Item 1: Current copy of outcomes assessment plan. We have attached a copy of the current outcomes assessment plan for the graduate program. Note that we are in the process of altering the plan. For the time being we continue to use the assessment questionnaires at comprehensive and final exams, but faculty members are now being asked to report on student performance in courses. At present we are requesting general comments on classroom performance only; as we review the reports for the next outcomes assessment report, we will request that faculty respond to specific points.

Item 2: Outline of activities, 2003-04. At the discussion of the outcomes assessment report for 2002-03 which took place in January, 2004, we observed that the questionnaires used at the oral graduate student examinations provides only implicit information about specific program goals of developing the ability to analyse intricate mathematical problems and the ability to write mathematics clearly. As a step toward formulating a tool to get at these issues, the department decided to review commentaries of instructors on the performance of students in graduate classes for information on these points.

For Master’s degree students, the overall goal of the program is to provide each student with a broad training in mathematics. The objective is for each student to successively complete the Master’s final oral examination. At the final oral examination, the chair of the exam distributes a short questionnaire:

1. Does the student’s performance provide evidence that the student has obtained broad training in mathematics? Please respond by a cross in the appropriate box below.

   Narrow  |  Broad
   ---     |  ---
   1       |  2  3  4  5
   ☐       |  ☐  ☐  ☐  ☐

2. Additional comments?

In the academic year 2003-04 the survey was conducted at four Master’s oral exams, and there were 15 responses. The average rating was 4.2. There were three comments: The student is “not qualified for the Ph.D. program.” “Excellent exam. The student demonstrated depth and breadth
unusual for a student at this level.” ‘This is an excellent student.” As we intend for the ratings to be at least 3 on this scale, we view these as a favorable result for the overall program.

For Ph.D. students assessments are undertaken at the Ph.D. oral comprehensive and at the final oral exam. The goal of the program is for each student reaching the comprehensive examination to have obtained a broad knowledge of mathematics. The objective is for each student to exhibit strong performances on the written and oral comprehensive exams. At the oral comprehensive examination, the chair of the exam distributes a short questionnaire:

1. Does the student’s performance on the oral Ph.D. comprehensive examination provide evidence that the student has obtained broad knowledge of mathematics? Please respond by a cross in the appropriate box below:

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2. Additional comments?

During the academic year 2003-04 surveys were taken at two oral comprehensive examinations. Eight forms were distributed and returned with responses. The average rating was 4.5. Again we expect our ratings to exceed 3, so this is a favorable result.

For students completing a dissertation, the goals are for the student to make an original contribution to mathematics and for the student to demonstrate the ability to access the relevant literature. The objective is for the student’s presentation at the final oral exam to provide evidence that the dissertation is an original contribution to mathematics and the student has learned to access the relevant literature. At the final oral examination, the chair of the exam distributes a short questionnaire:

1. Does the student’s presentation at the final oral provide evidence that the student’s dissertation is an original contribution to mathematics? Please respond by a cross in the appropriate box below:

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2. Does the student’s presentation at the final oral provide evidence of the ability to access the relevant literature? Please respond by a cross in the appropriate box below:

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3. Additional comments?
During the academic year 2003-04, three students had Ph.D. final oral exams. Twelve evaluation forms were received with the following results. The average rating on question 1 was 4.25. The average rating on question 2 was 4.58. The target rating on each question is 3, so we are pleased with these results.

**Item 3: What we have learned.** This year we had a much bigger sample of results from Master’s examinations (four) than in the previous year (one). From the results we conclude that students exiting the program do have the abilities to understand and to formulate proofs and to communicate oral mathematics clearly. The sample of results from Ph.D. examinations was roughly the same size as last year, and the averages are essentially the same. Once again we have difficulty in interpreting these results. Therefore, we are seeking additional instruments to examine how students develop in our program.

**Item 4: Anticipated changes in outcomes assessment activities.** We anticipate continuing to make changes in the plan for graduate program assessments, because we believe that slight changes will enable us to collect more useful information. At the meeting to discuss the 2002-03 outcomes assessment report, we discussed modifications to the goal statements and identification of specific objectives that will be easier to measure within our program framework. We also discussed modifying the questionnaires. Achieving consensus proved to be difficult. The Graduate Studies Committee proposed to assess the program through faculty reports on graduate student performances in each graduate course. Faculty members consider performance of students in class, on written assignments, on exams, and in oral presentations. This is being piloted during the 2004-05 academic year, while the unmodified questionnaires remain in use. At the meeting to discuss this report, we will have the opportunity to review the data from the first round of faculty reports. Through these reports we expect to get information on how our program develops our students’ abilities to understand mathematical writing and to analyze intricate mathematical problems.

**Item 5: Communication of results to faculty.** Results of outcomes assessment of the graduate program are discussed at a faculty meeting, with the department’s Graduate Studies Committee, and posted on the department’s internal web page.