Announcements

• The Teaching Assistants’ “Office Hours”, during which you should feel free to drop by to chat/get help/discuss anything you want are:

  T.A. Sam Singer
  Office Hours: Tuesdays, 1–3 PM
  Location: Greenwich Mod 3 Double
  email: scs00@hampshire.edu
  phone: x5293

  T.A. Josey Baker
  Office Hours: Mondays, 6–7 PM
  Location: Greenwich 25
  email: jbaker@hampshire.edu
  phone: x5801

  Take advantage of this great resource!

• Note the introduction of assignments on the weekly handout for the next 3 class meetings: Wednesday of this week, the following Monday, and then also for the following Wednesday. The written Wednesday assignments, when given, will be more mathematical/observational in nature, and are to be handed in separately (on Wednesdays) from the weekly assignments that are turned in on Mondays. I give the assignment over a week in advance, so that you may bring questions to the next Monday’s class about them, should they arise.

• Just a note on the optional readings that are recommended each week: If you are having any difficulty understanding the material presented in class, the optional readings can be very useful for you. They are specifically chosen for their coverage of the material discussed in class, as well as their clarity of presentation. They also can be more expansive on certain topics, so you will gain a broader perspective than, perhaps, is achieved through class alone. All recommended books are on reserve at the Library Center.

Assignment for Wednesday, February 18

• There is no specific assignment for this Wednesday; just come to class ready to learn about that most unlikely of revolutionaries, Nicholas Copernicus.

Assignment for Monday, February 23

  What does Plato think about the arts? How do they fare and what attention are they to be given in the Ideal State of The Republic? We get some insight from this excerpt, but the excerpt ends before getting too involved; it just sets the stage. As with Lucretius’ reading, think, again, about what may be left out. The dialog continues beyond the excerpt where the three possible beds are described in more detail: the one of forms, the one of the painter, and the one of the carpenter. Based on what you have read, which one do you think Plato ultimately concludes comes farthest from the true reality of a bed?

  → As for the drawing on the bottom of p. 35, please do not attempt to replicate Newton’s experiment.

• Reader: p. 97 – 100. Abell, from Copernicus and the Heliocentric Hypothesis.
  This is the first of several readings from George Abell’s classic astronomy text, Exploration of the Universe.
It describes what we covered in Wednesday’s class. Pay particular attention to the definitions and concepts illustrated by Figures 2.3 and 2.4, as they will be useful for the homework questions due next Wednesday – be sure to take a crack at them before Monday’s class, and come armed with any questions you may have. And do try to not let the introduction of some mathematics here frighten you: It won’t go beyond high school geometry (which I hope is not too frightening for you!). Note that we need one definition that is not explicitly stated in this reading:
Astronomical Unit (AU): The distance from the Earth to the Sun.

**Reader: pages 3, 4, and 5 of the Introductory Material Course Syllabus.**
As Sam discussed in Monday’s class, to help you pick a Final Project topic from among all of the topics that will be touched on by Inventing Reality, next Monday Doug will provide a brief overview of the subject matter for the rest of the course. Read through the syllabus beforehand, though, so that you can begin to narrow down potential areas of interest, and also be well-informed enough to ask questions about them in class, if needed.

**Optional Reading:** Lindberg, The Beginnings of Western Science, p. 35 - 68. Good coverage of Plato’s and Aristotle’s thinking, including most of the major ideas discussed in class, as well as a few that we didn’t talk about.

**Optional Reading:** Koestler, The Sleepwalkers. Chapters 4 and 5. Wonderful reading about Plato, Aristotle, and wheels within wheels (epicycles). Gives a bit more detail about how epicycles worked than we did in class.

**Weekly Thought Question**

Two contrasting views on beauty, art, and science were presented in class: The first by a poem by Walt Whitman, and the second excerpted from an interview with the physicist Richard Feynman. Here they are again:

---

When I Heard the Learned Astronomer
by Walt Whitman

When I heard the learned astronomer
When the proofs, the figures, were ranged in columns before me,
When I was shown the charts and diagrams, to add, divide, and measure them,
When I sitting heard the astronomer where he lectured with much applause in the lecture-room,
How soon unaccountable I became tired and sick,
Till rising and gliding out I wandered off by myself,
In the mystical moist night-air, and from time to time,
Looked up in perfect silence at the stars.

Excerpt from an Interview with Richard Feynman

I have a friend who’s an artist, and he sometimes takes a view which I don’t agree with. He’ll hold up a flower and say, ”Look how beautiful it is,” and I’ll agree. But then he’ll say, ”I, as an artist, can see how beautiful a flower is. But you, a scientist, take it apart and it becomes a dull thing.” I think he’s kind of nutty.

First of all, the beauty that he sees is available to other people - and to me, too, I believe. Although I might not be quite as refined aesthetically as he is, I can appreciate the beauty of a flower. But at the same time, I see much more in the flower than he sees. I can imagine the cells inside, which also have a beauty. There’s beauty not just at the dimension of one centimeter; there’s also beauty at a smaller dimension.

There are the complicated actions of the cells, and other processes. The fact that the colors
in the flower have evolved in order to attract insects to pollinate it is interesting; that means insects can see colors. That adds a question: does this aesthetic sense we have also exist in lower forms of life? There are all kinds of interesting questions that come from a knowledge of science, which only adds to the excitement and mystery and awe of a flower. It only adds. I don’t understand how it subtracts.

This week’s Thought Question: Do you believe that knowledge of science takes away from the artistic appreciation of beauty?

Assignment for Wednesday, February 25

Please respond to the two following questions; you will turn in your work at the start of next Wednesday’s class (Feb. 25):

1. We ended class last Monday by (hopefully) looking at the constellations and planets in the night sky. Find Saturn again on a clear night (you may find the star chart on page 379 of the Reader useful), and carefully note its position in the sky relative to the sun (it will help to note exactly when the sun sets below the horizon as well). From this observation, *estimate* the present *elongation* of Saturn in degrees, and construct a diagram similar to Figure 2.3(a) on p. 99 of the Reader, in which you indicate Saturn’s approximate current position relative to Earth and the Sun, based on your observations.

2. Answer Problem 8, on Page 110 of the Reader. Remember, 1 Astronomical Unit is *defined* to be the distance from Earth to the sun. *Hint:* Remember the 30-60-90 triangle?

(Where Socrates spent his final hour, Athens, Greece.)