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Career Pathways for Physics Undergraduates–Effective practices among departments that work (and put students to work)

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What if a student expresses a desire to enter the workforce upon completion of the bachelor's degree? With an average 40% of all physics baccalaureate degree recipients opting not to enter graduate school, it is a question worth considering for departments aiming to build robust programs that prepare students for a broad range of career paths. Undergraduate physics programs, with effective recruitment, retention and appropriate preparation of students, have the potential to add to the numbers of excellent members of the STEM workforce. However, the default focus of many departments is on preparing students for entry into advanced physics degree programs. Based on this apparent gap, the American Institute of Physics has undertaken an NSF-funded research effort to understand, compile and disseminate effective practices for preparing undergraduate physics students to enter the STEM workforce upon graduation. The project entailed site visits to eight schools with strong records of students entering STEM fields, in order to discern effective practices in recruitment and preparation of students for those opportunities. While each school was somewhat unique, we have identified a set of common features. Moreover, the information clearly indicates that there are three distinct groups that must be engaged: the students themselves, the faculty advisors, mentors and career professionals who have direct contact with the students, and the administrative "decision-makers." Each of these groups requires targeted information that addresses their particular roles in the collaborative process that will lead to not only an increase in the numbers of students who enter the STEM workforce, but in the quality preparation of those students. The tools for each of these groups will be discussed, with special emphasis on a set of career tools for students and their mentors.

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