GRAND CANYON UNIVERSITY®

PHOENIX, ARIZONA

Dual Enrollment Courses at High Schools

College	Course Code	Course Title	Credits	Course Description
COT	BIB-106	Old Testament Historical Perspectives	4	This course introduces the text of the Old Testament with emphasis on the biblical narrative, genres, major historical periods, and theological themes.
COT	BIB-107	New Testament Historical Perspectives	4	This course introduces the text of the New Testament with emphasis on the biblical narrative, genres, major historical periods, and theological themes.
CSET	BIO-181	General Biology I	3	This course is a study of biological concepts emphasizing the interplay of structure and function, particularly at the molecular and cellular levels of organization. Cell components and their duties are investigated, as well as the locations of cellular functions within the cell. The importance of the membrane is studied, particularly its roles in controlling movement of ions and molecules and in energy production. The effect of genetic information on the cell is followed through the pathway from DNA to RNA to protein. **Co-requisite: BIO-181L.**
CSET	BIO-181L	General Biology I Lab	1	This lab course is designed to reinforce principles learned in BIO-181 through experiments and activities which complement and enhance understanding of macromolecules, cell membrane properties, cellular components, and their contribution to cell structure and function. Assignments are designed to relate cellular processes such as metabolism, cell division, and the flow of genetic information to cell structure. **Co-requisite: BIO-181.**
CSET	BIO-182	General Biology II	3	This course is a study of biological concepts emphasizing the interplay of structure and function at the molecular, cellular, and organismal levels of organization. Relationships of different life forms are studied, noting characteristics and general lifecycles of the different types of organisms, including bacteria, archaea, and eukaryotes. Plant structure, function, and reproduction are studied, as well as photosynthesis and plant nutrition. Ecological principles are discussed, including organism interactions at the various ecological levels. Principles of conservation are introduced. **Prerequisite: BIO-181. Co-requisite: BIO-182L.**
CSET	BIO-182L	General Biology II Lab	1	This lab is designed to reinforce principles learned in BIO-182. Organisms are examined to recognize similarities and differences among different types. Plant structure and processes, including photosynthesis and water transport, are investigated through observation and activities. Concepts of ecology are explored through study of species interactions projects and other activities. **Co-requisite: BIO-182.**

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CSET	BIO-201	Human Anatomy and Physiology I	3	This course is the first of a two-course sequence examining the structure and function of the human body and mechanisms for maintaining homeostasis within it. This portion includes the study of cells; tissues; genetics; and the integumentary, skeletal, muscular, and nervous systems. **Co-requisite: BIO-201L.**
CSET	BIO-201L	Human Anatomy and Physiology I Lab	1	This course involves a study of the gross anatomy and functions of the skeletal, muscular, and nervous systems. This experiential lab involves gaining basic knowledge of the use of human cadavers, animal demonstrations, and computer-assisted instruction. **Co-requisite: BIO-201**.
CSET	BIO-202	Human Anatomy and Physiology II	3	This course is the second of a two-course sequence examining the structure and function of the human body and mechanisms for maintaining homeostasis within it. This portion includes the study of immunity; metabolism; energetics; fluid, electrolyte and acid-base balance; and the endocrine, hematologic, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems. **Prerequisites: BIO-201 and BIO-201L. Co-requisite: BIO-202L.**
CSET	BIO-202L	Human Anatomy and Physiology II Lab	1	This course is a study of the gross anatomy and functions of the endocrine, cardiovascular, respiratory, digestive, renal, and reproductive systems. The experiential lab involves an advanced exploration of concepts using human cadavers, animal demonstrations, and computer-assisted instruction. **Prerequisites: BIO-201 and BIO-201L. Co-requisite: BIO-202.**
CCOB	BUS-232	Introduction to Sports Management	4	This course is an overview of the business of sports, including career opportunities, as well as a study of the value of professional management to sports organizations.
CSET	CHM-101	Introduction to General, Organic, and Biochemistry	3	An introduction to the principles of chemistry; designed for students without a strong background in science. Topics covered include a survey of the chemical and physical properties of elements and compounds, chemical reactions, chemical energetics, acids and bases, and chemical bonding. An introduction to organic and biochemistry emphasizes the relationship between molecular structure and function. **Co-requisite: CHM-101L.**
CSET	CHM-101L	Introduction to General, Organic, and Biochemistry Lab	1	This lab course is designed to compliment and support the principles being addressed in CHM-101. Students learn basic lab techniques related to general and organic chemistry, building upon and strengthening foundational knowledge such as stoichiometry and reaction types. Additionally, some topics are addressed from a biochemical standpoint to highlight application to daily living. **Co-requisite: CHM-101.**
CSET	CHM-113	General Chemistry 1	3	This is the first course of a two-semester introduction to chemistry intended for undergraduates pursuing careers in the health professions and others desiring a firm foundation in chemistry. The course assumes no prior knowledge of chemistry and begins with basic concepts. Topics include an introduction to the scientific method, dimensional analysis, atomic structure, nomenclature, stoichiometry and chemical reactions, the gas laws, thermodynamics, chemical bonding, and properties of solutions. **Prerequisites: MAT-134 or MAT-154. Co-requisite: CHM-113L.**

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CSET	CHM-113L	General Chemistry 1 Lab	1	The laboratory section of CHM-113 reinforces and expands learning of principles introduced in the lecture course. Experiments include determination of density, classification of chemical reactions, the gas laws, determination of enthalpy change using calorimetry, and determination of empirical formula. **Prerequisite: MAT-134 or MAT-154. Co-requisite: CHM-113**.
CSET	CHM-115	General Chemistry II	3	This is the second course of a two-semester introduction to chemistry intended for undergraduates pursuing careers in the health professions and others desiring a firm foundation in chemistry. Upon successful completion of this course, students demonstrate knowledge and/or skill in solving problems involving the principles of chemical kinetics, chemical equilibrium, and thermodynamics; understanding chemical reactions using kinetics, equilibrium, and thermodynamics; comparing and contrasting the principal theories of acids and bases; solving equilibrium involving acids, bases, and buffers; describing solubility equilibrium; describing terms associated with electrochemistry and solving problems associated with electrochemistry; and describing fundamentals and applications of nuclear chemistry and organic chemistry. **Prerequisite: CHM-113. Co-requisite: CHM-115L.**
CSET	CHM-115L	General Chemistry II Lab	1	The laboratory section of CHM-115 reinforces and expands learning of principles introduced in the lecture course. Experiments include determination of rate law, examples of Le Châtelier's principle, the use of pH indicators, buffer preparation, experimental determination of thermodynamic quantities, the use of electrochemical cells, and qualitative and quantitative analysis. **Prerequisite: CHM-113 and CHM-113L. Co-requisites: CHM-115.**
CHSS	COM-126	Communications in the Media	4	This course is a study of media history and theory with an emphasis on the implications and impact of mass messages on meaning, culture, and society.
CHSS	COM-151	History and Criticism of Visual Media	4	This course presents the history of visual art and its connection and influence on modern media. Students gain an artistic vocabulary by becoming familiar with many kinds of visual art, developing their skills in visual analysis, increasing their understanding of aesthetic theory, and applying that understanding in presentations. **Prerequisite: COM-126.**
CHSS	COM-210	Public Speaking	4	This basic course in oral communication uses focused content to practice the principles of effective oral presentation. The lectures, speaking assignments, and all written work will acquaint the student with the theory, practice, and necessary technological literacy required for effective message building and presentation.
COT	CWV-101	Foundations of a Christian Worldview	4	A worldview acts like glasses through which one views the world. In this course, students explore the big questions that make up a worldview, questions like "Why are we here?" and "What is my purpose?" Students examine how Christians answer these questions and work on exploring their own worldviews, as well as learning how worldview influences one's perceptions, decision making, and everyday life.

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CCOB	ECN-220	Introduction to Economics	4	The course covers microeconomic topics, macroeconomic topics, and international economics topics. Microeconomic topics include the nature and method of economics, supply and demand, utility, and supply and demand elasticities. Macroeconomic topics include the measurement of national output, factors that impact output, other means of measuring national wealth and economic well-being, unemployment, inflation, GDP accounting, and business cycles. While the focus of this course is primarily on the U.S. economy, some comparative economic analysis will be covered. In addition, select topics related to international trade and finance are introduced. *Please be aware that this course carries a noticeably higher academic intensity and rigor.*
COE	ELM-200	Child and Early Adolescent Development and Psychology	4	Teacher candidates survey how children and early adolescents grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas while understanding the implications for designing and implementing developmentally appropriate and challenging learning experiences. This survey of the seminal concepts, principles, theories, and research related to development of children and young adolescents allows teacher candidates to build foundational knowledge for constructing learning opportunities that support individual student's development, acquisition of knowledge, and motivation. **Practicum/field experience hours: None. Fingerprint clearance not required.**
CHSS	ENG-105	English Composition I	4	This is a course in writing academic prose, including various types of essays, arguments, and constructions. A writing-intensive course.
CHSS	ENG-106	English Composition II	4	This course explores various types of research writing, with a focus on constructing essays, arguments, and research reports based on primary and secondary sources. A writing-intensive course. **Prerequisites: ENG-105.**
CHSS	GOV-140	American Government and Politics	4	This course is an introduction to American government and politics. It covers the constitutional foundations and governing institutions of the federal government. Throughout the course, students address common political themes, such as the nature and scope of governance, democracy, citizenship, and patterns of political behavior.
CHSS	GOV-210	Introduction to Comparative Government and International Politics	4	This course compares and contrasts various systems of government in Western and non-Western countries, and explores political and diplomatic processes and how they affect international relations, nations, and localities.
CHSS	HIS-110	World History Themes	4	This course surveys global civilizations from Africa and the Americas to Eurasia as an overview of the principal cultural, political, and economic themes that shaped world civilization.
CHSS	HIS-144	United States History Themes	4	This course provides an overview of the principal political, economic, and cultural, themes that shaped the United States from the Colonial period into the 20th century.
CHSS	JUS-104	Introduction to Justice Studies	4	This course provides an introduction to the basic components of the criminal justice system in the United States today: corrections, courts, and law enforcement.
CHSS	JUS-110	Crime and Criminology	4	This course provides an examination of classic and contemporary theories of crime causation, including psychological and social causes of crime and theories of punishment.

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CHSS	MAT-110	Basics of Algebra	4	This course is designed to build students' understanding of, and skill in, basic algebraic practices and procedures. Students learn to manipulate mathematical operations involving real and complex numbers. Topics include solving and graphing equations and inequalities, solving systems of equations, operations on functions, use of real and complex number systems, solving rational functions, and solving exponential and logarithmic functions. Emphasis will be placed on algebraic processes and building a framework for future courses.
CHSS	MAT-144	College Mathematics	4	The course covers mathematics that matter in modern society. Key areas of focus include financial literacy, numerically-based decision making, growth, scale, and numerical applications. The course applies basic college-level mathematics to real-life problems and is appropriate for students whose majors do not require college algebra or higher.
CHSS	MAT-154	Applications of College Algebra	4	This course is designed to prepare learners to integrate fundamental mathematical concepts with the critical and quantitative thinking needed to solve workplace-related problems. The course is founded upon a functional and technological approach to algebra. Topics include functions, algebraic and exponential equations, systems, matrices, probability, and statistics. Emphasis is placed on developing students' understanding of mathematical representation and logical reasoning to solve real-world problems. **Prerequisite: Grade of C or better in MAT-110.**
CSET	MAT-250	College Algebra and Trigonometry	4	This course is a unified study of fundamental algebra and trigonometry concepts that provide the necessary background for the study of calculus. Topics include linear equations and inequalities in one and two variables; scatter diagrams and curve fitting; polynomial, rational, exponential, logarithmic, and trigonometric functions, their graphs, and their inverse functions; and systems of equations and inequalities. There is an emphasis on developing both a fundamental understanding of the concepts involved as well as their application to real-world problem solving. **Prerequisite: Grade of C or better in MAT-134 or MAT-154.**
CSET	MAT-252	Calculus and Analytic Geometry I	4	This course provides a rigorous treatment of the concepts and methods of elementary calculus and its application to real-world problems. Topics include a brief review of linear, exponential, logarithmic, trigonometric, and inverse functions; understanding and calculating limits, continuity, and derivatives as rates of change; differentiation rules including derivatives of polynomials, exponentials, trigonometric, and logarithmic functions; product and quotient rules, the chain rule, and implicit differentiation; related rates, curve sketching, maximum and minimum problems, mean value theorem, linear approximation, indeterminate forms, and L'Hospital's rule; and applied optimization problems, antiderivatives, and approximating areas under the curve. **Prerequisite: Grade of C or better in MAT-250 or MAT-261.**
CSET	MAT-253	Calculus and Analytic Geometry II	4	This course provides a rigorous treatment of the concepts, methods, and applications of integral calculus and is the second course in a three-course sequence. Topics include definite integrals, fundamental theorem of calculus, and integration rules; arc length, solids of revolution, and physical applications; techniques of integration including improper integrals and an introduction to differential equations; polar coordinates, parametric equations, infinite sequences, and series; power series and conic sections; and vector arithmetic, dot product, and projections. **Prerequisite: Grade of C or better in MAT-252.**

College	Course Code	Course Title	Credits	Course Description
CSET	MAT-274	Probability and Statistics	4	This course provides an introduction to the study of basic probability, descriptive and inferential statistics, and decision making. Emphasis is placed on measures of central tendency and dispersion, correlation, regression, discrete and continuous probability distributions, quality control population parameter estimation, and hypothesis testing. **Prerequisites: Grade of C or better in MAT-134, MAT-144 or MAT-154.** *Please be aware that this course carries a noticeably higher academic intensity and rigor.*
CSET	PHY-102	Introduction to Physical Science	4	This course introduces students to the scientific method. Students are expected to classify objects and materials based on physical and chemical properties, as well as develop an understanding of chemical reactions and flow of energy in a system.
CSET	PHY-111	General Physics I	3	This course is a study of basic concepts of physics, including motion; forces; energy; the properties of solids, liquids, and gases; and heat and thermodynamics. The mathematics used includes algebra, trigonometry, and vector analysis. A primary course goal is to build a functional knowledge that allows students to more fully understand the physical world and to apply that understanding to other areas of the natural and mathematical sciences. Conceptual, visual, graphical, and mathematical models of physical phenomena are stressed. Students build critical thinking skills by engaging in individual and group problem-solving sessions. **Prerequisites: MAT-250, MAT-261 or College Algebra. Co-requisite: PHY-111L.**
CSET	PHY-111L	General Physics I Lab	1	This course utilizes lab experimentation to practice concepts of physical principles introduced in the PHY-111 lecture course. Learners are able to perform the proper analysis and calculations to arrive at the correct quantifiable result when confronted with equations involving gravity, sound, energy, and motion. **Prerequisite: MAT-250, MAT-261 or College Algebra. Co-requisite: PHY-111.**
CSET	PHY-112	General Physics II	3	This course is the second in a one-year introductory physics sequence. In this course, the basics of three areas in physics are covered, including electricity and magnetism, optics, and modern physics. Course topics include an introduction to electric and magnetic fields, the nature of light as an electromagnetic wave, geometric optics, quantum mechanics, and nuclear reactions. **Prerequisites: PHY-111 and PHY-111L. Co-requisite: PHY-112L.**
CSET	PHY-112L	General Physics II Lab	1	This course utilizes lab experimentation to practice concepts of physical principles introduced in the PHY-112 lecture course. Some of the topics learners understand and analyze involve the relationship between electric charges and insulators/conductors, magnetism in physics, energy transformations in electric circuits, the relationship between magnetism and electricity, and how they relate to the medical industry. **Prerequisites: PHY-111 and PHY-111L. Co-requisite: PHY-112L.**
CHSS	PSY-102	General Psychology	4	This foundation course in the science of behavior includes an overview of the history of psychology, the brain, motivation, emotion, sensory functions, perception, intelligence, gender and sexuality, social psychology, human development, learning psychopathology, and therapy.
CHSS	SOC-102	Principles of Sociology	4	This course presents a survey of the concepts, theories, and methods used by sociologists to describe and explain the effects of social structure on human behavior. It emphasizes the understanding and use of the sociological perspective in everyday life.

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CHSS	SPA-104	Elementary Spanish I	4	This course builds a foundation in the language development skills of listening, speaking, reading, and writing. The course textbook is supported by an extensive workbook and online lab which allows students to hear Spanish spoken by native speakers. Students practice their spoken Spanish through face-to-face activities or by recorded wave files. Additionally students are prompted to growth in global awareness through participation in cultural events in their communities, reviewing movies set in Hispanic cultural settings, and reading books in English by Hispanic authors about Hispanic culture.
CHSS	SPA-105	Elementary Spanish II	4	This course is a continuation of SPA-104. **Prerequisite: SPA-104**.