



FREEDOM PROJECT ACADEMY

Course Syllabus

Astronomy

Course Description:

Plato once said "Astronomy compels the soul to look upwards and leads us from this world to another." (The Republic). Astronomy as a science deals with the study of the heavens and the realms extending from the Earth's atmosphere to the distant reaches of the universe. It is a natural science as well as one of the oldest sciences. It relates to the fields of physics, chemistry, engineering, geology, mathematics and other technical fields. While we will touch on ideas from all of these realms, none are required prerequisites for this course. Instead, this course is intended to provide a broad overview of the subject of astronomy as well as to provide students with an opportunity to wrestle some with the issues our world often brings up when we consider the complementary nature of the studies of science and faith.

Activities will consist of lectures presenting the latest scientific discoveries, and labs that will require students to make observations about the world around them or to learn about the techniques and methods that astronomers use. This class will use math at a variety of levels, mostly in the laboratory and homework settings. One of my goals is for students to gain some comparative perspective about how we can use what we learn from things on the Earth and our local environment to infer interpretations of places where our measurements or observations are limited. I want students to be able to grasp the difference

between fact and logical deduction or inference so that they can understand both the power and limitation of scientific investigation using the discipline of Astronomy. I also hope to provide students with a sense of wonder about God's amazing creation and character.

Homework problems will have students interacting with the lecture material on a conceptual and mathematical level. Exams will consist of short answer conceptual questions and a few mathematical calculations to evaluate student's understanding of the

material apart from assisted learning. A written and oral year-long project relating science and faith will challenge students to think about their perspective of scientific discovery and how they integrate this with their personal worldviews as well as train students about how to share this information with people of different perspectives that they are likely to encounter throughout their lives.

It is my hope that through this course you will be able to define for yourself how you understand Science in the light of your Faith and that you will be stronger in your relationship with God as a result.

Major Topics of Study:

Astronomy

Text/Required Materials:

*Crossroads of Science and Faith: Astronomy Through a Christian Worldview
Starry Night High School Browser-Based Homeschool Edition*

Grading:

Homework Problems (16 total, 2.25% each/semester) 18%

Lab Work (14 total, ~4% each/semester) 28%

Exams (8 total, 6.5% each/semester) 26%

Science & Faith Project (5/semester, variable %) 26%

Participation (in class discussion/teacher talk/one-on-one, 2%/semester) 2%

NO late work will be accepted. I will drop your lowest homework, and lab score each semester.

Attendance/Participation:

This is a science class and it approaches science using the scientific method, not theology. Science seeks explanation from what can be measured, observed and tested. We explore the thesis “Theism – with its affirmation of a transcendent, powerful and intelligent Creator – provides the best explanation of the key evidences concerning the origin of the universe and life.” This is often referred to as the “God hypothesis.” We contrast this with the atheistic/naturalistic approach that matter is the prime reality and consider how to discuss scientific issues with people who hold to this worldview. We discuss astronomy from BOTH old and young earth frameworks, identifying the strengths and weaknesses of each from a theview of science.

Expectations:

This course is broken into two 18 week sessions. You will cover approximately half the chapters in your textbook each semester. You should plan to spend ~5-7 hours/week on this course (including lecture time, homework, lab work, project and exams) and to complete the Project. The problems & labs are best done after you have seen the majority of the lecture material for a chapter. I have therefore offset the lectures by ~1 week from the homework and lab deadlines. You should work on your Science & Faith Project over the course of the entire semester. I've set up intermittent deadlines to help you to keep on track with this project.