

**PHYS 1410: General Physics**  
**Course Syllabus for Fall 2015, MW 1:00-2:25 pm**

Instructor: Dr. Wayne Keith: 793-3874, [keith.wayne@mcm.edu](mailto:keith.wayne@mcm.edu)  
Office Hours: S 110-C: TR 8:30-11, W 2:30-5, R 2:30-4, and F 1-2.  
Web: <http://www.mcm.edu/~keith.wayne>  
Text: *Physics (9<sup>th</sup>)*, 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 (Monday or Tuesday section).

**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: 20%** Daily grades: Moodle-based reading quizzes, pre-lab activities and worksheets.  
**15%** Homework: Moodle-based online homework.  
**40%** Laboratory: Written lab reports must be submitted.  
**15%** exams: Five in-class mini-exams.  
**10%** Final exam: Comprehensive final.

**Attendance/Make up policy:** Attendance is required. In-class activities may only be made up for excused absences. 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. Students are responsible for keeping up with the due dates of course material whether or not they are in class.

**Classroom Rules:** Students are expected to be present and on time for all class meetings. Excessive absences (more than 4 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. Tablet PC's may only be open when needed for class activities. Late homework will not be accepted without prior permission from the instructor.

**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, President Hall, 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 Course Schedule

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

Module	Date	Primary Topic	Reading	Assignment
1	8/24	1.1: Intro, Syllabus, Measurements, Units	1.1, 1.2	Worksheet
	8/24-25	<b>Lab 1.2:</b> Volume and Uncertainty	Lab Manual	Worksheet/Report
	8/26	1.3: Units, Dimensional Analysis, Estimations	1.3, 1.4	Reading Quiz
	8/31	Worksheet 1.4: Solving Problems		Worksheet
	8/31-9/1	<b>Lab 1.5:</b> Using MS-Excel	Lab Manual	Worksheet
2	9/2	2.1: 1D Kinematics: disp, vel, acc	1.5, 2.1-2.3	Reading Quiz
	9/7	2.2: 1D Kinematics: constant acceleration	2.4-2.7	Reading Quiz
	9/7-8	<b>Lab 2.3:</b> Acceleration of Gravity	Lab Manual	Worksheet/Report
	9/9	2.4: Peer Review / 1D Kinematics Discussion	2.8	Worksheet
	9/14	Module 2 Exam		Exam
3	9/14-15	3.1: Vectors, Adding Vectors <b>Lab 3.1:</b> Orienteering	1.6-1.9 Lab Manual	Reading Quiz Lab Report
	9/16	3.2: 2d Kinematics / Projectile Motion	3.1-3.3	Reading Quiz
	9/21	Worksheet 3.3: 2D Kinematics	3.4-3.5	Worksheet
	9/21-22	3.4: Kinematics of Rotation / Worksheet 3.4	5.1-5.2, 8.1-8.5	RQ/WS
	9/23	Module 3 Exam		Exam
4	9/28	4.1: Newton's Laws	4.1-4.5	Reading Quiz
	9/28-9/29	4.2: Newton's 2 <sup>nd</sup> Law, Forces	4.6-4.10	Reading Quiz
	9/30	4.3: Newton's 2 <sup>nd</sup> Law, Applications	4.11-4.12	Reading Quiz
	10/5	Worksheet 4.4: Newton's 2 <sup>nd</sup> Law	4.13	Worksheet
	10/5-6	<b>Lab 4.5:</b> Friction	Lab Manual	Lab Report
	10/7	4.6: Newton's 2 <sup>nd</sup> Law: Circular Motion	5.3-5.7	Reading Quiz
	10/12	Worksheet 4.7: Centripetal Force		Worksheet
	10/12-13	Module 4 Exam		Exam
5	10/14	5.1: Work and Energy	6.1-6.4, 6.9, 10.3	Reading Quiz
	10/19	5.2: Conservation of Energy	6.5-6.8	Reading Quiz
	10/19-20	<b>Lab 5.3:</b> Energy Experiments	Lab Manual	Worksheet
	10/21	Worksheet 5.4: Work and Energy	6.10	Worksheet
6	10/26	6.1: Conservation of Linear Momentum	7.1-7.2, 7.5	Reading Quiz
	10/26-27	6.2: Collisions <b>Lab 6.2:</b> Ballistic Pendulum	7.3-7.4 Lab Manual	Reading Quiz Lab Report
	10/28	Worksheet 6.3: Momentum/Collisions		Worksheet
7	11/2	7.1: Torque / Statics	9.1-9.3	Reading Quiz
	11/2-3	<b>Lab 7.2:</b> Pendulums and Springs	Lab Manual	Lab Report
	11/4	7.3: Rotational Dynamics	9.4	Reading Quiz
	11/9	7.4 Rotational Energy and Angular Momentum	9.5-9.6	Reading Quiz
	11/9-10	Worksheet 7.5: Dynamics of Rotation		Worksheet
	11/11	<b>Lab 7.6</b> Oral Presentations	Lab Manual	Oral Presentation
	11/16	Module 7 Exam		Exam
8	11/16-17	8.1: Elasticity <b>Lab 8.1:</b> Young's Modulus	10.7-10.8 Lab Manual	Reading Quiz Lab Report
	11/18	8.2: Oscillations	10.1-10.4	Reading Quiz
	11/23	8.3: Damped Oscillations / Worksheet	10.5-10.6, 10.9	RQ/WS
	<b>11/23-24</b>	<b>No Lab This Week</b>		
	<b>11/25</b>	<b>No Class – Thanksgiving</b>		
	11/30	8.4: Hydrostatics	11.1-11.6	Reading Quiz
	11/30-1	8.5: Hydrodynamics / Worksheet	11.7-11.10	RQ/WS
	12/2	8.6: Final Review Worksheet	11.12, 16.12	Worksheet
	<b>12/9</b>	<b>FINAL EXAM (1:00 pm – 3:00 pm)</b>		