CHAMINADE UNIVERSITY
PHY-251-01-1: UNIVERSITY PHYSICS I
COURSE SYLLABUS – FALL 2015

Instructor: Matthew Cochran
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Office: Henry Hall room 7
Office Phone: 739-8361
Course Time: Monday, Wednesday, and Friday from 8:30 to 9:20 and Thursday from 5:30 to 6:20
Course Room: Henry 104 and Ching 253
Prerequisites: MA-210 Concurrent enrollment in PHY-251L is assumed.
Required Text: R. Knight, *Physics for Scientists and Engineers* 3rd ed., Pearson, New York, 2013. ISBN-10: 0321844351, ISBN-13: 978-0321844354
Other Materials: Scientific Calculator

COURSE DESCRIPTION:
This course is the first part of a year long introductory physics sequence focusing on the application of physical principles, logical reasoning, and mathematical analysis needed to understand a broad range of natural phenomena. Topics include classical mechanics, fluid dynamics, and thermodynamics.

EVALUATIONS AND GRADING SCALE:

Exam 1	20%
Exam 2	20%
Exam 3	20%
Final	20%
Quizzes and Homework	20%

90%	–	100%	A
80%	–	90%	B
70%	–	80%	C
60%	–	70%	D
0%	–	60%	F

Incomplete grades (I) will be given in accordance with college regulations as outlined in the college catalog. Withdrawals (W) from the class are the responsibility of the student and deadlines are set by the college.

EXAMS:
There will be four examinations as part of the requirements for the course. The exams will be, by necessity, cumulative. Physics is sequential and its concepts must be learned in order. Material for exams will be drawn primarily from homework problems. Hence, the best way to review for an exam is to review homework assignments.

Make-up exams will only be given under extenuating circumstances beyond the student's control. Persons missing an exam due to illness or injury must present a doctor's certificate. Make-up exams must be completed within one week of the scheduled exam date or on the day the student returns to school (whichever comes first). Scheduling is the responsibility of the student.

QUIZZES:
A ten minute quiz will be given most weeks. Material for the quizzes will be drawn from material covered during the last week. Quizzes may be given at the beginning of class, so arrive on time. Make-up quizzes are not given.

HOMEWORK:
To be successful in this course, it is essential that you complete all homework assignments. Be prepared to spend three hours or more on homework every week. If you are having trouble, get help from the instructor or your classmates. Do not fall behind. Homework is due at the beginning of class. Late homework is not accepted.

ATTENDENCE:
Regular attendance is expected of all students. Read material prior to lecture. If a topic is still not clear after it has been discussed in class, ask questions. Time will be spent working through homework problems and reviewing for exams in addition to lecturing. You will work with partners in class. It is important that partners engage in discussion of their work and avoid working as isolated individuals.

COURSE OBJECTIVES:
Upon successful completion of the course, the student will be able to:

- Solve problems involving linear and rotational mechanics using algebra and trigonometry.
- Solve problems involving pressure and fluid dynamics using algebra and trigonometry.
- Solve problems involving heat and thermodynamics using algebra and trigonometry.

MUSIC DEVICES AND CELLPHONES:
Unless specifically permitted by your instructor, use of music devices and cell phones is prohibited during all Natural Science and Mathematics classes at Chaminade, as it is discourteous and may lead to suspicion of academic misconduct. Students unable to comply will be asked to leave class.

ADA ACCOMODATIONS:
Students with special needs who meet criteria for the Americans with Disabilities Act (ADA) provisions must provide written documentation of the need for accommodations from CUH Counseling Center (Dr. June Yasuhara, 735-4845) by the end of the third week of classes. Failure to provide written documentation will prevent your instructor from making necessary accommodations. Please refer any questions to the Dean of Students and review procedures at:

www.chaminade.edu/student_life/sss/counseling_services.php

TENTATIVE WEEKLY SCHEDULE:

Week	Date	L#	Topic	Reading	Due
	Aug 24	1	Course Intro; Motion Diagrams		
1	Aug 26	2	Position; Velocity; Acceleration	1.1 to 1.7	
	Aug 28	3	Units	1.8	
	Aug 31	4	Velocity in 1D; **Q1**	2.1 to 2.3	**HW1**
2	Sep 02	5	Acceleration in 1D	2.4 to 2.6	
	Sep 04	6	Vectors; Trig Review	3.1 to 3.4	
	Sep 07	**H1**	**Labor Day – No Class**		
3	Sep 09	7	Motion in Two Dimensions; **Q2**	4.1 to 4.3	**HW2**
	Sep 11	8	Projectile Motion		
	Sep 14	9	Circular Motion; **Q3**	4.5 & 4.6	**HW3**
4	Sep 16	10	Catch Up; Review		
	Sep 18	**E1**	**EXAM 1 – Chapters 1 to 4**		
	Sep 21	11	Forces and Newton's Laws	5.1 to 5.7	
5	Sep 23	12	Free Body Diagrams		
	Sep 25	13	Statics	6.1	
	Sep 28	14	Mass and Weight; **Q4**	6.2 & 6.3	**HW4**
6	Sep 30	15	Friction and Drag	6.4 to 6.6	
	Oct 02	16	Second Law Examples		
	Oct 05	17	Newton's Third Law; **Q5**	7.1 to 7.3	**HW5**
7	Oct 07	18	Ropes and Pulleys	7.4	
	Oct 09	19	Dynamics in Two Dimensions	8.4	
	Oct 12	**H2**	**Discoverers' Day – No Class**		
8	Oct 14	20	Fictitious Forces		
	Oct 16	**E1**	**EXAM 2 – Chapters 5 to 8**		
	Oct 19	21	Momentum and Impulse	9.1 & 9.2	
9	Oct 21	22	Conservation of Momentum; Momentum in 2D	9.3 to 9.6	
	Oct 23	23	Conservation of Energy	10.1 to 10.3	
	Oct 26	24	Hook's Law and Energy; Elastic Collisions; **Q6**	10.4 to 10.7	**HW6**
10	Oct 28	25	Work; Dot Product	11.1 to 11.3	
	Oct 30	26	Work and Potential Energy; Power	11.4 to 11.6	
	Nov 02	27	Torque; **Q7**	12.5	**HW7**
11	Nov 04	28	Torque and Statics	12.8	
	Nov 06	29	Simple Harmonic Motion	14.1 to 14.4	
	Nov 09	30	Simple Harmonic Motion Examples	14.5 & 14.6	
12	Nov 11	**H3**	**Veteran's Day**		
	Nov 13	**E1**	**EXAM 3 – Chapters 9 to 12, 14**		
	Nov 16	31	Fluids; Density; Pressure	15.1 to 15.4	
13	Nov 18	32	Buoyancy; Dynamics	15.4 to 15.5	
	Nov 20	33	Ideal Gas Law	16.1 to 16.4	
	Nov 23	34	Ideal Gas Processes; **Q8**	16.5	**HW8**
14	Nov 25	35	Work and Ideal Gasses	17.1 & 17.2	
	Nov 27	**H4**	**Thanksgiving – No Class**		
	Nov 30	36	Heat and the First Law of Thermodynamics; **Q9**	17.3 & 17.4	**HW9**
15	Dec 02	37	Thermal Properties of Matter	17.5 & 17.6	
	Dec 04	38	Review		
finals	Dec 10	**FE**	**CUMULATIVE FINAL – 8:30 to 10:30**		