Analytical Dynamics V1100
Fall 2022

Syllabus

- Newton's laws of motion
- Lagrangian formulation
- The central force problem
- Collisions and scattering
- Oscillations
- The motion of rigid bodies
- The Hamiltonian formalism
- Continuous systems and fields
- Relativistic dynamics

Instructor: Sebastian Franco

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Office hours: via Zoom, on demand. Link: https://ccny.zoom.us/j/92640567510
Also in person, on demand.

Lectures

- Mondays and Wednesdays, 11:15 am to 1:00 pm.
- Classes will be in person, at the **Graduate Center**. Lecture room: 6496.

Books

We Will Primarily Follow

- **"Classical Mechanics" (3rd Edition),** Herbert Goldstein, Charles P. Poole Jr., John L. Safko

Additional Suggestions and Interesting References

- **"Classical Dynamics of Particles and Systems",** Stephen T. Thornton, Jerry B. Marion
- **"Analytical Mechanics",** Louis N. Hand, Janet D. Finch
- **"Analytical Mechanics**", Grant R. Fowles, George L. Cassiday
- **"Mechanics",** L. D. Landau, E.M. Lifshitz
- **"Classical Mechanics",** H. C Corben, P. Stehle
- **"Mathematical Methods of Classical Mechanics"**, V. Arnold

- **"Mathematical Aspects of Classical and Celestial Mechanics"**, V. I. Arnold, V. V. Kozlov and A. I. Neishtadt
- **"A Treatise on Analytical Dynamics of Particles and Rigid Bodies**", E. T. Whittaker

Online Resources

- "Lectures on Classical Dynamics", David Tong, University of Cambridge
  http://www.damtp.cam.ac.uk/user/tong/dynamics.html

- "Classical Mechanics", Lenny Susskind, Stanford University
  His lectures can be found in YouTube, starting from:
  https://www.youtube.com/watch?v=ApUFtLCrU90