

## PHYS 141 – Introductory Mechanics

<b>Credits, contact hours, categorization of credits:</b>	4 credits, 90 contact hours, Basic Science
<b>Instructor's or course coordinator's name:</b>	Dr. John Schaibley
<b>Textbook, title, author and year:</b>	Young and Freedman, University Physics, 15th edition (2020), with Mastering Physics Laboratory Manual for 141
<b>Other Supplemental materials:</b>	
<b>2021-2022 catalog description:</b>	A first course in Newtonian mechanics; introduces freshman-level students to the statics and dynamics of point particles, rigid bodies, and fluids. Topics include vector algebra, projectile and circular motion, Newton's Laws, conservation of energy, collisions and conservation of momentum, rotational dynamics and conservation of angular momentum, statics, harmonic oscillators and pendulums, gravitation and Kepler's Laws, fluid statics and dynamics.
<b>Prerequisites:</b>	MATH 122B, 124, or 125, or appropriate Math Placement Level.
<b>Co-requisites:</b>	None
<b>Required, Elective, or Selected Elective:</b>	Required
<b>Instruction Outcomes:</b>	<ul style="list-style-type: none"><li>• Recognize the vocabulary and units of mechanics.</li><li>• Understand the concepts, laws, and principles used in mechanics and generate associations between the concepts and laws.</li><li>• Apply concepts and laws to both qualitative and quantitative problems.</li><li>• Work cooperatively within a group on problem solving.</li><li>• Investigate the behavior of physical systems experimentally.</li></ul>
<b>Student Outcomes:</b>	<ol style="list-style-type: none"><li>1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.</li></ol>

6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.

**Topics covered:**

Topics include vector algebra, projectile and circular motion, Newton's Laws, conservation of energy, collisions and conservation of momentum, rotational dynamics and conservation of angular momentum, statics, harmonic oscillators and pendulums, gravitation and Kepler's Laws, fluid statics and dynamics.