

## Phys. 610 (Xerxes Tata, Fall 2020)

This is a core graduate course and some of what we cover may be a repeat of what you have seen, though perhaps at a slightly different level. The text for the class is Classical Mechanics by Goldstein, Poole and Safko.

I will try to cover much of Chaps. 1-9, and time permitting, also Chaps. 12 and 13. Chap. 13 sets up classical field theory, and as you know, fields are an integral part of much of physics, both classical and quantum. I will do my best to get to it. Chap. 10 is interesting particularly as a connection to quantum mechanics and to optics (common theme is waves) but I doubt we will have time to get to it or to Chap. 11 on Chaos. Chap. 12 shows us how to use perturbation theory in classical mechanics.

HW will be assigned regularly (roughly weekly), and will count for 20-30% of your grade. Also, we will have one mid-term and a final exam (format TBD), each counting for 35-40% of your grade. This weighting assumes that we do not have a big disruption from covid, and that we are able to collect HW on a regular basis. If things change, we may have to weight the HW less. **However, please keep in mind that the HW is essential to your learning, and treat it seriously independently of the weighting for the grade.** You are welcome to discuss the HW among yourselves or with me if you wish – it is part of the learning rather than the grading, after all. However, **please write it up independently.**

The class will prepare you for the quals (I hope) as well as give you a general foundation for your future work in physics.