

Standard  Institutionally Developed College: N/A

EDGE Compatible: No

**Pre-requisites**

**Co-requisites**

**Course Description**

Introduces the student to the basic laws of physics with specific applications for health science students. Topics include basic Newtonian mechanics, fluid mechanics, heat and temperature, medical imaging techniques that utilize electromagnetic radiation and sound, basic principles of waves, light, and sound, basic principles of electricity and magnetism, and electrical safety.

**Course Length**

	Minutes	Contact Unit
Lecture:	2250	
Lab 2:	1100	
Lab 3:	0	
Practicum/Internship:	0	
Clinical:	0	
<b>Total:</b>	<b>3350</b>	<b>3.73</b>

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Semester Credit Hours: 4

**Competencies**

Order	Description	Lecture	Lab2	Lab3	Practicum/Internship	Clinical	Total Minutes	Semester Credit Hrs
1	Basic Newtonian Mechanics	450	220	0	0	0	670	
2	Fluids and Pressure	450	220	0	0	0	670	
3	Heat and Temperature	450	220	0	0	0	670	
4	Electricity and Magnetism	450	220	0	0	0	670	
5	Basic Principle of Waves, Light, and Sound	450	220	0	0	0	670	
<b>Totals for Course ALHS 1126 - Health Science Physics ( version 201003 ):</b>		<b>2250</b>	<b>1100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3350</b>	<b>4</b>

**Learning Outcomes**

## Basic Newtonian Mechanics

Order	Description	Learning Domain	Level of Learning
1	The student will be able to describe a system of units, conversions, and scientific notation.	Cognitive	Knowledge
2	The student will be able to define Newton's laws of motion.	Cognitive	Knowledge
3	The student will be able to define statics and equilibrium.	Cognitive	Knowledge
4	The student will be able to define torque and rotational motion.	Cognitive	Knowledge
5	The student will be able to discuss conservation of Energy.	Cognitive	Comprehension
6	The student will be able to define levers and other simple machines.	Cognitive	Knowledge
7	The student will be able to define impulse and momentum.	Cognitive	Knowledge

## Fluids and Pressure

Order	Description	Learning Domain	Level of Learning
1	The student will be able to define static and dynamic fluid terms.	Cognitive	Knowledge
2	The student will be able to discuss density, specific gravity, viscosity.	Cognitive	Comprehension
3	The student will be able to define units of measurement.	Cognitive	Knowledge
4	The student will be able to define Archimedes' Principle.	Cognitive	Knowledge
5	The student will be able to define Pascal's law.	Cognitive	Knowledge
6	The student will be able to define partial pressure.	Cognitive	Knowledge
7	The student will be able to discuss flow rate.	Cognitive	Comprehension
8	The student will be able to discuss Bernoulli's Principle.	Cognitive	Comprehension
9	The student will be able to discuss Kinetic Theory.	Cognitive	Comprehension
10	The student will be able to discuss gas laws.	Cognitive	Comprehension

## Heat and Temperature

Order	Description	Learning Domain	Level of Learning
1	The student will be able to define heat and temperature terms.	Cognitive	Knowledge
2	The student will be able to discuss measurement of temperature.	Cognitive	Comprehension
3	The student will be able to describe methods of heat transfer.	Cognitive	Comprehension
4	The student will be able to discuss phase changes.	Cognitive	Comprehension

## Electricity and Magnetism

Order	Description	Learning Domain	Level of Learning
1	The student will be able to define terms related to electricity and magnetism.	Cognitive	Knowledge
2	The student will be able to discuss electrostatics.	Cognitive	Comprehension
3	The student will be able to define current electricity.	Cognitive	Knowledge
4	The student will be able to discuss electrical safety.	Cognitive	Comprehension
5	The student will be able to define units of measuring magnetism.	Cognitive	Knowledge

Order	Description	Learning Domain	Level of Learning
6	The student will be able to describe natural magnetism.	Cognitive	Comprehension
7	The student will be able to give examples of electromagnetic devices.	Cognitive	Comprehension

#### Basic Principle of Waves, Light, and Sound

Order	Description	Learning Domain	Level of Learning
1	The student will be able to describe the basic properties of sound waves and the properties of light and sound.	Cognitive	Knowledge
2	The student will be able to discuss the interaction of light and sound with matter.	Cognitive	Comprehension
3	The student will be able to discuss type of medical imaging.	Cognitive	Comprehension

#### References

Order	Reference Type	Description
1	Book with Author(s) Listed	Green, C. R.. (1984). Technical physics. (1st). Englewood Cliffs, NJ: Prentice Hall.
2	Book with Author(s) Listed	Hewitt, P. G.. (2005). Conceptual physics. (10th). New York: Addison Wesley.
3	Book with Author(s) Listed	Krauskopf, K. B. & Beiser, A.. (2007). The physical universe. (12th). New York: McGraw-Hill.
4	Book with Author(s) Listed	Tippens, P. E. . (1989). Basic technical physics. (2nd). New York: McGraw-Hill.
5	Book with Author(s) Listed	Robinson, P. & Hewitt, P. G.. (2005). Conceptual physics: lab manual. (10th). New York: Addison Wesley.
6	Book with Author(s) Listed	Zebrowski, E.. (1980). Practical physics. (1st). New York: McGraw-Hill.