DEPARTMENT OF PHYSICS
PHYSICS 4A

Winter 2006 **January 5, 2006**

INSTRUCTOR: C. M. Surko
Office: 4302 Mayer Hall; 858 534 6880; csurko@ucsd.edu
Office Hour: Th 2:00 – 3:00 pm; also after class
or call/e-mail to arrange.

COURSE COORDINATOR: Patti Hey
118 Urey Hall Addition, 822-1468; plhey@ucsd.edu

TEACHING ASSISTANT: Elizabeth Gire
Office: SERF 311; 822-1370; egire@physics.ucsd.edu
Office hour: e-mail to arrange.

COURSE SCHEDULE:

Lectures:	MWF	10:00 – 10:50 am	WLH 2205
	Tu	8:00 – 8:50 am	WLH 2111
Discussion section	W	3:00 – 3:50 pm	WLH 2205
Problem session:	Th	7:00 – 8:50 pm	WLH 2111
Quizzes:	F	10:00 – 10:50 am	WLH 2205
	(Jan. 27, Feb. 10, Feb. 24, Mar. 10)		

Final Exam: Tuesday, March 21, 2006, 8:00 am – 11:00 am, WLH 2205.

COURSE WEB PAGE: See the course web page for additional material, changes and updates:
http://physics.ucsd.edu/students/courses/winter2006/managed/physics4a/

GRADING:	Highest 3 Quizzes	60%
	Final Exam	40%

COURSE TEXT: The required text is Physics for Scientists and Engineers, Third Edition, by Douglas C. Giancoli (Prentice Hall, New Jersey, 2000). It is available as a combined text or in two volumes (the latter lighter to carry but more expensive). We will only need volume I of the two-volume set for 4A. A reserve list will be set up for Physics 4A in the Undergraduate Library, in case you'd like to read other discussions of the material. (This reserve material is not required reading.) Books will include: Halliday, Resnik and Walker, Fundamentals of Physics; Young and Freedman, University Physics; Tipler and Mosca, Physics for Scientists and Engineers; and Davidson & Marion, Mathematical Methods for Introductory Physics with Calculus.

ABOUT THE COURSE: This is the first quarter of a five-quarter calculus-based physics sequence for physics majors and students with a serious interest in physics. The topics covered in Physics 4A are vectors, particle kinematics and dynamics, work and energy, conservation of energy, conservation of momentum, collisions, rotational kinematics and dynamics, and the equilibrium of rigid bodies. *Prerequisites: Math 20A and concurrent enrollment in Math 20B.*

HOMEWORK: Homework will be assigned weekly. Solutions will be posted on the course web page by Thursday of the week they are assigned. Homework will not be graded. However, there is no substitute for working lots of problems; if you give up on the problems too easily before looking up the solutions, you'll only learn how to check whether the solutions were worked

properly. Not doing homework assignments is the most frequent cause for grade disappointments, so be sure to do them faithfully. Feel free to talk over homework problems with your classmates, but make sure that you do them yourself. As an inducement to do homework faithfully, some of the quiz and final problems will be similar to homework problems.

QUIZZES, HOMEWORK, AND FINAL DETAILS:

- You must bring a fresh blue book for each quiz and the final exam.
- You will be assigned a 3-digit code number. Please enter this number on the exam blue books in the upper right-hand corner.
- Quizzes and the final will be "closed book." Bring a calculator to all exams, but programming it for formulae is not permitted. There will be formulae sheets on each quiz and the final, listing potentially useful formula.
- There will be *no makeup* for quizzes, for medical or other reasons. The total quiz score will be based on the highest three of the four quizzes. If you are excused for good cause, grades on the other quizzes will be prorated accordingly.
- The solutions to quizzes and recorded grades will be posted on the course web page. Please check your posted grades against those on your quizzes to be sure your grades have been recorded correctly.
- It *will not* be possible to take the final exam early for any reason, so plan your Spring break accordingly.

WHOM TO SEE:

Physics student affairs window (115 Urey Hall Addition, phone 534-3290), if you have any questions about adding or dropping the course, or getting the appropriate authorization for such actions.

The *instructor*, if you have questions about the subject matter, assigned problems, administrative problems, or anything else you want to talk about.

The *teaching assistant*, if you have questions about grades received on quizzes, the subject matter, or the assigned problems.

If you have questions about the grading, see the *teaching assistant* first, and then if you are not satisfied, see the *instructor*.

ADD/DROP:

Deadlines:	Add …….	Friday, January 20, 2006
	Drop without 'W' on transcript ……. .	Friday, February 3, 2006
	Drop without penalty of 'F' ('W' will appear on transcript) …	Friday, March 10, 2006

ACADEMIC DISHONESTY: Please read "UCSD Policy on Integrity of Scholarship" in the General Catalog. The rules on academic dishonesty will be strictly enforced.

Physics 4A – Winter 2006
Course Outline and Schedule

Week	Chapter(s)*	Quiz	Homework Assignments*
1 Jan. 9	1 & 2 Measure, estimate, & kinematics in 1 D	No quiz	Ch. 1: P. 8, 31, 33 Ch. 2. Q. 10, 13, 15; P. 7, 12, 23, 33, 44, 60, 74, 80, 84
2 Jan. 16 (Hol. Jan. 16)	3 Kinematics in 2 D, vectors	No quiz	Ch. 3: Q 22, 24; P. 16, 22, 27, 36, 40, 47, 54, 60, 64, 66, 80
3 Jan. 23	4 Dynamics & Newton's laws	Jan. 27 (Chs. 1-3)	Ch. 4: Q 10, 19; P. 17, 30, 32, 36, 37, 39, 40, 46, 47, 50, 68, 75
4 Jan. 30	5 Newton's laws, continued	No quiz	Ch. 5: Q. 7, 9, 10, 12; P. 14, 17, 24, 28, 35, 37, 42, 48, 54, 58, 61, 92
5 Feb. 6	6 & 7 Gravity, work and energy	Feb. 10 (Chs. 4-5)	Ch. 6: Q. 7, 16; P. 9, 24, 28, 41, 58, 60; Ch. 7: Q. 9, 14; P. 11, 13, 26, 36, 55, 64, 66
6 Feb. 13	8 Conservation of energy	No quiz	Ch. 8: Q 4, 11, 17; P. 6, 10, 19, 27, 32, 41, 52, 54, 63, 68, 82, 90
7 Feb. 20 (Hol. Feb. 20)	9 Momentum & collisions	Feb. 24 (Chs. 6-8)	Ch. 9: Q 7, 14, 22, 25; P. 6, 13, 16, 28, 46, 62, 64, 73, 76, 78, 96
8 Feb. 27	10 Rotation about fixed axes	No quiz	Ch. 10: Q. 3, 10, 12, 21; P. 12, 16, 19, 30, 35, 48, 64, 68, 74, 75, 96, 102
9 Mar. 6	11 General rotations	Mar. 10 (Chs. 9-10)	Ch. 11: Q. 4, 8, 9, 14; P. 6, 9, 13, 24, 28, 31, 36, 38, 42, 45, 59
10 Mar. 13	12 Statics & review	No quiz	Ch. 12: Q. 4, 5, 10, 12; P. 15, 16, 19, 31, 34, 47, 54, 61, 80, 86, 89

* Physics for Scientists and Engineers, Third Edition, by Douglas C. Giancoli