UHC AS 125: The Pluto Saga: How Do You Become a Planet and Stay a Planet?

-- COURSE PERSPECTIVE --
Fall 2010

The goal of this course is to use the recent controversy over Pluto’s status as a planet (or not) to explore the astronomical concepts involved, together with the cultural, political and religious aspects that get linked to such science-and-society issues. The scientific topics involved deal with how solar systems form----our Sun and planets --- as well as planets around other stars. The central topic of the seminar is how to gather and evaluate evidence. We will discuss this by examining the broader scope of how science proceeds in quantitative ways using methods of sampling and observations. The special role that visualization plays in describing Nature is examined. Quantitative skill building, observing opportunities, and museum visits.

Instructor: Professor Michael Mendillo

Required Textbook: Boston University/Barnes & Nobel Bookstore in Kenmore Square.

(1) *The Pluto Files: The Rise and Fall of America’s Favorite Planet*  

(2) *Galileo and the Scientific Revolution*  

(3) *The Solar System, 7th edition*  

Reading Assignments: This is a seminar course, and the expectation is that readings assigned for each topic/meeting (see detailed schedule below) are done prior to our meetings. Student participation is a crucial component of the seminar.
The final semester grade depends upon the following five components:

The higher score of two “hourly exams” ..........................................................20%
Two papers (10% each).......................................................................................20%
Quantitative Project #1 (Survey) .................................................................20%
Quantitative Project #2 (Observing)............................................................20%
Final Exam ........................................................................................................20%

100%

Assignments are due on the dates announced: No make-up exams or time-extensions on assignments will be given. If you forget to bring an assignment to class on its due date, it may be left in my faculty mail box in the Astronomy Department office (CAS 514)

All assignments turned in by 5 PM on the due date are considered “on time.”

Academic Misconduct:
It is my expectation that each student does his or her own work. Joint study groups or team project efforts should not result in students submitting the same/copied report. All cases of suspected misconduct on exams or assignments will result in an official report to the University Honors College for possible disciplinary action. Copies of Boston University’s Academic Conduct Code are available from the University Honors College office.

Components of UHC AS125 Seminar: In addition to exams (see Syllabus),

Paper #1 will deal with an aspect of evidence: What constitutes evidence? How is evidence evaluated? Do scientists and non-scientists have a fundamentally different notion of ‘belief’ versus ‘confidence’ in asserting a finding or opinion?

Paper #2 will deal with visualization in science. What constitutes description? How can “reality” be portrayed? What are the roles and goals of schematics and maps?

Quantitative Project #1 will deal with the formulation of a poll on Pluto’s status. Clarity of goals and how to specify them; statistical analyses of results.

Quantitative Project #2 will require individual observations of the Moons of Jupiter, with data analysis to determine properties of the jovian system.