

Syllabus-PHYS 3122-Mechanics II

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Physics Dept.

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Office hours: *M, W: 2:50-3:50pm, F: 2:00-3:00pm*

Textbook: “Classical Dynamics” by *Stephen T. Thornton and Jerry B. Marion*. The book has well designed examples and problems and text is carefully prepared. Most of the homework problems will be assigned from the book.

Additional reference textbook “Analytical Mechanics” by *Grant R. Fowles and George L. Cassidy*”

Exams/homework: There will be one hourly test and a final exam. Weekly homework will be assigned and graded.

Final grade = Each exam-40% + HW-20%

The course will cover chapters 7, 8, 9,10, 11, and 12 from Thornton and Marion.

The subjects to be covered are:

- Lagrangian Mechanics
 - o Hamilton’s variational principle
 - o Lagrange’s Equations of Motion for conservative systems
 - o The Hamiltonian Function
- Mechanics of rigid bodies
 - o Moments of inertia
 - o Principal axis-dynamic balancing
 - o Euler’s Equations of motion of a rigid body
- Dynamics of system of particles.
 - o Center of mass
 - o Linear and angular momentum of a system
 - o Reduced mass, collisions
- Dynamics of oscillating systems
 - o Potential energy and equilibrium

- o Oscillations with one degree of freedom
- o Coupled harmonic oscillators
- o Theory of vibrating systems

Disability Services Statement

Students at Seton Hall University who have a physical, medical, learning or psychiatric disability, either temporary or permanent, may be eligible for reasonable accommodations at the University as per the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act. In order to receive such accommodations, students must identify themselves at the Office of Disability Support Services (DSS), provide appropriate documentation and collaborate with the development of an accommodation plan. The DSS phone number is 973-313-6003. For further information, please go to our website at <http://studentaffairs.shu.edu/health/DisabilitySupportServices.html>