

**PHYS 1420: General Physics II**  
**Course Syllabus for Spring 2008, MWF 9:00-9:55 am**

Instructor: Dr. Wayne Keith: 793-3874, [keith.wayne@mcm.edu](mailto:keith.wayne@mcm.edu)  
Office Hours: S 110-C: MWF 10-11:30, TR 2:30-5:30  
Web: <http://www.mcm.edu/~keith.wayne>  
Text: *Physics (7<sup>th</sup>)*, by Cutnell & Johnson  
Required: scientific calculator, paper, pen/pencil  
Prerequisites: PHYS 1410 – General Physics I

**Course Description:** General Physics II is the second part of a quantitative algebra-based science course revealing the workings of our physical environment through the study of thermodynamics, electromagnetism, and optics. 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 related to heat flow, electric and magnetic fields, and light, and to learn how to solve basic physics problems from different areas of thermophysics and electromagnetism.

**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 10% per week.

**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 1420 Spring 2008 Course Schedule

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

Week	Date	Lec.	Tentative Lecture Topic	Reading	Associated Lab
1	1/14	1	Intro, Syllabus, Review of PHYS 1410		<b>NO LAB THIS WEEK</b>
	1/16	2	Temperature	12.1-12.5	
	1/18	3	Heat	12.6-12.9	
2	1/21	4	Temp and Heat, Discussion	12.11	01-Speed of Sound
	1/23	5	Transfer of Heat	13.1-13.4	
	1/25	6	Ideal Gas	14.1-14.3	
3	1/28	7	Ideal Gas and Xfer, Discussion	13.5, 14.5	02-Thermal Expansion
	1/30	8	First Law of Thermodynamics	15.1-15.6	
	2/1	9	Second Law of Thermodynamics	15.7-15.11	
4	2/4	10	Thermodynamics, Discussion	15.13	03-Temperature and the Law of Cooling
	<b>2/6</b>		<b>Exam #1</b>	<b>Ch. 12 – 15</b>	
	2/8	11	Charge and Electrostatic Force	18.1-18.5	
5	2/11	12	Electric Field	18.6-18.9	04-Specific Heat and Latent Heat
	2/13	13	Electrostatics, Discussion	18.11	
	2/15	14	Electric Potential	19.1-19.3	
6	<b>2/18</b>		<b>Presidents Day – NO CLASS</b>		<b>NO LAB THIS WEEK</b>
	2/20	15	Capacitors	19.4-19.5	
	2/22	16	Electric Potential, Discussion	19.7	
7	2/25	17	Electric Current	20.1-20.4	Oral presentations of Lab 4
	2/27	18	Series and Parallel Wiring	20.6, 20.7, 20.9	
	2/29	19	Kirchoff's Rules	20.8, 20.10-20.11	
8	3/3	20	RC Circuits	20.12-20.13	05-Electrostatic Potential and Electrostatic Field
	3/5	21	Electric Circuits, Discussion	20.15	
	<b>3/7</b>		<b>Exam #2</b>	<b>Ch. 18 – 20</b>	
9	3/10	22	Magnetic Field	21.1-21.4	06-Ohm's Law of Resistance to Current
	3/12	23	Magnetic Fields and Electric Currents	21.5-21.6	
	3/14	24	Magnetic Fields and Electric Currents	21.7-21.9	
10	<b>3/17</b>		<b>Spring Break</b>		<b>NO LAB THIS WEEK</b>
	<b>3/19</b>		<b>Spring Break</b>		
	<b>3/21</b>		<b>Spring Break</b>		
11	<b>3/24</b>		<b>Easter Monday</b>		<b>NO LAB THIS WEEK</b>
	3/26	25	Magnetic Field, Discussion	21.10	
	3/28	26	Electromagnetic Induction	22.1-22.5	
12	3/31	27	Applications of EM Induction	22.7-22.9	07-Capacitors
	4/2	28	RLC Circuits	23.1-23.5	
	4/4	29	EM Induction, Discussion	22.10, 23.6	
13	<b>4/7</b>		<b>Exam #3</b>	<b>Ch. 21 – 23</b>	08-Magnetic Field of the Earth, Tangent Galvanometer
	4/9	30	Electromagnetic Waves	24.1-24.4, 24.6	
	4/11	31	Reflection	25.1-25.3	
14	4/14	32	Mirrors	25.4-25.6	09-Index of Refraction
	4/16	33	Refraction	26.1-26.5	
	4/18	34	Lenses	26.6-26.8	
15	4/21	35	Lenses in Combination	26.9-26.13	10-Simple Lenses
	4/23	36	Geometrical Optics, Discussion	25.7, 26.15	
	4/25	37	Interference	27.1-27.4	
16	4/28	38	Diffraction	27.5-27.7, 27.9	11-Wavelength of Light
	4/30	39	Quantum Physics	29.1-29.6	
	5/2	40	Physical Optics, Discussion	27.10, 29.7	
17	<b>5/5</b>		<b>No Class – Finals Week</b>		<b>NO LAB THIS WEEK</b>
	<b>5/7</b>		<b>FINAL EXAM (10:30 – 12:30)</b>	<b>Ch. 24 – 27, 29 +</b>	