

Course Outcome Guide (COG)

| Course: | PHYS251: University Physics I | Credits: | 5 | Instructor: | Lance Olson |
|--|--|---|---|---|---|
| Course Description: | Pre-requisite: Calculus I or placement examination. A calculus based physics course covering the basic principles of mechanics and thermodynamics. Includes Newton's laws of motion, momentum, rotational motion, mechanical energy and conservation laws, as well as the first and second laws of thermodynamics. Co-requisite: PHYS 251 Lab | | | | |
| Concepts and Issues | Process Skills | Assessment Tasks | Intended Outcomes | | |
| | | | Course | General Education or Program | Institution |
| <ul style="list-style-type: none"> *Measurement *Motion in one direction *Vectors *Motion in two dimensions *Laws of motion *Circular motion *Energy of a system *Conservation of energy *Linear momentum and collisions *Rotation about a fixed axis *Angular momentum *Static equilibrium and elasticity *Universal gravitation *Fluid mechanics *Oscillatory motion *Thermodynamics | <ul style="list-style-type: none"> *Evaluate problems and convert units as needed *Use dimensional analysis to evaluate problems *Calculate vectors and use them to solve motion problems *Correctly apply mechanics to solve physics problems. *Correctly apply oscillations and mechanical waves to solve physics problems. *Correctly apply thermodynamics to solve physics problems. | <ul style="list-style-type: none"> *Participate in class discussions and activities demonstrating knowledge of subject matter. *Complete examinations demonstrating acceptable skill level of concept and process. *Complete textbook readings, questions and problems (both individually and collaboratively) demonstrating acceptable skill levels of concept and process. * Design, construct and test your final project. | <ul style="list-style-type: none"> *Students will apply physics principles to real-world situations and/or future academic pursuits. *Students will work effectively within a collaborative group to achieve a distinct result. *Students will be expected to Integrate learning theory with laboratory performance. | <ul style="list-style-type: none"> Students will use reasoning skills to analyze and solve problems. | <ul style="list-style-type: none"> Students will use reasoning skills to analyze and solve problems. |