

Florida International University

Department of Physics

PHY-4221 Introduction to Classical Mechanics Fall, 2018

Text Book: **Classical Dynamics of Particles and Systems**, Fifth Edition by S. T. Thornton and J. B. Marion

Instructor: Dr. Yifu Zhu (Office: CP231; Lab.: OE126; Tel: 4075; E-mail: yifuzhu@fiu.edu)

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Class Contents: Matrices, vectors, and their mathematical properties; Newtonian mechanics: Newton's laws, momentum conservation and energy conservation, harmonic oscillations in one and two dimensions, damped oscillations, sinusoidal driving forces and resonance phenomena, , gravitation and ocean tides, variational methods and Euler's equations, Hamilton's principle, Lagrangian, generalized coordinates and Lagrange equations of motion, Hamiltonian and canonical equations of motion.

Class Time: 11:00-12:40, Tuesdays and Thursdays, CBC140

Office Hours: 14:00 - 16:00, Tuesdays and Thursdays (For other times, you can contact me and make an appointment)

Class Attendance: Attending class is essential for understanding the course materials, developing problem solving techniques, and up-to-date class announcements. You are responsible for all information and instructions discussed in class whether or not you were present. Be on time.

Home Work: Homework Problems will be assigned in class and due one week after the assignment. There will be three middle-term tests and one final exam (cumulative). The lowest score for one of the three middle-term tests will be dropped.

Grading Policy:

Homework: 10%

2 Middle-Term Tests: 50% **(The lowest score in one of the three middle-term tests will be dropped.)**

1 Final Exam: 40%

Test Dates:

First Middle-Term Test: Sept. 20 (Thursday) 11:00 - 12:40

Second Middle-Term Test: Oct. 25 (Thursday) 11:00 - 12:40

Third Middle-Term Test: Nov. 20 (Tuesday) 11:00 - 12:40

Final Exam: Dec. 6 (Thursday) 9:45 - 11:45

Homework Assignment:

Chapter 1	3,9,15,25,27,28,30,31,33,36,38. Due 9/11
Chapter 2	4,9,11,16,25,29,37,41 Due 10/4
Chapter 3	2,4,7,12,17,22, 28,29 Due 10/25
Chapter 5	
Chapter 6	
Chapter 7	
Chapter 8	
Chapter 9	
Chapter 10	
Chapter 11	
Chapter 12	
Chapter 13	
Chapter 14	