ASSESSMENT PLAN
Doctor of Philosophy in Statistics
Department of Statistics
College of Science and Mathematics
University of South Carolina
February, 2000

I. PROGRAM PURPOSES
The Doctor of Philosophy in Statistics is designed to train the student to teach Statistics at the college or university level, to do independent research, and/or work as an independent consultant in business or industry.

II. INTENDED LEARNING OBJECTIVES/OUTCOMES
The Ph.D. degree recipient should be able to...
1. Interpret theory: interpret advanced results in mathematical statistics appearing in reputable journals in the field.
2. Derive theory: derive results in mathematical statistics publishable in a reputable journal in the field.
4. Nonstandard methods: create and interpret non-standard analyses of data, publishable in a reputable journal in the field.
5. Standard consulting: act as an independent consultant using standard methods with researchers in science, industry, business or government.
6. Nonstandard consulting: act as an independent consultant creating or using nonstandard methods with researchers in science, industry, business or government.
7. Basic computation: use existing statistical software and programming languages to solve standard problems.
8. Advanced computation: program statistical procedures in basic computer languages to solve nonstandard problems.
9. General written communication: explain on paper results of statistical analyses to audiences not expert in statistics.
10. Advanced written communication: explain on paper results to audiences expert in statistics.
11. General oral communication: orally present results of statistical analyses to audiences not expert in statistics.
12. Advanced oral communication: orally present results to audiences expert in statistics.

III. PROCEDURES, MEASURES, AND CRITERIA
1. Theory: candidates are required to pass theory courses STAT 710, 711, 712, 713, 722, 724 and pass a qualifying and comprehensive exam over much of the material in these courses. In addition, the dissertation is expected to produce at least one publishable work in a reputable statistics journal, which would require some original theoretical content. Graduates who continue in academic careers will likely continue to produce publishable works with theoretical content.
2. Methods: candidates are required to pass applications courses STAT 704, 705, 714, 715, 740, 790, and 791, as well as at least 12 semester hours of electives (which will typically be methods-oriented) and pass a qualifying and comprehensive exam over much of the material in these courses.
3. Consulting: candidates are required to pass consulting seminars STAT 790 and 791. Most candidates will spend at least one semester working as a Statistical Laboratory Assistant.
4. Computation: candidates are required to pass the advanced computing course STAT 740 as well as several courses which feature basic computing skills (e.g. STAT 704, 705 and methods-oriented electives). In addition, the dissertation is expected to produce at least one publishable work in a reputable statistics journal, which would often require some original advanced computational work. Graduates who continue in academic careers will often continue to produce publishable works with computational content.
5. Written Communication: candidates are required to write a dissertation publishable in a reputable journal, which would require advanced (technical) written communication skills. Graduates who continue in academic careers will often continue to produce publishable works. General written communication skills are topics in the consulting seminars STAT 790 and 791.
6. Oral Communication: candidates are required to complete the doctoral seminar course STAT 890, which features weekly presentations of a technical nature, and are tested in an oral comprehensive exam and a
defense of their dissertation. General oral communication skills are topics in the consulting seminars STAT 790 and 791.

7. **Instruction**: candidates will teach at least one semester of an elementary Statistics course with full responsibility, and more typically will have this responsibility in at least 6 major semesters. Most candidates are given the opportunity of teaching with full responsibility at least one senior-level course.

### IV IMPLEMENTATION
The Department of Statistics conducts an Exit Survey with each graduating Ph.D. student, in which the student is asked to assess their own abilities on each of the categories in section II above, as well as comment on the USC graduate program’s strengths and weaknesses in general. The results are used to help make improvements in the program. First positions of graduates are kept on file, as well as reports of progress towards promotion, publications, teaching awards, etc. Also, in January of each year, the Graduate Director prepares a summary report of assessment data, including:

1. Scholastic information for all current doctoral candidates
2. Scholastic information for all graduating doctoral candidates the previous year
3. Teaching evaluation summaries

### 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), the Department’s newsletters, 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 the annual Department retreat 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).