PHY1020 COURSE SYLLABUS FALL 2013

TEXT: **INQUIRY INTO PHYSICS**, 7th Edition (e-book is okay), by Ostdiek and Bord (Thomson).

LECTURE: MWF 10:40 – 11:35 a.m. **LOCATION**: Rm. 2025 Science Hall

LECTURER: E. ATEMS **OFFICE**: 233 Physics Research Building (666 W. Hancock)

E-MAIL: elisabeth.atems@wayne.edu

OFFICE HOURS: To be announced

LECTURE, READING ASSIGNMENTS and QUIZZES: Note that in addition to exams, short quizzes will be given at the approximate rate of one per week. Grades on quizzes will allow you to earn **extra credit** toward your final grade. Quizzes will be based on lecture material, reading assignments and "Learning Checks" which are presented at the ends of most sections in the text. We will discuss details of this extra credit at the first class meeting.

HOMEWORK: Questions and problems from each chapter will be posted each week on Blackboard. These are homework assignments which you should do along with the reading assignment for each lecture. They will not be collected or graded, but several questions similar to the homework (and "Learning Checks" found in each chapter) will appear on the exams. I will post partial solutions and hints on Blackboard after approximately one week, but it is in your interest to try to solve them yourself before looking at the solutions.

(Note that the solutions and answers to the odd-numbered problems are found at the back of your text.)

PLANETARIUM SESSION: You will also be able to earn a bit of **extra credit** by attending a planetarium session during the term, at the Wayne State University Planetarium (0209 Old Main). You will need to fill out and sign a form at the end of the show, so that there is a record of your attendance. Details will be discussed in class. For information on the planetarium and student show times, you can visit "http://planetarium.wayne.edu.

Note: There are no make-up exams or exams given early. This policy will be discussed in class.

Also Note: Any changes to the grading scheme below will be discussed in class and posted on Blackboard.

GRADE DETERMINATION: LECTURE ONLY

Best two of first three (hour) exams:	
(Each exam is worth 30 %)	60%
Final Exam	40 %
	100%

Bonus Points	
Quizzes	6%
Planetarium	1%

GRADING SCALE:

A– / A	85 – 100%
B– / B / B+	70 – 84%
C– / C / C+	55 – 69%
D– / D / D+	40 – 54%
F	< 40%

GRADE DETERMINATION: LECTURE PLUS LAB

Best two of first three (hour) exams:	
(Each exam worth 22.5 %)	45%
Lab	15%
Final Exam	40 %
	100%

Bonus Points	
Quizzes	6%
Planetarium	1%

GRADING SCALE:

A– / A	85 – 100%
B– / B / B+	70 – 84%
C– / C / C+	55 – 69%
D– / D / D+	40 – 54%
F	< 40%

Class Schedule

The following class schedule is meant to serve as a general guide to the time line at which material will be covered in the course and is subject to revision. Students will be informed of any changes/updates that take place as we move through the semester.

DATE	LECTURE TOPICS	READING ASSIGNMENT	WEEKLY LAB. EXPTS.
W 8/28	Intro, Math, Physics; the "Scientific Method"	Prologue	NO LAB
F 8/30	Units, Conversions, Time, Frequency, Period	Prologue, 1.1	
W 9/4	Position, Distance, Speed, Velocity, Direction	1.1, 1.2	NO LAB
F 9/6	Vectors, Vector Addition, Graphs	1.2	
M 9/9	Acceleration, Free Fall, Types of Motion	1.3, 1.4	#2 Measurements and Predictability
W 9/11	Force, Newton's 1st Law, Mass	2.1 - 2.3	
F 9/13	Newton's 2nd Law, Projectile Motion	2.4 - 2.6	
M 9/16	Motions and Forces, Newton's 3rd Law	2.6, 2.7	#3 Velocity and Acceleration
W 9/18	Gravity and Planetary Orbits	2.8	
F 9/20	Planetary Orbits, Tides	2.9	
M 9/23	Conservation Laws, Momentum, Impulse	3.1, 3.2	#4 Free Fall; Acceleration of Gravity
W 9/25	Work, Energy, Kinetic and Potential Energy	3.3, 3.4	
F 9/27	****** HOUR EXAM #1 (Prologue and Chapters 1 – 2 and 3.1 - 3.4) ******		

M	9/30	Energy Conservation, Collisions, Power	3.5 - 3.7	#5	Newton's Laws of Motion
W	10/2	Angular Momentum; Matter, Atoms and Molecules	3.8, 4.1		
F	10/4	Density, Pressure, Fluid Pressure	4.2 - 4.4		
M	10/7	Archimedes's, Pascal's, and Bernoulli's Principles	4.5 - 4.7	#6	Conservation of Momentum
W	10/9	Temperature, Thermal Expansion, 1st Law of Thermodynamics	5.1 - 5.3		
F	10/11	Heat Transfer, Specific Heat, Phase Transitions	5.4 - 5.6		
M	10/14	Humidity, Heat Engines, 2nd Law of Thermodynamics	5.6, 5.7	#9	Density and Hydrometers
W	10/16	Waves: Amplitude, Frequency, Wavelength; Reflection	6.1, 6.2		
F	10/18	Waves: Interference, Diffraction, Doppler Effect; Sound	6.2, 6.3		
M	10/21	Sound: Pitch, Loudness, Waveforms	6.4 - 6.6	#10	Heat
W	10/23	Catch up & Review			
F	**10/25**	****** HOUR EXAM #2 (Sections 3.5 - 3.8, Chapters 4 – 6) ******			
M	10/28	Electricity: Charge, Coulomb's Law, Electric Field	7.1 - 7.2	#13	Periodic Motion and Waves
W	10/30	Electric Current and Circuits, Ohm's Law, Power and Energy	7.3 - 7.5		
F	11/1	AC and DC currents; Magnetism	7.6, 8.1		
M	11/4	Electromagnetism, Transformers	8.2 - 8.3	#11	Measurements of Voltage and Current
W	11/6	Electromagnetic Waves; Blackbody Radiation	8.5 - 8.6		
F	11/8	Light: Optics, Polarization, Diffraction, Interference	9.1		
M	11/11	Reflection, Refraction [skip adaptive optics]	9.2 - 9.3	#12	Electric and Magnetic Induction
W	11/13	Lenses, Image Formation, Ray Tracing, Aberrations	9.4		
F	11/15	Human Eye, Dispersion and Color, Atmospheric Optics	9.5 - 9.7 (qualitatively)		
M	**11/18**	****** HOUR EXAM #3 (Chapters 7 – 9) ******		#15	Wave-like Nature of Light
W	11/20	Atomic Physics, Photons, Blackbody Radiation, Photoelectric Effect	10.1 - 10.2		
F	11/22	Atomic Spectra, Bohr Model of Atom, Quantum Mechanics	10.3 - 10.5		
M	11/25	Atomic Structure, [X-Ray Spectra], Lasers (principle only)	10.6 - 10.8		NO LAB
M	12/2	The Nucleus, Radioactivity, Half-Life, Radioactive Dating	11.1 - 11.3	#16	Spectroscopy

W	12/4	Artificial Nuclear Reactions, Nuclear Binding Energy,Fission	11.4 - 11.6
F	12/6	Fusion, Einstein's Special Theory of Relativity	11.7, 12.1 12.2, 12.3 as time permits
M	12/9	Review	NO LAB

T 12/17 **** FINAL EXAM (Comprehensive) ****** 8:00 - 10:30 a.m.**

LABORATORY (optional): Location: Rm 142 Physics Res. Bldg. (666 W. Hancock)

Students taking the optional laboratory (which satisfies Liberal Arts Natural Science Laboratory Requirements) will receive 4 credits rather than 3 credits (without lab) for this course. This lab is designed for non-science majors and will give you a better overall hands-on feeling for this course. Your lab grade will be based on your participation in lab and the 10 best reports that you submit for the 12 lab experiments. Thus, you may miss two labs without affecting your grade. However, every lab missed (beyond two missed labs) will result in 0 points given for the missed lab(s). If more than three labs are missed, your grade for the entire course will be lowered one full grade.

The lab grade will count for 15 % of your final grade for the course. If you anticipate that you may miss a lab, try to attend one of the other lab meetings during the same week. Work with your lab instructor under such circumstances, to see if the issue can be resolved. **The PHY1020 Laboratory Manual will be available on Blackboard for students to download. It will be essential that you print out a copy of the Manual and bring it to each lab meeting. Note that the first lab meets in the week of September 9.**

Note: Students will be informed of any changes to the above laboratory grading scheme.

Attention Students with Disabilities:

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. The SDS telephone number is 313-577-1851 or 313-577-3365 (TDD only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.

Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.

SDS News:

Effective Fall semester 2010 Student Disability Services will be implementing a revised alternative testing form when a student schedules classroom exams/quizzes administration at SDS. As before the student and instructor each have a portion to complete. Exams are to be mailed to a new password protected email address: sdsexams2010@wayne.edu.