B1 PHYSICAL

ASTR 1510 - Principles of Astronomy (2)

Recommended co-requisite: ASTR 1520. Nonmathematical survey of modern astronomy. Understanding of the night sky, the solar system, stars, and the universe, and of the scientific methods which led to this knowledge. Lecture 2 hours. Together with ASTR 1520, satisfies GE B1. **GE B1**

ASTR 1520 - Principles of Astronomy: Laboratory (1)

Co-requisite or prerequisite: ASTR 1510. Laboratory experiments, take-home observational assignments, and field trips designed to complement Astronomy 1510 lecture. Up to two nighttime telescope sessions. Laboratory 3 hours. Together with ASTR 1510, satisfies GE Block B1. **GE B1**

ASTR 1600 - Space, Time and the Universe (3)

Current scientific understanding of the origin and evolution of the universe, fundamental forces and particles, black holes, arrow of time, and methods of physics which led to this understanding. Lecture 2 hours, laboratory 3 hours. Satisfies GE B1. **GE B1**

CE 2200 - Coastal Zone Environment (3)

Introduction to the engineering properties and processes of the oceans and their coasts. Explanation of the purpose and design of structures built within the coastal zone and the management of the coastal environment. Human interactions with the ocean such as assessing needs and selection of coastal structures to assist with the management of the coast: Beach access laws fishing and waste disposal. A Field trip to observe coastal processes and coastal structures that permit habitation of the coastal zone and an experiment that utilizes the fluid laboratory to measure and predict impacts of the coastal structures. *Not intended for Engineering majors*. **GE B1**

CHEM 1000† - Molecules Matter (3)

An Introductory course emphasizing the importance of chemistry to everyday life including the environment, energy, food and materials. Lecture 2 hours, Laboratory 3 hours. **GE B1**

† There is a special fee associated with registering for laboratory classes that carry this designation. Details appear in the schedule of classes.

GEOG 1600 - Physical Geography (3)

Co-requisite: Must be enrolled in a lab section as well as lecture. Introduction to the principles and processes affecting the natural environment and dynamical interactions of the physical world and its inhabitants. Emphasizes the spatial relationships among atmosphere, hydrosphere, soils, and vegetation. 2 hrs lecture, 3 hrs lab per week. **GE B1**

GEOG 1700 – Meteorology (3)

Course surveys the major atmospheric processes, with emphasis on weather phenomena, severe storms, droughts and flood-producing events. Use of weather charts and satellite imagery in forecasting examined. Lecture 2 hours, lab 3 hours. Some sections of the lecture may be taught online. **GE B1**

GEOL 1500 - Earth Revealed (3)

Introductory Geology: Earth material, plate tectonics, origin and nature of earthquakes, volcanoes, the seafloor, mountains, natural resources and climate change. Lecture 2 hours, laboratory 2.5 hours, one day field trip. **GE B1**

*C-ID   GEOL 101
*The University course listed above articulates with any California Community College (CCC) course that is approved by the C-ID program and given the corresponding "C-ID Course" designation listed here. The articulation is one-way articulation, meaning the approved community college course will articulate for the indicated course credit at the four-year university. Articulation does NOT apply from the four-year institution to the community college or between the four-year institutions.

GEOL 1550 – Oceanography (3)

Introduction to the origin of ocean basins, seafloor features, ocean sediments, ocean circulation, seawater properties, wave properties, coastal processes, and environmental issues tied to pollution, population growth and climate change. Laboratory: one-day ocean cruise and one-day coastal trip. Lecture 2 hours, laboratory 2.5 hour. Portions of the class may be taught online. **GE B1**

GEOL 1580 - Natural Disasters (3)

Causes, characteristics, mitigation and case histories of natural disasters affecting civilization. Topics include earthquakes, volcanic eruptions, landslides, storms and floods, tsunami, asteroid impacts, forest fires, climate changes, and mass extinctions. **GE B1**

*C-ID   GEOL 130
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NATS 1010 - Physical Science (4)

Basic concepts in physics and chemistry such as motion, energy, electricity, and the properties and transformations of matter. Open to all non-science majors. Recommended for Elementary Subject Matter majors. Lecture 3 hours, laboratory 3 hours. **GE B1**

NATS 1020 - Earth and Space Science (4)

Basic concepts in geology and astronomy such as earthquakes, volcanoes, geologic time, climate change, stars, comets, planets and galaxies. Open to all non-science majors. Recommended for Elementary Subject Matter majors. Lecture 3 hours, laboratory 3 hours **GE B1**

PHYS 1560 - Physics for the Twenty-first Century (2)

Co-requisite: PHYS 1570. Current topics in physics that will play a significant role in social and economic issues of the 21st century. Fundamental physics concepts necessary to understand these topics. Together with PHYS 1570, satisfies GE B1. **GE B1**

PHYS 1570 - Physics for the Twenty-first Century Laboratory (1)

Co-requisite or prerequisite: PHYS 1560. Laboratory experiments designed to complement Physics 1560 lecture material and promote utilization of the techniques of scientific inquiry. Students will write reports. Together with PHYS 1560, satisfies GE Block B1. **GE B1**

B2 BIOLOGICAL

ANTH 2600 - Biological Anthropology (3)

Evolution of the human species and our place in nature, emphasizing evolutionary theory, genetics, primate behavior and the fossil record. Lecture: 2 Units, Laboratory: 1 Unit. **GE B2**

BIOL 1010 - General Biology (3)

Introductory biology for non-majors with an emphasis on the process of science and principles common to all domains of life; topics include metabolism, inheritance, evolution, organismal structure and function. Lecture 2 hours, laboratory 3 hours. *No credit toward Biology major or minor.* **GE B2**

MICR 1010 - Introduction to Microbiology (3)

Introductory course in microbiology designed for non-majors; content addresses the impact of microorganism on the human experience and the biosphere; laboratory application of selected procedures. No credit if taken after any other college microbiology course. Lecture 2 hours, laboratory 3 hours. 100% online availability for some lecture sections. **GE B2**

B3 INTERDISCIPLINARY PHYSICAL/BIOLOGICAL

NSS 1100 - Astrobiology- Physical and Chemical Requirements of Extraterrestrial Life, Astrobiology (3)

Prerequisites: completion of A2 (Written Communication) and B4 (Quantitative Reasoning & Mathematical Concepts). The search for life in the universe. Conditions for life, life at the extremes, habitable zones, life in our Solar System and beyond, interstellar travel. Lecture 2 hours, laboratory 3 hours. **GE B3**

NSS 1200 - Water and Life in the Los Angeles Basin (3)

Introductory geology and biology, the interaction of biological and ecological systems with the earth and the water cycle; social dimensions of water use in the LA Basin. Lecture 2 hours, laboratory 2 hours; two one-day field trips**. GE B3**

NSS 1300 – Bioclimatology (3)

This course introduces scientific evidence and theory for global climate change and its impacts on terrestrial biological systems. Lecture, 2 hrs per week; Laboratory, 3 hrs per week. **GE B3**

B4 MATHEMATICS/QUANTITATIVE REASONING

ECON 1090 - Quantitative Reasoning with Statistics (also listed as MATH 1090) (3)

Prerequisite: Score of 50 or more on ELM or MATH 0930 with a minimum C grade within the last year. Principles of quantitative reasoning, data presentation, descriptive statistics, correlation, probability, distributions of random variables, sampling distributions, interval estimation, and statistical inference, with multi-disciplinary applications. Graded ABC/NC. **GE B4**

EDFN 1090 - Introduction to Statistics and Data Interpretation (3)

Co-requisite: EDFN 1091 if supported instruction is required. Introduction to statistics and data analysis and interpretation using quantitative reasoning and mathematical concepts, including descriptive and inferential statistics and analysis methods for understanding basic research data, with real-life applications in the contexts of education and human services. Graded ABCDF. **GE B4**

MATH 1000 - Introduction to College Mathematics (3)

Prerequisites: Score of 50 or more on ELM; or MATH 0930 with minimum C grade. The language of mathematics. Sets and their application. Combinatorics and probability. Descriptive statistics. Financial mathematics. Graded ABC/NC. **GE B4**

MATH 1040 - PreCalculus (6)

Prerequisite: Score of 50 or more on (or exemption from) ELM or MATH 0930 with a minimum C grade or satisfactory score on placement examination. Functions, Exponential and logarithmic functions; polynomials and rational functions; systems of linear equations and matrices; sequences and series; trigonometric functions, identities, and equations; solution of triangles; inverse trigonometric functions; complex numbers, DeMoivre's Theorem; parametric equations; polar coordinates; conic sections. Lecture 5 hours, activity 2 hours. Graded ABC/NC. **GE B4**

CI-D MATH 155: *The University course listed above articulates with any California Community College (CCC) course that is approved by the C-ID program and given the corresponding "C-ID Course" designation listed here. The articulation is one-way articulation, meaning the approved community college course will articulate for the indicated course credit at the four-year university. Articulation does NOT apply from the four-year institution to the community college or between the four-year institutions.*

MATH 1081 - Mathematical Analysis 1 (3)

Prerequisite: Score of 50 or more on (or exemption from) ELM or MATH 0930 with a minimum C grade or satisfactory score on placement examination. Functions, exponential and logarithmic functions; polynomials and rational functions; systems of linear equations and matrices; sequences and series including arithmetic and geometric series. **GE B4**

MATH 1082 – PreCalculus: Functions with Lab (4)

Functions, exponential and logarithmic functions; polynomials and rational functions; systems of linear equations and matrices; sequences and series including arithmetic and geometric series. This course includes a supported instruction component as required for Math Placement Category III or IV. Graded ABC/NC. **GE B4**

MATH 1090 - Quantitative Reasoning with Statistics (Also listed as ECON 1090) (3)

Prerequisite: Score of 50 or more on ELM or MATH 0930 with a minimum C grade, within the last year. Principles of quantitative reasoning, data presentation, descriptive statistics, correlation, probability, distributions of random variables, sampling distributions, interval estimation, and statistical inference, with multi-disciplinary applications. Graded ABC/NC. **GE B4**