**Physics 105 – Colton – Fall 2014 – All Reading Assignments**

*Reading assignment for lecture 1*

- the syllabus (you can download a pdf from the class website or get a printout from the bookstore)
- Chapter 2.1*: displacement
- Chapter 2.2: velocity

*All textbook sections refer to the 8th edition, since that is the edition I myself have. If you have a different edition, you may need to figure out the equivalent sections. (In most cases they'll be the same.)

*Reading assignment for lecture 2*

- Chapter 2.3: Acceleration
- Chapter 2.4: Motion Diagrams
- Chapter 2.5: 1D motion with constant acceleration
- Chapter 2.6: Free falling objects

*Reading assignment for lecture 3*

- Chapter 3.1: Vectors and their properties
- Chapter 3.2: Components of a vector
- Chapter 3.3: Displacement, velocity, acceleration in 2D

*Reading assignment for lecture 4*:

- Chapter 3.4: Motion in 2D (also called "Projectile Motion" in older editions)
- Chapter 3.5: Relative velocity.

*Reading assignment for lecture 5*

- Chapter 4.1: Forces
- Chapter 4.2: Newton’s first law
- Chapter 4.3: Newton’s second law
- Chapter 4.4: Newton’s third law

*Reading assignment for lecture 6*

- Chapter 4.5: Applications of Newton’s laws

*Reading assignment for lecture 7*

- Chapter 4.6: Forces of friction

*Reading assignment for lecture 8*

- Chapter 7.4: Centripetal acceleration. Don't worry about the $at=r\alpha$ equation that's in the text between Eqn 7.17 and Eqn 7.18 (8th edition); we'll talk about that later.
- Chapter 7.5 (first half): Newtonian gravitation (up to where it talks about potential energy)

- Chapter 7.6: Kepler's laws

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division between exam 1 and exam 2

*Reading assignment for lecture 9*

- Chapter 5.1: Work
- Chapter 5.2: Kinetic energy and the work-energy theorem
- Chapter 5.3: Gravitational potential energy

*Reading assignment for lecture 10*

- Chapter 5.4: Spring potential energy
- Chapter 5.5: Systems and energy conservation
- Chapter 5.7: Work done by a varying force
- Chapter 7.5 (second half): Newtonian gravititation (the potential energy parts that we skipped earlier)

*Reading assignment for lecture 11*

- Chapter 5.6: Power
- Chapter 6.1: Momentum and impulse
- Chapter 6.2: Conservation of momentum
- Chapter 6.3 (first half): Collisions (not including the section on elastic collisions)

*Reading assignment for lecture 12*

- Chapter 6.3 (second half): Collisions (the section on elastic collisions that we skipped earlier)
- Chapter 6.4: Glancing collisions.

*Note*: We are skipping Chapter 6.5: Rocket propulsion. You are welcome to read it on your own, though.

*Reading assignment for lecture 13*

- Chapter 7.1: Angular speed and angular acceleration
- Chapter 7.2: Rotational motion under constant angular acceleration
- Chapter 7.3: Relations between angular and linear quantities

*Reading assignment for lecture 14*

- Chapter 8.1: Torque
- Chapter 8.2: Torque and the two conditions for equilibrium
- Chapter 8.4: Examples of objects in equilibrium.

*Note*: We're skipping Chapter 8.3: The Center of Gravity, although you are welcome to read it on your own if you wish.

*Reading assignment for lecture 15*

- Chapter 8.5: Relationship between torque and angular acceleration
- Chapter 8.6: Rotational kinetic energy

*Reading assignment for lecture 16*

- Chapter 8.7: Angular momentum

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division between exam 2 and exam 3

*Reading assignment for lecture 17*

- Chapter 9.1: States of matter
- Chapter 9.3: Density and pressure;
- Chapter 9.4: Variation of pressure with depth
- Chapter 9.5: Pressure measurements
- Chapter 9.6: Buoyant forces and Archimedes' Principle

*Note*: We are skipping Chapter 9.2 section on Deformation of Solids, although you are welcome to read it on your own.

*Reading assignment for lecture 18*

- Chapter 9.7: Fluids in motion
- Chapter 9.8: Other applications of fluid dynamics.

*Note*: We are skipping Chapter 9.9: Surface tension, capillary action, and viscous fluid flow, and Chapter 9.10: Transport phenomena, although you are welcome to read them on your own.

*Reading assignment for lecture 19*

- Chapter 10.1: Temperature and the Zeroeth law of thermodynamics
- Chapter 10.2: Thermometers and temperature scales
- Chapter 10.3: Thermal expansion of solids and liquids

*Reading assignment for lecture 20*

- Chapter 11.1: Heat and internal energy
- Chapter 11.2: Specific heat
- Chapter 11.3: Calorimetry
- Chapter 11.4: Latent heat and phase change
- Chapter 11.5 (first half): Energy transfer (the section on thermal conduction, including home insulation)

*Note*: We are skipping Chapter 11.6: Global warming and greenhouse gases, although you are welcome to read it on your own.

*Reading assignment for lecture 21*

- Chapter 11.5 (second half): Energy transfer (convection and radiation)
- Chapter 10.4: Macroscopic description of an ideal gas
- Chapter 10.5: The kinetic theory of gases

*Reading assignment for lecture 22*

- Chapter 12.1: Work in thermodynamic processes
- Chapter 12.2: The First Law of thermodynamics
- Chapter 12.3 (first half): Thermal processes (in some editions this is included in the First Law section). Only read up through the part on adiabatic processes.

*Reading assignment for lecture 23*

- Chapter 12.3 (second half): Thermal processes, from the adiabatic processes part until the end (in some editions this is included in the First Law section).
- Chapter 12.4: Heat engines and the 2nd Law of Thermodynamics.

*Note*: We're skipping Chapter 12.5: Entropy and Chapter 12.6: Human metabolism, although you're welcome to read them on your own.

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division between exam 3 and final exam

*Reading assignment for lecture 24*

- Chapter 13.1: Hooke's law
- Chapter 13.2: Elastic potential energy
- Chapter 13.3: Comparing simple harmonic motion with uniform circular motion
- Chapter 13.4: Position, velocity, and acceleration as a function of time
- Chapter 13.5: Motion of a pendulum
- Chapter 13.6: Damped oscillations
- Chapter 13.7: Waves
- Chapter 13.8: Frequency, amplitude, and wavelength
- Chapter 13.9: The speed of waves on strings

*Reading assignment for lecture 25*

- Chapter 13.10: Interference of waves
- Chapter 13.11: Reflection of waves
- Chapter 14.1: Producing a sound wave
- Chapter 14.2: Characteristics of sound waves
- Chapter 14.3: The speed of sound
- Chapter 14.4: Energy and intensity of sound waves
- Chapter 14.5: Spherical and plane waves

*Reading assignment for lecture 26*

- Chapter 14.6: The Doppler effect
- Chapter 14.7: Interference of sound waves

- Chapter 14.8: Standing waves

*Note:* Don't worry too much about the "Speed of sound" section. You do need to know the temperature dependence given in Eqn 14-4 (8th edition), but you don't need to know the details about the bulk modulus or Young's modulus; they relate to a previous section in the book that we skipped.

*Reading assignment for lecture 27*

- Chapter 14.9: Forced vibrations and resonance
- Chapter 14.10: Standing waves in air columns
- Chapter 14.11: Beats

*Reading assignment for lecture 28*

- Chapter 14.12: Quality of sound

*Note*: We're skipping Chapter 14.13: The ear, although you are welcome to read through it on your own.