PHY1020 COURSE SYLLABUS WINTER 2018

TEXT: **INQUIRY INTO PHYSICS**, Eighth Edition, by Ostdiek and Bord (Thomson).

LECTURE: MWF 10:30 – 11:20 a.m. **LOCATION**: Rm. 2025 SCI (Science Hall)

LECTURER: J. C. CONN **OFFICE**: 220 Physics Research Building (666 W. Hancock)

TELEPHONE: 313-577-7816 (with voicemail) **E-MAIL**: jconn@sun.science.wayne.edu

OFFICE HOURS: 3:00-4:00 pm MW; or by arrangement

LECTURE, READING ASSIGNMENTS and QUIZZES: Note that in addition to exams, short quizzes will be given on a regular basis during the term. Grades on quizzes will count 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 the above at the first class meeting.

HOMEWORK: The listed questions and problems from each chapter 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.

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

CHAPTER	QUESTIONS	PROBLEMS
1	3, 6, 7, 10, 16, 21	1, 5, 7, 11, 13, 16, 17, 19, 27,28
2	3, 16, 21, 30	3, 5, 8, 10, 13, 19, 25
3	4, 8, 18, 21, 28, 30	3, 9, 13, 17, 26, 29, 37
4	7, 13, 17, 24, 27, 30	1, 6, 7, 9, 15, 19, 25
5	9, 12, 16, 17, 19, 24, 30	1, 3, 7, 10, 13, 17, 25
6	9, 15, 17, 21, 27, 32	1, 3, 7, 10, 15, 23, 24
7	7, 9, 15, 21, 25, 26, 28	2, 5, 9, 14, 17, 22
8	5, 10, 15, 20, 33, 34, 35	1, 3, 6, 9, 13
9	1, 7, 10, 12, 19, 31, 34, 38, 44, 47, 56	6, 10, 11
10	2, 6, 17, 20, 28, 30, 35	4, 5, 9, 10, 19
11	5, 6, 11, 13, 20, 23, 25	1, 3, 5, 7, 11, 13
12	2, 3, 5, 6, 8, 10	1

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). Dates and times will be announced. 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 regarding the amount of extra credit will be discussed in class. For information on the planetarium and student show times, you can visit "http://planetarium.wayne.edu.

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GRADE DETERMINATION: LECTURE ONLY

Best two of first three, regular exams:	
(Each exam is worth 30 %)	60%
Quizzes	5%
Final Exam	35 %
	100%
Bonus Points	
Planetarium	2?

GRADE DETERMINATION: LECTURE PLUS LAB

Best two of first three, regular exams:	
(Each exam worth 22.5 %)	45%
Lab	15%
Quizzes	5 %
Final Exam	35 %
	100%
Bonus Points	
Planetarium	2?

GRADING SCALE (For Both of the Above Sections)

A	90 – 100%
A–	85 – 89%
B– / B / B+	70 – 84%
C– / C / C+	55 – 69%
D– / D / D+	40 – 54%
F	0 – 39%

Note: There are no make-up exams or exams given early. This policy will be discussed in class.
Also Note: Any changes to the above grading scheme will be discussed in class and posted on Blackboard.

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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.
Wk 1	Introduction and Physical Quantities	Prologue, 1.1	NO LAB
	Speed, Velocity, and Acceleration; Vectors	1.2 - 1.3	
Wk 2	Simple Types of Motion	1.4	NO LAB
	Force, Mass, Newton's 1st and 2nd Laws	2.1 - 2.4	
Wk 3	Types of Motion, Newton's 3rd Law,	2.5 - 2.7	#2 Measurements
	Gravitation and Tides	2.8 - 2.9	and Predictability
Wk 4	Conservation Laws and Linear Momentum	3.1 - 3.2	#3 Velocity and Acceleration
	Work and Energy,	3.3 - 3.4	
Wk 5	Conservation of Energy and Collisions	3.5 - 3.6	#4 Free Fall
	Power, Rotation and Angular Momentum; Catch-up and review	3.7 - 3.8	
F 2/9	****** HOUR EXAM #1 (Chapters 1 – 3) ******		
Wk 6	Matter, Phases and Pressure	4.1 - 4.2	#5 Newton's Laws of Motion
	Density, Fluid Pressure and Gravity;	4.3 - 4.4	
	Archimede's, Pascal's and Bernoulli's Principles	4.5 - 4.7	
Wk 7	Temperature and Thermal Expansion;	5.1 - 5.2	#9 Density and
	1st Law of Thermo; Heat Transfer and Specific Heat Capacity;	5.3 - 5.5	Hydrometers
	Phase Transitions, Heat Engines and the 2nd Law of Thermo	5.6 - 5.7	
Wk 8	Wave Types and Properties, Reflection and Doppler Effect	6.1 - 6.2	#10 Heat
	Wave Diffraction and Interference, Sound and its Production	6.2 - 6.4	

Wk 9	Propagation and Perception of Sound Catch-up and review	6.5 - 6.6	#13 Periodic Motion and Waves
F 3/9	****** HOUR EXAM #2 (Chapters 4 – 6) ******		
Wk 10	**Spring Break**		
Wk 11	Electric Charge and Force, Coulomb's Law	7.1 - 7.2	
	Electric Current and Circuits, Ohm's Law Measurements of Voltage and Current	7.3 - 7.4	
Wk 12	Electric Power, AC and DC	7.5 - 7.6	#11Magnetism and Electricity
	Electromagnetism and Electromagnetic Waves	8.1 - 8.2 8.3 - 8.5	
	Black Body Radiation, EM Waves and our Atmosphere	8.6 - 8.7	
Wk 13	Optics, Light Waves, Reflection and Mirrors	9.1 - 9.2	#15 Wave-like Nature of Light
	Refraction, (Lenses and Images) (Human Eye), Dispersion and Color, Rainbows and Blue Sky	9.3 – (9.4) (9.5) - 9.7	
F 4/13	****** HOUR EXAM #3 (Chapters 7 – 9) ******		
Wk 14	Quantum Hypothesis, Photoelectric Effect and Photons Atomic Spectra, Bohr Model of Atom, Quantum Mechanics (Atomic Structure, X-Ray Spectra, Lasers	10.1 - 10.2 10.3 - 10.5 10.6 - 10.8)	#16 Spectroscopy
Wk 15	The Nucleus, Radioactivity: Alpha, Beta and Gamma Decay (Half-Life, Nuclear Reactions and Binding Energy Nuclear Fission and Fusion Einstein's Special Theory of Relativity	11.1 - 11.2 11.3 - 11.5) 11.6 - 11.7 12.1	NO LAB
T 4/24	Study Day		
W 4/25	******** FINAL EXAM (Cumulative) ****** 10:15 am – 12:15 p.m.**		

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

Note: Labs will first meet in the week of January 22.

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).

However, if you miss more than 3 lab reports (i.e., submit less than seven reports altogether), you will receive a FAIL (F) for the entire course, lecture and lab.

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: 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. 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.