

CrossPointe

Conceptual Physics • 2016-2017

Class times • M 8-9:30am

J. Arnold

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Office hours: M/T/R 4-7pm; F 8-9am

Textbook

Physics, A First Course, Tom Hsu, Ph.D., CPO Science (2012), ISBN 978-1-60431-203-4

Materials Needed

Notebook paper (looseleaf or in a notebook), pen or pencil, scientific or graphing calculator, ruler with English and Metric units

Prerequisites

Pre-Algebra (recommended to have taken or be concurrently taking Algebra 1)

Course description

This course is a study of the interactions and properties of the physical universe. The focus of the course will be the development of an intuitive, conceptual understanding of the fundamental principles of physics, and a deeper understanding of the nature of God as seen through His creation. Students will collect, analyze, and evaluate experimental data. Mathematics will be employed to describe various events and ideas. Topics include Newtonian mechanics, wave motion, electromagnetism, and work and energy. If time allows, relativity and quantum theory will also be introduced.

Grading Scale and Weights

A:	90 to 100	Homework	25%
B:	80 to 89	Tests	45%
C:	70 to 79	Labs	20%
D:	60 to 69	Participation	10%
F:	0 to 59		

Other information

Please make use of the above contact methods for help with homework during the week (including weekends). If you call and there is no answer, please leave a message. Do NOT send texts, please. Whether you send an email or leave a voicemail, please remember that I am teaching all day each weekday, so I might not get to respond immediately.

Class Time

The co-op classes will be as scheduled according to CrossPointe. The time will be used to lecture over the module being covered that week, answer any questions from the reading, problems, or tests, and work practice problems. The intent of the lecture is to (a) give an extensive preview/review of the reading assignment for the week, and (b) demonstrate and explain the mathematics involved by working practice problems. Students are expected to take notes and copy examples worked out in class for later reference, and are expected to be in class on time with the appropriate materials.

Homework

Homework will be assigned for each chapter, and will be graded by the instructor. The homework assignments must be turned in to the instructor one week from the date that they are assigned. Penalties may be applied to late assignments.

Tests

Tests will be administered online, via ClassMarker. The tests will be closed- book and closed-notes unless otherwise specified; the test is to be taken at one sitting, supervised by the parent, and within a 75-minute timeframe. A 10% deduction may be taken for every class period after the due date that a test must be extended. If a student has questions regarding an exam, he/she may try to contact the instructor for help, but should still complete all items as thoroughly as possible. The student should notify the instructor of any misunderstood or unclear items immediately during or after the test (via phone or email). This is the only opportunity to dispute problems. Concessions will not be made for any reason if this testing procedure is not followed.

Labs

Some class time will be used to conduct laboratory experiments. Handouts will be either provided in class or emailed to students to be printed out and brought to class. Please read all labs before coming to class so you are familiar with the set-up and expectations during class, and come to class with any necessary items (calculator!) you may need.

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Quarter	Week #	Monday	Unit	Lecture
1	1	8/22/2016	Unit 1: Motion	Ch. 1 - Describing the Physical Universe
	2	8/29/2016	Unit 1: Motion	Ch. 2 - Describing Motion
	OFF	9/5/2016		
	3	9/12/2016	Unit 1: Motion	Ch. 3 - Laws of Motion
	4	9/19/2016	Unit 1: Motion	Ch. 4 - Conservation Laws
	5	9/26/2016	Unit 1: Motion	Lab Day (Ch. 1-4)
	6	10/3/2016	Unit 2: Forces	Ch. 5 - Forces in Equilibrium
	7	10/10/2016	Unit 2: Forces	Ch. 6 - Systems in Motion
	OFF	10/17/2016		
2	8	10/24/2016	Unit 2: Forces	Lab Day (Ch. 5-6)
	9	10/31/2016	Unit 3: Energy and Systems	Ch. 7 - Machines, Work, and Energy
	10	11/7/2016	Unit 3: Energy and Systems	Ch. 8 - Energy Flow and Systems
	11	11/14/2016	Unit 3: Energy and Systems	Lab Day (Ch. 7-8)
	Thanksgiving Break	11/21/2016	Unit 4: Matter and Energy	Ch. 9 - Matter and Energy
	12	11/28/2016	Unit 4: Matter and Energy	Ch. 10 - The Atom
	13	12/5/2016	Unit 4: Matter and Energy	Ch. 11 - Relativity
	14	12/12/2016	Unit 4: Matter and Energy	Lab Day (Ch. 9-11)
	Christmas Break	12/19/2016		
	Christmas Break	12/26/2016		
Christmas Break	1/2/2017			
3	15	1/9/2017	Unit 5: Electricity	Ch. 12 - Electric Circuits
	16	1/16/2017	Unit 5: Electricity	Ch. 13 - Electrical Systems
	17	1/23/2017	Unit 5: Electricity	Ch. 14 - Electrical Charges and Forces
	18	1/30/2017	Unit 5: Electricity	Lab Day (Ch. 12-14)
	19	2/6/2017	Unit 6: Electricity and Magnetism	Ch. 15 - Magnetism
	20	2/13/2017	Unit 6: Electricity and Magnetism	Ch. 16 - Electromagnets and Induction
	21	2/20/2017	Unit 6: Electricity and Magnetism	Ch. 17 - Fields and Forces
	22	2/27/2017	Unit 6: Electricity and Magnetism	Lab Day (Ch. 15-17)
	23	3/6/2017	Unit 7: Vibrations, Waves, and Sound	Ch. 18 - Harmonic Motion
	OFF	3/13/2017		
4	24	3/20/2017	Unit 7: Vibrations, Waves, and Sound	Ch. 19 - Waves
	25	3/27/2017	Unit 7: Vibrations, Waves, and Sound	Ch. 20 - Sound
	26	4/3/2017	Unit 7: Vibrations, Waves, and Sound	Lab Day (Ch. 18-20)
	27	4/10/2017	Unit 8: Light and Optics	Ch. 21 - Light and Color
	28	4/17/2017	Unit 8: Light and Optics	Ch. 22 - Optics
	29	4/24/2017	Unit 8: Light and Optics	Ch. 23 - The Physical Nature of Light
	30	5/1/2017	Unit 8: Light and Optics	Lab Day (Ch. 21-23)
	31	5/8/2017		Make-up Day

**Please be advised that this is a tentative schedule. Due dates on Engrade should be considered the final authority in regards to pacing. Some chapters or lessons may be omitted as necessary if the class gets behind schedule.*