

# Using the EP3 Guide to Address Concerns with Low Enrolments in Physics Departments

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**Abstract.** Physics departments throughout the world share a concern that threatens their well-being and existence: low student enrolments. The Effective Practices for Physics Programs (EP3) Guide ([ep3guide.org](http://ep3guide.org)) provides a set of practices and strategies to help with both the recruitment and the retention of students. In this workshop, we will describe the EP3 Guide, present data from US universities about threats to departments, and discuss a scenario from a fictional large department to show how the EP3 Guide can be used to support a department to gather decision-making data, respond to requests, and make sustainable changes to improve enrolments.

## A cause for concern

An enrollment crisis in higher education threatens the well-being of physics across the world. Physics programs are under threat of closure due to dropping graduation rates and lower university enrollments. At the same time, workforce needs in areas such as quantum information science, biological physics, materials physics, applied physics, and engineering are growing [1].

Data from the USA provide cause for concern. In 2020, college graduation rates in physics decreased for the first time since the 1990s [2, 3]. College enrollments before the COVID-19 pandemic had already been dropping [4], but the trend was exacerbated by the pandemic [5]. Where once 70% of high school students went to college, in 2022 it was only 62% [5]. In the past several decades, many US institutions have shifted to a financial model in which support for departments is proportional to the number of majors in the disciplinary program. Lowered enrollments put physics departments under threat of funding losses, which in turn makes it harder to attract new students, faculty, and staff. A survey from 2022 showed that more than 70% of responding physics department chairs were worried about enrollments, and 80% were experiencing either moderate threats to funding or severe threats like merger or closure within the last 2 years [6].

## Plan for the workshop

Following a brief overview of the Effective Practices for Physics Programs (EP3) Guide ([ep3guide.org](http://ep3guide.org)), participants in this workshop will be provided information (e.g., graduation rates and other student data) on a physics department at a fictitious institution, “Stellar University,” for which they serve as an external consultant (e.g., external program reviewer). With this information, participants will speculate about the issues facing this department, in part by considering their own experiences. Participants will gain experience in using the cycle of reflection and action outlined in the EP3 Guide and learn how the EP3 Guide could be used to identify potential strategies that may be helpful for this fictitious department to consider (and, by extension, for their own departments).

The goal of these activities is to alert faculty to the opportunities to address enrollment before they become a concern to their institution. By using resources like the EP3 Guide, faculty can act early to grow enrollments and help their departments thrive.

## References

- [1] National Science Board and National Science Foundation, The STEM Labor Force of Today: Scientists, Engineers, and Skilled Technical Workers, No. NSB-2021-2, 2021.
- [2] National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), <https://nces.ed.gov/ipeds/>.
- [3] American Physical Society, Bachelor's Degrees in Physics and STEM, <http://www.aps.org/programs/education/statistics/bachelors.cfm>.
- [4] E. Nadworny and M. Larkin, Fewer Students Are Going To College. Here's Why That Matters, NPR, 2019. <https://www.ctpublic.org/2019-12-16/fewer-students-are-going-to-college-heres-why-that-matters>
- [5] US Bureau of Labor Statistics, College Enrollment and Work Activity of High School Graduates News Release, Economic News Release, 2023. <https://www.bls.gov/news.release/hsgec.htm>
- [6] S. V. Chasteen, Results from the 2022 EP3 Survey to Physics Department Chairs: External Report, Chasteen Educational Consulting, 2022.