

CHAMINADE UNIVERSITY
PHY-252-01-1: UNIVERSITY PHYSICS II
COURSE SYLLABUS – SPRING 2018

Instructor: Matthew Cochran
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Office: Henry Hall Office 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
Thursday from 5:30 to 6:20
Course Room: Wesselkamper
Prerequisites: MA-211 and PHY-251. Concurrent enrollment in PHY-252L 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 second part of a two-semester 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. Make-up exams will only be given under extenuating circumstances beyond the student's control.

QUIZZES AND HOMEWORK:

A ten-minute quiz will be given most weeks. 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.

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 quantum physics using algebra and trigonometry.

MUSIC DEVICES AND CELLPHONES:

Unless specifically permitted by your instructor, use of music devices or 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 SCHEDULE

Week	Date	L#	Lecture Topic	3 rd ed	4 th ed
1	Jan 15	H1	Martin Luther King Jr Day		
	Jan 17	1	Intro; Simple harmonic motion	14.1	15.1
	Jan 18	2	Phase constant	14.2	15.2
	Jan 19	3	Energy in SHM; Dynamics; Pendulum	14.3 & 14.4	15.3 & 15.4
2	Jan 22	4	Into to waves	20.1 & 20.2	16.1 & 16.2
	Jan 24	5	Sinusoidal waves	20.3	16.3
	Jan 25	6	Sound and Light	20.5	16.5
	Jan 26	7	Power; Intensity; Decibels	20.6	16.8
3	Jan 29	8	Superposition	21.1	17.1
	Jan 31	9	Standing waves; Waves on a string	21.2 & 21.3	17.2 & 17.3
	Feb 01	10	Waves in a pipe	21.4	17.4
	Feb 02	11	Interference in 1D	21.5	17.5
4	Feb 05	12	Charge	25.1 to 25.3	22.1 to 22.3
	Feb 07	13	Coulomb's Law	25.4	22.4
	Feb 08	14	Review		
	Feb 09	E1	EXAM 1		
5	Feb 12	15	Coulomb's Law in 2D	25.4	22.4
	Feb 14	16	The electric field	25.5	22.5
	Feb 15	17	Continuous charge distributions	26.1 to 26.5	23.1 to 23.5
	Feb 16	18	Electric field and force	26.6	23.6
6	Feb 19	H2	Presidents' Day		
	Feb 21	19	Electric potential energy	28.1 & 28.2	25.1 & 25.2
	Feb 22	20	Electric potential; Potential in a capacitor	28.4 & 28.5	25.4 & 25.5
	Feb 23	21	Electric potential of point charges	28.7 & 28.7	25.6 & 25.7
7	Feb 26	22	Connecting potential and field	29.1 to 29.3	26.1 to 26.3
	Feb 28	23	Batteries and capacitance	29.4 & 29.5	26.4 & 26.5
	Mar 01	24	Dielectrics	29.7	26.7
	Mar 02	25	Current and resistance	30.1	27.1
8	Mar 05	26	Circuits; Kirchhoff's Rules	31.1 & 31.2	28.1 & 28.2
	Mar 07	27	Series and parallel resistors	31.4 & 31.6	28.4 & 28.6
	Mar 08	28	Review		
	Mar 09	E2	EXAM 2		
9	Mar 12	29	Resistor circuits; Ground	31.7 & 31.8	28.7 & 28.8
	Mar 14	30	RC Circuits	31.9	28.9
	Mar 15	31	Power	31.3	28.3
	Mar 16	32	Magnetism	32.1	29.1
10	Mar 19	33	Fields from current	32.2	29.2
	Mar 21	34	Magnetic force on a moving charge	32.7	29.7
	Mar 22	35	Field from a solenoid	32.9	29.6
	Mar 23	36	Magnetic force on wires	32.8	29.8
-	Spring Break				

TENTATIVE SCHEDULE

Week	Date	L#	Lecture Topic	3 rd ed	4 th ed
11	Apr 02	37	Magnetic flux; Lenz's Law	33.3 & 33.4	30.3 & 30.4
	Apr 04	38	Faraday's Law	33.5	30.5
	Apr 05	39	Electromagnetic waves	34.6 & 34.7	31.6 & 31.7
	Apr 06	40	Interference in 2D	21.7	17.7
12	Apr 09	41	Interference in 2D	21.7	17.7
	Apr 11	42	Interference of Light	22.1 & 22.2	33.1 & 33.2
	Apr 12	43	Review		
	Apr 13	E3	EXAM 3		
13	Apr 16	44	The diffraction grating	22.3	33.3
	Apr 18	45	Single slit diffraction	22.4	33.4
	Apr 19	46	Reflection and Refraction	23.1 to 23.4	34.1 to 34.4
	Apr 20	47	Ray Tracing; Lenses	23.5 & 23.6	34.5 to 34.6
14	Apr 23	48	Mirrors	23.8	34.7
	Apr 25	49	Vision	24.3	35.3
	Apr 26	50	Photoelectric effect	38.1 & 38.2	38.1 & 38.2
	Apr 27	51	Photons	38.3	38.3
15	Apr 30	52	Energy quantization	38.4	38.4 to 38.7
	May 02	53	Bohr Atom	38.5	38.6
	May 03	54	Hydrogen spectrum	38.6	38.7
	May 04	55	Review		
Thurs	May 10	FE	11:00 to 1:00 – FINAL EXAM		