

From Galileo to Newton

The Emergence of Modern Physical Science

Terms 2-3, Deep Springs College, Prof. **Brian Hill**

What We Desire to Cover

- The backbone of our course is pp. 5-489 of **Newton's Principia: The Central Argument, 3rd Edition** by Dana Densmore, with translations and diagrams by William H. Donahue. That is 485 pages of material, but do not be daunted by page-count alone. Newton himself is terse. Only at most one-quarter of the material in Densmore is by Newton. The rest is Densmore's commentary. Assuming most of our 14 weeks together is occupied on this material, we have 35 to 44 pages of reading per week. *However*, there is additional material we must cover.
- Newton presumes an understanding of Galileo's *Two New Sciences* and *Two Chief World Systems*, of Euclid's *Elements*, and of Apollonius' *On Conic Sections*. We will therefore need to budget a minimum of 2 of our 14 weeks to pick up something from those works. To be safe we will try to cover 45 pages per week when we are focused on Densmore. If we cannot maintain that pace, then we will simply not get to some of Newton's brilliant conclusions in Book III of *The Principia*.

Grading

Four major areas:

- Strong preparation for each class: 25%
- Weekly problem sets (except during exam weeks): 30%
- A midterm towards the end of Term 2: 20%
- A final exam towards the end of Term 3: 25%

Miscellaneous Policies

There will be a lot of handouts. Get a three-ring binder to keep all the handouts and problem sets organized. Assignments should be on 8 1/2 x 11 paper (and not torn out from a bound notebook), multi-page assignments should be stapled, and corrections should be erased (if done in pencil) or recopied (if done in pen) so that your work is not covered with scratchouts. Points will be removed from assignment scores when these directions are not followed.

The College's general policies on absences and late work are applicable. There was an email from the Dean on this September 8. The policies below are consistent with that email:

Whereas missed coursework affects both your classmates and professors by lowering the thinking and understanding you bring to a given class, and interrupts the course schedule that has been set up and is adjusted on an ongoing basis by me with substantial consideration. The same is true for absences — whereas a handful of absences might be “normal” at colleges with large lectures or less serious academics, at Deep Springs we expect students to miss *no classes* save for legitimate health issues or emergencies requiring also missing labor and governance obligations.

For a student wishing to submit a course assignment past its required deadline, the student may request an extension on the assignment directly from the professor 48 hours in advance. Within 48 hours of the due date, the student must request an extension directly from the Dean. Exceptions will be granted by the Dean only if the student faces unforeseen and unforeseeable circumstances. A student who misses the deadline will be penalized a number of points that is roughly equivalent to a whole letter grade for each 24-hour period the assignment is late. Assignments cannot be turned in after solutions and graded assignments have been passed back, which generally happens 1-2 classes after they were turned in.