

CHAMINADE UNIVERSITY PHY-252: UNIVERSITY PHYSICS II COURSE SYLLABUS – SPRING 2011

Instructor: Matthew Cochran
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Office Hours: After class (specific times will be announced) or by appointment
Course Time: Monday, Wednesday, and Friday from 10:00 to 10:50
and Thursday from 5:00 to 5:50
Course Room: Henry Hall 124
Prerequisites: MA-211 and PHY-251. Concurrent enrollment in PHY-252L is assumed.
Required Text: R. Knight, *Physics for Scientists and Engineers*, 2nd 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%
Exam 4	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. Make-up 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.

TENTATIVE WEEKLY SCHEDULE:

Week	Date	L#	Lecture Topic	Reading	Due	Lab
1	Jan 10	1	Intro; Charge			Charge
	Jan 12	2	Coulomb's Law	26.1 to 26.4		
	Jan 14	3	The Field Model; Q1	26.5	HW1	
2	Jan 17	H1	Martin Luther King Day			Electric Potential
	Jan 19	4	Electric Fields	27.1 to 27.3		
	Jan 21	5	Electric Fields and Forces; Q2	27.4 to 27.6	HW2	
3	Jan 24	6	Flux	28.1 & 28.3		Circuits I
	Jan 26	7	Gauss's Law	28.4 to 28.6		
	Jan 28	8	Energy and Potential Energy; Q3	29.1 & 29.2	HW3	
4	Jan 31	9	Electric Potential	29.4 to 29.7		Circuits II
	Feb 02	10	Electric Potential; Q4	29.4 to 29.7		
	Feb 04	E1	Exam 1 – Chapters 26 to 29		HW4	
5	Feb 07	11	Relating Potential and Field	30.1 to 30.4		Ohm's Law
	Feb 09	12	Capacitors	30.5 & 30.6		
	Feb 11	13	Current and Resistance; Q5	31.3 to 31.5		
6	Feb 14	14	Circuits; Kirchhoff's Rules	32.1 to 34.4		RC Circuits
	Feb 16	15	Circuits; Resistors Circuits	32.6 & 32.7		
	Feb 18	16	RC Circuits; Q6	32.9	HW5	
7	Feb 21	H2	Presidents' Day			Magnets and Magnetic Interactions
	Feb 23	17	Magnetism	33.1 & 33.2		
	Feb 25	18	Apere's Law; I; Q7	33.4 to 33.6	HW6	
8	Feb 28	19	Force on a Moving Charge	33.7		Simple Electric Motor
	Mar 02	20	Force on Current Carrying Wire	33.8 & 33.9		
	Mar 04	E2	Exam 2 – Chapters 30 to 33		HW7	
9	Mar 07	21	Lenz's and Faraday's Laws	34.1 to 34.5		Inductors
	Mar 09	22	Inductors	34.8		
	Mar 11	23	LC and LR Circuits; I; Q8	34.9 & 34.10		
10	Mar 14	24	Waves; Sin Waves	20.1 to 20.3		The Speed of Sound
	Mar 16	25	Sound and Light; Intensity	20.5		
	Mar 18	26	EM Waves; I; Q9	35.5 & 35.6	HW8	
-	Mar 21		Spring Break			No Lab
	Mar 23					
	Mar 25					
11	Mar 28	27	Superposition and Standing	21.1 to 21.4		Interference and Diffraction
	Mar 30	28	Interference in 1D and 2D	21.5 to 21.7		
	Apr 01	29	Interference; I; Q10	22.1 to 22.3	HW9	
12	Apr 04	30	Diffraction	22.4 & 22.5		Geometric Optics I
	Apr 06	31	Interferometers	22.6		
	Apr 08	E3	Exam 3 – Chapters 34, 35, 21 to 23		HW10	
13	Apr 11	32	Reflection and Refraction	23.1 to 23.5		Geometric Optics II
	Apr 13	33	Ray Tracing	23.6 to 23.8		
	Apr 15	34	Lenses and Mirrors; I; Q11	23.6 to 23.8		
14	Apr 18	35	Relativity	37.1 to 37.5		No Lab
	Apr 20	36	Relativity; I; Q12	37.6 to 37.10	HW11	
	Apr 22	H3	Good Friday			
15	Apr 25	37	Modern Physics	TBA		Atomic Spectra
	Apr 27	38	Modern Physics	TBA		
	Apr 29	39	Modern Physics; Q13	TBA	HW12	
Finals	May 05	E4	10:30 to 12:30 – EXAM4 – Chapters 23, 37, ...			