The course begins with an introduction to the Calculus of Variations, and Hamilton's Principle. Next we go to material covered in the *last* chapter of Landau, the Hamilton-Jacobi formalism that makes clear the intimate connection between classical mechanics and quantum mechanics. (The students are taking quantum simultaneously, so this works well in helping appreciation of classical mechanics, for example how least action is a limit of the sum over paths, and how classical adiabatic invariants are immediately understandable from a quantum perspective.)

The rest of the course follows the sequence of the book, beginning with Keplerian orbits, which we cover in more detail than Landau. (Perhaps his students were already familiar with this material?)

Then on to small oscillations, but including some interesting nonlinear systems, for example parametric resonance, and the ponderomotive force. Landau treats these analytically, using perturbation theory-type approximations. The last part of the course covers rotational motion: free body, tops, nutation, Coriolis, etc.

We have added some material using the direct Newtonian vectorial approach to Newtonian mechanics (as opposed to the Lagrangian formulation),following Milne. In discussing orbits, we derive Hamilton's equation, a very quick route to the Runge-Lenz vector. At the end of the course, we give Milne's elegant analysis of a ball rolling on a tilted rotating plane. The surprising *cycloidal* path can be derived in a few lines from Newton's equations. (It's tough to do this nonholonomic problem using Lagrangian methods.)