



Cannon balls: a quantum mechanical treatment.

# Modern Physics

**Welcome to Mr. Berndt's  
Modern Physics Class**

## Goals of this class- Learning Outcomes:

- \* Know the underlying structure of the universe and understand the measurement scales involved
- \* Use models as a tool to understanding.
- \* Investigate the evolution of models
- \* Apply experimental tools and techniques.
- \* Understand what is considered scientific evidence and why it is different from other types of evidence
- \* Develop an understanding of the importance of these topics to society and how they may eventual be used in everyday life
- \* Develop the ability to analyze information and then formulate question based on what they have learned from that information.
- \* Interact with researchers and their current research.



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## Topics covered in this class:

Gravity  
 Black holes  
 Specific Relativity  
 General Relativity  
 Speed of light  
 Size of the universe  
 Duality  
 Fundamental forces  
 Aspects of Energy  
 Aspects of momentum  
 Aspects of Charge  
 Atomic Structure  
 Lasers  
 How the sun works  
 Shell model  
 Stability  
 Nuclear Decay  
 Anti-matter  
 Nuclear Energy  
 Particle Theory  
 Standard Mode  
 Neutrinos (Davis-Bahcall)  
 Higgs Boson  
 Cosmology  
 String Theory  
 Dark Matter and Dark Energy

