

Draft Syllabus — 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*. *I do not know yet* how much we time will be needed for backtracking into Galileo, Euclid, and Apollonius. Perhaps we can take some of the results from their works on faith rather than devolving deeply into them.

Daily Schedules

Detailed daily schedules (kept retrospectively):

- **Daily Schedule Term 2**

Grading

Four major areas:

- Strong preparation for each class: 20%
- Weekly problem sets (except during exam weeks): 35%
- A midterm towards the end of Term 2: 20%
- A final exam towards the end of Term 3: 25%

Miscellaneous Policies

Like Brian Shulse, the BH Manager, I have found that it is necessary to spell basic hygiene out (maybe for this group it is unnecessary):

- Do your work on 8½" x 11" paper — not other screwball paper.
- Don't use torn out pages from bound notebooks (unless the bound notebook has perforations specifically for making neat 8½" x 11" tearouts).
- Recopy work until it is neat using pen — or erase completely if using pencil — so your work is not covered with scratchouts.
- You will see that in my write-ups, I hold myself to these standards.
- We will accumulate many resources, examples, and problem sets. Get a three-ring binder to keep all of these organized.

The College's general policies on absences and late work are applicable. There should be an email from the Dean on this early in September.