ASSESSMENT PLAN

Doctor of Philosophy in Mathematics

Department of Mathematics
College of Science and Mathematics
University of South Carolina
March, 2000

I. PROGRAM PURPOSES
The Ph.D. in mathematics is designed to produce a skilled professional mathematician who is
tained to conduct research in mathematics, function effectively as a classroom teacher at the
college level, or become a professional practitioner in an industrial setting.

II. INTENDED LEARNING OBJECTIVES/OUTCOMES
The Ph.D. degree recipient should be able to...
1. Understand theory: understand advanced mathematical research appearing in reputable
journals in the field.
2. Develop theory: find proofs of new results in mathematics publishable in a reputable
journal in the field
3. Understand application: understand applications of advanced mathematics in business,
government, or industry.
4. Computational knowledge: have a mastery of a higher level programming language
5. Written Communication: explain on paper mathematical results to a mathematically
educated audience not expert in the particular specialization.
6. Advanced written communication: explain on paper results to experts in the field.
7. Oral Communication: orally present mathematical results to a mathematically educated
audience not expert in the particular specialization.
8. Advanced oral communication: orally present results to experts in the field.
9. Instruction: act as an independent instructor for lower level courses in mathematics.

III. PROCEDURES, MEASURES, AND CRITERIA
1. Theory: candidates are required to pass the theoretical courses Math 700, Math 701 or
Math 706, and Math 703, 704 and obtain a Ph.D. pass on the Admission to Candidacy
Examination based on these courses. The candidates also need to pass an in-depth
examination, the Comprehensive Examination, an examination consisting of a written exam
administered in three, three to four hour sessions, and an oral examination. The contents of
the written portion of the examination must include the subject matter of two one-year
sequences numbered 710 or higher from two of the eight areas listed below and also test in-
depth the subject matter of the student’s research area.
2. Written Communication: candidates write an original dissertation on a advanced topic in
mathematics. Graduates are expected to publish their dissertation results in one or more
reputable research journals.
3. Computational skills: candidates take the programming course CSCI 500, if they have not
previously taken a programming course.
4. Oral Communication: candidates take the required seminar course Math 890 and/or
participate and speak in departmental research seminars.
5. **Instruction:** candidates teach as instructor of record during 2 regular semesters and 2 summer semesters a lower level mathematics course. Candidates will have full responsibility as instructor of record in these courses.

IV. **IMPLEMENTATION**

The Department of Mathematics will conduct an Exit Survey with each graduating Ph.D. student, in which each student will be asked how well he/she is prepared for his/her prospective job, as well as comment on the USC graduate program's strengths and weaknesses. The results are used to help make improvements in the program. First positions of graduates. Each year the Graduate Director will prepare a summary report of assessment data.

V. **IMPLEMENTATION**

Evaluation results from the Implementation Phase of this Assessment Plan will be featured in the Department's Annual report, the Strategic Plan (including any updates), and at other times deemed appropriate by the Department Chair or other University officials.

VI. **FEEDBACK CHANNELS**

Assessment results and summaries will be circulated to program faculty at a faculty meeting and at other times as deemed necessary by the Department Chair.

VII. **USE OF RESULTS**

Use of results for program modification and the subsequent impact of any changes made will be reviewed yearly by the relevant faculty, and included in the Department's annual Report and Strategic Plan (including any updates).