Lecture Notes

for

Advanced Analytical Mechanics
553a, b

University of Southern California

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About These Notes

I was a new engineer at Missile Division of North American Aviation when Sputnik was launched in October 1957. My supervisor asked me to give a series of lunchtime lectures on orbital mechanics, since I was familiar with Goldstein’s *Classical Mechanics*.

The University of Southern California had a two-semester graduate course “Advanced Analytical Mechanics” within the Department of Aeronautical Engineering. It so happened that the lecturer scheduled to give the course in September 1959 left unexpectedly. I was asked to step in and ended up giving the course for three hours every Tuesday night for the next 13 years. I started with Goldstein’s *Classical Mechanics* but transitioned into my own notes as time went on. By 1972, I was travelling so much that it was no longer possible to give the course. I never got around to cleaning up the notes for publication.

In the process of giving these lectures I learned far more about dynamics and applied mathematics than I ever learned in school. In that sense it was a labor of love.

Dick Auelmann
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