

Astronomy SCI345
Hempstead High School
Look to the Stars

Instructor: Scott R. McCaw B.S. M.A. Doctoral Candidate

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Email is the best way to contact me; I normally respond within 24 hours during the week.

Semester Course 1 Credit

Open to: juniors and seniors NCAA Approved

Prerequisite: Global Science, Algebra I

Course Description

This course will involve major themes of astronomy. It is intended to provide an elective credit for students going into space studies or having an interest in this topic. Students will engage in labs, models and simulations that enhance the concepts of orbits and celestial bodies.

Alignment to the Iowa Core Curriculum: Understands and applies knowledge of:

planetary motion, solar system, stars and galaxies, constellations, and star/sky gazing.

Two Earth/Environmental Science credits are required for graduation from Dubuque Community School District. Credits earned beyond the requirement are automatically counted as Elective credits.

Standards

NGSS Standards

ESS 1 Earth's Place in the Universe

ESS1A: The Universe and its Stars

ESS1B: Earth and the Solar System

ESS1C: The History of Planet Earth

ESS2A: Earth Materials and Systems

ESS2B: Plate Tectonics and Large-Scale Systems

Assessments

Grading:

Grades are earned not given. It is your responsibility as a student to earn a grade by doing your best work. If you have any questions or problems, please do not hesitate to communicate these with the instructor.

Grades are continually updated on power school. Students may check their grades at any time.

Late work may be accepted under teacher's discretion. Unexcused late work will have a penalty attached (only 60% of the original value). No late work is accepted within two weeks of the end of the semester. Late work may be excused due to legitimate absence but a formal or informal contract will be made for its completion. Late projects are not accepted. Final projects must be given on due date.

Tests & Quizzes: Tests and quizzes will be given every one to two weeks unless a major project is taking class time. I will announce several days in advance when tests and quizzes will be given. (10-60pts)

☑ **Homework:** Homework is a vital part of this class. The purpose of homework is to reinforce course content, provide feedback on student understanding, and to have students apply their knowledge and skills to new problems and situations. Students who consistently complete the homework will do well in the course overall. Most quizzes and tests will be over things that are covered in the reading homework. We will be using a modified version of the Cornell note-taking system for reading notes. Failure to do reading and exercise good study habits will impact grades. (5 pts)

☑ **Labs & Projects:** Labs and projects are designed to help students get a hands-on learning experience. These activities allow students to expand their knowledge and show their creativeness. Each lab or project will have particular requirements. Some of these will be done in group settings. Groups and teams will be assigned and will rotate members. Each member of a group is expected to participate and contribute his/her best work. Missed labs and activities must be made up. There are three required projects including a final presentation. (10-30pts)

Content

This course is designed to serve as a solid foundation for the study of Astrophysics. The role of the student in this course is to develop inquiry and problem solving skills within the context of scientific investigation. Students will explore the relationship between science and everyday life by conducting investigations and formulating and testing their own hypotheses within the scope of the astronomical sciences. The course also provides information about national space priorities.

Within the next several months, you will probe the natural world around you by looking up as you learn about the following topics:

- Foundations and History of Astronomy
- Determining Distances
- Naked Eye astronomy and other useful tools
- The Terrestrial Planets and moons
- The Jovian Planets and moons
- Pluto as planet
- Dwarf Planets and Exoplanets
- Minor members of the Solar system
- The Case for Mars exploration
- Making a Space Station Model
- Star Cycles
- Dark Matter and Energy
- Asteroid Exploration and Mining
- Are we alone in the universe?
- Humans as Aliens on other worlds

Instructional Strategies

The universe is an ever expanding place as is the body of knowledge that is known about the universe. We will be using NASA; ESA; SPACE.com and many other sources to explore what is known. Students will make models 2D and 3D using the new 3D printer as well as simulations of space exploration problems like delayed communication. Most assignments will be individual assignments or partner assignments. The final is a partner project and each group will have a specialized project. We will also utilize the outdoor classroom in order to practically see the constellations, use telescopes and measure the sun.

Resources

Class Materials:

- Science text book (Must bring with you every day to class!)
- 1" 3-ring binder with loose-leaf paper and pockets
- dividers with tabs
- number 2 pencils and a blue/black pen
- Binoculars (optional)

Academic/Behavioral Expectations

"Treat others the way in which you would like to be treated"

- Be respectful of one another, yourself and me. This means listening (not talking) while someone else is speaking. This is a very important rule during instructional time.
- Be appropriate. This means behavior and language. Consequences for inappropriate behavior and language will be determined at that time.
- If you have a question please ask.
- There are certain circumstances for which there are exceptions. Please see me so we can discuss your options if you are having a problem.
- Raise your hand if you want to be heard.

Attendance Policy

1. In accordance with Hempstead High School attendance policy, a student is expected to be in class, and on time. Absences may be excused by a parent/guardian through the attendance office, and tardiness may be excused with a written note from a staff member. See current student handbook for more on this topic.
 2. The student will be considered tardy if he/she enters the classroom and is not seated in his/her assigned seat with needed materials after the bell has rung. Even if the student has left their belongings in the classroom before class begins, but is not present when the bell rings, he/she will be considered tardy.
 3. If you have a planned absence (ex. doctors, dentist or other known appointments), please give me prior notice so you will not get behind in work. For illness, it is your responsibility to ask your group members or the teacher as to what was missed and expected before class on the day of your return. All past assignments are posted in C241. If you are absent for one day and on that day an assignment is due, it is your responsibility to turn in that assignment at the beginning of class the day of your return. Assignments are posted for the week on Monday or the first class day of the week.
 4. If you are absent on a test or quiz day you must make up that test on your own time. Tests and quizzes must be obtained from the instructor and then taken in the math/science LRC. Test formats may vary. Extended absences will be discussed as needed. If you miss any in-class activities/labs, we will need to discuss a time (usually within one or two days of absence) that you will be able to come in and complete the lab before or after school (sometimes, an alternative assignment may be given in place of the lab).
 5. Conduct and Expectations
- Students will be expected to comply with the rules of conduct and policies as defined in the handbook/assignment notebook/classroom. Here are a few important rules for science class.
- Come to class prepared to work every day and be on time.

- Respect all people by following the school rules of conduct and class expectations
- Always follow safety guidelines as specified by the instructor.
- Food/Drink is not allowed in the classroom/lab. Exception: Water in a clear bottle is OK.
- Always clean up after yourself and keep a clean classroom.
- You must have your own signed planner pass to leave/enter the classroom during class.
- Do NOT throw away or recycle materials and notes until the semester exam is completed.
- No hats worn or present in school. Hoods may not be worn in class.
- No electronic devices (Cell phones, pagers, PSP's, Ipods, Nintendo DS's, etc).
- Cell phone texting is not allowed in class. The homework board may be photographed on Monday - other than that I should never see a phone or ipod.
- Bathroom breaks should be taken care of before class starts. Permission may be granted to take a little longer than the bell.
- Water bottles should be filled before class. Clear bottle and Clear water
- Heat/Air in the room can be adjusted by staff only

Note: I expect the best from all my students. Please live within the rules and expectations.

Late work policy

Assignments are expected to be on time. Assignments may be handed in late at the teacher's discretion. A 40% percentage will be deducted off the total grade. Late work will not be accepted within two weeks of a semester exam. This includes make up tests. A late deduction might take the form of a homework that normally would be worth 5 points on time being reduced to 3 late. Tests should not be left for weeks a zero grade will be assigned for test not made up. Test make up is the student's responsibility. Illness does not excuse a student from the responsibility of taking a test when they return to school. Illness does not excuse a student from assigned work.

Make up tests

Tests need to be made up before the next major test occurs. This is normally 1-2 weeks after the original test date. Students may need to make up a test for a variety of reasons. Make up availability will be decided on a case by case basis.

Extra credit policy

Extra credit is available to all students. Notice will be given of these special opportunities. I do not give special extra credit assignments to individual students.

Academic Honesty

Students are expected to complete their own work. There is no tolerance for cheating/plagiarism/dishonesty. Cheating/plagiarism/dishonesty can only hinder your learning; No credit will be given for cheating/plagiarism/dishonesty. This means that any work product copied from source material must contain an academic citation. Phones out during a test will result in a zero grade.

Grading Plan

Grades will be based on total points earned vs. assigned.

Grades are based on the following grading scale:

93.0-100 = A

90.0-92.9 = A-

87.0-89.9 = B+

83.0-86.9 = B

80.0-82.9 = B-

77.0-79.9 = C+

73.0-76.9 = C

70.0-72.9 = C-

67.0-69.9 = D+

63.0-66.9 = D

60.0-62.9 = D-

Less than 60.0 = F

Communication Plan

Email: smccaw@dbqschools.org

Phone: 563 552 5328

Powerschool

The Course**Class Expectations and Student Responsibilities:**

- Follow school policies and rules.
- Complete all assignments
- Be in your seat and ready to work when the bell rings.
- Bring all required materials to class.
- No cell phones; IPODS or distracting electronic devices allowed in Class.
- Listen and follow all directions.
- No food, drink, or candy is allowed – This is a safety issue; Plain Water is acceptable in clear containers.
- Observe all laboratory rules.
- It is your responsibility to get all missed class work after an absence. In the case of a pre-excused absence please notify the teacher one or two days in advance so materials and arrangements can be made. Work is not dismissed because of excused absences only delayed in due date.
- Respect yourself, your peers, your teachers, and your school.

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