MERCER COUNTY COMMUNITY COLLEGE

Math Science and Health Professions

University Physics I

PHY 115 Fall 2017

Course Description

This course is the first semester of a three-semester, calculus-based physics sequence, and is a study of mechanics (motion, forces, and the conservation laws). It covers kinematics, dynamics, statics, energy, momentum, oscillations, gravity, and the properties of solid and fluids. The laws of physics are investigated and applied to problem solving. Lec 3hrs/lab 3hrs.

Prerequisites/Co-requisites

Prerequisite: MAT 146 with grade C or better AND one semester of high school or college physics.
Co-requisite: MAT 151.

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 handle 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: Halliday & Resnick: Fundamentals of Physics Extended, 10th Edition
   Publisher: John Wiley & Sons
   A special binder Version with Wiley PLUS online textbook and study materials is made available at MCCC bookstore.

2. Required Laboratory Manual: Huang: Physics 115 Laboratory
   Publisher: MCCC

3. A note book and three pens are needed.

4. A scientific calculator is required for lecture, laboratory and tests. No cell phone, 89, 92, Voyage, or Nspire can be used in a test.

Evaluation & Requirements of Students

Tests	60%
Lecture classroom participation	-5% +5%
Lab report	20%
Lab tests	10%
Laboratory participation	-5% +5%

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

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. Should your shirt/pants have shrunk, we suggest that you put on a large shirt over them.

Supporting Services

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:

Name	Email or Phone	Office Hours

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. You may call security to have a classroom unlocked prior to a class. Please store these numbers in your cell phone.

MERCER COUNTY COMMUNITY COLLEGE

Math Science and Health Professions

University Physics I

PHY 115 Fall 2017

Schedule of Lecture and Experiments

Week	Dates	Experiment	Lecture	Homework Assignments
1	8/28-31	Math Overview	1.1-1.4 Unit & Conversion Coordinate System Trigonometry Vector and Components	Chap. 1 3, 12, 22, 37, 43, 54
		Measurements	1.5-1.7 Length, Mass, & Time	
2	9/4 No class 9/5-12	Velocity	2.1-2.6 Displacement Velocity Acceleration	Chap. 2 3, 4, 7, 11, 17, 20, 25, 28, 46, 54, 62
		Acceleration		
3	9/13-14	Free Fall	2.7 – 2.10 Free Fall	
		Review	3.1-3.8 Vector Addition & Multiplication	Chap. 3 4, 6, 12, 24, 39, 41, 49, 58, 62, 64
4	9/18-21	Street Crossing	Test 1 Chap 1-3	
		Projectile Motion	4.1-4.6 Projectile Motion	Chap. 4 8, 20, 21, 22, 35, 42, 44
5	9/25-28	Atwood Machine	5.3 – 5.5 Newton's 1st Law	Chap. 5 Q: 3, 5, 6, 11 P: 1, 15, 19, 26, 29, 37, 51, 61, 80, 85
			5.6-5.9 Newton's 2nd Law Newton's 3rd Law	
6	10/2-5	Friction	6.1-6.3 Friction	Chap. 6 1, 4, 6, 7, 18, 30, 33, 41, 42
		Review	6.4, 6.5 Uniform Circular Motion	
7	10/9-12	Sustainable Energy Research and Presentation	Test 2 Chap. 4-6	
			7.1-7.6, 7.7 Kinetic Energy & Work	Chap. 7 2, 5, 8, 19, 55, 66
8	10/16-19	Conservation of Energy	8.1-8.4 Potential Energy 8.5 Conservation of Energy	Chap. 8 2, 22, 23, 27, 49

MERCER COUNTY COMMUNITY COLLEGE

Math Science and Health Professions

University Physics I

PHY 115 Fall 2017

Week	Dates	Experiment	Lecture	Homework Assignments
9	10/23-26	Impact and Moemntum	9.1-9.6 Collision	Chap. 9 12, 18, 20, 26, 29, 39, 46, 50, 91, 102
			9.7 – 9.12 Conservation of Momentum	
10	10/30 – 11/2	Rotational Motion	10.1-10.5 Angular Motion	Chap. 10 1, 2, 12, 16, 34, 48, 50, 77, 88, 89, 90
		Review	10.6-10.10 Rotational Kinetics Rotational Dynamics	
11	11/6-9	Sustainable Energy Research	Test 3, Chap 7-10	Chap. 12 6, 8, 9, 17, 37
		Rotational Equilibrium	12.1-12.2	
12	11/13-16	Rotational Equilibrium	12.3-12.5	Chap. 13 3, 7, 9, 17, 19
		Sustainable Energy Presentation	13.1-13.4 Gravitation	
13	11/20-21	Archimedes Principle	14.2, 14.3, 14.4	Chap. 14 2, 5, 6, 11, 17, 35, 37, 41
			14.5, 14.6, 14.7	
14	11/27-30	Simple Harmonic Motion Spring & Pendulum	15.1, 15.2	Chap. 15 1, 3, 7, 8, 14, 29, 40
			15.3, 15.6 Simple Harmonic Motion Pendulum	
15	12/4-7	Air Column	16.4, 16.5, 16.6, 16.13	Chap. 16 5, 12, 16, 44, 47 29, 35, 49, 55, 56
		Standing Waves String	Review	
16	12/11-12	Student Survey	Test 4 Chap 12-15	Chap. 17 29, 35, 55, 56
	12/13	Review for Final Exam		
17	12/14-19	Final Exam Cumulative		