

SYLLABUS

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| Teacher | Astghik Tantoushian |
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| Phone | (818) 784 – 6228 |
| Conference Hours | By Appointment |

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| Course Name | Astronomy |
| Course Number | 918 |
| Grade Level | 8 |
| Textbooks | Astronomy – Science Explorer Prentice Hall |
| Resources | Astronomy – Science Explorer Handouts Astronomy: Crash Course Videos |
| Required Materials | <ul style="list-style-type: none"> - textbook - composition notebook / writing paper - pencils / pens - ruler (if needed) - calculator (if needed) |

Course Description:

This course will provide the student with an introduction to the concepts of modern astronomy, the origin and history of the Universe and the formation of the Earth and the solar system. Students will compare the Earth's properties with those of the other planets and explore how the heavens have influenced human thought and action. The course gives a description of astronomical phenomena using the laws of physics. The course treats many standard topics including planets, stars, the Milky Way and other galaxies, black holes to more esoteric questions concerning the origin of the universe and its evolution and fate. Although largely descriptive, the course will occasionally require some use mathematics.

ESLRs Addressed

| | | | | |
|---------------------------------------------------------------------------------------------------------|----------|----------|----------|----------|
| 1a 1b 1c | 2a 2b 2c | 3a 3b 3c | 4a 4b 4c | 5a 5b 5c |
| Re-enter in the following boxes the designated ESLRs numbers, which are addressed by this course | | | | |
| 1a 1b 1c | 2b | 3a 3b 3c | 4a 4b 4c | 5b 5c |

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Content Standards

The following is the California Department of Education Content Standards of this Course.

I. Describing the Sky and History of Astronomy

- A. Students will demonstrate the ability to describe cycles of nature used in astronomy and their historical background to explain the behavior of celestial objects in the sky
1. Examine astronomical cycles in nature and apply them to daily, monthly, and yearly cycles of Earth, such as day-night (rotation), seasons (revolution), month (moon phase cycle), planet ‘wanderer’ positions, and constellations
 2. Discuss the contributions in development of various astronomical models by the following individuals: Ptolemy, Copernicus, Kepler, Brahe, Galileo, Newton, and Einstein

II. Light and Technology

- A. Students will demonstrate the ability to describe the electromagnetic spectrum, its wave-like properties, and the technology that uses the electromagnetic spectrum to study space
1. Explain the general behavior of wave energy found within electromagnetic radiation
 2. Describe current efforts and technologies used to study the universe, such as optical telescopes, radio telescopes, spectroscopes, satellites, space probes, and manned missions

III. Members of the Sun's Solar System

- A. Students will demonstrate the ability to use Earth's characteristics as a model planet to compare the identity distinguishing features about other members of the solar system
1. Explain the role of natural forces as they apply to the objects in our universe including the formation of planets and satellites and the retention of an atmosphere
 2. Describe and compare Earth's physical properties to the other planets' physical properties including the properties of mass, volume, and density, differentiated structure, dynamic activity (plate tectonics), age, surface features, magnetic fields, and atmospheric activities
 3. Cite general similarities and differences between the terrestrial planets and the Jovian planets, as well as unique features of each, including distance from the Sun, period of rotation and period of revolution, number and characteristics of their satellites, atmospheric gases, and rings
 4. Identify and describe the minor members of the solar system, including asteroids, comets, and meteors

IV. The Sun, Our Star

- A. Students will be able to explain solar activities based on the physical characteristics of the Sun as a model star
 - 1. Discuss the identified layers (core, zone of radiation, zone of convection, chromosphere, photosphere, corona) and the internal mechanisms (thermonuclear reactions, magnetic fields, differential rotation) of a typical star such as our Sun
 - 2. Describe and diagram the surface features of a typical star including granulations, spicules, sunspots, prominences, flares, solar winds, and corona mass ejections
 - 3. Investigate research methods used to analyze a typical star, such as solar neutrino detectors, helioseismology, spectroscopy, and Doppler shift detections of extrasolar planets

V. Stars and Their Life Cycles

- A. Students will demonstrate the ability to summarize the attributes of great variety of stars and determine their positions on the Hertzsprung-Russell diagram
 - 1. Outline the methods astronomers use to find physical properties of stars such as surface temperature, luminosity, chemical composition, size (radius or diameter), mass, interstellar medium, motion, and distance
 - 2. Discuss the stellar evolution of individual stars and describe the location of each on the Hertzsprung-Russell diagram, including protostars, main sequence stars, giant and supergiants, nova and supernova stars, variable stars, white dwarfs, neutron stars / pulsars, and black holes
 - 3. Differentiate various multiple star systems, including binary stars, globular clusters, and open clusters

VI. The Milky Way and Other Galaxies

- A. Students will demonstrate the ability to identify the features of the Milky Way Galaxy and compare them to features of other types of galaxies in the universe
 - 1. Describe the historical perspective and characteristics of the Milky Way Galaxy, including size, shape, rotation, and stellar distribution
 - 2. Sketch the shapes and debate the origin of the Hubble Classification System of Galaxies including elliptical galaxies, spiral galaxies, barred-spiral galaxies, and irregular galaxies

VII. Cosmology

- A. Students will demonstrate the ability to contrast models and determine the best explanations of cosmology using current scientific evidence
 - 1. Discuss the origin of the universe including Steady State, Big Bang, and Oscillating theories
 - 2. Describe various cosmological models, including an open universe and a closed universe
 - 3. Cite evidence in support of an open universe, including Hubble's Law, mass-energy density of the universe, and deuterium abundance

Classroom Rules

This section includes the rules set by the teacher and the consequences of violating these rules.

Test / Quiz / Make Up Work

- Only excused absences will be allowed to make up tests, quizzes, or submit homework
- If the student needs to make up a test/quiz, a make up will be given in the office on the same day the student returns to school
- Upon returning to school after an absence, a student has the responsibility to meet with the teacher to develop a plan for making up missed work and/or examinations.

Important: If you are caught cheating or copying assignments, you and your partner will earn a score of zero and a possible detention.

Classroom Rules

1. Be on time for class and come prepared. Have all your materials ready.
2. No talking while teacher is talking. Raise your hand and wait to be called upon before speaking and do not interrupt others.
3. No eating in class. Only water is permitted.
4. Respect yourself, others and the environment. No writing or scratching on the desks, bulletin boards, walls, etc.
5. Positive remarks or comments only.
6. Carrying or using cell phones is not allowed during school hours.
Cell phones must be turned off and stored in lockers or cars and may be used only after school

Note: School rules are to be followed at ALL times.

If the rules are not followed the following steps will be taken:

1st offence- Written or verbal warning from the teacher

2nd offence- Phone call to parent/guardian

3rd offence- Referral to administrator

***** NOTE: SOME OFFENCES WILL RESULT IN IMMEDIATE REFERRAL TO ADMINISTRATION*****

Assessment Method

This section includes rules set by the school administration

Test/Quiz Policy

Students take at least TWO tests and two quizzes per class or course per semi-quarter. Two to four quizzes may be counted as one test. It is up to the individual teacher to adopt a policy to drop the lowest test grade of a student in calculating the quarter grade. No more than two tests are scheduled on the same day. The test scheduled last will be automatically dropped.

Test/Quiz Make-Up

Students with **excused** absences shall have the opportunity to complete missed class work and make up all tests receiving full credit. The student is responsible to arrange for the make-up.

Students who miss a test/quiz because of an **unexcused** absence will receive a failing grade on that test/quiz, except when the teacher decides to offer the chance for make-up.

If a student misses a test/quiz while on suspension, he/she will not have the opportunity to make up the test/quiz and will receive an "F".

Cheating

Acts of cheating or plagiarism will result in suspension and the student will receive an "F" (20/100) on the test or the assigned work.

This section includes grade percent distribution and additional rules set by the teacher

Tests = 40%

Quizzes = 15%

Homework = 15%

Projects & Labs = 15 %

Participation = 15 %

NOTE: For assigned projects, grades will count as part of Participation.

Ms. Tantoushian's Syllabus Agreement

Students:

By signing below, you have agreed to the 8th Grade Astronomy Syllabus and all of the policies contained within.

Student Printed Name:

Student Signature:

Parents/Guardians:

By signing below, you have read and agreed to the 8th Grade Astronomy Syllabus and all of the policies contained within as they apply to your student.

Parent/Guardian Printed Name(s):

Phone Number(s) Best Reached At:

Email Address:

Parent/Guardian Signature:
