Haverford College - Physics Department
Physics 101a: Classical and Modern Physics I
Regular Section (F. Crawford)
Fall 2005 Course Schedule/Syllabus

Lecture Schedule

Day	Date	Lecture Topics	Hecht Reading
M	Aug 29	Introduction; Length, Mass and Weight	*none*
W	Aug 31	Units; Graphs; Derivatives and Integrals	1.1 - 1.9, Appdx. F
F	Sep 2	Vector Calculus, Dot and Cross Product; Speed	2.1 - 2.4
M	Sep 5	Velocity; Vector Addition; Inertial Frames	2.5 - 2.9
W	Sep 7	Acceleration; Free Fall	3.1 - 3.7
F	Sep 9	Free Fall; Projectiles	3.8 - 3.10
M	Sep 12	Inertia; Momentum; Newton's Laws	4.1 - 4.4
W	Sep 14	Free Body Diagrams; Weight	4.5, 4.6
F	Sep 16	Inclined Planes; Coupled Motions	4.6, 4.7
M	Sep 19	Friction; Translational Equilibrium	4.8, 4.9
W	Sep 21	Centripetal Acceleration; Circular Motion	5.1, 5.2
F	Sep 23	Law of Gravity; Gravity of Sphere; Terrestrial Gravity	5.3, 5.4
M	Sep 26	Kepler's Laws; Orbits	5.5, 5.6
W	Sep 28	**Midterm Exam #1 - in class**	*none*
F	Sep 30	Gravitational Fields	5.7, 5.8
M	Oct 3	Work; Conservative Forces	6.1
W	Oct 5	Kinetic and Potential Energy; Conservation of Energy	6.2 - 6.4
F	Oct 7	Escape Velocity; Power	6.5, 6.6
M	Oct 10	*Fall Break - no class*	*none*
W	Oct 12	*Fall Break - no class*	*none*
F	Oct 14	*Fall Break - no class*	*none*
M	Oct 17	Momentum; Impulse; Conservation of Momentum	7.1 - 7.4
W	Oct 19	Elastic and Inelastic Collisions	7.5
F	Oct 21	Two-dimensional Collisions	7.5
M	Oct 24	Rotational Displacement, Velocity, and Acceleration; Torque	8.1 - 8.5
W	Oct 26	Center of Gravity and Mass; Moment of Inertia	8.6 - 8.8
F	Oct 28	Rotational Kinetic Energy; Angular Momentum	8.9 - 8.11
M	Oct 31	Mass Density; Hydrostatic Pressure; Atmospheric and Gauge Pressure	9.1 - 9.4
W	Nov 2	Buoyant Force; Continuity Equation	9.5 - 9.8
F	Nov 4	Bernoulli's Equation; Viscous Flow	9.9, 9.10
M	Nov 7	Thermal Expansion; Ideal Gas Law	12.1 - 12.5
W	Nov 9	**Midterm Exam #2 - in class**	*none*
F	Nov 11	Phase Diagrams; Kinetic Theory	12.6, 12.7
M	Nov 14	Heat and Temperature; Specific Heat	13.1 - 13.4
W	Nov 16	Changes of State; Radiation, Convection, and Conduction	13.5 - 13.10
F	Nov 18	Thermodynamic Work; Heat and Internal Energy	14.1 - 14.2
M	Nov 21	Isothermal and Adiabatic Changes	14.3, 14.4
W	Nov 23	Carnot Engine; Efficiency	14.5, 14.6
F	Nov 25	*Thanksgiving Holiday - no class*	*none*
M	Nov 28	Entropy; Microstates and Macrostates	14.7
W	Nov 30	Relativity Postulates; Simultaneity	26.1 - 26.3
F	Dec 2	Time Dilation; Length Contraction; Twin Effect	26.4 - 26.7
M	Dec 5	Relativistic Velocity Addition; Relativistic Momentum	26.8, 26.9
W	Dec 7	Relativistic Energy	26.10
F	Dec 9	Review - *all course work due today*	*none*

The **Final Exam** is a self-scheduled exam to be taken during final exam week (Mon Dec 12 to Fri Dec 16).