

CHAMINADE UNIVERSITY  
PHY-251-01-1: UNIVERSITY PHYSICS I  
COURSE SYLLABUS – FALL 2013

**Instructor:** Matthew Cochran  
**Email Address:** matthew.cochran@chaminade.edu  
**Office:** Henry Hall room 7  
**Office Phone:** 739-8361  
**Course Time:** Monday, Wednesday, and Friday from 8:30 to 9:20 and Thursday from 1:30 to 2:20  
**Course Room:** Henry Hall 227 or 107  
**Prerequisites:** MA-210 Concurrent enrollment in PHY-251L is assumed.  
**Required Text:** R. Knight, *Physics for Scientists and Engineers* 3<sup>rd</sup> 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.

**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, 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](http://www.chaminade.edu/student_life/sss/counseling_services.php)

**TENTATIVE WEEKLY SCHEDULE:**

Week	Date	L#	Topic	Reading	Due
<b>1</b>	Aug 26	1	Course Intro; Motion Diagrams		
	Aug 28	2	Position; Velocity; Acceleration	1.1 to 1.7	
	Aug 30	3	Units	1.8	
<b>2</b>	Sep 02	<b>H1</b>	<b>Labor day – no class</b>		
	Sep 04	4	Velocity in 1D; <b>Q1</b>	2.1 to 2.3	<b>HW1</b>
	Sep 06	5	Acceleration in 1D	2.4 to 2.6	
<b>3</b>	Sep 09	6	Vectors; Trig Review; <b>Q2</b>	3.1 to 3.4	<b>HW2</b>
	Sep 11	7	Motion in Two Dimensions	4.1 to 4.3	
	Sep 13	8	Projectile Motion		
<b>4</b>	Sep 16	9	Circular Motion; <b>Q3</b>	4.5 & 4.6	<b>HW3</b>
	Sep 18	10	Catch Up; Review		
	Sep 20	<b>E1</b>	<b>EXAM1 – Chapters 1 to 4</b>		
<b>5</b>	Sep 23	11	Forces and Newton's Laws	5.1 to 5.7	
	Sep 25	12	Free Body Diagrams		
	Sep 27	13	Statics	6.1	
<b>6</b>	Sep 30	14	Mass and Weight; <b>Q4</b>	6.2 & 6.3	<b>HW4</b>
	Oct 02	15	Friction and Drag	6.4 to 6.6	
	Oct 04	16	Second Law Examples		
<b>7</b>	Oct 07	17	Newton's Third Law; <b>Q5</b>		<b>HW5</b>
	Oct 09	18	Ropes and Pulleys		
	Oct 11	19	Dynamics in Two Dimensions		
<b>8</b>	Oct 14	<b>H2</b>	<b>Discoverers' day – no class</b>		
	Oct 16	20	Fictitious Forces	8.4	
	Oct 18	<b>E1</b>	<b>EXAM 2 – Chapters 5 to 8</b>		
<b>9</b>	Oct 21	21	Momentum and Impulse	9.1 & 9.2	
	Oct 23	22	Conservation of Momentum; Momentum in 2D	9.3 to 9.6	
	Oct 25	23	Conservation of Energy	10.1 to 10.3	
<b>10</b>	Oct 28	24	Hook's Law and Energy; Elastic Collisions; <b>Q6</b>	10.4 to 10.7	<b>HW6</b>
	Oct 30	25	Work; Dot Product	11.1 to 11.3	
	Nov 01	26	Work and Potential Energy; Power	11.4 to 11.6	
<b>11</b>	Nov 04	27	Torque; <b>Q7</b>	12.5	<b>HW7</b>
	Nov 06	28	Torque and Statics	12.8	
	Nov 08	29	Simple Harmonic Motion	14.1 to 14.4	
<b>12</b>	Nov 11	<b>H3</b>	<b>Veteran's Day – no class</b>		
	Nov 13	30	Simple Harmonic Motion Examples	14.5 & 14.6	
	Nov 15	<b>E1</b>	<b>EXAM3 – Chapters 9 to 12, 14</b>		
<b>13</b>	Nov 18	31	Fluids; Density; Pressure	15.1 to 15.4	
	Nov 20	32	Buoyancy; Dynamics	15.4 to 15.5	
	Nov 22	33	Ideal Gas Law	16.1 to 16.4	
<b>14</b>	Nov 25	34	Ideal Gas Processes; <b>Q8</b>	16.5	<b>HW8</b>
	Nov 27	35	Work and Ideal Gases	17.1 & 17.2	
	Nov 29	<b>H3</b>	<b>Thanksgiving – no Class</b>		
<b>15</b>	Dec 02	36	Heat and the First Law of Thermodynamics; <b>Q9</b>	17.3 & 17.4	<b>HW9</b>
	Dec 04	37	Thermal Properties of Matter	17.5 & 17.6	
	Dec 06	38	Review		
finals	Dec 12	<b>FE</b>	<b>CUMULATIVE FINAL – 8:30 to 10:30</b>		