

University of Illinois at Springfield

General Education Council

Course Approval Criteria

Category: Mathematics (Statistics Courses)

To seek general education course approval, faculty or programs must complete two forms:

- UIS New Course Proposal and Change Form
- Baccalaureate Outcomes Checklist

Forms are available at: <http://www.uis.edu/generaleducation/curriculum/facultyforms.html>

Submit forms and syllabi to the appropriate college curriculum committee, then to the dean, and finally to the Office of Undergraduate Education (PAC525) for distribution to the General Education Council. For questions, contact the Office of Undergraduate Education (206-7413 or uisuge@uis.edu).

Category Overview

The general goals of the mathematics general education requirement are:

- to provide students with problem-solving and informed, rational decision-making skills using qualitative and quantitative information;
- to help students interpret and analyze quantitatively presented material and solve mathematical problems;
- to encourage students to critically evaluate numerical information;
- to teach students to synthesize quantitative/qualitative information into symbolic form;
- to help students create logical arguments using quantitative information;
- to help students realize that mathematical/statistical methods have limits.

Mathematics courses should help students meet the following learning objectives:

- Represent mathematical information symbolically, visually, and numerically;
- Use arithmetic, algebraic, and geometric models to solve problems;
- Interpret mathematical models, such as formulas, graphs, and tables;
- Estimate and check answers to mathematical problems, determining reasonableness; alternatives; and correctness and completeness of solutions.

Statistics courses are specifically concerned with solving real-world problems through statistical methods, rather than on routine skills or appreciation.

Statistics courses are generally taught by the Math Department, but other departments may seek approval for coursework under this category provided the courses meet the description for statistics provided by the Illinois Articulation Initiative General Education Core Curriculum. The IAI description of "General Education Statistics" (IAI Code: M1 902) offers the following summary of expected content:

Descriptive methods (frequency distributions, graphing and measures of location and variation), basic probability theory (sample spaces, counting, factorials, combinations, permutations, and probability laws), probability distributions (normal distributions and normal curve, binomial distribution, and random samples and sampling techniques), statistical inference (estimation, hypothesis testing, t-test, and chi-square test, and errors), correlation and regression, and f-test and analysis of variance. Prerequisite: C or better in intermediate algebra and geometry.

For approval by the General Education Council, all of the above content, including prerequisites, is required with the exception of f-test and analysis of variance, which is optional. Additional statistical content in courses is welcome.

Statistics courses are encouraged that help students:

- Recognize the social responsibility of the individual in generating or interpreting quantitative data within a larger community;
- Demonstrate in speaking and writing the ability to present well-grounded interpretations of mathematical analyses;
- Engage in open-minded and ethical decision-making and action in areas where quantitative information is generated and interpreted.