

Program Learning Outcomes

I= Introduced
R= Reinforced
M= Mastered

Program Name: Physics

Date: 8/16/2021

Program Learning Outcomes	Courses Mapped to Outcomes													
	Phys 105	Phys 106	Phys 121	Phys 122	Phys				281	Phys 342	Phys 352	Phys 361	Phys 362	Phys 372
Knowledge, skill, or behavior students can demonstrate upon program completion	Coll Phys	Coll Phys	Gen Phys	Gen Phys					Inter lab	E&M	Optic	Mech	Stat Mech	Q.M.

- 1 Graduates will be able to demonstrate an understanding of the essence of physics laws and concepts without mathematics

6	Graduates will be able to conduct effective research which will include computer use, problem solving, hypothesis testing, and analysis of uncertainties					I	I			R					
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<p>Program Learning Outcomes</p> <p>Knowledge, skill, or behavior students can demonstrate upon program completion</p>	<p>Phys 380 math Phy 2</p>	<p>Courses Mapped to Outcomes</p>
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Program Learning Outcomes: Assessment Tools

Program Name: Physics

Date: 8/16/2021

<p>Program Learning Outcomes</p> <p>Knowledge, skill, or behavior students can demonstrate upon program completion</p>	<p>Measurement Tool</p>	<p>Timeline/Frequency of Assessment</p>	<p>Target</p>	<p>Review</p>
<p>1 Graduates will be able to demonstrate an understanding of the essence of physics laws and concepts without mathematics</p>	<p>Force concept inventory/CSEM</p>	<p>FCI at the beginning and end of Phys121.* CSEM at the beginning and end of Phys122.* Additionally, end of Phys361 for FCI and end of Phys342 for CSEM.</p>		

5	Graduates will know how to identify relevant existing works in literature that inform or support their own scholarly work and provide accurate citations and recognition where appropriate when presenting their own work	Citation rubric applied to reports written in Phys281 and 382 by instructor. Assessment by mentor(s) against a rubric.	Citation rubric done in connection with writing evaluation (#3). Done after each term (including summer) in which research is done.	Average of 70%	Results are reviewed at the end of every other (even)academic year at May department meeting.
6	Graduates will be able to conduct effective research which will include computer use, problem solving, hypothesis testing, and analysis of uncertainties	Assessment by mentor(s) against a rubric during the student's final semester. Assessment by mentor(s) or a department seminar presentation.	Done after each presentation and after each term in which research is done.	Average of 80% of best evaluation of work and best evaluation of presentation.	Results are reviewed at the end of every other (even) academic year at May department meeting.

*The instruments will be administered in Phys141 and 142. This will allow a measure gains in just the algebra and calculus intro sequence for all intro students. Ultimately the results for majors