

# Institute for Science and Mathematics

Physics 2014/2015

Instructor: Dr. M.E. Donaldson

## Syllabus

### Fall 2014

1. Algebra review
2. Algebra applied
  - Mechanics
    - 1-D Motion
    - Forces and Energy
    - Statics
    - Kinematics
    - 2-D Motion
    - Newton's First Law
    - Newton's Second Law
    - Newton's Third Law
    - Momentum
    - Periodic motion

### Spring 2015

1. More Algebra applied!
  - Periodic Motion
    - Vibrations and Waves
    - Sound
  - Light/Optics
    - Reflection, refraction, and diffraction
    - Light Quanta
    - Light Emission
  - Electric forces and fields
  - Electrical energy and current
  - Electrical circuits
  - Magnetism
  - Fluid dynamics
  - Thermodynamics

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**Content: Weekly labs will be provided at the workshop located at:  
2925 Horner Court**

**All students are expected to complete weekly assignments, including taking notes over material presented in videos.**

### Grading:

Homework ..... 50%

- Typed lecture notes
- Worksheets, problem sets and study questions
- Lab write-ups

Participation ..... 10%

- Class discussions
- Lab exercises

Tests ..... 40%

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High School Physics, CK-12 Foundation. Available for download at:  
[www.scimathinstitute.org/texts/physics.pdf](http://www.scimathinstitute.org/texts/physics.pdf)

Textbook (optional) Holt Physics by Holt Rinehart & Winston, Jerry S. Fauhgn,  
Harcourt College Publishers

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**Cost:** \$310 per semester

**Schedule:** See next page

## Physics Class Schedule

### Fall 2014

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August	25	(Video only, no lab)
September	1	(Video only, no lab)
	8	
	15	
	22	
	29	
October	6	
	13	
	20	
	27	
November	3	
	10	
	17	
	24	(Video only, no lab)
December	1	
	8	
	15	Drop off or mail-in finals

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### Spring, 2015

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January	12	(Video only, no lab)
	19	
	26	
February	2	
	9	
	16	
	23	
March	2	
	9	
	16	(Spring Break)
	23	
April	6	(Testing)
	13	
	20	
May	27	
	4	
	11	Drop off or mail-in finals

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	Regular week: lab on Monday, videos at home
	Video only week: no lab on Monday, videos at home
	No Class: no lab on Monday, no videos at home