The department developed a list of goals for an undergraduate major in mathematics. Since a wide variety of courses can be used to satisfy degree requirements, the list was deliberately designed in a way that is not course-specific:

1. Students will be able to identify a problem and characterize solutions to it, develop procedures for arriving at solutions, and possess the technical skill to carry out a solution.

2. Students will be able to read and understand mathematical writing, as well as be able to write and communicate mathematics in a clear and understandable fashion.

3. Students will be able to understand proofs of mathematical results.

To measure progress toward these goals, the department developed a questionnaire which is distributed partway through the semester. For each declared undergraduate major, each instructor of the student receives a copy of the questionnaire to fill out and return. The questions are:

1. Does the student display the ability to understand definitions and use them in appropriate situations?

2. Does the student display the ability to complete explicit calculations and derivations?

3. Can the student clearly express a written mathematical argument?

4. Does the student display the ability to apply theoretical knowledge to solve problems?

5. Does the student demonstrate a degree of mathematical maturity? (Indications of this are the ability to think of a problem in several ways, to anticipate developments in course material, to relate the subject material to other courses in meaningful ways.)

Through fall 2004 faculty responded “often” or “seldom” to each question, based on the student’s performance on instruments such as tests, projects, exams, and homework. For spring 2005 the faculty responded on a scale from 4 to 1, with 4 corresponding to “often”. Faculty include written comments and indicate what evaluation instruments their answers are based upon.

A copy of the revised questionnaire is attached.
To be specific, the department links the objectives in question 1 to all three goals, the objectives in question 2 to goals 1 and 2, the objective in question 3 to goal 2, the objective in question 4 to goal 1, and the objective in question 5 to all three goals. The expectations for questions 1 through 4 are a 70% rate of response “often” and for question 5 a more modest 10% rate of response “often”.

The department also will conduct exit interviews. A copy of the exit interview form is also attached.

Results are reported to the faculty in general faculty meetings and to the department’s Undergraduate Curriculum Committee and Undergraduate Majors and Minors Committee, where further discussion takes place, as needed. Results are also posted on the department’s internal webpage.