

Haverford College - Physics Department  
 Physics 101a: Classical and Modern Physics I  
 Regular Section (F. Crawford)  
 Fall 2004 Course Schedule/Syllabus

---

Lecture Schedule

Day	Date	Lecture Topics	Hecht Reading
M	Aug 30	Introduction; Length, Mass and Weight	<i>none</i>
W	Sep 1	Units; Graphs; Derivatives and Integrals	1.1 - 1.9, Appdx. F
F	Sep 3	Vector Calculus, Dot and Cross Product; Speed	2.1 - 2.4
M	Sep 6	Velocity; Vector Addition; Inertial Frames	2.5 - 2.9
W	Sep 8	Acceleration; Free Fall	3.1 - 3.7
F	Sep 10	Free Fall; Projectiles	3.8 - 3.10
M	Sep 13	Inertia; Momentum; Newton's Laws	4.1 - 4.4
W	Sep 15	Free Body Diagrams; Weight	4.5, 4.6
F	Sep 17	Inclined Planes; Coupled Motions	4.6, 4.7
M	Sep 20	Friction; Translational Equilibrium	4.8, 4.9
W	Sep 22	Centripetal Acceleration; Circular Motion	5.1, 5.2
F	Sep 24	Law of Gravity; Gravity of Sphere; Terrestrial Gravity	5.3, 5.4
M	Sep 27	Kepler's Laws; Orbits	5.5, 5.6
W	Sep 29	<b>Midterm Exam #1 - in class</b>	<i>none</i>
F	Oct 1	Gravitational Fields	5.7, 5.8
M	Oct 4	Work; Conservative Forces	6.1
W	Oct 6	Kinetic and Potential Energy; Conservation of Energy	6.2 - 6.4
F	Oct 8	Escape Velocity; Power	6.5, 6.6
M	Oct 11	<i>Fall Break - no class</i>	<i>none</i>
W	Oct 13	<i>Fall Break - no class</i>	<i>none</i>
F	Oct 15	<i>Fall Break - no class</i>	<i>none</i>
M	Oct 18	Momentum; Impulse; Conservation of Momentum	7.1 - 7.4
W	Oct 20	Elastic and Inelastic Collisions	7.5
F	Oct 22	Two-dimensional Collisions	7.5
M	Oct 25	Rotational Displacement, Velocity, and Acceleration; Torque	8.1 - 8.5
W	Oct 27	Center of Gravity and Mass; Moment of Inertia	8.6 - 8.8
F	Oct 29	Rotational Kinetic Energy; Angular Momentum	8.9 - 8.11
M	Nov 1	Mass Density; Hydrostatic Pressure; Atmospheric and Gauge Pressure	9.1 - 9.4
W	Nov 3	Buoyant Force; Continuity Equation	9.5 - 9.8
F	Nov 5	Bernoulli's Equation; Viscous Flow	9.9, 9.10
M	Nov 8	Thermal Expansion; Ideal Gas Law	12.1 - 12.5
W	Nov 10	<b>Midterm Exam #2 - in class</b>	<i>none</i>
F	Nov 12	Phase Diagrams; Kinetic Theory	12.6, 12.7
M	Nov 15	Heat and Temperature; Specific Heat	13.1 - 13.4
W	Nov 17	Changes of State; Radiation, Convection, and Conduction	13.5 - 13.10
F	Nov 19	Thermodynamic Work; Heat and Internal Energy	14.1 - 14.2
M	Nov 22	Isothermal and Adiabatic Changes	14.3, 14.4
W	Nov 24	Carnot Engine; Efficiency	14.5, 14.6
F	Nov 26	<i>Thanksgiving Holiday - no class</i>	<i>none</i>
M	Nov 29	Entropy; Microstates and Macrostates	14.7
W	Dec 1	Relativity Postulates; Simultaneity	26.1 - 26.3
F	Dec 3	Time Dilation; Length Contraction; Twin Effect	26.4 - 26.7
M	Dec 6	Relativistic Velocity Addition; Relativistic Momentum	26.8, 26.9
W	Dec 8	Relativistic Energy	26.10
F	Dec 10	Review - <i>all course work due today</i>	<i>none</i>

---

The **Final Exam** is a self-scheduled exam to be taken during final exam week (Mon Dec 13 to Fri Dec 17).