UW System Math Initiative
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University of Wisconsin System Math Initiative

Gateway Statistics

Course description:

Topics in the gateway Statistics course include descriptive statistics, both graphical and numerical, elementary probability, general and sampling distributions, and the fundamentals of statistical inference, including confidence intervals and hypothesis testing, simple regression and correlation. Students who have successfully learned this material will be prepared to interpret data from the field they are studying.

Learning outcomes:

1. Develop and interpret descriptive statistical methods.
2. Use basic concepts of probability to calculate and explain outcomes associated with random experiments.
3. Explain and calculate probabilities from binomial and normal distributions.
4. Explain the reasoning behind sampling distribution including the Central Limit Theorem.
5. Use and apply inferential statistics including one-sample (both small and large) confidence intervals and hypothesis testing for population mean and population proportion.
6. Use and apply inferential statistics for two-sample hypothesis testing of the population means.
7. Perform linear regression analysis and interpret the results.
8. *Use and interpret one-way ANOVA.
9. *Use the Chi-square goodness of fit to test if a sample of data came from a population with a specific distribution.

*Recommended for a four-credit course.

Guidelines for Statistics:

1. Students with an appropriate score on the AP Statistics exam would earn credit for this course.
2. Computational aspects of statistical analysis can be simplified through the use of statistics software.
3. The course may be terminal for students who do not require further math for their majors.
4. The core learning outcomes (LO) were vetted by math faculty systemwide in spring 2018 and serve as a mechanism to ensure consistency for purposes of transfer and applicability of gateway mathematics courses across the UW System. Individual institutions and faculty will continue to enjoy the freedom to utilize the modality and instructional strategies they deem most appropriate for the delivery of these courses.

5. The core learning outcomes typically reflect the content of a three- to four-credit course. The intent of the learning outcomes is that if a student successfully completes this course at one UW institution and transfers the course to another, the receiving institution will accept this course, regardless of the number of credits being transferred, as meeting an existing mathematics-related graduation requirement, unless a student's choice of degree or academic program requires another specific mathematics course(s).

6. The Math Steering Committee will develop a process to periodically review and update the gateway course descriptions and learning outcomes that honors the autonomy of each department and continues to support the intent of the Math Initiative.

9.20.18