

**Course Information:**

Instructor: Dr. Morales
 Email: DrMoralesPlanet@gmail.com
 Time: Monday 6:50 PM – 10:00 PM
 OH: before class (Monday 6:20 PM), or by appointment
 Class Location: CMS 006
 Required Textbook: **College Physics**, Vol. 1 (Ch. 1 - 14), 9th Edition, by R. Serway, C. Vuille, 2011
ISBN-13: 978-0840068484, Cengage Learning

→ Send me an email (from your ...@gmail.com) to be added to the class website/repository of my lecture notes, extra-credit info, and more: <https://sites.google.com/site/genphys100a/> I will need to grant you access (Note that you'll need an "...@gmail.com", other emails (like@my.csun.edu) won't work, so please make one). Class info can also be found on CSUN moodle, but the google site has much more. In the email to me, tell me which class you are taking, so I can grant access to the correct class website.

Course Description & Objectives

This is an algebra-based introductory course in Physics covering mechanics and solids, heat and sound – selected material from Chapters 1 thru 14 of the text. This course is designed for the health science majors (Environmental and Occupational Health, Physical Therapy, Radiologic Technology), Pre-medical, Pre-dental, Pre-optometry, Pre-pharmacy, and Geology majors. Prerequisites: MATH 125. Advisory: MATH 240. This course meets the General Education requirements for Natural Sciences and may be used for transfer. Transfer Credit: CSU; UC.

Upon successful completion of the course, students will be able to:

- ✓ Use the fundamental laws of classical mechanics to determine motion
- ✓ Interpret physical information — verbal, numerical, and graphical
- ✓ Demonstrate quantitative problem-solving skills
- ✓ Evaluate quantitative solutions using unit analysis, special cases, symmetry, reasonableness
- ✓ Analyze problems using physics concepts and proportional reasoning

This course satisfies the following Student Learning Outcomes (SLOs):

1. Identify the various forces acting on an object and analyze the resulting motion of the object using the laws of mechanics and gravity and appropriate mathematical techniques as demonstrated on quizzes, tests, and lab reports;
2. Solve problems dealing with matter, motion, and energy, as demonstrated on homework, quizzes, tests, and lab reports;
3. Acquire, analyze and graph scientific data collected with instruments during laboratory experiences, as demonstrated in lab reports.

General Outline – 5 Units

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| 1. <i>Introduction, Measurements, 1D and 2D Motion</i> : Measurements, Significant Figures, Scientific Notation, Units, Vectors, Speed and Velocity, Accelerated Motion, Freely Falling Objects, Projectile Motion. | Chapters: 1,2,3 |
| 2. <i>Newton's Laws, Circular Motion and Gravitation</i> : Forces, Newton's law's of motion, Mass and Weight, Free-body diagrams, Equilibrium of a particle, Contact forces and Friction, Newton's Law of Gravitation. | Chapters: 4,5,7 |
| 3. <i>Work, Energy, Momentum, Rotational Motion</i> : Work, Kinetic and Potential Energy, Conservation of Energy, Conservative vs. Nonconservative Forces, Momentum and its Conservation, Inelastic and Elastic Collisions, Impulse, Angular Velocity and Acceleration, Moment of Inertia, Torque, Work and Power in Rotational Motion, Angular Momentum and its Conservation. | Chapters: 5,6,7,8 |
| 4. <i>Vibrations, Waves, Sound, Fluid Mechanics</i> : Stress, Strain, and Elastic | Chapters: 9,13,14 |



Deformations, Periodic Motion, Simple Harmonic Motion, Simple Pendulum, Damped and Forced Oscillations, Waves, Wave speeds, Reflections and Superpositions, Interference, Sound and Hearing, Density and Pressure in a fluid, Archimedes' Principle: Buoyancy, Fluid Flow.

5. **Temperature, Heat, Thermodynamics:** Temperature and Thermal Equilibrium, Temperature Scales, Thermal Expansion, Heat and Calorimetry, Kinetic Theory of an Ideal Gas, the Laws of Thermodynamics. Chapters: 10,11,12

Assignments

There will be regular homework during the semester. The assignments will consist of exercises from the textbook (see schedule) and due at the end of each unit. Homework is due on quiz days. There will be a number of opportunities to earn extra credit; check the class website for details. The other very essential assignment for the class is to keep up with the reading from the textbook.

Quizzes and Grading

There will be a 1-hr quiz given at the end of each unit. I will drop your lowest quiz score. The final exam is cumulative (material from all chapters covered included). For quiz and final exam dates see schedule. We use the +/- system (no A+) so in each range, the low-end will be minus and the high-end plus.

Lecture Grade is based on a 300 point scale:

25 %	Assignments	(5; 15 pts. each)
47 %	Quizzes	(best 4 of 5; 35 pts. each)
25 %	Final	(cumulative; 75 pts.)
3 %	Attendance & Participation	(10 pts.)

Lecture Grade determined as follows:

$90 \leq A \leq 100 \%$	$270 \leq A \leq 300$ pts
$80 \leq B < 90 \%$	$240 \leq B \leq 269$ pts
$70 \leq C < 80 \%$	$210 \leq A \leq 239$ pts
$60 \leq D < 70 \%$	$180 \leq D \leq 209$ pts

NOTE: In addition to your lecture grade (as described above), 25% of your Final grade comes from your lab performance. See Prof. Rains for details on lab reports, etc.

Attendance and Participation

Class attendance is essential for the understanding and comprehension of the material. More than two unexcused absences may result in the student being dropped from the class. In addition, class participation is highly encouraged and together with attendance counts for 3% of your grade.

Disability Accommodation Statement

Students with a verified disability who may need a reasonable accommodation(s) for this class are encouraged to notify the instructor and contact the Office for Disabled Student Programs & Services as soon as possible. All information will remain confidential.

Academic Dishonesty Policy

Violations of Academic Integrity include, but are not limited to, the following actions: cheating on an exam, plagiarism, identical answers to someone else on an assignment, working together on a paper or project when the instructor has specifically stated students should not do so, submitting the same piece of work to more than one instructor, or allowing another individual to assume one's identity for the purpose of enhancing one's grade. All cases of academic dishonesty will be reported to the department chair and the office of academic affairs.

Supplies

You must bring an **882-E** scantron sheet and pencil(s) to class for each of the scheduled quizzes.



Tentative Schedule – Fall 2013

			<u>In Class</u>	<u>Assignments & Notes:</u>
Week 1	Mon	8/26/13	Welcome! Syllabus, Intro, Ch. 0,1	
Week 2	Mon	9/2/13	<i>No Class</i> <i>Labor Day</i>	
Week 3	Mon	9/9/13	Ch. 2 Ch. 3, Review	HW #1: Selected Problems Ch 1: 4, 8, 20, 33, 44 Ch 2: 8, 22, 28, 37, 45 Ch 3: 1, 9, 14, 20, 40
Week 4	Mon Wed	9/16/13 9/18/13	Begin Unit II: Ch. 4 HW #1 due, Quiz #1	
Week 5	Mon	9/23/13	Ch. 5 Ch. 7, Review	
Week 6	Mon	9/30/13	HW #2 due, Quiz #2 Ch. 5	HW #2: Selected Problems
Week 7	Mon	10/7/13	Ch. 6 Ch. 7	
Week 8	Mon	10/14/13	Ch. 8 Review	
Week 9	Mon	10/21/13	HW #3 due, Quiz #3 Ch. 9	HW #3: Selected Problems
Week 10	Mon	10/28/13	Ch. 13 Ch. 14	
Week 11	Mon	11/4/13	Ch. 14 Review	
Week 12	Mon	11/11/13	<i>No Class</i> <i>Veteran's Day</i>	
Week 13	Mon	11/18/13	HW #4 due, Quiz #4 Ch. 10	HW #4: Selected Problems
Week 14	Mon	11/25/13	Ch. 11 Ch. 12, Review	Last day for Xtra-Credit
Week 15	Mon	12/2/13	HW #5 due, Quiz #5 Review for Final	HW #5: Selected Problems
Finals Week	Mon	12/9/13	2 Hour FINAL 8 - 10 PM	Bring pencil(s), eraser, and one simple calculator. NO PHONES