



PHYSICS I

PHYC 201

Course Description

This course is a conceptual study of units and dimensions of physical quantities, vectors and kinematics, laws of motion and its applications, work and energy, properties of matter, sound, oscillations, gravitation, fluid mechanics and thermal physics. Students perform experiments dealing with the basic laws of mechanics, vibration, circular motion, fluids, heat and thermal properties of materials.

Credit: 3 credits

Repeatable: No

Course Structure

The course will be presented in different formats: Lectures, self-directed learning, discussions and student assignments etc.

Competencies

This course emphasizes competencies to enhance skills essential for a future health care professional.

- Knowledge
 - **Demonstrate content knowledge and skills in foundational courses required by biomedical professionals**
 - Demonstrate information literacy
 - **Demonstrate quantitative reasoning**
 - **Demonstrate longitudinal learning through coursework**
- Critical Thinking
 - **Develop the skills of self-reflection and peer assessment to improve personal performance.**
 - Demonstrate the ability to analyze literature and written material
 - Demonstrate the ability to distinguish between well-reasoned and poorly reasoned arguments
- Communication Skills
 - Demonstrate effective presentation skills to faculty and peers
 - **Demonstrate effective listening skills**
 - Demonstrate effective written communication

Objectives:

Upon completion of PHYC 201 course, the student should be able to describe:

- Measurement in Physics
- Motion along a straight line
- Vectors
- Motion in two and three dimensions.
- Force and motion
- Kinetic energy and work
- Potential energy and conservation of energy
- Conservation of linear momentum
- Equilibrium and elasticity
- Centre of mass
- Gravitation
- Waves
- Temperature, Heat, and the First Law of Thermodynamics
- The Kinetic Theory of Gases

Schedule: Dates and times to be posted at the beginning of the term on the online calendar.

Course Topics / Outline

Activity	Lecture Topics
Week1	Measurement in Physics, Motion in a straight line with constant acceleration, Velocity-time and Distance-time graphs
Week 2	Motion under free fall, Vectors (Representation, position vectors, unit vectors. Direction vectors, dot product), Vectors (Components and resultants)
Week 3	Projectile motion, Uniform circular motion
Week 4	Newton's laws of motion, Some special forces (tension, gravitation, friction)
Week 5	The inclined plane, Systems of single smooth fixed pulleys, Energy, Work and Power
Week 6	Hooke's law and energy, General motion of a particle
Week 7	Mid-Term Examination
Week 8	Centre of mass and of gravity, Static equilibrium, Moment of a force
Week 9	Density and pressure, Laws of flotation
Week 10	Types of Waves, Characteristics of Waves, Properties of light
Week 11	Geometric Optics, Sound Waves (Beats and the Doppler Effect)
Week 12	Temperature and Thermometers, Heat Transfer, Kinetic theory of gases
Week 13	Ideal gas laws
Week 14	End of Term Examination

Assignments:

Students are required to present a detailed description of each of the following:

- the Electromagnetic Spectrum (the underlying physics and applications of each component of the spectrum)
- three common eye defects and how lenses may be used to assist in their correction.

Textbooks and Reference Materials:

Hugh D. Young, Philip W. Adams, Raymond Joseph Chastain. College Physics. 10th edition. Publisher: Pearson.

Evaluation: Students are evaluated by a midterm exam, a final exam, assignments and their attendance.

Ponits:

	Points*
Assignments	20%
Mid Term	30%
Final exam	40%
Attendance	10%
Total points	100%

*Points are approximate and may be adjusted during the term. Students will be notified of changes.

Grade:

Percent of Points	Letter Grade
95-100%	A(h)
90-94%	A
85-89%	B+
80-84%	B
75-79%	C+
70-74%	C
<70%	F

Attendance:

Students are expected to attend at least 80% of all scheduled learning activities. Attendance in the class will be recorded. Students attended 80% or more will be awarded with 10% on total scoring system. Please note that absences due to illness or misadventure will be factored into the 20% of allowable absences if informed respective faculty or the Dean of Students.

Policies:Professional Demeanor

The student should be thoughtful and professional when interacting with faculty and other students. Inappropriate behavior includes the use of offensive language, gestures, or remarks with sexual overtones. Students should maintain a neat and clean appearance, and dress in attire that is generally accepted as professional.

Honesty

Students are expected to demonstrate honesty and integrity in all aspects of their education and in their interactions with faculty, administration, physicians, patients, and fellow students. They will not cheat, plagiarize, or assist others in the commission of these acts.

Faculty and Office Hours:

Mr. Marcus Caine, Instructor

Student may schedule an appointment by email.