FD '01

Chaminade University of Honolulu
2001 Fall Term
August 27-December 13, 2001

Course: Physics 151 College Physics
Location: Henry Hall, H-37
Time: 9:00-9:50 MWF
Instructor: Dr. James W. Miller
Communications: Office: 735-4811
Home: (808)521-1634
55 South Kukui Street #1908
Honolulu, HI 96813
email: TBD

Office Hours: 10:30-12:00 MWF
Additional times by appointment

I. Textbooks (Req): Hecht, Eugene, Physics: Algebra/Trig, Second Edition
Pacific Grove (CA): Brooks/Cole Publishing Co., 1998

II. Textbooks (Rec): TBD

III. Other Requirements: Scientific Calculator
Notebook

IV. Course Description: Physics 151 College Physics is an introduction to the principles of mechanics, fluids and heat, with emphasis on mechanics.

V. Course Intent: The intent of the course is to provide for students the opportunities to build foundations of the principles of physics, which may assist them in growing their academic backgrounds and building their areas of specializations.

VI. Course Objectives:

A. For each of the topics in the required textbook, gain a working understanding appropriate to an academic background and to fields of specialization.

1. An Introduction to Physics
Build your own overview
2. Kinematics: Speed and Velocity
Understand magnitude and direction of velocity

3. Kinematics: Acceleration
   Understand change of velocity
4. Newton's Three Laws
   Understand how to apply the laws in situations
5. Centripetal Force and Gravity
   Understand Newton's concept of Gravity
6. Energy
   Understand operational definitions of energy
7. Momentum and Collisions
   Understand what "it" is
8. Rotational Motion
   Understand movements in circles.
9. Solids, Liquids and Gases
   Understand what they are and how they interact
10. Elasticity and Oscillations
    Understand stresses and restoring forces on matter
11. Waves and Sound
    Understand the characteristics of wave phenomena
12. Thermal Properties of Matter
    Understand thermal effects on matter
13. Heat and Thermal Effect
    Understand heat effects and the transfer of heat energy
14. Thermodynamics.
    Understand the concept of entropy

B. In addition, a course objective is to provide for each student the repertoire of physics sufficient to score well above the mean in such tests as the MCAT.

C. In addition, a course object is to provide for each student a command over the methods of algebraic problem solving in physics.

D. In addition, a course objective is to provide for each student skills for proper data collection and analysis of data.

E. In addition, a course objective is to provide each student with an awareness of the implications of the principles of physics to comprehend issues that occupy the national and international scientific stage.

VII. Course Format: Each class session will contain three parts: Current assigned topic, clarifications of previous topics, problem solving strategies.

VIII. Requisite: Concurrent registration in Physics 151 College Physics I Laboratory.

IX. Prerequisite: Math 110 Pre-Calculus (comfortable with quadratic functions; manipulations of polynomials; functions and graphs; exponential and logarithmic functions, and trig functions and inverses).

X. Course Requirements:

Attendance
Homework
Quizzes (Chapter Quizzes)
Two hour exams
First (End of Chapter 4) 9/29/2001
Second (End of Chapter 9) 10/26/01
Final Exam (12/11/01)

Lab Data Collection and Lab Reports will be grades for Physics 151L.

XI. Grading System:

5%	Attendance
5%	Homework
30%	Quizzes (Chapter Quizzes)
30%	Two hour exams (15% each)
30%	Final Exam (12/11/01)
100%	Total for Final Grade

Dual Grade System: A dual grade system for all exams is available to students at their option. The system provides a level of comfort to students who, for whatever reason, want the safety of not being "wiped out" in exams.

In the dual grade system, each exam will contain double the number of questions. Half of the questions will be straight-forward and similar to questions discussed in class or assigned as homework. Correct responses to these questions will score a maximum of 8 points. For an exam with only these questions done well, the maximum score for the exam would be 80%.

The other half will contain questions that are similar to questions discussed in class but will require good understanding of concepts. Correct responses to these questions will score a maximum of 10 points. For an exam with only these questions done well, the maximum score for the exam would be 100%.

In any exam, students need only answer half of the total number of questions in the exam. These can be all of one kind or a mixture of both kinds. The student's exam grade ultimately depend upon the cumulative score.

Grading Scale:

A	90-100 %	Outstanding scholarship and excellent intellectual initiative with the coursework..
B	80-89%	Superior quality done in a consistent intellectual manner with the coursework
C	70-79%	Satisfactory grade showing competent understanding of the course work.
D	60-69%	Lowest passing grade but not sufficient to fulfill prerequisite work.
F	59% and lower	Unsatisfactory understanding of the coursework.; no credit given.
I		Grade is not automatic. Grade deferred because student did not complete work because of circumstances beyond his control. Student must enter into a contract with the instructor to complete work time certain.

XII. Timetable/Assignments/Schedule (Attached).

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LAB	Day	Date	Topic		Readings		Problems
1	M	8/27	Physics		1.1-1.9		1Q1,3,5,15,17,19,39.41,43
L1		8/28					Vectors and Velocity
2	W	8/29	Average Speed		2.1-2.4		2Q1,5,9,33,35
3	F	8/31	Vectors		2.5-2.8		2Q59,69
L2		**9/4**					**Acceleration/velocity**
4	**W**	**9/5**	**With respect to...**		**2.9-2.10**		**2P89,95**
5	**F**	**9/7**	**Acceleration**		**3.1-3.4**		**3Q1,15,31,37,**
6	M	9/10	Free Fall		3.5-3.8		3Q49,51,57,85,87
L3		9/11					Free fall/inertia
7	W	9/12	Projectiles		3.9		3Q91,97
8	F	9/14	Inertia/Force (L1)		4.1-4.2		4Q11,13,18
9	**M**	**9/17**	**Momentum (L2)**		**4.3-4.5**		**4Q21,29,33**
L4		**9/18**					**Momentum/collisions/friction**
10	**W**	**9/19**	**Interactions (L3)**		**4.6-4.7**		**4Q45,49,53,61**
11	**F**	**9/21**	**Friction**		**4.8**		**4Q87**
12	M	9/24	Equilibrium		4.9		4Q99,(113)
L5		9/25					Equilibrium/Circular motion/gravity
13	W	9/26	Circular motion		5.1-5.2		5Q1,7,15
14	F	9/28	Gravity		5.3-5.4		5Q25,27,37,43,53
15	**M**	**10/1**	**Kepler's Laws**		**5.5-5.8**		**5Q59,67**
L6		**10/2**					**Centripetal acceleration/work**
16	**W**	**10/3**	**Work/K.E.**		**6.1-6.2**		**6Q1,11,17,27,30,33**
17	**F**	**10/5**	**P.E/Power**		**6.3-6.7**		**6Q47,59,73,87**

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L7		10/9					Power/conservation of momentum
18	W	10/10	Impulse=/Momentum		7.1-7.3		7Q1,7,13,25
19	F	10/12	Conserv=ation of p		7.4-7.6		7Q49,57,58
20	**M**	**10/15**	**Angular motion**		**8.1-8.4**		**8P3,17,35,39**
L8		**10/16**					**Angular momentum/rotation**
21	**W**	**10/17**	**Rot. Equil.**		**8.5-8.7**		**8P65,83**
22	**F**	**10/19**	**Rot. Inertia**		**8.8-8.11**		**8Q113,131,135**
23	M	10/22	Matter		9.1-9.3		9Q1,9,17,19
L9		10/23					Fluids
24	W	10/24	Fluid Statics		9.4-9.6		9P27,52,65
25	F	10/26	Fluid Dynamics		9.7-9.9		9Q101
26	**M**	**10/29**	**Elasticity/Oscil**		**10.1-10.4**		**10Q15,43**
L10		**10/30**					**Harmonic motion**
27	**W**	**10/31**	**Harmonic Motion**		**10.5-10.7**		**10Q49,57,85,93**
28	**F**	**11/2**	**Damped/Resonance**		**10.8**		**10Q95**
29	M	11/5	Waves		11.1-11.3		11Q1,13, 21,41
L11		11/6					Wave Dynamics
30	W	11/7	Acoustics		11.4-11.9		11P61,65,85,93,95
31	F	11/9	Standing Waves		11.10.		11Q111,115,117
L12		**11/15**					**Resonance**
32	**W**	**11/14**	**Doppler Effect**		**11.11**		**11P123,127,129,130**
33	**F**	**11/16**	**Temperature**		**12.1-12.3**		**12Q2,19,31**

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34	M	11/19	Gas Laws		12.4-12.6		12Q43,57,71
L13		11/18					Temperature and Gas Laws
35	W	11/21	Kinetic Theory		12.7		12Q77,85,89
36	**M**	**11/26**	**Thermal Energy**		**13.1-13.4**		**13Q1,3 13,17,23**
L14		**11/27**					**Heat Transfer**
37	**W**	**11/28**	**Change of State**		**13.5-13.7**		**13Q51,59,79**
38	**F**	**11/30**	**Heat Transfer**		**13.8-13.10**		**13Q81,85,89**
39	M	12/3	Thermodyn (L1)		14.1-14.4		14Q9,11,15,35
L15		12/4					TBD
40	W	12/5	Thermodyn (L2)		14.5-14.6		14Q47,61,65
41	F	12/7	Entropy/Chaos		14.7		14Q69,81,83