Chino Valley Unified School District
High School Course Description

CONTACTS	
1. School/District Information:	**School/District:** Chino Valley Unified School District **Street Address:** 5130 Riverside Dr., Chino, CA 91710 **Phone**: (909) 628-1201 **Web Site:** chino.k12.ca.us
2. Course Contact:	**Teacher Contact:** Chris Horsley **Position/Title:** Teacher **Phone:** (909) 591-3902 **E-mail:** chris_horsley@chino.k12.ca.us
A. COVER PAGE - COURSE ID	
1. Course Title:	Geology
2. Transcript Title/Abbreviation:	GEO
3. Transcript Course Code/Number:	5408
4. Seeking Honors Distinction:	No
5. Subject Area/Category:	(d) lab science
6. Grade level(s):	9-12
7. Unit Value:	5 units per semester / 10 total credits – physical science
8. Was this course previously approved by UC?	Yes
9. Is this course classified as a Career Technical Education course:	No
10. Is this course modeled after an UC-approved course?	Yes
11. Repeatable for credit?	No
12. Date of Board Approval:	July 17, 2014
13. Brief Course Description: The goal of Geology is to provide students with the scientific principles, concepts, and methods required to understand physical and historical geology. Physical geology examines the materials that comprise the Earth and processes that operate beneath and upon its surface. Historical geology deals with the origin of the Earth and its development through time. Major topics include plate tectonics, geologic structures such as faults and folds, properties of minerals and rocks, three major rock types, weathering and soil, mountain building, and geologic time. Additionally, emphasis will be placed on the geology of Southern California and its impacts on society.	
14. Prerequisites:	Algebra 1
15. Context for Course:	
16. History of Course Development:	
16. Textbooks:	Glencoe Earth Science 2007
17. Supplemental Instructional Materials:	
B. COURSE CONTENT	
Course Purpose: This course provides students with a geology laboratory class that fulfills the state graduation requirement for physical science and fulfills an entrance requirement for the UC/CSU level schools. This course creates a platform of general science and specific geologic knowledge including, but not limited to, historical, physical, and chemical geology in addition to dynamic Earth processes. This course supports pathway integration and cross curricular student experiences.	

Course Outline:

Semester 1	**NGSS**
I. Introduction to Geology A. History of geology B. Geologic time C. Origin of the Earth D. The rock cycle	**HS-ESS 1-6**
II. Matter and Minerals A. Rocks versus mineral B. Composition of matter C. Physical properties of minerals D. Mineral groups E. Silicate minerals F. Non-silicate minerals	**HS-ESS 1-6 / ESS 2-1 / ESS 2-5 / PS 1-1 / PS 1-2 / PS 1-3 / PS 2-6 / PS 3-4**
III. Igneous Rocks A. Crystallization of magma B. Igneous textures C. Mineral composition D. Naming igneous rocks	**HS-ESS 1-5 / ESS 2-1 / ESS 2-2 / ESS 2-3 / ESS 2-5 / PS 1-2 / PS 3-4**
IV. Volcanic Activity A. Eruptive materials B. Types of volcanoes C. Types of eruptions	**HS-ESS 1-5 / ESS 2-1 / ESS 2-2 / ESS 2-3 / ESS 2-5 / ESS 2-6**
V. Sedimentary Rocks A. Types of sedimentary rocks B. Sedimentary rock formation C. Classification of sedimentary rocks D. Sedimentary structures E. Fossils	**HS-ESS 2-1 / ESS 2-5 / ESS 2-7**

VI. Weathering and Soils **HS-ESS 2-2 / ESS 2-5 / ESS 2-6**

A. Weathering – mechanical and chemical
B. Soil

VII. Deserts and Winds **HS-ESS 2-4 / ESS 3-1 / ESS 3-5 / LS 2-6**

A. Deserts – distribution, formation
B. Transportation of sediments
C. Wind erosion
D. Wind deposits
E. Evolution of desert landscapes

VIII. Metamorphic Rocks **HS-ESS 1-5 / ESS 2-1 / ESS 2-2 / ESS 2-3 / ESS2-5**

A. Metamorphism
B. Texture and mineralogy
C. Common metamorphic rocks
D. Occurrences of metamorphic rocks

IX. Structural Geology **HS-ESS 1-5 / ESS 2-1 / ESS 2-2 / ESS 2-3**

A. Strike and dip
B. Faults and folds
C. Jointing

Semester 2

I. The Earth's Interior **HS-ESS 1-5 / ESS 1-6 / ESS 2-1 / ESS 2-3**

A. The crust
B. The mantle
C. The core

II. Plate Tectonics **HS-ESS 1-5 / ESS 2-1 / ESS 2-2 / ESS 2-3 / PS 3-3 / PS 3-4**

A. Plate boundaries
   1. Divergent
   2. Convergent
   3. Transform
B. Sea floor spreading
C. Geomagnetic reversals

III. Earthquakes

HS-ESS 1-5 / ESS 2-1 / ESS 2-2 / ESS 2-3 / PS 4-1 / ETS 1-2 / ETS 1-3

A. What is an earthquake?
B. Seismology
C. Locating the source of an earthquake
D. Earthquake belts
E. Earthquake depths
F. Intensity and magnitude
G. Prediction possibilities

IV. Mass Wasting

HS-ESS 2-1 / ESS 2-2 / ESS 2-5 / ESS 3-1 / PS 2-1 / PS 2-2 / PS 2-3 / PS 2-4 / ETS 1-2 / ETS 1-3

A. Type of material
B. Type of motion
C. Rate of movement
D. Slump
E. Rockslide
F. Mudflow
G. Earthflow
H. Creep

V. Mountain building and the evolution of continents

HS-ESS 1-5 / ESS 2-1 / ESS 2-2 / ESS 2-3 / ESS 2-7 / ESS 3-1 / LS 2-6 / LS 4-5

A. Fold mountains
B. Fault block mountains
C. Upwarped mountains
D. Geosyncline concepts
E. Orogenesis
   1. Island arcs
   2. Subduction
   3. Continental collision
F. The origin and evolution of continental crust

VI. Geologic Time

HS-ESS 1-5 / ESS 1-6 / ESS 2-1 / PS 1-8

A. Radiometric dating
B. Relative dating
C. The geologic time chart

VII. Glaciers and Glaciation

HS-ESS 2-1 / ESS 2-2 / ESS 2-4 / ESS 2-5 / ESS 3-1 / ESS 3-4 / ESS 3-5 / ESS 3-6 / LS 4-5

A. Formation of glacial ice
B. Movement of a glacier
C. Glacial erosion
   1. Landforms
D. Glacial deposits
   1. Landforms
E. Types of glaciers
F. The ice ages

VIII. Shoreline

HS-ESS 2-1 / ESS 2-2 / ESS 2-4 / ESS 2-5 / ESS 3-4 / PS 4-1 / ETS 1-2

A. Waves
B. Wave erosion
C. Longshore currents
D. Shoreline features
E. Tides

Key Assignments:

1. Latitude & Longitude Lab
2. Reading topographic maps
3. Creating topographic maps
4. Creating a map profile
5. Rock Cycle Diagram
6. Properties of matter
7. Atomic model lab/project
8. Mineral identification
9. Mineral formation
10. Modeling crystal formation lab
11. Rock classification
12. Rock type identification
13. Effects of erosion
14. Modeling stream velocity and slope lab
15. Stream erosion
16. Soil testing/pH
17. Global Weather & Climate
18. Measuring strike & dip angles of faults
19. Earth's internal structure project
20. Plate Tectonics lab
21. Age of seafloor lab
22. Paleomagnetism lab
23. Epicenter location lab

24. Natural disaster mapping lab
25. Mapping continental growth
26. Geologic time scale calendar (project)
27. Radiometric dating calculations
28. Creation of barrier islands and their morphology over time

Instructional Methods and/or Strategies:

1. Lecture and class discussion
2. Cooperative group work at lab stations
3. Virtual field studies
4. Virtual speakers
5. Technical reading and writing assignments
6. Use of technology and laboratory equipment
7. Written and oral reporting skills

Assessment Including Methods and/or Tools:

1. Classwork
2. Homework
3. Research Projects
4. Laboratory Investigations
5. Quizzes
6. Written Exams