MERCER COUNTY COMMUNITY COLLEGE

Math Science and Health Professions Division

Fundamentals of Physics

PHY 109 Fall 2015

Course Description

Fundamental of Physics: A one semester introductory course in the fundamental principles of physics underlying science and technology. Intended for non-physics majors in the health sciences or other areas requiring basic physics literacy. The course will emphasize work and energy, Newtonian mechanics, electricity and magnetism, electromagnetic waves, atomic and nuclear physics. 2 lecture/2 laboratory hours

Instructor: _____ **email:**_____ **Office Hours:** _____

Room: MS308

Department Chair: Jing Huang **email:** huangj@mcccc.edu **Office**: MS 157

Prerequisites/Co-requisites Co-requisite: MAT135

Student Learning Outcomes

1. Students will be able to gain knowledge of a broad introduction to physics at the beginning college level and develop physical intuition and problem-solving skills.
2. Students will learn to manipulate a variety of instruments and development critical thinking skills through hands-on laboratory experience.
3. Students learn to design and carry out simple experiments applying theory learnt in the class.

Course Materials: PLEASE BRING TEXTBOOKS AND CALCULATOR TO FIRST CLASS!

1. Required textbook: Inquiry into Physics Ostdiek & Boyd
   Thomson Brooks/Cole 7th Edition
2. Required Laboratory Manual: _____
3. A note book and three pens or pencils are needed.
4. Scientific calculator is required for lecture, laboratory and tests. Calculators CAN NOT be shared during any test. Using of cell phone during class in any manner is considered disruptive to class and may results in lower grade of class participation.

Evaluation & Requirements of Students

Lecture Tests	45%
Final Exam	15%
Lecture classroom participation	from -5% to +5%
Lab report	20%
Lab tests	10%
Laboratory participation	from -5% to +5%

There is NO make-up test; the lowest grade is dropped.

Academic Integrity Policy

Students are required to perform all the work specified by the faculty and are responsible for the content and integrity of all academic work submitted, such as papers, reports, and examinations. A student will be guilty of violating the Rule of Academic Integrity if he or she:

- uses or obtains unauthorized assistance in any academic work;
- gives fraudulent assistance to another student;
- knowingly represents the work of others as his or her own or represents previously completed academic work as current;
- fabricates data in support of an academic assignment;
- inappropriately or unethically uses technological means to gain academic advantage

Consequences for Violations of Academic Integrity

For a single violation, the faculty member will determine the course of action to be followed. This may include assigning a lower grade on the assignment, assigning a lower final course grade, failing the student in the course, or other penalty appropriate to the violation. In all cases, the instructor shall notify the chairperson of the Academic Integrity Committee (AIC) of the violation and the penalty imposed.

Class Attendance Policy

Students are required to attend all classes on time and should sign attendance sheet each day. In case of transportation, medical or other emergencies, relevant documentation is required to be submitted to instructor. Such documents include car repair invoice, doctor's note, court note, etc. Undocumented tardiness and absence will cause the course grade to be lowered.

Student Dress Policy

Students are required to dress appropriately. Please keep in mind that the class will share limited space and you'll need to sit, stand, stretch, bend over, and crawl sometimes. Please also take into consideration that clothes may shrink and shrink again.

Supporting Services

Our faculty provides office hours to help students with questions. The best way to take advantage of the time is to go prepared with specific questions to ask. Record the instructor's information here:
Course website includes course information. http://www.mccc.edu/~huangj/

Mercer email is used to enhance the communication for the course. Please set up the email and check it or have it forwarded to an email that is checked regularly. Our library holds the text book for in-library use. Our tutoring center provides tutors for Physics. It is located behind the bookstore. Please check out the schedule. There is an open computer lab MS 211.

Campus Security

Emergency number for campus security is (609) 570-2222. The non-emergency number for campus security is (609) 570-3503. Please store these numbers in your cell phone.

Schedule of Lecture and Experiments

Week	Dates	Experiment	Lecture Reading Assign	Homework Assignments
1	8/31			Q1:3,4,9,10 P1,: 1,4,6,7,10,13,16 Study for text 1
		Measurements and graphing	1.1-1.2 Units, Velocity	
2	9/2, 9/9	Graphing Motion	1.3-1.4 Acceleration Solving Motion problems	Q1:17,25,26 P1: 17,24,28,31 Study for text 1
		Free Fall	2.1-2.4 Newton's Laws	
3	9/14, 9/16	Force and acceleration	2.5-2.8 Newton's Laws &Gravity	Q2: 2,6,10,12 P2: 2,6,7,10,11 Study for text 1
		Projectile Motion	3.4 2-D Motion	Q2: 14,18,28 P2: 15,19 Study for text 1
4	9/21, 9/23	Recitation	Review Chap. 1-2	Study for text 1
		Test 1: Lab Problem	Test 1 Chap. 1-2	
5	9/28, 9/30	Conservation of Energy	3.1-3.3 Energy	Q3: 4,10,13,15,17,18,20, 25,28 P3: 12, 13, 15, 16,17,19,21,27,32 35
		Work and Power	3.4, 3.5, 3.7 Conservation Laws and Power	
6	10/5, 10/7	Size of a molecule	4.1 Matter	Q6: 2,3,4,10,11,15 P6: 6,7,8 C6: 3,4,5
		Speed of Sound	6.1-6.2 Waves and Sound	
7	10/12, 10/14	Recitation	Review	
		Test 2: Lab Problem	Test 2 Chap 3,4.1,6.1,6.2	
8	10/19, 10/21	Intro to electrical measurement	7.1-7.2 Charge, Coulombs Law	Q7: 1,2,3,4,7,9,11,12,14 P7: 1,2,5
		Ohms Law Lab	7.3-7.4 Current and Ohm's Law	Q7:15,18,21,23,24 P7: 7,9,11,13,17,19

9	10/26, 10/28	Efficiency of electrical heater	7.5-7.6 Electrical power and energy	Q7: 29.30 P7:23, 27, 29
		Construct a simple speaker Construct a simple motor	8.1-8.2 Magnetism	Q8: 2,3,5,6,10,12,13 P8: 1,2
10	11/2, 11/4	Diode Lab	8.3-8.4 Applications	Q8: 11,13,14 P8: 3,6,8,11,13,14 C8:9,11
		Transformer Lab	8.5-8.7 Electromagnetic Waves	
11	11/9, 11/11	Recitation	Test Review	
		Test 3 Lab Problem	Test 3 Chap 7-8	
12	11/16, 11/18	Image from a point source	9.1-9.3 Optics	Q9: 3,6,8,9,10,11,15,21 23,27,35,47 P9: 1 Q10:1,3,5,6,7,8,9,10,14,16 P10: 1,2,3,5
		e/m ratio	10.1-10.3 Atomic physics	
13	11/23, 11/30	Photo Electric Effect	10.4-10.7 Quantum Mechanics X-ray Spectra	Q10:19,22,23,25,27,28,34,35, 36,38 P10:16,18,19,23 Q11: 1-7,9,11,12,14,15,17 P11: 1,2,4,5,6,7
		Atomic Spectra	11.11.2 Nuclear Physics Radioactive decay	
14	12/2, 12/7	½ life	11.3-11.4 ½ life and decay reactions	Q11: 19,21,22,25,27,29,30,31 P11: 14,15 C11: 3
		Gamma absorption	11.5-11.714.1, 14.4 Fission and Fusion	
15	12/9, 12/14	Recitation	Review	
		Test 5: Lab Problem	Test 5 Cumulative	
16	12/16, 17-21	Last Day of Class: Final Exam Week		

Class Survey of Student Opinion

1. What do you like about this class?

2. What do you dislike about this class?

3. What do you think can be done differently to make this class better?

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Preclass Survey Name _____ Date _____

1. What's your major?

2. Are you planning to take PHY 102 next semester?

3. What's your experience with the last physics class you took?

4. One the scale of 1 to 10, how much effort do you put in studying physics? Please explain.

5. Is there anything else you would like the instructor to know about you?