Syllabus: PHY 2140 Winter 2015

Instructor:
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Office Hours: Tuesday: 11:00 AM ~ 12:00 PM
Thursday: 11:00 AM ~ 12:00 PM
Or anytime you can make me an appointment by Email

This Syllabus covers algebra-based General Physics 2140 and the associated Discussion/ Quiz sections (Active Learning Community). The website for this course is on the WSU Blackboard, *PHY 2140 WIN 2014 Sec 003, 004, and 009*. The prerequisite is PHY 2130 and High School algebra and trigonometry. This section meets **Tuesday and Thursday 1:25 PM – 2:50 PM** for class, in Room 2009, Science Hall. Active Learning Community sections are for problem discussion and quizzing, and meet as follows, starting the first week of classes:

Active Learning Community sections:

Quiz Sections	Section	CRN	Instructor	Room
W 12:50 ~ 2:40 PM	003	25978	Paudel	0025 State
Th 3:00 ~ 4:50 PM	004	25979	Paudel	0407 State
Th 3:00 ~ 4:50 PM	009	26521	Paudel	0407 State

NOTE: The Lab course, PHY 2141, is a separate course, with a separate Syllabus, schedule, Instructor and grades. The content of the labs is consistent with PHY 2140, but the sequence is different. Labs will *probably* begin during the second full week of classes. Please see notice on main door of Physics Bldg or announcement on BB NOTE: The WSU last day to withdraw from a class is Saturday November 09 PHY 2140

Course Materials:
• Text – **Physics, 2nd Edition by Giambattista, Richardson and Richardson, published by McGraw Hill**. Other editions and used textbooks may also be available.

• **WebAssign** access card. WebAssign is an online homework system, at *www.webassign.net*. A two-semester WebAssign access card is included in the price of a new textbook purchased at the BN campus bookstore, or, if you are not getting a new textbook from this 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 above Giambattista, Richardson and Richardson textbook, 2nd edition. There is a link to WebAssign on the Blackboard website for this course.

Notes: PowerPoint notes for each class will normally be available on the Blackboard website for this course after the class for you to review and print.

Goal: The goal of this course, which is the traditional goal in Physics, is that you will be able to apply basic physical laws to analyze real-life or unstructured situations ("word problems"), 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 may want to construct. Research and experience indicate that, 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 conceptual questions will include such questions.

Homework

Graded credit problems

Each week (except for Exam weeks), five to seven WebAssign problems will be assigned for credit. Ten non-credit WebAssign problems and up to three conceptual non-credit questions will also be posted on WebAssign. The credit problems for each week are due that Sunday or depend on each chapter. The credit problems can be discussed in a general way in the Quiz Sections, but not worked out to a final numerical answer, while the non-credit problems can be worked out in Quiz Sections including a final numerical answer. 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 **5 tries** for each problem, to get the answer right. You will lose 5% for each attempt after the first.

Your Webassign account will be set up by the start of classes. 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 Takeshi Sakamoto, so my UserID would be Tsakamoto
- Institution: wayne (just that, not Wayne State University or anything else)
- Password: AccessID, for example ee4243 for me, since my WSU email address is ee4243@wayne.edu.

For additional help with WebAssign, see "Using WebAssign" under "Content" on Blackboard, the non-credit assignment on WebAssign, "Intro to WebAssign 2011-2012," and the online WebAssign help.

Non credit problems: Each chapter will also have assigned non credit problems. These problems are for practice. They will not be collected or graded. Your quiz instructor may help you solve some of the problems in your quiz sections.

NOTE 1 ON HOMEWORK AND EXAM PROBLEMS: The Exams will be mostly problems (plus a few definitions, formula statements and so forth). There is NO WAY that you will be able to do the problems on the Exams without practicing doing problems ON YOUR OWN. You might try to memorize how to do each assigned homework problem but at least some of the Exam problems will be of types that you have not exactly seen before. Your goal should be to understand how to apply the basic theories to solve problems. If you can apply the basic theories, on your own, then you should be able to do all of the Exam problems.

NOTE 2 ON HOMEWORK PROBLEMS AND EXAMS: Normally, you must complete the homework assignments covered on an exam with a minimum average of 75 by the time of the review session, in order to qualify for taking the exam. If you miss this requirement, take the exam anyway and your grade will be counted when you bring the homework average up to 75. Note that you will have to ask to have the homework assignments opened up for you.

Active Learning Community Secsion (ALCS)

The goal of ALCS is to develop thinking pathway (process) for solving problem. Thus, ALCS gives students opportunity to simply think concepts of each chapter and discuss the solutions. Students will work together in groups to sloving problem and get idea how to solve the problem. Attendanc will be taken every session and will be worth 5% of the total grade.

At the bigining of session, quizzes wil be given individually. Total 12 session will be given quizzes and each day corrects score. Two lowest scores will be dropped. Total quiz score are collectively worth 66% of ALC score.

Materials: Students will need their textbook, tutorial book, calculator, pencil, and paper every week.

EXAMS: There will be three 60-minute exams in class, consisting of multiple choice questions (no partial credit). The lowest exam score may be replaced by half of your earned score on the Final Exam. Therefore, **no makeup exams will be given.** You MUST bring your Wayne State ID to the exam and present it to a proctor when asked during the exam. **A group photograph of the class will be taken during each exam.** No electronic devices (other than a calculator) are allowed in the room during the exam (**no iPods, headphones, cell-phones, Blackberries, etc**.). You will need a stand-alone calculator ("standalone" excludes calculators on cell phones, for example). Graphing calculators or other calculators with communications capacity will not be allowed.

GRADING: Your course grade will be determined by your performance on the three hour Exams, Online Homework, Quiz Section results and the Final Exam. The Final Exam will cover the material presented during the entire semester. The overall course grade will be determined on the basis of the following distribution:

Three In-class 60 Minute Exams (16 points each)	48 points
Active Learning Community Section	15 points
Final Exam	32 points
Homework	5 points
Total	**100 points**

Points accumulated Percent Grade

Percent	Grade
90-100	A
85 – 89	A-
80 – 84	B+
75-79	B
70-74	B-
65-69	C+
60-64	C
55-59	C-
50-54	D+
45-49	D
40-44	D-
0-39	F

ADDITIONAL STUDY HELP: If you have difficulty doing homework or lab work, or understanding some of the course material, you can get help from the *Physics Resource Center*, in room 172 Physics Building The center will open a couple of weeks after the beginning of the semester.

Honors Credit: If you are requiring Honors Credit, please contact the instructor by the end of first week of classes.

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/.

Responsibility for Work: Whether on homework or an exam, I will never take seriously a statement such as, "but that's how (another student or someone in the Resource Center or anyone else) told me to do it." Your work is your own, and you should always try to tie the solution back to the fundamental laws. You can always check with me.

Academic dishonesty – cheating and plagiarism:

Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct (http://www.doso.wayne.edu/student-conduct-services.html). Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.

Cheating: Intentionally using or attempting to use, or intentionally providing or attempting to provide, unauthorized materials, information or assistance in any academic exercise. Examples include: (a) copying from another student's test paper; (b) allowing another student to copy from a test paper; (c) using unauthorized material such as a "cheat sheet" during an exam.

Fabrication: Intentional and unauthorized falsification of any information or citation. Examples include: (a) citation of information not taken from the source indicated; (b) listing sources in a bibliography not used in a research paper.
Plagiarism: To take and use another's words or ideas as one's own. Examples include: (a) failure to use appropriate referencing when using the words or ideas of other persons; (b) altering the language, paraphrasing, omitting, rearranging, or forming new combinations of words in an attempt to make the thoughts of another appear as your own.

Other forms of academic misbehavior include, but are not limited to: (a) unauthorized use of resources, or any attempt to limit another student's access to educational resources, or any attempt to alter equipment so as to lead to an incorrect answer for subsequent users; (b) enlisting the assistance of a substitute in the taking of examinations; (c) violating course rules as defined in the course syllabus or other written information provided to the student; (d) selling, buying or stealing all or part of an un-administered test or answers to the test; (e) changing or altering a grade on a test or other academic grade records.

In this course, the first instance of cheating by a student will result in a grade of 0 for the work in question (homework assignment, quiz, exam, etc.). This 0 grade may not be dropped or replaced like other quizzes or midterm exams may be. Repeated instances of cheating will result in a failing grade for the course. For all instances of cheating, the Department of Physics and Astronomy will be notified to ensure that the procedures described in the Student Code of Conduct are followed.

Final Exam: May 5, 1:20PM – 3:50PM
Place: TO BE DETERMINED (TBD)

Wk	#	Date	Day	Topics	Ch. Sec
1	1	01/13	Tu	Introduction, charge, Coulomb's Law, The electric field	16.1-16.4
	2	01/15	Th	Motion of a point charge, Conductors in electrostatic equilibrium, Gauss's Law	16.5-16.7
2	3	01/20	Tu	Electric Potential, Electric Potential, energy, Conservation of energy for moving charges	17.1-17.4
	4	01/22	Th	Capacitors, Dielectric, Energy Stored in a Capacitor	17.5-17.7
3	5	01/27	Tu	Electric current, Emf, resistance, resistivity, Kirchhoff's rules, Series /parallel circuit Note: Except 18.3 is not covered	18.1-18.6
	6	01/29	Th	Circuit analysis circuit, power and energy in circuit, measuring current and voltage, and RC circuits	18.7-18.11
4	7	02/03	Tu	**Review** (16, 17, and 18)	
	8	02/05	Th	**Exam-1 (16, 17, and 18)**	
5	9	02/10	Tu	Magnetic fields, magnetic force in a point charge, etc	19.1-19.4
	10	02/12	Th	A charged particle in crossed E and B fields, magnetic force on a current-carring wire, torque on a current loop, magnetic field due to an electric current, 19.10 is excluded	19.5-19.8
6	11	02/17	Tu	Motion emf, electric generators, Faraday's Law	20.1-20.4
	12	02/19	Th	Induced electric fields, Mutual-/Self-Inductance, LR circuits (20.5 to 20.7 are excluded)	20.8-20.10
7	13	02/24	Tu	Electromagnetic waves, Maxwell's equations, antennas, etc, 22.2 is excluded.	22.1-22.5
	14	02/26	Th	Characteristics of electromagnetic waves in vacuum EM waves	22.6-22.8
8	15	03/03	Tu	Wavefronts, Rays, lights 23.5 is excluded	23.1-23.4
	16	03/05	Th	The formation of images through, reflection / refraction, mirroes, Optical instruments	23.6-23.9 24.1-24.3
9	17	03/10	Tu	**Review** (19, 20, 22, and 23)	
	18	03/12	Th	**Exam-2 (19, 20, and 22)**	
10	19	03/17	Tu	SPRING BREAK (NO CLASS)	
	20	03/19	Th	SPRING BREAK (NO CLASS)	
11	21	03/24	Tu	The simple magnifier, microscopes Interference / diffraction	24.4-24.5 25.1-25.4
	22	03/26	Th	Grating. Diffraction / Huygens's principle, single / slits.	25.5-25.9
12	23	03/31	Tu	Quantization, Radiation, the photoelectric effect, X-Ray,	27.1-27.4
	24	04/02	Th	Compton Scattering, Early models of the Atom	27.5-27.7
13	25	04/07	Tu	Quantum Physics **Review** (25, 27, and 28)	28.1-28.5
	26	04/9	Th	**Exam-3 (23, 25, and 27)**	
14	27	04/14	Tu	The Hydrogen Atom: Wave functions and quantum numbers, Electron energy levels in a solid 28.8 and 28.10 are excluded.	28.6 and 28.9
	28	04/16	Th	Nuclear physics	29.1-29.3
15	29	04/21	Tu	Radioactive decay rates and helf-lives, Biological effects of reactions	29.4 and 29.5
	30	04/23	Th	**Cumulative Review**	