# Assessment Plan (E1A) Form

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| **Program:** | Physics |

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| **Date of Plan's Most Recent** | May 26 , 2025 |

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| **Contact Name for Assessment Plan:** | Kenneth Stephen Burch |

| [1] | LIST LEARING OUTCOMES AND ASSOCIATED WEBSITE |
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| | (a) List the program's learning outcomes<br>(b) Include the link to the website where they are posted |

The Department of Physics Core courses share with the university's Natural Science Core the same desired outcomes, namely that at the completion of a Core course, students will have:

a) expanded their understanding of the principles, body of knowledge, and investigative strategies that comprise physics and its technological applications;

b) developed a scientific literacy that will promote curiosity, respect for the scientific method, and general awareness of the limitations of scientific conclusions;

c) recognized the role of scientific discovery, past, present, and future, in interrelated concerns such as human health, societal well-being, and planetary sustainability; and

d) appreciated the role of physics in defining their relationship with the natural world and their position within the cosmos.

The complete list of outcomes is published on the Department of Physics "Undergraduate Program" www.bc.edu/content/bc-web/schools/mcas/departments/physics/undergraduate.html

| [2] | COLLECT EVIDENCE OF STUDENT LEARNING |
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| | What data/evidence is used to determine that students have achieved the stated outcome(s) of the program? |

The data vary depending on the nature of the Core course, specifically in terms of the level of rigor and mathematical detail. Student evaluations are reviewed for all Core courses. The chair reviews the syllabus for the Non-major courses (e.g., "Structure of the Universe"). In the problem-solving-based Core courses that cover classical mechanics (PHYS1500, PHYS2100, and PHYS2200), the department administers the "Force Concept Inventory"/Mechanics

Baseline test at the beginning and end of the semester to assess student learning over the semester.

| [3] | REFLECT ON ASSESSMENT FINDINGS |
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| | Who interprets the evidence? What is the process? |

The Chair, Director of Undergraduate Studies (DUS), and the Undergraduate Affairs Committee. For courses where student evaluation indicates an issue, the chair first discusses it with the DUS and then with the faculty member. For first-year courses, the DUS discusses the results of the Force concept tests with the other faculty teaching the course and the chair.

| [4] | IDENTIFY ACTIONS FOR IMPROVEMENT |
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| | What changes to support the achievement of the learning outcomes have been made as a result of the data/ evidence? |

Recently, the “Structure of the Universe” class syllabus was revised to keep it current with modern astronomy efforts and make it more accessible. This included adding outside visitors from NASA. In addition, to better align it with the learning goals, the course enrollment was increased to allow for broader discussion and a range of ideas, an essay component, and additional readings regarding the past role of scientific discovery and its intersection with students’ understanding of their role in the cosmos.

| [5] | Date of most recent program review: |
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After an internal review of our undergraduate curriculum in 2019 – 2021 (COVID interrupted), we proposed, and had approved by the EPC and Board of Trustees in June 2022, a new BS degree program in Applied Physics.

Last external review: December 2009, Next one is scheduled for January 2026