- I think 6 projects is enough per course. This leads to approximately one project every 2.5 weeks.
- Some projects will be more application based than the lecture notes are. I think this offers a very nice juxtaposition with the lecture material. Some will be theoretical (integral).
- The projects are essentially group exercises that are started in class, with the help of the TA. Then, the groups, which should consist of 3 to 4 students, will meet outside of class to finish the project.
- Added benefits:
    1. Learn more material and use what is learned in class.
    2. Some of the harder material should really peak the interest of even the top students.
    3. All students will get a study group out of it, which can be a huge benefit.

Projects completed so far:

1. Chapter 1: functions. Focus is on developing mathematical models of "real world" phenomenon. There is room for more theoretic material for questions related to functions. I also have the beginnings of a project where the students prove $\sqrt{2}$ and $\sqrt{3}$ are irrational. But I'm not sure this is a good idea anymore.
2. Chapter 2: Population growth models. This project shows a few derivations of differential equations, though does not ask the students to *solve* an ODE. However, there is a nice question asking about the long term behavior of the solution to the logistic growth model. This should get some students thinking.
3. Chapter 3: Limits. Focus is on resolving Zeno's paradox and computing a first limit. It's rather theoretical, but I like it. We could also add a proof of the fact that the limit of a sum is the sum of the limits, but that seems disparate now.
4. Chapter 4: Derivatives, Ants on a Rope! We have an ant moving at speed S_a along a rubber rope and the rubber rope expanding at a speed of S_R. Think $S_R \gg S_a$. Will the ant reach the end? Physics question: can we eventually see any galaxy in an expanding universe?
5. Chapter 6: Logarithms (log-log plots and semi-log plots). Log-log for derivatives and and integrals.
6. Chapter 7: The integral: approximating using left hand, right hand, and midpoint sums. Also uses some log-log. This is more math theoretical.