PHYS1401 - College Physics I

Credits:	4 (3/1/0)
Description:	Meets MnTC Goal Area 3. This course gives a theoretical and practical introduction to physics, including kinetics in one and two dimensions, force and dynamics, bodies in equilibrium, work and energy, linear momentum, rotational motion, fluids, waves and sound. Lab equipment is used to illustrate these concepts. A mastery of college algebra and some trigonometry is essential for success in this course. The ability to use computers for creating reports and spreadsheets is needed for lab work. Physics 1401 is intended for all students but is especially designed for students majoring in forestry, biological sciences, dentistry, pharmacy, veterinary medicine, physical therapy and other fields related to medicine. Lab is required.
Prerequisites:	• MATH1115 OR • MATH1116 OR • MATH1118
Corequisites:	
Pre/Corequisites*:	
Competencies:	1. Demonstrate an understanding of scientific theories and the scientific method. 2. Demonstrate an understanding of the theories and topics described in the course description. 3. Demonstrate significant proficiency with the use of algebra and trigonometry to manipulate and analyze equations of physics. 4. Create a graph of a data set and use the graph with appropriate mathematical treatment to measure or compute experimental results. 5. Demonstrate the ability to express numerical uncertainty in a result and recognize sources of error in measurements. 6. Demonstrate an ability to use dimensional analysis for problem-solving. 7. Communicate effectively by writing detailed solutions to physics problems. 8. Analyze many different physics word problems, translate them to a mathematical form, solve them and communicate the result in writing. 9. Demonstrate an understanding of the hypothesis or physical principal that is measured or illustrated in a lab experiment. 10. Configure apparatus with minimal instruction and the use of given drawings. 11. Make informed decisions about alternative ways to acquire data. 12. Participate actively with the lab group. 13. Perform experiments and record measurements. 14. Demonstrate ability to accurately report results of lab experiment.
MnTC goal areas:	3. Natural Sciences

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Can be taking as a Prerequisite or Corequisite.

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