

Spaulding High School 2021-2022 Course Syllabus



Course Title: SCI 1321: Astronomy

Teacher: Pamela Smith

Contact Info: PSmitSHS@buusd.org, (802)476-4811 ext. 2114

Science Department Chair: Samantha Mishkit, ext. 2111, SMishSHS@buusd.org

Course Description: This course explores the size and scale of the universe, electromagnetic radiation, the life cycle of stars, and the evidence supporting the Big Bang theory.

Materials: Students will need to supply and bring to class daily (see me if this is a concern):

- Charged chromebook
- Notebook
- Writing Utensils

Text: This class will have an assigned textbook. Select readings may be used for reference.

Topic Areas: Course Outline:

- Unit 1: The Foundations of Astronomy
- Unit 2: Our Planetary System
- Unit 3: Stellar Evolution
- Unit 4: Big Bang Theory
- Unit 5: The Modern Space Race

Learning Tasks:

- Students are expected to participate/complete all "Learning Tasks" which include: class discussions, online labs/activity, lecture/notes, projects, investigations, practice sheets, and review sessions. All Learning Tasks are NOT assessed, although feedback is routinely provided.
- At the beginning of each week I will post a **Weekly Learning Agenda** to our google classroom. This will contain the week's learning tasks that can be posted to the classroom.

Assessment/Reassessment: Assessments will be used to determine if you met a standard or not.

- ***In order to take an assessment you MUST turn in the Review and any other assignment that is indicated as required before you will be given the assessment. A minimum of 80% of LT's must be completed in order to take the assessment.***
- Once an assessment has been returned, you have the opportunity to reassess for a higher grade. In order to reassess, you will need to make sure **all work** is complete in that chapter/unit. Only then will a reassessment be given.

Progress Reports: Every 3-weeks, you will receive a progress grade (Unsatisfactory, Below, Meeting, or Above). This progress grade is determined based on class work completion and current scores on assessments. If you are not meeting academic expectations (below or unsatisfactory), then you will be required to attend office hours the following day to make a plan (PAS).

Call Back Day:

At the end of the semester during Call Back Day, students who are close to passing will be allowed to make up no more than 2 performance indicators. If students did not consistently complete PAS tasks and meet PAS expectations, then they may be ineligible for Call Back.

Grading Components: Each unit will consist of a reading, vocabulary words, two/three activities/labs through which you will demonstrate content skills, a class discussion which may include a type II write, and an assessment to demonstrate comprehension of skills and content.

Optional Honors Credit:

Honors designation is centered on students striving for greater breadth and complexity into the course material, and demonstrating greater commitment and rigor in doing so. In order to achieve "Honors" status for the course, a student must:

- Complete an additional, advanced assignment for each unit/standard of the course.
- Pass all honors assignments. Each will be graded as pass/fail.
- Complete all honors assignments on the deadline required.
- Be proficient in all performance indicators.
- Turn in all assignments and assessments in a timely manner

Passing the Course: Use the [Course Performance Grading Outline](#) to determine your overall grade for the course.

Students must achieve a "Proficient" or higher in all of the four standards in order to earn "Proficient" in the class, as is spelled out in the SHS Course Performance Outline. To accomplish this a student must earn "Proficient" in the majority of the performance indicators for each standard, with at least "Beginning" in the rest (no "NE"). Additionally, for a score of "Partially Proficient" students must have "Proficient" or better in a majority of standards and at least "Developing" in the rest.

To be eligible for "Exemplary" or "Partially Exemplary" (as well as "Honors") students must have "Proficient" or better in every performance indicator.

Classroom Expectations: The primary expectation in class is to maintain a respectful learning atmosphere. Below are some ideas of what this looks like:

- Speaking and acting respectfully to each other, the teacher, and guests:
 - Appropriate language and interactions
 - Active listening
 - Clear communication about any concerns
 - Appropriate use of electronics
- Respecting the space and the materials used:
 - SAFETY
 - Following directions
 - Keeping everything clean and functional (report any issues right away)
- Respecting the content
 - Keeping an open mind, trying new things
 - Being present - on time and engaged
 - Asking questions to help clarify the material

Labs and Activities:

Since the classroom is a laboratory, students need to be prepared to engage in the activities and uphold appropriate laboratory behavior any time they are in class. Students must sign and follow the Spaulding High School Laboratory Safety Contract. Effective participation in labs is essential to attaining proficiency. A breach in the lab safety contract can result in removal from the activity and potential disciplinary action.

Electronic devices will ONLY be used by teacher discretion. Use of devices could result in it being confiscated and returned at the end of class.

Astronomy Assessed Course Standards

Standard #1: The Foundations of Astronomy

Performance Indicators: Student will be able to explain...

- PI# 1.1: Basics: The vastness of space and how we measure distances
- PI# 1.2: Light: Electromagnetic spectrum and how scientists study the universe.
- PI# 1.3: Earth's rotations and orbits
- PI# 1.4: Kepler and Newton's laws

Standard #2: Our Planetary System

Performance Indicators: Student will be able to explain...

- PI# 2.1: The Solar System: Theory of how it formed
- PI# 2.2: Planetary Properties: Comparative Planetology
- PI# 2.3: Interplanetary Debris: Asteroids, comets, meteoroids and dust
- PI# 2.4: Habitual Planets: Goldilocks Planets

Standard #3: Stellar Evolution

Performance Indicators: Student will be able to explain...

- PI# 3.1: The Sun and Nuclear Fusion
- PI# 3.2: Stellar Evolution: The Life and Death of a Star
- PI# 3.3: Types of Stars
- PI# 3.4: Black Holes

Standard #4: The Big Bang Theory

Performance Indicators: Student will be able to explain...

- PI# 4.1: Cosmology: The Big Bang and the Fate of the Universe
- PI# 4.2: Cosmic Background Radiation
- PI# 4.3: Redshift of Galaxies
- PI# 4.4: Abundance of Elements

Standard #5: The Modern Race to Space

Performance Indicators: Student will be able to explain...

- PI# 5.1: NASA: Projects
- PI# 5.2: Billionaire Race
- PI# 5.3: The Race to Mars
- PI# 5.4: Life in the Universe: Are we Alone??

For your records:

Spaulding High School Science Safety Contract

Science investigations allow students to learn science through discovery. Many investigations utilize equipment and chemicals that must be used safely and responsibly. Science teachers will assure that you have a safe laboratory experience, but you must also do your part. Read the following safety contract. Signing the contract signifies you understand and will follow it. A parent or guardian must also sign so everyone is committed to safe laboratory practices.

1. Follow all written and verbal instructions as directed by the teacher.
2. Never attempt unauthorized experiments. Do laboratory work only when the teacher is present.
3. Keep the work area clear of everything except laboratory materials.
4. Food and drink is not allowed in the laboratory area. Do not chew gum. When using chemicals or preserved specimens, keep hands away from face, eyes, mouth, and body.
5. Students are not permitted in any chemical storage room.
6. Never run in the laboratory. To prevent accidents, be aware of your environment at all times.
7. Your teacher will describe the location of exits and all safety equipment. Know where the closest fire alarm is located.
8. Use equipment (balances, Bunsen burner, etc.) in the correct way, as instructed by the teacher.
9. Properly dispose of broken glassware and other sharp objects in designated areas.
10. Any time chemicals, heat or glassware are used, students, teachers, and visitors will use laboratory goggles. Lab aprons must be used when there is danger of chemical spills or biological contamination.
11. Long hair must be tied back and dangling jewelry and baggy clothing are not appropriate. Shoelaces must be tied and sandals are not allowed.
12. Immediately report any spills, accidents, or injuries to the teacher.
13. If a chemical splashes in your eye(s) or on your skin, flush with water. Inform the teacher immediately.
14. Never touch, taste, or smell chemicals or other substances unless directed to do so.
15. Follow all provided instructions when handling chemicals.
16. Follow all provided instructions when handling glassware, equipment, and when heating substances.
17. Never point the open end of a test tube containing any substance at yourself or others.
18. Dispose of all chemical and biological waste properly. The teacher will tell what materials can be poured down the drain and what materials must be placed in a waste container.
19. Clean all work surfaces and equipment at the end of laboratory work and return all equipment to the proper storage area.
20. Wash your hands with soap and water after performing all investigations and before you leave the laboratory area.
21. If you are unclear or confused about proper safety procedures and/or laboratory instructions, ask the teacher before proceeding.

Additional- SPECIFIC INSTRUCTIONS WILL BE GIVEN PRIOR TO LABORATORY ACTIVITIES.