

***Intro To Physics (Physics 1010)***  
***CENTRAL NEW MEXICO COMMUNITY COLLEGE***

Term/Year:	Spring 2009	Credit hours:	3
Section number:	301	Office Number:	WS I, Cubicle #20
Instructor:	Trace Tessier	Office Phone:	5358
Office Hrs:	MW 7pm – 7:30pm		
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### **Course Description**

Introduction to Physics (Physics 1010) is lecture/demonstration course designed for non-science students and for science students who want an overview of the concepts and basic phenomena related to physics. This course aims at a largely descriptive and qualitative treatment of all areas of physics with a minimum use of elementary mathematics to solve problems. No previous knowledge of physics is assumed. Topics from mechanics, thermodynamics, sound, electricity and magnetism, light and optics are covered in the one semester introductory course. Emphasis is given to conceptual understanding of topics related to different areas of the subject with numerical application only where essential.

Prerequisite: RDG 0950. Recommended: MATH 0940. If a student does not meet this prerequisite, he or she may be dropped from the course at any time.

### **Texts/Materials**

Conceptual Physics; Paul G. Hewitt (Addison-Wesley Publishers; 9<sup>th</sup> or 10<sup>th</sup> edition)

### **Learning Outcomes**

The overall objective is that the students are introduced to concepts and phenomena in physics. By the end of the course, the student will be able to:

- describe the scientific method as illustrated by examples from the specific areas of the subject
- identify common forces such as the force of gravity, friction and support force and recognize the condition for mechanical equilibrium
- differentiate between speed, velocity and acceleration
- describe linear and non-linear motion and solve simple problems for position, velocity and acceleration
- state and apply Newton's laws of motion to simple problems involving forces and study the effect of forces on motion
- define conservation laws in relation to momentum (linear and angular) and energy
- discuss the force of gravitation and its application to satellite motion
- explain the mechanical and thermal properties of solids, liquids, gases and plasmas on the basis of the atomic nature of matter

- identify heat as a form of energy and describe thermal expansion and phase change
- describe periodic motion and the propagation of mechanical waves
- recognize charge, electric current, electromagnetic induction
- investigate the nature and properties of light and image formation
- discuss the dual nature of light and emission spectra
- examine atomic structure and nuclear interactions and the theory of relativity as time permits

## **Course Requirements**

### **Homework**

Homework will be assigned on a regular basis. Assignments are due on the first day of the following week, at the beginning of class. These assignments present important practice for you to test your understanding of physics. Short weekly quizzes will be given and graded in class covering basic math related to physics concepts.

### **Tests**

There will be three multiple choice tests given which will emphasize an understanding and application of concepts.

### **Final exam**

A multiple choice, comprehensive final will be given on the assigned date of finals week. It is an MSE policy that all courses have final evaluations.

In the event CNM closes on the day of the final exam, final grades for students will be calculated based on all work assessed up to that point in the course.

### **Attendance**

Credit and audit students are expected to attend all classes. Students who miss more than 15% of total class hours may be dropped from the course. Absences do not relieve students from the responsibility for assignments or tests.

### **Grading**

At the end of the semester, the course grade will be calculated based on the homework average, the three test scores and the final exam score all weighted equally.

Letter grades are assigned according to the standard CNM grade scale:  
(A...90%-100%) (B...80%-89.9%) (C...70%-79.9%) (D...60%-69.9%) (F...below 60%)

### **Miscellaneous Notes**

Please turn off and store all cell phones, pagers, etc. before coming to class.

The course website is provided for your convenience, but is not guaranteed to be available over the internet at all times. Unavailability of the website does not excuse a student from on-time completion of any aspect of this course.

### Tentative Schedule

WEEK	DATES	CHAPTERS	TOPICS
1	1/12 & 1/14	1-2	About Science and Newton's 1 <sup>st</sup> Law
2	No Class(1/19) 1/21	3-4	Linear Motion and Newton's 2 <sup>nd</sup> Law
3	1/26 & 1/28	5-6	Newton's 3 <sup>rd</sup> Law and Momentum
4	2/2 & 2/4	6-7	Momentum and Energy
5	2/9 & 2/11	8	Test #1 and Circular Motion
6	No Class(2/16) 2/18	9-10, 19	Gravity and Orbital Motion & Vibrations and Waves
7	2/23 & 2/25	20, 25-26	Light and Special Relativity
8	3/2 & 3/4	35	General Relativity and Video
9	3/9 & 3/11	11-12	Test #2 and Atomic Nature of Matter
10	3/16 & 3/18	13-14	Phases of Matter
11	3/23 & 3/25	15-16	Temperature and Heat
12	3/30 & 4/1	17-18	Thermodynamics and Test #3
13	4/6 & 4/8	22-23	Electrostatics and Electric Current
14	4/13 & 4/15	24-25	Magnetism and Electromagnetic Induction
15	4/20 & 4/22	31	Quantum Mechanics
16	4/27		Final Exam (Usual Time & Place)