

2017 Honors Physics Summer Course Outline

All 25 chapters of the textbook will be covered during this 6 week course:

1. The Science of Physics
2. Motion in One Dimension
3. Two-Dimensional Motion and Vectors
4. Forces and the Laws of Motion
5. Work and Energy
6. Momentum and Collisions
7. Rotational Motions and the Law of Gravity
8. Rotational Equilibrium and Dynamics
9. Fluid Mechanics
10. Heat
11. Thermodynamics
12. Vibrations and Waves
13. Sound
14. Light and Reflection
15. Refraction
16. Interference and Diffraction
17. Electric Forces and Fields
18. Electrical Energy and Capacitance
19. Current and Resistance
20. Circuit and Circuit Elements
21. Magnetism
22. Induction and Alternating Current
23. Atomic Physics

24. Modern Electronics

25. Subatomic Physics

We will be spending 20% to 25% amount of our instructional time on various forms of practical activities. These will include formal lab write ups, mini-labs (informal write ups), computer simulation lab (interactive Physics), and a few projects. Some investigations will be conducted with computerized data collection using a wide range of Vernier Lab equipment. Video analysis and sophisticated devices like air tracks and radio controlled robots. Other labs will use old fashioned meter sticks, stop watches, pendulums, and spring scales etc. At least some of the labs will be designed by students.

Assessment/Calculation of Grades: student progress is assessed during each 10 days of period over this 6 weeks teaching. A student's progress is reported as a grade based on the South Carolina grade reporting system:

93-100% = A 85-92%= B 77-84%= C 70-76%= D 0-69%= F

Student progress is cumulatively assessed each week in the following areas:

Major Assessment (Test and Projects): 70%

Minor Assessment (Quizzes, class work, and Homework): 30%