## STUDENT LEARNING OUTCOMES (SLOs)

**Physics BA – School of Sciences and Mathematics**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Assessment Method</th>
</tr>
</thead>
</table>
| SLO1: Students will demonstrate a basic conceptual understanding of modern physics, which include special relativity, wave-particle duality, properties of quantum mechanical wavefunctions, and the limitations of classical physics. | **Measure 1.1:** At least 80% of students will score 75% or higher on conceptual questions related to, for example, special relativity, wave-particle duality, properties of quantum mechanical wavefunctions, and the limitations of classical physics as measured in the final exam administered in PHYS 230 (Modern Physics).  
**Measure 1.2:** At least 80% of students will score 75% or higher on conceptual questions related to, for example, special relativity, wave-particle duality, properties of quantum mechanical wavefunctions, and the limitations of classical physics as measured in midterm tests given in PHYS 230 (Modern Physics).  |
| SLO2: Students will apply their numerical and computational skills to solve problems involving electromagnetism, waves, optics, and spectroscopy. | **Measure 2.1:** At least 80% of students will score 75% or higher on solving problems involving, for example, electromagnetism, waves, optics, and spectroscopy numerically as measured in the final exams administered in PHYS 203 (Physics and Medicine), PHYS 270 (Nanotechnology and Medicine), PHYS 320 (Introductory Electronics), PHYS 340 (Photonics), and PHYS 396 (Biophysical Modeling of Excitable Cells).  
**Measure 2.2:** At least 80% of students will score 75% or higher on solving problems involving, for example, electromagnetism, waves, and optics using computational techniques as measured in the homework assignments and/or projects given in PHYS 203 (Physics and Medicine), PHYS 270 (Nanotechnology in Medicine), PHYS 320 (Introductory Electronics), PHYS 340 (Photonics), and PHYS 396 (Biophysical Modeling of Excitable Cells). These courses are chosen because they are the most common elective courses taken by Physics BA students, which address the topics associated with this assessment.  |
| SLO3: Students will perform an advanced experimental project and demonstrate an understanding of the essential tools of data analysis, which includes distinguishing between statistical and systematic errors, detecting propagating errors, and representing data graphically. | **Measure 3.1:** At least 80% of students will score 75% on a formal project report as assessed by a rubric in PHYS 370 (Experimental Physics).  
**Measure 3.2:** At least 80% of students will score 75% on oral presentation of the project as assessed by a standard rubric in PHYS 370 (Experimental Physics).  |