

PHYS 1410: General Physics
Course Syllabus for Fall 2009, MWF 10:00-10:55 am

Instructor: Dr. Wayne Keith: 793-3874, keith.wayne@mcm.edu
Office Hours: S 110-C: MWF 11-12, WR 2:30-5, F 9-10
Web: <http://www.mcm.edu/~keith.wayne>
Text: *Physics (7th)*, by Cutnell & Johnson
Required: scientific calculator, paper, pen/pencil
Prerequisites: MATH 1311 (College Algebra) and a working knowledge of trigonometry. You should be comfortable with the material of Appendixes C, D, E in the text - especially trigonometry and elementary vector algebra.

Course Description: General Physics is the first part of a quantitative algebra-based science course revealing the workings of our physical environment through the study of mechanics, including different types of motion, oscillations and mechanical waves. The course is suitable for students who are in the fields of natural science or mathematics as well as for those who are following the pre-medical curriculum. This course requires concurrent enrollment in the laboratory.

Course Goals: The objective of the student is to develop the skills necessary to analyze the behavior of physical systems, primarily the classical mechanical systems, based on Newtonian laws of motion and conservation laws and to learn how to solve basic physics problems from different areas of mechanics.

Grading: 10% Daily grades: Class participation, attendance, quizzes and other in-class activities. Four lowest daily grades WILL BE DROPPED.

10% Homework: Assignments will be made in class and posted online. Homework will be due at the beginning of class on the date indicated.

20% Laboratory: See separate lab syllabus for details.

45% exams (15% each): Three in-class exams.

15% Final exam: Comprehensive final.

Attendance/Make up policy: Attendance is required. No make-ups for in-class activities will be given for any reason, since four daily grades will be dropped. Make-up exams will be given for excused absences only at the discretion of the instructor. Contacting the instructor via email or phone prior to missing class for any reason is strongly encouraged, even if it is for a school sponsored event.

Classroom Rules: Students are expected to be present and on time for all class meetings. Excessive absences (more than 3 consecutive) may result in the student being dropped from the course. Ringing cell phones and other disruptions during class may result in a loss of daily grade points or other penalties. Late homework loses 5% per class period.

ADA Policy: If you have a documented disability that may impact your performance in this class and for which you may require accommodations, you must be registered with and provide documentation of your disability to the Disability Services Office, Old Main 102, 793-4880.

Final notes: Class discussion is strongly encouraged; please feel free to ask questions, during class or outside of class, about anything that is not clear. Properly preparing for class by reading the textbook and keeping up with the homework is the most important factor in doing well in this course.

PHYS 1410 Fall 2009 Course Schedule

All dates and topics are tentative and subject to change except **bold** dates.

Week	Date	Lecture #	Tentative Lecture Topic	Associated Lab
1	8/24	1	Intro, Syllabus, Measurements, Units	00-Introductory Lab
	8/26	2	Dimensional Analysis, Estimations, Math	
	8/28	3	Scalars and Vectors	
2	8/31	4	Problem-Solving, Discussion	01-Volume and Uncertainty
	9/2	5	Displacement, Velocity, Acceleration	
	9/4	6	Constant Acceleration	
3	9/7	7	1D Kinematics, Discussion	02-Orienteering: Mission Possible
	9/9	8	Kinematics in Two Dimensions	
	9/11	9	Projectile Motion	
4	9/14	10	2D Kinematics, Discussion	03-Graph and Fit Data with MS Excel
	9/16	11	Rotation: Angular Variables	
	9/18	12	Circular Motion	
5	9/21	13	Kinematics of Rotation, Discussion	04-The Acceleration of Gravity
	9/23		Exam #1	
	9/25	14	Force, Mass, Newton's Laws	
6	9/28	15	The Gravitational Force	Peer Review of Lab 4
	9/30	16	Frictional Force, Tension	
	10/2	17	Applications of Newton's 2d Law	
7	10/5	18	Applications of Newton's 2d Law	05-Friction, Experiment and Theory
	10/7	19	Newton's 2d Law: Circular Motion	
	10/9	20	Newton's 2d Law, Discussion	
8	10/12	21	Work and Energy	06-Springs and Pendulums
	10/14	22	Conservation of Mechanical Energy	
	10/16		No Class – Homecoming	
9	10/19	23	Work and Energy, Discussion	Oral presentations of Lab 6
	10/21	24	Momentum	
	10/23	25	Collisions	
10	10/26	26	Momentum, Discussion	07-Young's Modulus
	10/28		Exam #2	
	10/30	27	Dynamics of Rotation, Statics	
11	11/2	28	Dynamics of Rotation, Dynamics	08-The Ballistic Pendulum
	11/4	29	Rotational Energy and Angular Momentum	
	11/6	30	Dynamics of Rotation, Discussion	
12	11/9	31	Oscillations, Simple Harmonic Motion	09-Energy Experiments
	11/11	32	Examples of Simple Harmonic Motion	
	11/13	33	Simple Harmonic Motion, Discussion	
13	11/16		Exam #3	Review of the lab report drafts for Lab 9
	11/18	34	Hydrostatics	
	11/20	35	Hydrodynamics	
14	11/23	36	Mechanical Waves	NO LAB THIS WEEK
	11/25		No Class – Thanksgiving	
	11/27		No Class – Thanksgiving	
15	11/30	37	Sound	No Labs Makeups possible
	12/2	38	Superposition of Waves	
	12/4	39	Waves, Discussion	
16	12/7		FINAL EXAM (8:00 am – 10:00 am)	NO LAB THIS WEEK
	12/9		No Class – Finals Week	