

<p style="text-align: center;">CHAMINADE UNIVERSITY PHY-252: UNIVERSITY PHYSICS II COURSE SYLLABUS – SPRING 2012</p>
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**Instructor:** Matthew Cochran  
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**Office:** Henry Hall room 7  
**Office Phone:** 739-8361  
**Office Hours:** After class (specific times will be announced) or by appointment  
**Course Time:** Monday, Wednesday, and Friday from 10:30 to 11:20  
 and Thursday from 5:00 to 5:50  
**Course Room:** Ching Hall 254 or Henry Hall 210  
**Prerequisites:** MA-211 and PHY-251. Concurrent enrollment in PHY-252L is assumed.  
**Required Text:** R. Knight, *Physics for Scientists and Engineers*, 2<sup>nd</sup> ed., Pearson, New York, 2008.  
**Other Materials:** Scientific Calculator

### COURSE DESCRIPTION:

This course is the second part of a yearlong 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 electricity and magnetism, waves and optics, and modern physics.

### EVALUATIONS AND GRADING SCALE:

Exam 1 . . . . .	20%
Exam 2 . . . . .	20%
Exam 3 . . . . .	20%
Final . . . . .	20%
Homework and Quizzes . . . . .	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 previous homework assignments. Makeup exams will only be given under extenuating circumstances beyond the student's control.

**QUIZZES AND HOMEWORK:**

A ten minute quiz will be given most week. Quizzes may be given at the beginning of class, so arrive on time. Makeup quizzes are not given.

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, the tutor, or your classmates. Do not fall behind. Homework is due at the beginning of class. Late homework is not accepted. In particular, homework over a week late is never accepted.

During the semester, there will be approximately twenty-five homework assignments and quizzes. Of these, the twenty highest scores will be used to calculate your grade. Lower scores will be dropped.

**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.

**STUDENT LEARNING OUTCOMES:**

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

- Solve given problems involving electricity and magnetism using algebra and trigonometry.
- Solve given problems involving light and optics using algebra and trigonometry.
- Solve given problems involving relativity and quantum physics 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#	Lecture Topic	Reading	Due	Lab
1	Jan 16	<b>H1</b>	<b>Martin Luther King Day</b>			Charge
	Jan 18	1	Intro; Charge			
	Jan 20	2	Coulomb's Law; <b>Q1</b>	26.1 to 26.4	<b>HW1</b>	
2	Jan 23	3	The Field Model			Electric Potential
	Jan 25	4	Electric Fields	27.1 to 27.3		
	Jan 27	5	Electric Fields and Forces; <b>Q2</b>	27.4 to 27.6	<b>HW2</b>	
3	Jan 30	6	Flux	28.1 & 28.3		Circuits I
	Feb 01	7	Gauss's Law	28.4 to 28.6		
	Feb 03	8	Energy and Potential Energy; <b>Q3</b>	29.1 & 29.2	<b>HW3</b>	
4	Feb 06	9	Electric Potential	29.4 to 29.7		Circuits II
	Feb 08	10	Electric Potential	29.4 to 29.7		
	Feb 10	<b>E1</b>	<b>Exam 1 – Chapters 26 to 29</b>		<b>HW4</b>	
5	Feb 13	11	Relating Potential and Field	30.1 to 30.4		Ohm's Law
	Feb 15	12	Capacitors	30.5 & 30.6		
	Feb 17	13	Current and Resistance; <b>Q4</b>	31.3 to 31.5		
6	Feb 20	<b>H2</b>	<b>Presidents' Day</b>			RC Circuits
	Feb 22	14	Circuits; Kirchhoff's Rules	32.1 to 34.4		
	Feb 24	15	Circuits; Resistors Circuits; <b>Q5</b>	32.6 & 32.7	<b>HW5</b>	
7	Feb 27	16	RC Circuits			Magnets and Magnetic Interactions
	Feb 29	17	Magnetism	33.1 & 33.2		
	Mar 02	18	Ampere's Law; <b>Q6</b>	33.4 to 33.6	<b>HW6</b>	
8	Mar 05	19	Force on a Moving Charge	33.7		Simple Electric Motor
	Mar 07	20	Force on Current Carrying Wire	33.8 & 33.9		
	Mar 09	<b>E2</b>	<b>Exam 2 – Chapters 30 to 33</b>		<b>HW7</b>	
9	Mar 12	21	Lenz's and Faraday's Laws	34.1 to 34.5		Inductors
	Mar 14	22	Inductors	34.8		
	Mar 16	23	LC and LR Circuits; <b>Q7</b>	34.9 & 34.10		
10	Mar 19	24	Waves; Sin Waves	20.1 to 20.3		The Speed of Sound
	Mar 21	25	Sound and Light; Intensity	20.5		
	Mar 23	26	EM Waves; <b>Q8</b>	35.5 & 35.6	<b>HW8</b>	
-			Spring Break			
11	Apr 02	27	Superposition and Standing	21.1 to 21.4		Interference and Diffraction
	Apr 04	28	Interference in 1D and 2D; <b>Q9</b>	21.5 to 21.7	<b>HW9</b>	
	Apr 06	<b>H3</b>	<b>Good Friday</b>			
12	Apr 09	29	Interference	22.1 to 22.3		Geometric Optics I
	Apr 11	30	Diffraction; Interferometers	22.4 & 22.5		
	Apr 13	<b>E3</b>	<b>Exam 3 – Chapters 34, 35, 21 to 23</b>		<b>HW10</b>	
13	Apr 16	31	Reflection and Refraction	23.1 to 23.5		Geometric Optics II
	Apr 18	32	Ray Tracing	23.6 to 23.8		
	Apr 20	33	Lenses and Mirrors; <b>Q10</b>	23.6 to 23.8		
14	Apr 23	34	Relativity	37.1 to 37.5		Atomic Spectra
	Apr 25	35	Relativity	37.6 to 37.10		
	Apr 27	36	Relativity; <b>Q11</b>		<b>HW11</b>	
15	Apr 30	37	Modern Physics	38.1 to 38.3		Modern Physics
	May 02	38	Modern Physics	38.4 to 38.6		
	May 04	39	Modern Physics; <b>Q12</b>	38.7 to 38.9	<b>HW12</b>	
Finals	May 10	<b>FE</b>	<b>11:00 to 1:00 – FINAL – Cumulative</b>			