

AAPT Statement on Research Experiences for Undergraduates

(Adopted by the AAPT Executive Board on November 1, 2009)

“The American Association of Physics Teachers urges that every physics and astronomy department provide its majors and potential physics majors with the opportunities and encouragement to engage in a meaningful and appropriate undergraduate research experience.”

Rationale:

Research in the real world involves the intense and often exhilarating experience of studying nature, learning some new things, and then bouncing that knowledge off fellow workers within your discipline to see if they agree. Richard Feynman likened this to cooperatively observing a chess game without knowing the rules – and gradually learning and celebrating a few of those beautiful rules and the evolving simplicity that should make up physics.

Whether in basic or applied sciences, every undergraduate physics major depends on such an experience to mature toward an investigative state-of-mind and self-confidence that will serve them well in their next professional endeavor. While often learning new experimental, theoretical or analytical skills, they will also experience the very human frustrations, successes, serendipity, and late nights that can take science totally out of the classroom and into the fabric of their lives. Whether in a graduate school application or a job interview, they will have stories to tell about when they really helped figure something out.

Research experiences will necessarily take on different forms depending on the interests and goals of the student and on the resources and capabilities of their department and may begin early or late during the undergraduate years. Thus undergraduate research will not always involve sophisticated equipment or methodology, but it should be both meaningful and appropriate for the student and situation. On-campus faculty-mentored projects, participation in research at NSF-funded REU sites, research opportunities at national and corporate laboratories, and research opportunities provided through other federal agencies and private foundations should be strategically utilized to meet the needs of our students and departments.