

PHYS 201 College Physics Spring 2014 MWF 12:40-01:30pm (Secs. 501-505), MPHY203

Course Description: Fundamentals of classical mechanics, heat and sound.

Prerequisites: High school algebra and trigonometry or the equivalent.

Learning Outcomes: Upon completion of PHYS 201 a student will understand the basic laws and concepts of physics in the following areas and will be able to apply them in problems relating to physical situations: mechanics, mechanical waves, and thermodynamics.

Instructor: Dr. Ralf Rapp **Web page:** <http://cyclotron.tamu.edu/rapp/phy201.html> **email:** rapp@comp.tamu.edu

Office: MPHY313, CYCL335 **Office Hours:** Mo+Tu+Fr 10-11am (MPHY313) **Office phone:** 845-1411

Text: "College Physics", 9th edition by H.D.Young, with Mastering Physics; Webassign Access

Optional: Student Solutions Manual, Student Study Guide

Grading: 4 exams 56%; Final (comprehensive) 20%; Lab 8%; Recitation 6%; Homework (Mastering Phys) 10%
You must achieve 80% or better in the laboratory in order to pass the course.

If your grade on the Final Exam is higher than your lowest grade on one of the four exams during the semester (not a missed one), that lowest grade will be replaced by its average with the Final in computing the course grade.

Jan.17 is last day for no record drop; Apr.14 is last day to Q-drop; **Final Exam** is Mon, May 05, 10:30am-12:30pm

Syllabus: (MC denotes multiple-choice problems)

| Wk | Date | Topic | Sect. in Text | Homework problems |
|----|---------|--------------------------------|---------------|---|
| 1 | Jan. 13 | Units; Vectors | 1: 1-6 | 1: MC6,9,13 |
| | Jan. 15 | Vector Addition; Components | 1: 7-8 | 1: P2,5,9,44,45,46,49,61,62 |
| | Jan. 17 | Velocity; Acceleration | 2: 1-3 | 2: MC3,12,13; P3,6,17,20 |
| 2 | Jan. 20 | No class (MLK day) | | |
| | Jan. 22 | Constant Acceleration | 2: 4-6 | 2: MC5,10,14,15; P34,35,40,45,46,49 |
| | Jan. 24 | Projectiles | 3: 1-3 | 2: P51,54,57,59,66,69,74,79 |
| 3 | Jan. 27 | Circular Motion; Rel. Velocity | 3: 4-5; 2: 7 | 3: MC1,2,6,8,13; P5,8,11,13 3: 20,22,23,30,38,40,41,52,57,61,62,63 |
| | Jan. 29 | Newton's laws | 4: 1-5 | 4: MC5,15,16; P5,11,20,37,43,49,50 |
| | Jan. 31 | Free-Body Diagrams | 4: 6 | 4: P51,52,54 |
| 4 | Feb. 03 | $F = ma$ Examples | 5: 1-2 | 5: MC3,4,8,13; P3,6,12,16,23,24,29 |
| | Feb. 05 | Friction; Springs | 5: 3-5 | 5: MC12; P33,37,47,48,50, |
| | Feb. 07 | Examples; Review | | 5: P61,66,71,72,76,81,87 |
| 5 | Feb. 10 | Exam 1: Chaps. 1-5 | | |
| | Feb. 12 | Circular Motion | 6: 1-2 | 6: MC1,4,6,15; P5,6,10,14,25,27,33,38 |
| | Feb. 14 | Gravity; Satellite Motion | 6: 3-5 | 6: P45,47,52,54,55 |
| 6 | Feb. 17 | Work; Energy | 7: 1-4 | 7: MC7; P5,6,18,21,24,25 |
| | Feb. 19 | Conservation of Energy | 7: 5-6 | 7: MC5,8,13,14; P30,32,33,45,48,52,54 |
| | Feb. 21 | Non-conservative Forces; Power | 7: 7-8 | 7: P58,59,62,67,81,82,85,87,93,94,100 |
| 7 | Feb. 24 | Momentum; Collisions | 8: 1-4 | 8: MC1,7,8,9,11; P3,12,14,16,17,19,23 8: P25,26,29 |

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| | Feb. 26 | Impulse; Center of Mass | 8: 5-7 | 8: P40,42,60,61,63,65,66,69,80 |
| | Feb. 28 | Examples; Review | | |
| 8 | Mar. 03 | Exam 2: Chaps. 6-8 | | |
| | Mar. 05 | Rotational Kinematics | 9: 1-3 | 9: MC5,6,14,16; |
| | Mar. 07 | Moments; Moving Axis | 9: 4-5 | 9:P12,19,26,29,33,42,46,49,51,63,64,70 |
| | 03/10-14 | No class (Spring Break) | | |
| 9 | Mar. 17 | Torque; Rotational Dynamics | 10: 1-2 | 10: MC2,5,6; P2,3,9,11,17,30 |
| | Mar. 19 | Work; Angular Momentum | 10: 3-5 | 10: MC8,10; P19,28,30,31,34,40,42,43 |
| | Mar. 21 | Rotational Statics | 10: 6 | 10: P47,50,60,62,63,70,73,75 |
| 10 | Mar. 24 | Simple Harmonic Motion | 11: 1-3 | 11: P1,7,26,28,31,32 |
| | Mar. 26 | SHM; Pendulums | 11: 4-5 | 11: MC1,7,15; P39,45,46,57,60,61,62 |
| | Mar. 28 | Examples; Review | | |
| 11 | Mar. 31 | Exam 3: Chaps. 9-11 | | |
| | Apr. 02 | Waves | 12: 1--4 | 12: MC3,4,5,6,7,9,11; P4,7,11,13,16 |
| | Apr. 04 | Standing Waves | 12: 5--7 | 12: P18,19,26,33,35,42,43,50,53,54,60 |
| 12 | Apr. 07 | Interference; Sound | 12: 8--12 | |
| | Apr. 09 | Expansion; Heat | 14: 1--6 | 14: MC4,5,10,13; P5,15,16,24,27,32,44 |
| | Apr. 11 | Heat Transfer; Ideal Gas | 14: 7; 15: 1--2 | 14: P49,53,56,64,73,74,82 |
| 13 | Apr. 14 | Kinetic Theory; 1 st Law | 15: 3--7 | 15: MC4,6,7,9,10,13;P7,12,14,23,26,35 15:P39,43,45,52,55,56,64,73,76,80,81,83 |
| | Apr. 16 | Heat Engines; 2 nd law | 16: 1-5 | 16: MC2,6,11,15 |
| | Apr. 18 | No class (Reading Day) | | |
| 14 | Apr. 21 | Carnot Cycle; Entropy | 16: 6-8 | 16: P4,9,17,19,21,24,27,31,40,42,48,50 |
| | Apr. 23 | Examples; Review | | |
| | Apr. 25 | Exam 4: Chaps. 12, 14-16 | | |
| 15 | Apr. 28 | Fluid Statics | 13: 1-3 | 13: MC1,3,4,5,6,11 |
| | Apr. 29 | Examples; Review | | 13: P2,19,29,32,33,35,61,66,67,68 |

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Academic Integrity Statement: “An Aggie does not lie, cheat, or steal or tolerate those who do.”

The Honor Council Rules and Procedures may be found on the web at <http://www.tamu.edu/aggiehonor>.

For further important information, please consult the above class homepage.