Physics 2170 / 2175, Winter 2012

NOTE: This Syllabus is assigned reading, due by Class 2 on Jan 11.

This Syllabus covers General Physics, 4 credits, calculus-based

- Physics 2170 Section 001 CRN 22997, and
- Physics 2175 Section 001 CRN 22995,

and the associated Discussion/Quiz sections. The website for this course is on WSU Blackboard, *PHY 2170-2175 Winter 2011 Sec 001 (Bowen)*. The course covers Mechanics, Fluid Mechanics, Oscillations and Mechanical Waves, and Thermodynamics.

Honors Credit: Email me (David Bowen) if you are interested in honors credit.

Meets MTWF 11:45AM - 12:40PM in 2009 Science Hall for Class. The Tuesday class will be run as a Quiz Section. In addition, everyone attends one of the smaller Quiz Section listed below.

Day/Time	Location	Section	CRN	Instructor
M 12:50PM - 01:45PM	0113 State	003	22999 (2170), 23007 (2175)	Rupam Mukherjee *
W 12:50PM - 01:45PM	0135 State	004	23000 (2170), 23009 (2175)	Rupam Mukherjee *
Th 11:45AM - 12:40PM	0231 State	002	22998 (2170), 22996 (2175)	David Bowen

NOTE: Quiz Sections start the first week of class. Attend both the Tuesday Quiz Section that I run and whichever of the other Quiz Sections you registered for.

NOTE: For those taking PHY 2171, the labs begin Tuesday, Jan 17. The lab is a separate course, with a separate schedule, grade and instructor.

NOTE: WSU last day to withdraw from a class is Saturday March 24. Withdrawals are self-serve on Pipeline.

Instructor: David Bowen, d.r.bowen@wayne.edu / cell phone: 248-217-1316

CAMPUS	HOME
216 Physics Building 666 West Hancock Detroit, MI 48201 313-577-1498	4704 Elmhurst Avenue Royal Oak, MI 48073 248-549-8518

Office Hours: Mondays and Wednesdays 2 – 4 PM in 216 Physics except for Jan 9.
Or call, email or text, or set up an appointment

Course Materials:

- Text – University Physics by Bauer and Westfall, 1st edition, available in the Barnes and Noble campus bookstore. This is also the textbook for Physics 2180 / 2185. Used textbooks may also be available. NOTE: in this first edition, there are significant numbers of errors in the answers and the solutions manuals.
- WebAssign access card, included in the price of a new textbook as ordered at the BN campus bookstore, or, if you are not getting a new textbook from the bookstore, available separately from the Barnes and Noble campus bookstore. Or, pay online at www.webassign.net. If you pay online, make sure to select the Bauer and Westfall textbook, 1st edition. There is a link to WebAssign on the Blackboard website for this course.
- i>Clicker2 remote ("clicker"). Note that it is the i>Clicker2 with numeric capacity that is required, not the i>Clicker. Follow the directions on the Blackboard website for this course to enroll your clicker in this course. Registered clicker needed by Class 4, 1/18.
  NOTE: Clickers will be used for questions during class AND for unannounced questions first thing in class covering the assigned reading.

Your Webassign account is already set up. Your login information is:

- UserID: First initial and full last name, up to a maximum of seven characters, excluding any special characters such as periods or dashes. For example, my name is David Bowen, so my UserID would be dbowen
- Institution: wayne (just that, not Wayne State University or anything else)
- Password: AccessID, for example aa2012 for me, since my WSU email address is aa2012@wayne.edu.

You "do" a WebAssign problem by logging in to the WebAssign site (*www.WebAssign.net*), reading the problem, working it out on the side, and entering the answer in the website. I allow you three tries for each problem, to get the answer right. You will lose 5% for each attempt after the first. For additional attempts beyond 3, send me an email explaining what you would do on the next attempt. After we have agreed on how to do the problem I will give you an additional attempt, with 5% less credit each attempt. What I will require in the email is described in the Blackboard document "WebAssign: Requesting an extra submission." You can request extra submissions for the same problem, with a separate request each time.

Grades: course grades will be calculated from the following components and weights:

- Clickers (attendance and questions) 10%
- Average of the Hour Exams 30%
- (The lowest grade will be replaced by the Final grade, if that is higher. Desired outcome: you try hard on all Exams but are not unduly punished for an off day.)
- Grades for Tuesday and Thursday Quiz sections 15%
  Quiz grades will be curved to reflect the average grades on the Exams.
- Homework (WebAssign) 10%
- Final Exam 35%
- ** BONUS WSU Planetarium session 1% (link on Blackboard)

Tuesday Quiz Section Grades: 30% clicker attendance, 70% clicker Quiz average.

Grading Scale: A: 90% and above, B: 80 – 89%, C: 70 – 79%, D: 60 – 69%, F: 59% or less. The "-" range is the bottom three figures in each interval; the "+" range is the top three figures, except that WSU does not have a course grade of A+. For example, an average of 88% gets B+.

Achievement cf Effort: Grades will normally be given on the basis of achievement, not effort. To make an argument for effort in your grade, the following will count heavily: (a) excellent attendance record, (b) strong homework record, (c) coming to the Instructor for help and (d) showing an organized set of course materials, with Syllabus, class notes, exam topics sheets, and assignments.

Exams: Exams will be closed book. The Hour Exams will be the full class period. The Final Exam will be cumulative. In advance of each Exam, a list of definitions, formulae, and types of problems to be covered will be posted on the course Blackboard site.

Pre- and Co-requisites: This course requires MAT 2010 as a pre-requisite. MAT 2020 is a co-requisite. If you are registered for PHY 2170 (but not (PHY 2175), PHY 2171 (lab) must normally be taken simultaneously. (Labs start Jan 17.)

Accommodation: If you feel that you may need an accommodation based on the impact of a disability, please feel free to contact me privately to discuss your specific needs. Additionally, Student Disability Services (SDS, formerly the Office of Educational Accessibility Services), coordinates reasonable accommodations for students with documented disabilities. The office is located in 1600 UGL, phone: 313-577-1851 (Voice)/577-3365(TTY), web site http://studentdisability.wayne.edu/.

Plagiarism: In general, plagiarism is presenting someone else's work as your own, whether on purpose or through negligence. For a more detailed discussion, see http://www.clas.wayne.edu/unit-inner.asp?UnitID=24&WebPageID=924 . In this course, for the first instance of plagiarism, the work will be graded down 40%. For the second instance, the assignment will be failed with a zero, and for the third, the course will be failed. In each case, including the first, a memo will be sent to the Physics Department describing the circumstances.

Notes: PowerPoint notes for each class will normally be available on the Blackboard website for this course, before the class.

Goals: The goal of this course is the traditional goal in Physics, that you be able to apply basic physical laws to analyze real-life or unstructured situations, both descriptively and numerically, at least for the aspects covered in this course. You should be able to analyze both existing situations, and situations that you or someone else want to construct. To get to this point, you also need to be able to:

- State and paraphrase definitions and laws, and apply them in simple cases
- Have opportunity to practice, with feedback (e.g. homework) before exams.

Consequently, homework, quiz and clicker responses will include such questions.

Schedule.

Problems assigned in one week are due the following Sunday. For example, problems assigned on 1/9, 1/11 and 1/13 are due Sun 1/15. (Q1, etc. = clicker quiz in Tuesday Quiz Section.)

#	Date	Day	Topics	Ch, Sec
1	1/9	Mon	WSP, Units, Methods	1.1 – 1.5
2	1/11	Wed	Vectors, displacement, velocity	1.6 – 2.3
3	1/13	Fri	Acceleration	2.4 – 2.7
	1/16	Mon	MLK Day, no classes	
4	1/18	Wed	Ideal projectiles (clickers start)	2.8 – 3.4
5	1/20	Fri	Forces, gravitation near surface	3.5 - 4.3
6	Q1 1/23	Mon	Newton's Laws	4.4 – 4.5
7	1/25	Wed	Friction, power, kinetic energy, work	4.6 – 5.3
8	1/27	Fri	Work, potential energy, power	5.4 – 5.7
9	1/30	Mon	Potential and mechanical energy	6.1 – 6.5
10	2/1	Wed	Review for Hour Exam 1	1 – 5
11	2/3	Fri	Hour Exam 1	1 – 5
12	2/6	Mon	Energy, momentum	6.6 – 7.1
13	2/8	Wed	Momentum and collisions	7.2 – 7.5
14	2/10	Fri	Collisions, center of mass	7.6 – 8.1
15	Q2 2/13	Mon	C.M., rocket, circular motion	8.2 – 8.4
16	2/15	Wed	Circular motion	9.1 – 9.4
17	2/17	Fri	Circular motion and rotations	9.5 – 10.1
18	2/20	Mon	Rotation, torque	10.2 – 10.5
19	2/22	Wed	Rotation, precession	10.6 – 10.8
20	2/24	Fri	Statics, examples, structures	11.1 – 11.3
21	2/27	Mon	Universal gravitation	12.1 – 12.3
22	2/29	Wed	Review for Hour Exam 2	6 – 11
23	3/2	Fri	Hour Exam 2	6 – 11
24	Q3 3/5	Mon	Planetary motion and satellites	12.4 – 12.6
25	3/7	Wed	Atoms, solids and fluids, pressure	13.1 – 13.4
26	3/9	Fri	Ideal flow, viscosity and turbulence	13.5 – 13.8
	3/12		MTWTFS Spring Break	
27	3/19	Mon	Simple harmonic motion	14.1 – 14.3
28	3/21	Wed	Damped & forced harmonic motion	14.4 – 15.2
29	3/23	Fri	Waves	15.3 – 15.6
30	Q4 3/26	Mon	Standing waves, sound waves	15.7 – 16.2
31	3/28	Wed	Sound waves, temperature	16.3 – 17.1
32	3/30	Fri	Temperature, thermal expansion	17.2 – 17.4
33	4/2	Mon	Heat, first law of thermodynamics	17.5 – 18.5
34	4/4	Wed	Review for Hour Exam 3	12 – 16
35	4/6	Fri	Hour Exam 3	12 - 16
36	4/9	Mon	Specific heats, energy transfer	18.6 – 18.8
37	4/11	Wed	Ideal gas law	19.1 – 19.3
38	4/13	Fri	Thermodynamic processes, kinetic theory	19.4 – 19.6
39	Q5 4/16	Mon	Second law of thermodynamics	20.1 – 20.3
40	4/18	Wed	Second law of thermodynamics, entropy	20.4 – 20.7
41	4/20	Fri	Catch-up	
42	4/23	Mon	Review for Final Exam	
	4/24		Study Day, no classes	
43	4/26	Thu	Final Exam **10:40 AM – 1:10 PM**	