

UNIVERSITY OF WISCONSIN—MADISON

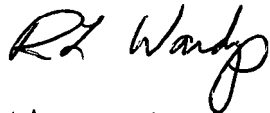
Department of Statistics  
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MEMORANDUM

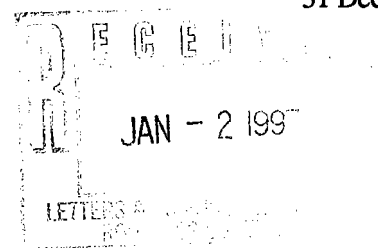
To: Dean Phillip Certain  
102 South Hall  
Campus

31 December 1996

From: Robert L. Wardrop



Subject: Statistics Department Assessment



The Statistics Department Curriculum Committee was given the lead role in formulating our proposals for the assessments of the undergraduate major and the graduate program. As Chair of this committee, I am submitting our proposals to you for feedback.

The attached proposals were approved without dissent at a departmental faculty meeting. Please note that our undergraduate program is very small—rarely have there been more than ten declared majors at any time. We have attempted to create an assessment program that is sensitive to the special constraints of a very small program.

The Department offers a joint undergraduate major with the Department of Computer Sciences. At this time there are no declared students in this joint program. We are unclear as to how the College wants joint programs to be handled. In this case, Statistics would be happy to apply the regular criteria to the joint majors.

## **Plan for the assessment of the undergraduate major in statistics**

### **1. Goals.**

The overall goal of the undergraduate major in statistics is to produce graduates who understand and appreciate statistics, who can use statistics to better understand the world, and who can use statistics as a basis for life-long learning. Included in this overall goal is the belief that completing the major in statistics entails gaining sufficient subject competency to enable a student to achieve at least one of the following:

- (a) To handle the statistical demands of an entry-level technical position in business, industry, or government.
- (b) To enter a graduate program in statistics.
- (c) To handle the statistical demands in pursuing a graduate scientific or professional program.

### **2. Objectives.**

A student completing the undergraduate major in statistics should have the skills described below.

- (a) An understanding of calculus.
- (b) The ability to apply techniques of calculus to problems in statistics.
- (c) An understanding of the major principles, methods, and important theorems of statistical theory, for the sampling theory, Bayesian and likelihood approaches.
- (d) An understanding of the important principles of experimental design.
- (e) The ability to design and perform an experiment, analyze the resultant data, and summarize the findings in a written report.
- (f) Develop an understanding of several broad areas of statistical techniques, for example: regression, time series, nonparametrics, sample survey, log-linear models, reliability, multivariate, and biostatistics.
- (g) Some experience with statistical software packages.
- (h) An exposure to the ideas and techniques of modern computer sciences.
- (i) Either additional (beyond calculus) knowledge in mathematics or a concentration in an area in which statistical principles and methods are important.

### **3. Implementation.**

Each year the Chair of Statistics shall appoint an Assessment Committee (AC) that will be charged with gathering data to explore whether the goals are being met and whether the objectives or goals need to be revised.

The methods used by the AC are likely to evolve over time as we discover which ones are effective and if new concerns emerge. At first, the AC will focus on the following three activities.

- (a) An exit survey of all graduating seniors.
- (b) Surveys of alumni at two points in time (exact times to be determined).
- (c) An examination of Statistics 424 papers submitted by our majors.

## **Plan for the assessment of the graduate program in statistics**

### **1. Goals.**

- (a) The goal of the Masters program is to prepare the student to work as a consulting and collaborating statistician.
- (b) The goal of the Ph.D. program is to prepare the student for a career as an academic or to be in a leadership position in business or government.

### **2. Objectives.**

The student completing the Masters program in statistics should have the skills described below.

- (a) A solid understanding of statistical theory.
- (b) A solid understanding of linear models.
- (c) An ability to work with scientists as an effective statistical consultant and collaborator.
- (d) Expertise in one or more areas of statistical methodology.

The student completing the Ph.D. program in statistics should have the skills described below.

- (a) A solid understanding of advanced statistical theory and probability theory.
- (b) An ability to collaborate with other statisticians and scientists.
- (c) Expertise in several important areas of statistical methodology.
- (d) The ability to read and critically assess the statistical research literature in the field of the student's research.
- (e) The ability to perform and present original research in statistics.

### **3. Implementation.**

Each year the Chair of Statistics shall appoint a Graduate Assessment Committee (GAC) that will be charged with gathering data to explore whether the goals are being met and whether the objectives or goals need to be revised.

The methods used by the GAC are likely to evolve over time as we discover which ones are effective and if new concerns emerge. At first, the GAC will focus on the following five activities.

- (a) An exit survey of all graduates.
- (b) Surveys of alumni at two points in time (exact times to be determined).
- (c) A compilation of publications of Ph.D. graduates for seven years after graduation.
- (d) A compilation of first jobs of graduates.
- (e) A tracking of students through the program—time to degree or dropping out.