

<p style="text-align: center;">CHAMINADE UNIVERSITY PHY-251-01-1: UNIVERSITY PHYSICS I COURSE SYLLABUS – FALL 2017</p>
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Instructor: Matthew Cochran
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Office: Henry Hall Office 7
Office Phone: 739-8361
Course Time: Monday, Wednesday, and Friday from 8:30 to 9:20
Thursday 5:30 to 6:20
Course Room: Henry Hall 203
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	25%	} lowest of these four dropped
Exam 2	25%	
Exam 3	25%	
Homework and Quizzes	25%	
Final	25%	
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.

HOMEWORK AND QUIZZES:

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.

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

ATTENDANCE:

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, students will demonstrate:

1. The ability to apply quantitative reasoning and appropriate mathematics to describe or explain phenomena in the natural world;
2. The ability to interpret multiple scientific representations (e.g., verbal descriptions, diagrams, graphs, and formulas) and translate between them;
3. An understanding of mechanics (e.g., translational motion, forces and equilibrium, work, energy, and momentum);
4. An understanding of the principles of thermodynamics and fluids;
5. The ability to apply physics principles to understand humans, living systems, and scientific instrumentation.

MUSIC DEVICES AND MOBILE PHONES:

Unless specifically permitted by your instructor, use of music devices and mobile 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.

WEEKLY SCHEDULE:

Week	Date	L#	Topic	Reading	Due
1	Aug 28	1	Course intro; Motion diagrams		
	Aug 30	2	Position; Velocity	1.1 to 1.4	
	Aug 31	--	NSM Open House – No Class		
	Sep 01	3	Acceleration; Units	1.5 to 1.8	
2	Sep 04	HI	Labor Day – No Class		
	Sep 06	4	Velocity in 1D; Q1	2.1 to 2.3	HW1
	Sep 07	5	Acceleration in 1D	2.4	
	Sep 08	6	Free fall; Inclined plane	2.5 & 2.6	
3	Sep 11	7	Vectors; Trig review; Q2	3.1 to 3.4	HW2
	Sep 13	8	Vectors; Trig review		
	Sep 14	9	Motion in two dimensions	4.1	
	Sep 15	10	Projectile motion	4.2	
4	Sep 18	11	Circular motion; Q3	4.5 & 4.6	HW3
	Sep 20	12	Forces and Newton's laws	5.1 to 5.6	
	Sep 21	13	Review		
	Sep 22	EI	EXAM 1 – Chapters 1 to 4		
5	Sep 25	14	Free body diagrams	5.7	
	Sep 27	15	Statics	6.1	
	Sep 28	16	Mass and weight	6.2 & 6.3	
	Sep 29	17	Friction and drag	6.4 & 6.5	
6	Oct 02	18	Second law examples; Q4	6.6	HW4
	Oct 04	19	Newton's third law	7.1 to 7.3	
	Oct 05	20	Ropes and Pulleys	7.4	
	Oct 06	21	Dynamics in two dimensions	8.1 & 8.2	

WEEKLY SCHEDULE:

Week	Date	L#	Topic	Reading	Due
7	Oct 09	H2	Discoverers' Day – No Class		
	Oct 11	22	Energy; Work; Q5	11.1 to 11.3	HW5
	Oct 12	23	Work done by a spring	11.4	
	Oct 13	24	Thermal energy; Power	11.7	
8	Oct 16	25	Potential energy; Q6	11.5 & 11.9	HW6
	Oct 18	26	Conservation of energy	10.1 to 10.6	
	Oct 19	27	Review		
	Oct 20	E2	EXAM 2 – Chapters 5 to 8, 11		
9	Oct 23	28	Impulse and momentum	9.1	
	Oct 25	29	Conservation of momentum	9.2 to 9.4	
	Oct 26	30	Explosions; Momentum in 2D	9.5 & 9.6	
	Oct 27	31	Torque	12.5	
10	Oct 30	32	Torque and statics; Q7	12.8	HW7
	Nov 01	33	Fluids; Pressure	15.1 & 15.2	
	Nov 02	34	Measuring pressure	15.3	
	Nov 03	35	Buoyancy	15.4	
11	Nov 06	36	Dynamics; Q8	15.5	HW8
	Nov 08	37	Moles; Temperature	16.1 to 16.3	
	Nov 09	38	Ideal gasses	16.4	
	Nov 10	H3	Veteran's Day		
12	Nov 13	39	Ideal gas processes; Q9	16.5	HW9
	Nov 15	40	Energy and gasses	17.1	
	Nov 16	41	Review		
	Nov 17	E3	EXAM3 – Chapters 10, 9, 12, 15, and 16		
13	Nov 20	42	Work and gasses	17.2	
	Nov 22	43	Heat and the First Law of Thermodynamics	17.3 & 17.4	
	Nov 23	H4	Thanksgiving Recess – No Class		
	Nov 24				
14	Nov 27	44	Thermal properties of matter; Q10	17.5	H10
	Nov 29	45	Calorimetry	17.6	
	Nov 30	46	Specific heat of gasses	17.7	
	Dec 01	47	Molecular speed and collisions	18.1	
15	Dec 04	48	Pressure in a gas; Q11	18.2	H11
	Dec 06	49	Temperature	18.3	
	Dec 07	50	Thermal energy and specific heat	18.4	
	Dec 08	51	Review		
Finals	Dec 14	FE	CUMULATIVE FINAL – 8:30 to 10:30		