



## Program Assessment Report (PAR)

Physics, BA (PHY) Baccalaureate Degree

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ACADEMIC YEAR COVERED BY THIS REPORT: [AcademicYear]

### I. PROGRAM LEARNING OUTCOMES

Graduates will be able to:

- Apply and integrate sound knowledge of multiple core areas of physics including mechanics, modern physics, electricity and magnetism, optics, and instrumentation (Outcome 1).
- Demonstrate the design, completion, and analysis of fundamental physics experiments (Outcome 2).
- Analyze and communicate physics knowledge and problem solving skills effectively in multiple oral and written representations (Outcome 3).

### II. PROCEDURES USED FOR ASSESSMENT

#### A. Direct Assessment

In the spring of 2019, the current Physics Department became aware that there had been no previously developed assessment program for the B.A. Physics degree program. The Department is currently endeavoring to develop a plan for direct assessment of the program. This effort was significantly delayed due to complications and work load associated with the COVID 19 pandemic especially as the department's undergraduate committee had planned on devoting considerable time in the spring of 2020 to working on this issue. This issue is complicated in that there are two tracks within the B.A. Physics program that students can complete. One is the traditional B.A. program and another is the Physics Education Concentration which prepares students to become high school physics teachers. The American Physical Society (APS) is currently finalizing the Effective Practices for Physics Programs (EP3) Project. EP3 will provide a guide for self-assessment of undergraduate physics programs founded on documented best practices linked to measurable outcomes. The American Physical Society (APS) is a nonprofit membership organization working to advance and diffuse the knowledge of physics through its outstanding research journals, scientific meetings, and education, outreach, advocacy, and international activities. It had been expected that the EP3 guide would have been available by now, but its release was delayed and is now scheduled for early 2021. The Wright State University

Department of Physics has delayed making any significant modifications to its assessment design and implementation until access to EP3 is possible. The WSU Physics Department is committed to developing and utilizing an assessment approach that is viewed as the gold standard, as outlined in the EP3 guide, as regarded by the national physics community.

## **B. Scoring of Student Work**

Per the department's efforts to develop a direct assessment plan for the B.A. Physics degree, how direct assessment will be quantitatively scored is a work in progress.

## **C. Indirect Assessment**

Exit interviews with recent graduates will be used to measure all three outcomes. Every third year an alumni survey will be conducted. Assessment of the program will also be accomplished indirectly via tracking outcomes of the current academic year's graduating seniors in regard to career trajectories.

## **III. ASSESSMENT RESULTS/INFORMATION:**

### 1. Direct Assessment 2. Indirect Assessment

1. Per the Section II text, the direct assessment plan for the B.A. Physics degree is currently in development. 2. 5 students received the B.A. in Physics during the 2019-20 academic year. 1 student completed the traditional B.A. track and has returned to Spain. 4 students completed the Physics Education Concentration. 1 of the 4, a graduate of the WSU Army ROTC program, is now serving in active duty in the U.S. Army. The other 3 students are currently in a WSU CEHS master's program that will provide them with their teaching licensure.

1. None 2. As none of these students are currently in positions that directly utilize physics skills, no analysis in relation to learning outcomes can be done at this time. If and when the 3 teachers-in-training receive physics teaching positions, such analysis would be appropriate.

## **IV. ACTIONS TO IMPROVE STUDENT LEARNING**

The Physics Department Undergraduate Studies Committee (USC) will gather, analyze and summarize all assessment data and information. Based on its findings, recommendations for improvements in meeting objectives and learning outcomes will be made by the USC and communicated to the entire faculty. Results from the prior academic year will be presented to the department in the subsequent fall annually. Every three years, an alumni survey will be conducted. Based on the outcome assessments and the alumni survey, a summary of recommendations will be compiled every three years. Per the earlier comment, upon gaining access to the APS Effective Practices for Physics Programs in early 2021, in addition to utilizing it to adopt a more comprehensive assessment plan for the department, the department will also adapt a regular and annual review process that will include analyzing and reacting to annual assessment information.

## **V. SUPPORTING DOCUMENTS**

Additional documentation, when provided, is stored in the internal Academic Program Assessment of Student Learning SharePoint site.