GENERAL PHYSICS WITH CALCULUS

PH212, Winter 2018
Lecture: MH 113, TR 2:00-3:50pm
Lab: MH 106, W 2:00-4:50pm

Instructor: Kyle McLelland
E-mail: mclellk@linnbenton.edu
Office: MH 111
Office Hours: (tentative) TWR 12PM-1PM or by appointment

Text: *Physics for Scientists and Engineers: A Strategic Approach* by Randall Knight, Chapters 12-17 33, 34, Old Ch 25, 4e.

Grading:

Midterms:	30%
Final:	20%
Quizzes:	10%
Homework:	20%
Lab:	15%
Project	5%

Grades:

A	100-90%
B	89-80%
C	79-70%
D	69-60%
F	59-0%

Class Format: Class will be highly interactive. The 1st lecture (T) of each week will be tradition lecture, where the instructor will introduce physical laws, ideas, and problem-solving techniques. The 2nd lecture (R) students will work in groups of three to four on given problems. Students will initially determine groups, but the instructor may form new groups at will.

Exams: Due to the nature of physics, all exams are cumulative. There will be two 50 minute midterm exams given and one final exam.

Quizzes: Each Thursday, a HW quiz (1-2 problems) will be given covering Mastering Physics (part b) HW problems assigned that week. Students must *neatly* demonstrate a logical progression to solve the problems.

Homework: There will be a weekly homework assignment on Mastering Physics (10% of grade) and a weekly Hand in Problem (HIP, 10% of grade) which will be posted on Moodle. The MP course ID is **Ph212Winter2018**

HIPs will be written or typed and handed in on Tuesday each week. HIP rubrics *must* be attached to the front of each HIP; rubrics can be found in the back of each lab manual.

Labs: Each week labs will provide students with experimental problems that they will solve/understand using relevant physics. The lab will be written in each student's lab book. Lab reports are expected to be neat and logical, *not wordy*. Reports should not take more than 2 hours to write and can be completed in lab. Pre-labs are to be completed before the start of each lab. Post labs will be completed at the end of each lab. There will be a programing activity

with each lab (VPython), which will be completed before the end of lab (worth 3% of overall grade). Lab reports will be due on Friday *before* noon.

Project: You will choose a topic to research and will present. A list of possible projects will be passed out during the first week of classes. Presentation dates vary depending upon the project – poster deadlines are Week 8 and Week 9.

PH 212 Lab Manual are available in the LBCC bookstore, and a Laboratory notebook (Computation Notebook).

Late work: I will not accept late work, unless otherwise specified.

Supplementary Websites: Math Review: Purple Math, Physics Phenomena, GCSE Maths

Course Outcomes: As you complete this sequence of courses you should be able have a better understanding of nature and the physical universe, allowing you to make hypotheses about observations and public records you are confronted with in everyday life. Upon successful completion of this course, students will be able to:

- Describe and explain physical phenomena in the areas of: simple harmonic motion, rotational motion, traveling waves, and standing waves.
- Conduct experiments to investigate topics, such as simple harmonic motion or standing wave parameters.
- Use calculus to solve quantitative simple harmonic motion problems and wave phenomena.
- Solve physics problems involving superposition of waves.
- Select ray optics or wave optics methods to solve real world optics problems.
- Design an experiment, collect data, synthesize data, and report on results.

Mastering Physics subscriptions: New purchases of the text come with an option for an access code to subscribe to the ***masteringphysics.com*** website, which is required. Subscriptions last for 2 years from the date of activation, so if you already have a current subscription you do not need to purchase the text with the access code. If you buy a used text you can purchase an access code through the M.P. website. Select the text ***Knight, Physics for Scientists & Engineers with Modern Physics, 4e*** when registering with M.P.

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Calculator Policy: Students will be required to use a non-graphing/non-programmable scientific calculator for quizzes and/or exams. Department approved calculators are: TI 30xa, TI 30X IIs, Casio fx-260, or HP 10s. If a student does not wish to purchase one of these calculators the department will provide either a Casio fx-260, or HP 10s for use on exams and/or quizzes.

Cheating: I do not tolerate cheating; I give zeros and will report incidents to the college administration. Remember that representing another's words or ideas as your own is plagiarism. If you are making use of the work of others, cite the source. If you have questions about what does and does not constitute cheating, talk to me before you turn in the work in question.

Drop date: The Add/Drop date and date for payment is the 2nd Monday of the term. This allows for financial aid to be disbursed a week earlier than in the not too distant past.

LBCC Nondiscrimination Statement: LBCC prohibits unlawful discrimination based on race, color, religion, ethnicity, use of native language, national origin, sex, sexual orientation, marital status, disability, veteran status, age, or any other status protected under applicable federal, state, or local laws.

Students in need of accommodations: Students who may need accommodations due to documented disabilities, who have medical information which the instructor should know, or who need special arrangements in an emergency, should speak with the instructor during the first week of class. If you have not accessed services and think you may need them, please contact Disability Services, 541-917-4789.

PH212 – Tentative Schedule

Week	Monday	Tuesday	Wednesday	Lab (W)	Thursday	Friday
1	8.Jan	9.Jan	10.Jan	Lab #1	11.Jan	12.Jan
		Introduction		Torques in Equilibrium	Sect. 12.5-12.11	
		Sect. 12.1-12.3			HIP1	HW#1a Due
					Quiz 1	Lab Report Due
2	15.Jan	16.Jan	17.Jan	Lab #2	18.Jan	19.Jan
	MLK Jr. Day	Sect. 12.4		Torques and Angular	Ch 13	
	Campus Closed	HIP2		Acceleration		HW#2a Due
		HW#1b Due			Quiz 2	Lab Report Due
3	22.Jan	23.Jan	24.Jan	Lab #3	25.Jan	26.Jan
		Ch. 13		Universal Gravity	Ch. 14	
	HW#2b Due				Journal 3	HW#3a Due
		HIP3			Quiz 3	Lab Report Due
4	29.Jan	30.Jan	31.Jan	Lab #4	1.Feb	2.Feb
				Archimedes'	Ch. 14 & Review	
	HW#3b Due	HIP4		Principle		HW#4a Due
		Ch. 13&14			Quiz 4	Lab Report Due
5	5.Feb	6.Feb	7.Feb	Lab #5	8.Feb	9.Feb
		Exam 1		Simple Harmonic	Ch. 15	
	HW#4b Due	Ch. 15		Motion		HW#5a Due
		HIP5			Quiz 5	Lab Report Due
6	12.Feb	13.Feb	14.Feb	Lab #6	15.Feb	16.Feb
		Ch. 15		Doppler Effect	Ch. 15&16	
	HW#5b Due					HW#6a Due
		HIP6			Quiz 6	Lab Report Due
7	19.Feb	20.Feb	21.Feb	Lab #7	22.Feb	23.Feb
	President's Day	Ch. 16		Standing Waves	Ch. 17	
	Campus Closed	HW#6b Due				HW#7a Due
		HIP7			Quiz 7	Lab Report Due
8	26.Feb	27.Feb	28.Feb	Lab #8	1.Mar	2.Mar
		Exam 2		Diffraction	Ch. 33	
		Ch. 17				HW#8a Due
	HW#7b Due	HIP8			Quiz 8	Lab Report Due
9	5.Mar	6.Mar	7.Mar		8.Mar	9.Mar
		Ch. 33		Project Evaluation	Old Ch. 25	
						HW#9a Due
	HW#8b Due	HIP9			Quiz 9	
10	12.Mar	13.Mar	14.Mar	Lab #9	15.Mar	16.Mar
		Ch. 34		Telescopes	Ch. 34	EC Assignment Due
	HW#9b Due					HW#10 Due
		HIP 10			Quiz 10	Lab Report Due
	17.Mar	18.Mar	19.Mar			
		Final: 4:30-6:20 PM				
		MH113				