PASSION-DRIVEN STATISTICS

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CURRICULUM OVERVIEW

Passion-Driven Statistics (https://passiondrivenstatistics.com) is an NSF-funded project-based, introductory statistics curriculum that supports students in conducting original research with real-world data from the very first day. Datasets are provided or an instructor can use one of their choosing. The curriculum is built around the Guidelines for Assessment and Instruction in Statistics Education. Traditional topics for an introductory statistics course are covered. Students work with descriptive and inferential statistics as well as basic statistical programming concepts and skills in the pursuit of managing and analyzing data. This original work is presented at a research poster session in which students have the opportunity to describe their process of inquiry, including the different decisions made along the way, their premises, conclusions and any barriers faced. Liberal arts colleges, large state universities, regional colleges/universities, medical schools, community colleges, and high schools have all successfully implemented the model. All resources, including student learning materials, are freely available to any instructor planning an authentic data-driven research curriculum for use across a variety of disciplines, and for engaging students at many different levels, including complete beginners. Resources include lecture videos, exams, assignments, etc. and current instructors using the model to offer their support. The model and resources are flexible and adaptable to meet your students' needs and your classroom goals, whether you use one assignment or the full turnkey model.

PUBLISHED RESULTS

The project-based course enrolled higher numbers of underrepresented minority (URM) students than a traditional introductory statistics course (Dierker et al., 2015). Higher rates of female URM and a wider range of mathematical aptitude enrolled in the project-based course compared to both a general introductory programming course and an introductory course representing a gateway to the computer science major (Cooper & Dierker, 2017). Students enrolled in the course had more positive course experiences than those enrolled in a traditional course, including a better understanding of the information presented through one-on-one support, engaging in greater preparation for class, finding the course more useful and gauging its reward and feelings of accomplishment more highly (Dierker et al., 2018). Recent findings suggest the course may contribute to the decision for students to enroll in future courses in statistics and data analysis when compared to the psychology and mathematics department courses (Nazzaro et al., 2020).

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