Passion-Driven Statistics

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INTRO:

The majority of the highest paying, in-demand jobs require specialized or general skills in data analysis, data processing and applied statistics. This trend threatens to increase current social and economic disparities given the continued under-representation of both females and individuals from racially underrepresented groups in data oriented courses.

METHODS:

This NSF-funded curriculum engages students in authentic projects with large, real-world data sets.

Utilizing a flipped classroom approach, the curriculum is designed around student research questions of their own choosing.

Students work with descriptive and inferential statistics as well as basic statistical programming skills to manage and analyze data.

This original work is presented at the end of the semester at a research poster session.

RESULTS:

Supporting published research has shown that the project-based course attracts higher rates of under-represented minority (URM) students compared to a traditional math statistics course (Dierker et al., 2015) and higher rates of female and URM students compared to a general Introductory programming course (Cooper & Dierker, 2017).

Passion-Driven Statistics is an introductory, **project-based** model that gets students hooked on the excitement and power of **quantitative research**.

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RESULTS (continued):

URM students were also twice as likely as non-URM students to report that their interest in conducting research increased after completing the passion-driven statistics course (Dierker et al., 2016).

Compared to traditional statistics students, passion-driven students found the course more rewarding, were more likely to accomplish more than expected, found the course more useful than other college courses, and received more individualized support than other college courses.

Passion-driven statistics students were also more likely to report increased confidence in working with data and increased interest in pursuing advanced course work compared to those from a traditional statistics course (Dierker et al., 2018a).

Translation Syntax

Language	Example Syntax
SPSS	FREQUENCIES VARIABLES = VAR1 VAR2 VAR 3 /ORDER = ANALYSIS
STATA	tab1 var1 var2 var3
SAS	PROC FREQ; tables VAR1 VAR2 VAR3; RUN;
R	library(descr) freq(as.ordered(myData$VAR1)) freq(as.ordered(myData$VAR2)) freq(as.ordered(myData$VAR3))
PYTHON	c1 = myData['VAR1'].value_counts(sort=False, dropna=FALSE) print(c1)

DISCUSSION:

The model has been successfully implemented in liberal arts colleges, large state universities, regional colleges/universities, community colleges, high schools and even within graduate level courses. (Dierker et al., 2018b).

E-BOOK:

http://bit.ly/Passion-DrivenStatistics

REFERENCES