

Doctor of Philosophy -- Physics

Expanded Statement of Institutional Purpose

Institutional Mission Reference

The Ph.D. program of the Department of Physics contributes to the mission of the University by (a) extending the boundaries of knowledge through research, (b) offering a graduate program in a scientific field of importance to the region, (c) offering a graduate program of importance to society in which the University has unusual strength due to faculty expertise and geographical advantage, and (d) offering a graduate program that has achieved national prominence.

Institutional Goal(s) Supported

The specific initiatives of the Strategic Plan (Initiatives 2, 3, and 4) that are supported by this program are that the University has (a) Excellent Graduate Programs, (b) High-Quality Research, and (c) Nationally Prominent Programs. In addition, the general goal of high-quality teaching is supported.

Intended (Student) Outcomes, Methods for Assessment, and Criteria for Success

Intended Outcome 1

Students must demonstrate the ability to communicate orally about topics in advanced physics.

Method for Assessing Outcome 1 and Criterion for Success: All students must complete four semesters of a graduate seminar in which they are each required to make presentations on assigned topics. Their performances are judged by assigned faculty members. The presentation of a research paper at a national physics meeting can be substituted for one semester of this seminar.

Intended Outcome 2

Students must demonstrate the ability to communicate in writing about topics in advanced physics

Method for Assessing Outcome 2 and Criterion for Success: Each student must complete a dissertation on his or her independent research, and the quality of writing in that dissertation is one of the criteria used to judge its acceptance.

Intended Outcome 3

Students must demonstrate adequate preparation to begin research in advanced physics.

Method for Assessing Outcome 3 and Criterion for Success: Each student must pass a rigorous candidacy examination that has both written and oral components. This examination covers all of the major fields of physics at an advanced level. A committee consisting of all the members of the faculty of the Department of Physics who are certified for graduate instruction grades the performance of a student on this candidacy examination.

Intended Outcome 4

A student must perform independent research, obtain results that are publishable in leading physics journals, and prepare a dissertation on that research

Method for Assessing Outcome 4 and Criterion for Success: A student's progress is monitored by a faculty advisory committee that is appointed specifically for that individual student. The chair of that committee is the principal supervisor of the student's research. The committee must approve the dissertation and also conduct a public oral examination in which the student defends the contents of the dissertation. The faculty advisory committee determines whether or not the student successfully defended the dissertation.