elective requirements. Prerequisite: The AP Chemistry course is designed to be taken only after the successful completion of a first course in high school chemistry and a recommending grade in Algebra 1C or Algebra 1H.

UC a-g	Course Code	Title	Credits
d, g	R325	Chemistry 1 International Baccalaureate SL	5
d, g	R326	Chemistry 2 International Baccalaureate SL	5

This course is designed to explore the internationally accepted body of scientific knowledge concerning matter and its interactions, using observation and measurement to analyze and test hypotheses, and synthesize scientific information and effectively communicate findings. Students will demonstrate an understanding of scientific concepts and procedures, and apply that understanding individually and collaboratively to conduct investigations of chemical phenomena, analyze data, and display conclusions. The curriculum will contain the following 11 core topics: Stoichiometry, periodicity, state of matter, kinetics, acids and bases, organic chemistry, atomic theory, bonding, energetics, equilibrium and oxidation and reduction. Prerequisite: Honors Chemistry. This course meets UC “d” science and “g” elective requirements.

d, g	R333	Environmental Systems and Societies International Baccalaureate SL 1	5
d, g	R334	Environmental Systems and Societies International Baccalaureate SL 2	5

The prime intent of this course is to provide students with a coherent perspective of the interrelationships between environmental systems and societies. The aims of the course are to 1) promote understanding of environmental processes at a variety of scales, from local to global; 2) provide a body of knowledge, methodologies and skills that can be used in the analysis of environmental issues at local and global levels. Prerequisite: Biology 1/2C (B or better) or Biology 1/2 H (C or better), AND Chemistry 1/2C (B or better) or Chemistry 1/2 H (C or better).This course meets UC “d” science and “g” elective requirements.

d, g	R335	Environmental Science 1 Advanced Placement	5
d, g	R336	Environmental Science 2 Advanced Placement	5

This course is intended to present a survey of the field of environmental science. Topics to be included are global population, ecological principles and their applications, energy, land use and land management, water use and management, global issues and politics of science. Prerequisite: Two years of science, biology and chemistry OR coordinated science 1-4. This course meets UC “d” science and “g” elective requirements

d, g	R341	Physics 1C	5
d, g	R342	Physics 2C	5

UC a-g	Course Code	Title	Credits

This is a two-semester course in physics for college preparatory students in grades 11 and 12. This laboratory-oriented course includes concepts in mechanics, heat, electricity, wave phenomena, and kinematics. This course will meet the Physical Science graduation requirement, as well as the UC “d” science and “g” elective requirements. Prerequisite: Algebra IC and Algebra IIC or concurrent enrollment.

d, g	R351	Physics 1H	5
d, g	R352	Physics 2H	5

This is a two-semester course for 11th and 12th grade students who are academically talented in the area of mathematics. These students study the content covered in Physics 1C, but go beyond into concepts that are difficult to grasp by the regular high school student. The latest developments in the field of physics are studied. This course will meet the Physical Science graduation requirement, as well as the UC “d” science and “g” elective requirements.

d, g	R356	Physics 1 International Baccalaureate SL	5
d, g	R357	Physics 2 International Baccalaureate SL	5

This course is designed to focus the student on the physical interaction and laws that govern our lives and the world around us. Using observation and measurement students will form an understanding of these laws and communicate their understanding effectively. At the conclusion of the course students will be able to apply the laws of physics to conditions not previously encountered. An understanding of the developmental timeline of physics will be demonstrated. In addition, the experience gained in the performance of experiments will engage the student in the physics of everyday life and the limitations of science. Specific curriculum topics will include mechanics, wave motion and light, electricity and magnetism, and atoms. Topics will be reviewed in terms of historical content and how each has affected our society. This course meets the UC “d” science and “g” elective requirements.

d, g	R358	Physics 1 International Baccalaureate HL1	5
d, g	R359	Physics 2 International Baccalaureate HL1	5

IB Physics HL1 is the study of matter and energy and their interactions in the Universe. The focus of this course is to provide students with a general survey of the physical laws pertaining to classical Newtonian mechanics, wave motion and interference, electromagnetism, quantum mechanics and Einsteinian relativity. Newtonian mechanics allows determining of the position and the velocity of a particle. Electromagnetism describes the behavior of the electric charge and shows the relationships between light

UC a-g	Course Code	Title	Credits

and electricity. To understand the various concepts in physics, both models and hands on practical laboratory work are used. Mathematical equations are used to describe and deepen understanding of physics. This course meets the UC “d” science and “g” elective requirements.Prerequisite: Algebra II or above

d, g	R365	Conceptual Physics 1C	5
d, g	R366	Conceptual Physics 2C	5

This one-year course is an introduction to physics that will focus on conceptual learning rather than mathematical analysis. Emphasis will be on exploratory activities, concept development and application of learned concepts to everyday phenomena. Frequent demonstrations and hands-on experiments will be major course components. Topic areas include mechanics, waves, sound, light, electricity, and magnetism. This course meets the physical science portion of the state mandated graduation requirements. This course meets the UC “d” science and “g” elective requirements. Prerequisite: Completion of Algebra 1C

d, g	R367	Physics C: Electricity & Magnetism 3 Advanced Placement	5
d, g	R368	Physics C: Electricity & Magnetism 4 Advanced Placement	5

A two-semester course for 12th grade students who have passed the Advanced Placement Physics “C” test in mechanics. This course is to provide the capable student with the opportunity to take part in college/university level coursework in electricity and magnetism while attending high school. The curriculum is consistent with the Advanced Placement Course Description as published by the College Board as a second year course. This course meets the UC “d” science and “g” elective requirements. Prerequisite: Completion of Advanced Placement Physics C: Mechanics 1, 2 with a passing grade, of 3 or higher, and current enrollment in Calculus.

d, g	R372	Physiology 1C	5
d, g	R373	Physiology 2C	5

A two-semester course designed for students who wish to pursue careers in health fields or who are interested in human anatomy and how the body functions. Units in the areas of levels of organization, support and movement, integration and coordination, processing and transporting, and reproduction will be covered. Lab dissections may include the fetal pig and the cat. This class DOES NOT MEET the Life Science or Physical Science graduation requirement, however, this course meets the UC “d” science and “g” elective requirements. Prerequisite: Biology 1C

UC a-g	Course Code	Title	Credits
d, g	R376	Conceptual Physics 1C Sheltered	5
d, g	R377	Conceptual Physics 2C Sheltered	5

Conceptual Physics Sheltered is a two-semester standard based course for English language development students. The course will focus on concept development rather than mathematical analysis. Emphasis will be on exploratory activities, concept development and application of learned concepts to everyday phenomena. Frequent demonstrations and hands-on experiments will be major course components. Topic areas include mechanics, waves, sound light electricity, and magnetism. The course meets the physical science portion of the state mandated graduation requirements. This course meets the UC “d” science and “g” elective requirements.

d,g	R378	Chemistry 1C Sheltered	5
d,g	R379	Chemistry 2C Sheltered	5

Chemistry Sheltered is a two semester standards based chemistry course for English language development students. This laboratory-oriented course includes concepts on the structure of matter, energy relationships, periodicity of elements, equilibrium, and chemical notation.

d, g	R385	Physiology 1H	5
d, g	R386	Physiology 2H	5

A two-semester course designed for students who wish to pursue careers in allied health fields or who desire to major in life sciences in college. This class will provide an in-depth study of human anatomy and physiology, and students will be required to participate in lab experiences, field trips, and attend guest lectures which will enhance the curriculum presented in Physiology 1C/2C. This class DOES NOT MEET the Life Science or Physical Science graduation requirement, however, this course meets the UC “d” science and “g” elective requirements. Prerequisite: Students will need to complete Biology 1C, 2C with an A or Biology 1H, 2H with a grade of B or better.

d	R392	AP Physics C: Mechanics 1	5
d	R393	AP Physics C: Mechanics 2	5

AP Physics C: Mechanics will utilize guided inquiry and student-centered learning to foster the development of critical thinking skills and will use introductory differential and integral calculus throughout the course. This course will provide instruction in each of the following

UC a-g	Course Code	Title	Credits

six content areas: kinematics; Newton's laws of motion; work, energy and power; systems of particles and linear momentum; circular motion and rotation; and oscillations and gravitation. Instruction will also include a hands-on laboratory component comparable to a semester-long introductory college-level physics laboratory, Students will spend a minimum of 20 percent of instructional time engaged in hands-on laboratory work. Each student will complete a lab notebook or portfolio of lab reports. Prerequisite: Completion of, or concurrent enrollment in PreCalculus or Calculus.

d	R395	AP Physics I: Algebra -Based 1	5
d	R396	AP Physics I: Algebra-Based 2	5

A two-semester course designed to provide the capable student with the opportunity to take part in a college/university level course while attending high school. It is the equivalent to a first-semester college course in algebra-based physics. The curriculum is consistent with the Advanced Placement Course Description published by the College Board. The course covers Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; and mechanical waves and sound. It will also introduce electric circuits. This course will meet the Physical Science graduation requirement, as well as the UC "d" science requirement. Prerequisite: Completed Geometry and concurrent enrollment in Algebra II or equivalent math class.

R397	AP Physics 2: Algebra-Based 1	5
R398	AP Physics 2: Algebra-Based 2	5

A two semester course designed to provide the capable student with the opportunity to take part in a college/university level course while attending high school. It is the equivalent to a second-semester college course in algebra-based physics. The curriculum is consistent with the Advanced Placement Course Description published by the College Board. The course covers fluid mechanics; thermodynamics; electricity and magnetism; optics; and atomic and nuclear physics. This course will meet the Physical Science graduation requirement. Prerequisite: Successful completion of Advanced Placement Physics 1 and Prep-Calculus or equivalent.

d, g	R400	Human Anatomy 1C	5
d, g	R401	Human Anatomy 2C	5

Human Anatomy is a rigorous second year biology course created for students who are preparing for a career in the healthcare field. The student will examine the structures of the human body systems with an emphasis on gross anatomy (what the naked-eye can see) and the histology (what is microscopic) and learn about human growth and development.

UC a-g	Course Code	Title	Credits

The major theme of this year-long course will be “Structure Matches Function.” The student will learn from dissections and looking at demonstration dissections, models, videos, reading, slides, and on-line autopsies. Prerequisite: College Prep Biology (with “C” or higher grade.) This course meets UC “d” science and “g” elective requirements.

d, g	R420	Oceanography 1C	5
d, g	R421	Oceanography 2C	5

Within the course proposed we would teach to the adopted State Science Standards. This course will give students the opportunity to apply the learning of Physical Science/Earth Science, and will meet the Earth/Physical Science graduation requirement. The course will focus on the Geo/Physical aspects of Oceanography including their relationship to land environment (i.e., meteorology, erosion, pollution, etc.) This course meets UC “d” science and “g” elective requirements. Prerequisite: Algebra 1

d, g	R430	Oceanography 1H	5
d, g	R431	Oceanography 2H	5

An enhanced version of R420/R421, this course will offer units in the following areas: ocean ecology, plant and animal life, physical oceanography, and the seas in relationship to man. Field trips, guest speakers, lab experiments, and group participation will be emphasized. This course meets the Earth Science/ Physical Science graduation requirement and the UC “d” science and “g” elective requirements. Prerequisite: Algebra 1

R480	Horticulture Botany 1	5
R481	Horticulture Botany 2	5

This course will provide an in-depth study of plant taxonomy, physiology, morphology, pathology, propagation, and culture. The study of these pure science concepts will be supplemented and enhanced by practical lab experiences in the greenhouse and supporting facilities. Students will be able to obtain valuable, knowledge as well as vocational skills. Prerequisite: Completion of first year biology with a grade of C or better.

R500	Medic Internship Program	5

The Medic Internship Program extends over a semester and involves two settings – classroom and field study. Within the classroom setting is an introductory course for health pathway students with a focus on basic anatomy and physiology, a variety of disease processes, initial assessment and stabilization of pre-hospital patients, including Level 1 trauma patients. Included within the course is the proper use and handling of a variety of

UC a-g	Course Code	Title	Credits

equipment such as airway adjuncts, oxygen delivery devices, PASG, cervical immobilization devices, etc. In addition to basic pathophysiology and treatment, related legal issues, procedures, scope of practice, proper documentation, communication, extrication, and ambulance protocols will be covered. The classroom portion will consist of a total of 36 hours. The field study portion of the course will be an internship with a mentor from local EMT, Paramedic, or Fire Departments that students will shadow throughout the duration of the course for a total of 70 hours. The overall goal of the course is to prepare students to enter into Emergency Medical Service training or certification programs following graduation. This course does not meet the Life or Physical Science graduation requirement. Prerequisite: Participation in a Health Pathway – Medical Biology, Medical Chemistry, and/or Physiology

R550	Health-career Exploration Summer Institute (HESI)	5

Health-Career Exploration Summer Institute is an advanced program that allows students who have participated in a Health Career Pathway additional opportunity to gain exposure and participate in various hospital rotations over a 4 week period. Students participate with 6 days of classroom time, for a total of 48 hours, to learn about healthcare regulations and law, rotations specific skills, common pathophysiology they may be exposed to, and personal relations skills necessary to be successful in a healthcare field. For the remaining 14 days of the course, totaling 112 hours, students follow and assist personnel in various rotations of the hospital – Emergency Department, Surgery, Labor and Delivery, Radiology, Clinical lab, Phlebotomy, Pathology, Respiratory Therapy, Physical Therapy, Surgical Processing Department, Post & Pre-Operation Department, Cardiac Catheter Lab, Endoscopy, Hyperbarics, and various Nursing rotations. Following and during each rotation students complete 2-3 case studies and a 1-2 page research paper on the patient's disease/disorder similar to what would be required of medical or nursing students. Final assessment for HESI consists of a formal 10-15 minute oral presentation to healthcare professionals, instructors and family. This course does not meet the Life or Physical Science graduation requirement. Prerequisite: Participation in a Health Pathway – Medical Biology, Medical Chemistry, and/or Physiology

R600	Science Research Seminar 1H	5
R601	Science Research Seminar 2H	5
R602	Science Research Seminar 3H	5
R603	Science Research Seminar 4H	5

This science department elective offering will allow science students to pursue independent study and research in diverse areas, while providing guidance and training in

UC a-g	Course Code	Title	Credits

research techniques. Students will be able to begin work that could lead directly into a scientific major at the university level, and gain specific experimental and research skills not normally part of the regular science curriculum. Students will be concurrently enrolled in another science class. A major component of this course, which can be repeated for two years (20 credits), will be to complete two long-term individual projects, unique for each year of independent study. Students will also research and present seminars each semester, as well as maintain a weekly log documenting their independent study progress. Participation in regional, state and national science competitions will also be required. Evaluation will be based on students completing their individual program of study.

R660	Newcomer Science Literacy 1	5
R661	Newcomer Science Literacy 2	5

A two semester general science course intended for the Beginning English Learner who has been in United States schools for less than two years. Intensive English language support is provided, and ELF standards are taught in the context of scientific vocabulary and fundamental concepts of Biology, Earth Science, and Chemistry. This course fulfills selective graduation credit.

R700	Prep-AP Science	5

This course is designed to prepare students for the rigors of an Advanced Placement Science course. The class will cover one unit from a selected AP science course. Other covered topics will include the use of laboratory equipment, proper lab write-up form, how to read a science text and how to answer AP science essay questions. This course will be offered for credit/non credit only. There are not prerequisites for this course.

R850	Transfer Course	5

This course is for a student a student who has been attending a school outside the Grossmont District. The subject matter field has been identified, however, the course description or title is not readily matched with a course in the Grossmont District Master Course Title Book. The decision to accept this course as meeting the Life Science or Physical Science graduation requirement will be made on an individual basis.

R851	Transfer Course	5

This course is a second semester transfer course. In cases where students remain in the same subject matter field during the second semester, using this course identification will allow a more accurate recognition of the course work. The decision to accept this course

UC a-g	Course Code	Title	Credits

as meeting the Life Science or Physical Science graduation requirement will be made on an individual basis.