Providence Extension Program
Advanced Physics • 2016-2017
Class times • M/W 1-2pm; T/R 8-9am

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

Textbook

BJU Physics, Student Text, 3rd Edition, BJU Press (2010), ISBN 978-1-59166-930-2 and BJU Physics Student Lab Manual, 3rd Edition, BJU Press (2010), ISBN 978-1-59166-931-9

Materials Needed

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

Prerequisites

Algebra 2 and Geometry (recommended to have taken or be concurrently taking Pre-Calculus)

Course description

This course is a study of the interactions and properties of the physical universe. Through an in-depth introduction to the laws of nature and the effects thereof, students will gain a deeper understanding of the nature of God as seen through His creation. Students will collect, analyze, and evaluate experimental data. Mathematics will be heavily employed to describe various events and ideas. Topics include Newtonian mechanics, light, sound, electromagnetism, work, momentum, and energy. If time allows, relativity and quantum mechanics will also be introduced.

Grading Scale and Weights

A:	90 to 100
B:	80 to 89
C:	70 to 79
D:	60 to 69
F:	0 to 59

Homework	15%
Tests	50%
Labs	25%
Participation	10%

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 or contact me via Engrade, 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 PEP. The time will be used to lecture over the lessons being covered that week, including problem solving in class, and possible review of the lessons covered in the last class. Students are encouraged to take copious notes (especially copying the examples). Some class time, on a regular basis, will be devoted to performing labs in class. Students 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. Problems are expected to be worked out in entirety. Partial credit will not be given. It is important to observe due dates for the homework, as it is usually the best aid in preparation for exams. Half-credit penalties may be applied to late assignments.

Tests

Tests will be administered online, via EngradePro. 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

On a regular basis, some class time will be used to conduct laboratory experiments as instructed in the text or other sources. You will be expected to bring a scientific calculator (graphing calculators are recommended), and your lab notebook. A few labs in their entirety will be assigned as homework, where appropriate.

Quarter	Week #	Date	Day	Content	Quarter	Week #	Date	Day	Content
1	1	8/22/16-8/26/16	M/T	Motion in One Dimension (3)	3	17	1/9/17-1/13/17	M/T	Electric Charge (18)
			W/R	Motion in One Dimension (3)				W/R	Electric Charge (18)
	2	8/29/16-9/2/16	M/T	Motion in One Dimension (3)		18	1/16/17-1/20/17	M/T	Electric Charge (18)
			W/R	Motion in One Dimension (3)				W/R	Electric Fields (19)
	3	9/5/16-9/9/16	M/T	Labor Day		19	1/23/17-1/27/17	M/T	Electric Fields (19)
			W/R	Vectors and Scalars (4)				W/R	Electric Fields (19)
	4	9/12/16-9/16/16	M/T	Vectors and Scalars (4)		20	1/30/17-2/3/17	M/T	Electric Fields (19)
			W/R	Vectors and Scalars (4)				W/R	Electrodynamics (20)
	5	9/19/16-9/23/16	M/T	Motion in a Plane (5)		21	2/6/17-2/10/17	M/T	Electrodynamics (20)
			W/R	Motion in a Plane (5)				W/R	Electrodynamics (20)
	6	9/26/16-9/30/16	M/T	Motion in a Plane (5)		22	2/13/17-2/17/17	M/T	Magnetism (21)
			W/R	Motion in a Plane (5)				W/R	Magnetism (21)
	7	10/3/16-10/7/16	M/T	Dynamics (6)		23	2/20/17-2/24/17	M/T	Magnetism (21)
			W/R	Dynamics (6)				W/R	Electromagnetism (22)
	8	10/10/16-10/14/16	M/T	Dynamics (6)		24	2/27/17-3/3/17	M/T	Electromagnetism (22)
			W/R	Dynamics (6)				W/R	Electromagnetism (22)
2	9	10/17/16-10/21/16	M/T	Circular Motion (7)		Spring Break	3/6/17-3/10/17	M/T	Spring Break
			W/R	Circular Motion (7)				W/R	
	10	10/24/16-10/28/16	M/T	Circular Motion (7)			3/13/17-3/17/17	M/T	
			W/R	Circular Motion (7)				W/R	
	11	10/31/16-11/4/16	M/T	Applying Newton's Laws (8)	4	25	3/20/17-3/24/17	M/T	Light and Reflection (23)
			W/R	Applying Newton's Laws (8)				W/R	Light and Reflection (23)
	12	11/7/16-11/11/16	M/T	Applying Newton's Laws (8)		26	3/27/17-3/31/17	M/T	Light and Reflection (23)
			W/R	Applying Newton's Laws (8)				W/R	Refraction (24)
	13	11/14/16-11/18/16	M/T	Work and Energy (9)		27	4/3/17-4/7/17	M/T	Refraction (24)
			W/R	Work and Energy (9)				W/R	Refraction (24)
	Thanksgiving Break	11/21/16-11/25/16	M/T	Thanksgiving Break		28	4/10/17-4/14/17	M/T	Wave Optics (25)
			W/R	Thanksgiving Break				W/R	Wave Optics (25)
	14	11/28/16-12/2/16	M/T	Work and Energy (9)		29	4/17/17-4/21/17	M/T	Wave Optics (25)
			W/R	Work and Energy (9)				W/R	Using Light (26)
	15	12/5/16-12/9/16	M/T	Momentum (11)		30	4/24/17-4/28/17	M/T	Relativity (27)
			W/R	Momentum (11)				W/R	Relativity (27)
	16	12/12/16-12/16/16	M/T	Periodic Motion (12)		31	5/1/17-5/5/17	M/T	Quantum Physics (28)
			W/R	Periodic Motion (12)				W/R	Nuclear Physics (29)
	Christmas Break	12/19/16-1/6/17	M/T	Christmas Break		32	5/8/17-5/12/17	M/T	Review for Final Exam
			W/R	Christmas Break				W/R	Review for Final Exam

**This schedule is tentative. Due dates on EngradePro are the final authority in regards to pacing. Some chapters or lessons may be omitted as necessary if the class gets behind schedule.*