# Syllabus of PHYS 109 (Spring 2020)

**Textbook:** College Physics, A strategic Approach.
Randall D. Knight, Brian Jones and Stuart Field, third edition, 2014, Pearson,
ISBN-10: 1-292-05715-7

***This course is designed for students in Health Science to enable them to appreciate the basic concepts of physics which are relevant to their further studies.***

**Part I Force and Motion**

Chapter 2 Motion in One Dimension

Chapter 3 Vectors and Motion in Two Dimensions

Chapter 4 Force and Motion

Chapter 5 Applying Newton's Laws

Chapter 8 Equilibrium and Elasticity

**Part II Conservation Laws**

Chapter 9 Impulse and Momentum

Chapter 10 Energy and Work

**Part III Properties of Matter**

Chapter 13 Fluids

**Part V Optics**

Chapter 18 Ray Optics

**Part VI Electricity ~~and Magnetism~~**

Chapter 20 Electric Fields and Forces

Chapter 21 Electric Potential

Chapter 22 Current and Resistance

**Part VII Modern Physics**

Chapter 30 Nuclear Physics

# Details of the selected chapters from the Textbook

## Part I Force and Motion

### Chapter 2 Motion in One Dimension

**2.1** Describing Motion
**2.2** Uniform Motion
**2.3** Instantaneous Velocity
**2.4** Acceleration
**2.5** Motion with Constant Acceleration
**2.6** Solving One-Dimensional Motion
**2.7** Free Fall

### Chapter 3 Vectors and Motion in Two Dimensions

**3.1** Using Vectors
**3.3** Coordinate Systems and Vector Components
**3.4** Motion on a Ramp

### Chapter 4 Force and Motion

**4.1** Motion and Force
**4.2** A Short Catalog of Forces
**4.3** Identifying Forces
**4.4** What Do Forces Do?
**4.5** Newton's Second Law
**4.6** Free-Body Diagrams
**4.7** Newton's Third Law

### Chapter 5 Applying Newton's Laws

**5.1** Equilibrium
**5.2** Dynamics and Newton's Second Law
**5.3** Mass and Weight
**5.4** Normal Forces
**5.5** Friction
**5.7** Interacting Objects
**5.8** Ropes and Pulleys

### Chapter 8 Equilibrium and Elasticity

**8.1** Torque and Static Equilibrium
**8.2** Stability and Balance