Flagged Course – Quantitative Reasoning

Courses flagged for quantitative reasoning reinforce students’ ability to apply quantitative, mathematical, statistical and/or computational methods to problems in a discipline. Quantitative reasoning skills include the ability to apply mathematical methods to solve problems in other disciplines; to interpret quantitative or mathematical information in the context of a discipline; to comprehend, critique, create and communicate arguments supported by quantitative evidence; to understand formal symbolic representations of data or ideas, and to manipulate the symbols following formal rules to reach conclusions; or to understand abstract mathematical ideas and their connections to concepts in other disciplines. In order for a course to be flagged for quantitative reasoning, the following three conditions must be satisfied.

1. **Student work as described in the syllabus and course assignments.** A quantitative reasoning course requires demonstration of student proficiency in applying quantitative, mathematical, statistical and/or computational methods within a specific discipline. Student work must involve demonstration of student proficiency in at least one of the following areas:
   - Applying quantitative, mathematical, statistical and/or computational methods to solve problems,
   - Interpreting quantitative or mathematical information in the context of the discipline,
   - Comprehending, critiquing, creating and communicating arguments supported by quantitative evidence,
   - Understanding formal symbolic representations of data or ideas, and following formal rules to reach conclusions, and
   - Understanding and explaining abstract mathematical ideas and their connections to concepts in other disciplines.

   General examples of relevant assignments include: performing appropriate calculations to solve problems in a discipline; examining data sets, and drawing and supporting relevant conclusions about the data; applying mathematical concepts, techniques and rules to draw and support relevant conclusions; understanding and describing how mathematical principles explain phenomena and concepts in other disciplines. All student work related to the flag must require that the students clearly communicate their quantitative or mathematical approach. Appropriate student work could be in the form of homework, technical reports, written essays, oral presentations, exams, or other appropriate formats.

   In some courses, quantitative skills may be addressed by a single, reasonably substantial, assignment or project. In others, they may be addressed by multiple smaller assignments throughout the course.

2. **Deployed course pedagogy.** To assist students in developing proficiency in quantitative reasoning, the professor will commit a specific portion of class time to the instruction of topics relevant to quantitative reasoning. In addition, the students must understand the overall benefits of developing skills in quantitative reasoning in today’s global community and in their own personal lives.
3. **Percentage of the final course grade as described in the course syllabus.** At least ten percent (10%) of the final course grade will be determined by work demonstrating proficiency in quantitative reasoning. This may be a single project, worth 10%, in which quantitative reasoning plays a significant role, or multiple assignments whose total value is 10% or more of the grade.