

# PHYS 1303 - sec 0011 SYLLABUS

## Introductory Mechanics

Text: *Fundamentals Of Physics*

by Halliday, Resnick, Walker,  
10th edition

S. Dalley  
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*Course Objectives: Students will be able to:*

- 1) demonstrate basic facility with the methods of scientific inquiry and problem-solving
- 2) explain how the concepts and findings of physics shape our world
- 3) develop quantitative models as related to the course subject matter
- 4) apply symbolic systems of representation
- 5) formulate structured and logical arguments

Date	Class	Pre-class Reading	Quiz 10:30am	Suggested Problems	Class Objectives
Tu 5/31	<b>Introduction; Measurement</b>	<b>1.1 - 1.3</b>	1	1.3, 1.9, 1.12, 1.27	Understand and use dimensions, units, and significant figures
We 6/1	<b>Straight Line Motion I</b>	<b>2.1 - 2.3</b>	2 & 3	2.2, 2.15, 2.18, 2.19	Understand and use displacement, velocity, acceleration in one dimension
Th 6/2	<b>Straight Line Motion II</b>	<b>2.4 - 2.6</b>	4	2.25,2.37,2.44,2.53	Interpret kinematics graphically, apply to constant acceleration examples
Fr 6/3	<b>CHAPT 2 TEST</b>	<b>Introduction to Vectors</b>			Understand vectors conceptually and vector arithmetic
Mo 6/6	<b>Motion in Higher Dimensions I</b>	<b>4.1 - 4.4</b>	6 & 7	4.3, 4.11, 4.22,4.35	Understand and use vector kinematics in two and three dimensions
Tu 6/7	<b>Motion in Higher Dimensions II</b>	<b>4.5 - 4.7</b>	8	4.58, 4.67,4.70,4.76	Apply vector kinematics to uniform circular and relative motion
We 6/8	<b>CHAPT 4 TEST</b>	<b>Introduction to Force</b>			Understand Newton's 3 laws of motion conceptually
Th 6/9	<b>Force and Motion I</b>	<b>5.1-5.3</b>	9 & 10	5.7, 5.20, 5.34, 5.71	Apply Newton's laws to examples with gravity, tension & normal forces
Fr 6/10	<b>Force and Motion II</b>	<b>6.1 - 6.3</b>	11 & 12	6.13,6.36,6.49,6.51	Apply Newton's laws to examples with resistive force and to circular motion
Mo 6/13	<b>CHAP 5 &amp; 6 TEST</b>	<b>Introduction to Energy</b>			Understand the concept of energy
Tu 6/14	<b>Work, Kinetic Energy, Power</b>	<b>7.1 - 7.6</b>	13 & 14	7.11,7.20,7.39,7.46	Apply energy and work to motion in one, two, and three dimensions
We 6/15	<b>Potential and Mechanical Energy</b>	<b>8.1 - 8.3</b>	15 & 16	8.04,8.107,8.9,8.19	Understand potential energy and apply conservation of energy
Th 6/16	<b>CHAP 7 &amp; 8 TEST</b>	<b>Introduction to Momentum</b>			Understand the concept of linear momentum
Fr 6/17	<b>Center of Mass; Linear Momentum</b>	<b>9.1 - 9.5</b>	17 & 18	9.2,9.6,9.9, 9.31,	Understand CoM and impulse, apply to motion of extended objects
Mo 6/20	<b>Conservation of Momentum</b>	<b>9.6 - 9.8</b>	19	9.40, 9.49,9.60, 9.100	Apply conservation of linear momentum to collisions
Tu 6/21	<b>CHAP 9 TEST</b>	<b>Introduction to Rotation</b>			Understand angular displacement, velocity, acceleration about a fixed axis
We 6/22	<b>Rotational Motion</b>	<b>10.1- 10.7</b>	20 & 21	10.13, 10.22,10.41,10.53	Understand and apply Newton's laws to rotational motion
Th 6/23	<b>Rolling &amp; Angular Momentum</b>	<b>11.1 - 11.8</b>	22 & 23	11.11,11.26,11.37,11.54	Understand and apply angular momentum, analyze rolling motion
Fr 6/24	<b>CHAP 10 &amp; 11 TEST</b>	<b>Introduction to Gravitation</b>			Understand the concepts of gravity
Mo 6/27	<b>Gravitation</b>	<b>13.1 - 13.7</b>	25 & 26	13.21,13.8,13.36,13.54	Apply mechanics (Newton's and conservation laws) to variable gravity force
Tu 6/28	<b>Relativity</b>	<b>37</b>			Understand and use Special Relativity of time dilation and length contraction
We 6/29	<b>FINAL EXAM</b>				