

Phys102-Syllabus

PHYS102 – The Physical World 2, Fall 2011
Class: Tu/Th,1:05-2:20 p.m. in CW 102

Textbook: *The Physical Universe*, Krauskopf and Beiser 14th edition (13th will work but check HW assignment)

Instructor: Professor Mick O’Shea
Office: CW 331, mjoshea@phys.ksu.edu

Website: Go to KState Online- for lecture outlines, syllabus, schedule, HW solutions, exams. Note that the lecture outlines are not a substitute for coming to lecture.

Office hours: Tues, 11:00 a.m. – 12:00 noon
Thurs, 8:30 – 9:20 a.m.
Week of exams ONLY: Thurs 11:00 a.m. – 12:00 noon

Introduction: This course will examine the natural world using the physical concepts you have already learned in PWorld 1. We will discuss modern physics, chemistry, earth science, and astronomy. We will describe how the natural world works, and examine why we think that explanation is correct.

Grading:

Exam 1	100 pts	drop 1
Exam 2	100 pts	
Exam 3	100 pts	
Final Exam	200 pts	
Homework (HW)	200 pts	
Total possible	600 pts	

Grade	Total points
A	540- 600
B	480-539
C	420-479
D	360-419
F	0 – 359

Exams: Exams will be based on homework, in-class questions, lectures, and text book readings. One of the three in-class exams will be dropped. You must take the final exam.

Homework and Readings:

- 1) I strongly recommend that you read the sections in the text to be covered in advance of the lecture. You will not understand all the detail in the reading, but you will be better prepared to gain insight into, and understanding of, the material when it is discussed in lecture.
- 2) You must review the material of each Chapter by answering the multiple choice exercises at the end of the chapter before doing the HW.
- 3) Each HW is worth 16 points. Do all the HW but only turn in the **boldface questions (see over) for grading**. It

- is extremely rare that the answer to a question will be a single word. Generally I am looking for answers that are concise and are 1 – 3 sentences with a calculation if necessary. If you give a number in your answer it will nearly always need a unit with it.
- 4) All homework is due at the beginning of class on Tuesdays (exception: HW13 is due on a Thursday).
 - 5) Plagiarism violates the honor code and will result in academic penalties (see statement on Academic Honesty below). An example of plagiarism is copying homework.

Statement Regarding Academic Honesty Kansas State University has an Honor System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one's work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor System. The policies and procedures of the Honor System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. The honor system website can be reached via the following URL: www.ksu.edu/honor. A component vital to the Honor System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: "On my honor, as a student, I have neither given nor received unauthorized aid on this academic work." A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

Statements for Academic Accommodations for Students with Disabilities

"Any student with a disability who needs a classroom accommodation, access to technology or other academic assistance in this course should contact Disability Support Services (dss@k-state.edu) and/or the instructor. DSS serves students with a wide range of disabilities including, but not limited to, physical disabilities, sensory impairments, learning disabilities, attention deficit disorder, depression, and anxiety."

Statement Defining Expectations for Classroom Conduct All student activities in the University, including this course, are governed by the Student Judicial Conduct Code as outlined in the Student Governing Association Bylaws, Article VI, Section 3, number 2. Students who engage in behavior that disrupts the learning environment may be asked to leave the class.

Statement for Copyright Notification Copyright 2011 (Michael J. O’Shea) as to this syllabus and all lectures. During this course students are prohibited from selling notes to or being paid for taking notes by any person or commercial firm without the express written permission of the professor teaching this course

2 - Study guide, Exam and Homework Schedule

The Physical World 2 – PHYS 102 Fall 2011

Date	HW	Chapter/sections (read before class)	Homework: do all questions below but turn in boldface questions for grading.
Aug 23 (Tu)		1.1-1.2, powers of ten, 8.1	
Aug 25 (Th)	HW1 (8 pts)	8.2-8	A survey to be turned in – see website
Aug 30 (Tu)	HW2 (16 pts)	8.9 –13	<u>8</u> - 2, 4, 9, 11, 12, 15, 16, 17, 24
Sept 1 (Th)		8.14-15; 9.1- 4	
Sept 6 (Tu)	HW3 (16 pts)	9.5 – 8	<u>8</u> – 27, 41, 44 , 45, 46, 51 , 55; <u>9</u> – 2, 6, 11
Sept 8 (Th)		9.9 – 12	
Sept 13 (Tu)	HW4 (16 pts)	9.13 – 14, Review	<u>9</u> – 12, 18 , 35, 37, 38, 42, 44, 48 , 51
Sept 15 (Th)		Exam 1: Chaps 1, 8, 9	
Sept 20 (Tu)		10.1 – 10.8	No HW due
Sept 22 (Th)		10.9 –10.17	
Sept 27 (Tu)	HW5 (16 pts)	11.1-11.7	<u>10</u> –7, 9, 15 , 17, 23 , 24, 26, 38 , 41, 50
Sept 29 (Th)		11.8-11.13	
Oct 4 (Tu)	HW6 (16 pts)	12.1-2, 12.5-7, 12.12-.13	<u>11</u> – 1, 3, 7, 10 , 13, 18 , 30, 34 , 36, 38
Oct 6 (Th)		13.1- 13.3	
Oct 11 (Tu)	HW7 (16 pts)	13.4-13.10	<u>12</u> – 2 , 3, 25, 29, 33, 47 , 49, 54; <u>13</u> - 1 , 2
Oct 13 (Th)		13.11-15	
Oct 18 (Tu)	HW8 (16 pts)	13.16-17, Review	<u>13</u> – 4 , 7, 8 , 10, 11, 17, 28 , 42, 48, 50
Oct 20 (Th)		Exam 2: Chaps. 10, 11, 12, 13	
Oct 25 (Tu)		15.1 – 15.9	No HW due
Oct 27 (Th)		16.1 – 16.7	
Nov 1 (Tu)	HW9 (16 pts)	4.1-4.6	<u>15</u> –1, 10 ,28,29, 37 ; <u>16</u> –2,11, 19 ,20, 24
Nov 3 (Th)		4.7-4.10	
Nov 8 (Tu)	HW10 (16 pts)	4 .11 – 4.14 ; 17.1-17.6	<u>4</u> - 1, 4, 5, 6 , 9, 12, 14 , 15, 20, 24, 26 , 28
Nov 10 (Th)		17.7-17.12	
Nov 15 (Tu)	HW11 (16 pts)	18.1-18.7	<u>4</u> -33, 38 ,45, 49 ; <u>17</u> –2,10, 14 ,24,36, 39, 40 ,50
Nov 17 (Th)		18.8-18.12	
Nov 22 (Tu)	No class		
Nov 24 (Th)			
Nov 29 (Tu)	HW12 (16 pts)	18.13, Review	<u>18</u> –3, 5, 15, 16, 18, 24, 27 , 28, 34, 39 ,
Dec 1 (Th)		Exam3: Chaps. 4, 15 ,16 ,17 ,18	
Dec 6 (Tu)		18.14-18.16; 19.1-19.6	No HW due
Dec 8 (Th)	HW13 (16 pts)	19.7-19.8, Review for Final	<u>18</u> – 42,48 ; <u>19</u> – 3, 7, 11, 16 , 22, 26 , 31
Dec 13th (Tu)	Final exam 2:00 p.m. – 3:50 p.m.; All material covered in class		

Video Schedule: The Physical World 2 – PHYS 102 Fall 2009

Date	Class topic	Video
Aug 24 (Tu)	1 Welcome! Really big and small numbers	
Aug 26 (Th)	2 The scientific method	http://science.howstuffworks.com/scientific-method.htm http://www.youtube.com/watch?v=b240PGCMwV0 http://www.youtube.com/watch?v=wLaRXYai19A http://www.youtube.com/watch?v=MmpUWEW6Is&feature=related
Aug 31(Tu)	3 Nuclear energy and power plants	http://science.howstuffworks.com/nuclear-power.htm http://www.youtube.com/watch?v=NW9qB2dN_o8 http://science.howstuffworks.com/carbon-14.htm
Sept 2 (Th)	4 Quantum mechanics	http://www.youtube.com/watch?v=5sVGXFxJb8&feature=related http://www.youtube.com/watch?v=9T3LI7nliFs
Sept 7 (Tu)	5 What's inside an atom?	http://science.howstuffworks.com/atom.htm http://www.youtube.com/watch?v=SMgi2j9Ks9k
Sept 9 (Th)	6 Fluorescent lamps versus lasers	http://home.howstuffworks.com/fluorescent-lamp.htm http://science.howstuffworks.com/laser7.htm
Sept 14 (Tu)	7 Laser application: CD and DVD players, eye surgery	http://www.howstuffworks.com/cd.htm http://electronics.howstuffworks.com/dvd.htm http://health.howstuffworks.com/lasik.htm
Sept 16 (Th)	Exam Review	
Sept 21 (Tu)	Exam 1	
Sept 23 (Th)	8 Structure of atoms and the periodic table	http://www.youtube.com/watch?v=GFivXVMbII0&feature=related http://videos.howstuffworks.com/hsw/8204-the-periodic-table-the-elements-video.htm http://videos.howstuffworks.com/hsw/5811-atomic-structure-modern-periodic-table-video.htm
Sept 28 (Tu)	9 Chemical bonds	http://www.youtube.com/watch?v=uj9D3mc7tVg&feature=related http://www.youtube.com/watch?v=Jw9p-5t8wWY
Sep 30 (Th)	10 Light sticks and chemical reactions	http://science.howstuffworks.com/light-stick.htm http://www.youtube.com/watch?v=qXXsdHdzT0o
Oct 5 (Tu)	11 Chemical energy: batteries, hybrid and electric cars	11.6-11.15 http://auto.howstuffworks.com/electric-car.htm http://videos.howstuffworks.com/howstuffworks/31-how-electric-cars-work-video.htm
Oct 7 (Th)	12 Chemical energy: oil and gasoline	12.1-12.3 http://auto.howstuffworks.com/engine.htm http://science.howstuffworks.com/oil-drilling.htm
Oct 12 (Tu)	13 Chemical energy from organic sources: biofuels	3.14-3.15 http://auto.howstuffworks.com/biodiesel.htm
Oct 14 (Th)	14 The atmosphere	13.1 – 13.5 http://www.youtube.com/watch?v=DNyz6OeU2FE http://www.youtube.com/watch?v=zLPc8nPSrJI&feature=related http://www.youtube.com/watch?v=LeA163b-HMU&feature=related
Oct 19 (Tu)	15 Ozone holes and global warming	13.9 – 13.14 http://science.howstuffworks.com/ozone-layer.htm http://science.howstuffworks.com/global-warming.htm http://www.youtube.com/watch?v=12RBgDt3w-c
Oct 21 (Th)	Exam Review	
Oct 26 (Tu)	Exam 2	
Oct 28 (Th)	16 The earth's surface – rocks	14.1 – 14.17 http://www.youtube.com/watch?v=3vgNvXdkQaU

		http://www.youtube.com/watch?v=6w-TROSOTXM&feature=related
Nov 2 (Tu)	17 Plate tectonics	15.1 – 15.9 http://geography.howstuffworks.com/terms-and-associations/pangaea-supercontinent.htm http://www.youtube.com/watch?v=QDqskltCixA
Nov 4 (Th)	18 Plate tectonics and the scientific method	15.10 – 15.18
Nov 9 (Tu)	19 The solar system	1.8-1.11, 16.1 – 16.7 http://science.howstuffworks.com/solar-system-channel.htm
Nov 11 (Th)	20 The solar system	16.8 – 16.16 http://science.howstuffworks.com/solar-system-channel.htm
Nov 16 (Tu)	21 The sun	17.1 – 17.7 http://science.howstuffworks.com/sun.htm http://www.youtube.com/watch?v=B1AXbpYndGc&feature=related
Nov 18 (Th)	22 Life of a star	17.8 – 17.16 http://science.howstuffworks.com/star.htm http://www.youtube.com/watch?v=f_KLOFe2rDY&feature=related http://www.youtube.com/watch?v=mZL7VBmeFXY&feature=related
Nov 23 (Tu)	23 Galaxies- the milky way	18.1 – 18.7 http://science.howstuffworks.com/galaxy.htm
Nov 25 (Th)	No class	Thanksgiving holiday
Nov 30 (Tu)	Review	
Dec 2 (Th)	Exam 3	
Dec 7 (Tu)	24 Life in the universe?	18.8 – 18.14 http://science.howstuffworks.com/extraterrestrial-life-odds.htm
Dec 9 (Tu)	Review for Final	
Final Exam: Tuesday December 14 2:00 PM – 3:50 PM		