Quantitative Reasoning - Flag Courses

Xavier University Last Revised 08/19/2015

QR-flag Description (to be included on all syllabi approved for a QR flag)

In courses with the QR flag, you will practice making sense of quantitative information and interpreting this information in the context of the course material. One of the goals of the QR-flagged course is to lead students towards carefully and precisely presenting quantitative information as well as inferences that such information permits, within the broader disciplinary context. A portion of the course will be devoted to your reading, communicating, and reasoning with quantitative information, as such information provides an oft-neglected perspective and can lead to conclusions which otherwise might not have been possible. The insights gained from the quantitative aspects, in concert with other perspectives, will help you form a more rigorous and robust understanding of the broader course topic(s).

Objectives of QR-Flagged Courses

Every QR-flagged course must do several things:

1. It must help students get used to working with quantitative information within a disciplinary context—making sure they make sense of the appropriate quantitative concepts well enough to decide when to apply them within a given context, and to discern conclusions that can be drawn from, or may be suggested by, quantitative information they encounter.
2. It must help students develop and/or strengthen their ability to communicate quantitative information in written, verbal, visual, and/or mathematical form, such as tables, graphs, and formulas, as appropriate.
3. It must help students to contextualize data and quantitative information as one of many avenues toward understanding complex issues better, to answer relevant questions, to suggest possible solutions, and to see how a quantitative perspective fits into, and supplements, a larger whole.

The following guidelines were developed by the QR Flag Committee as a framework to ensure that the courses effectively achieve the student learning outcome provided by the new Xavier core: “SLO 2b: evaluate real-world problems using quantitative methods and arguments.” Committee members will be happy to work with faculty, and to assist them as they develop and implement QR-flagged courses. It is our hope and recommendation that students will complete their QR flag by the end of their sophomore year.

Criteria for QR-Flagged Courses

In order to accomplish the goals outlined above, all QR-flagged courses must include the following:

1. A primary disciplinary focus and one or more SLOs devoted to disciplinary content.
2. The pursuit of SLO 2b, dedicated to improving quantitative literacy/reasoning, within the context of the course and the discipline in which the course is taught, i.e. the use of quantitative information and reasoning to enhance students’ understanding of course material. Quantitative work should account for at least 25% of the students’ final grades.
3. Sufficient instruction and guidance in developing strategies to investigate and solve problems by considering and applying basic arithmetic, geometric, and/or statistical tools in order to analyze and to draw conclusions from quantitative information that address key issues of the course.

4. Frequent opportunities for students to develop and use their QL skills through, for example:
   - Reading about a key problem or issue, then finding, examining, and understanding data that can potentially be used to address the problem or issue,
   - Using the data to analyze the problem/issue, and carefully draw and/or support conclusions,
   - Accurately and precisely communicating their understanding of quantitative information and its significance, and
   - Discussing with, and receiving feedback from both peers and the instructor, and allowing opportunities to correct, extend, or re-direct their work based on these discussions and feedback.

Call for Proposals for Courses to Satisfy the QR Flag

Please include the following in your written proposal to the QR-Flag subcommittee:

I. A completed syllabus for the course proposed for a QR flag that includes:
   - The general QR-flag description (see the first page of this document)
   - A clear indication of the course’s status as a QR-flagged course, and a statement about how and why quantitative reasoning will play a role in the course
   - Discipline-specific learning outcomes
   - An explanation of the instruction, guidance, and feedback students will receive regarding quantitative literacy and reasoning

II. A narrative, which
   (a) clarifies if you are proposing a new course, if you are proposing to add a more pronounced quantitative perspective to an existing course, or if you are proposing that a QR-flag shall be attached to an existing course without significant changes to the course.
   (b) clarifies whether this course is / will be taught by several members of your department, or if, at least initially, this course is to be taught by yourself.
   (c) explains how, in your view, the course satisfies the objectives and goals as well as the criteria and characteristics of a QR-flagged course, as outlined in the description provided above.

III. If possible, an example of a topic to be discussed in this course, to explain how the inclusion of quantitative considerations will benefit the primary disciplinary focus and goals of the course.