

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

EP.05.11

Office of the Provost and Vice Chancellor
for Academic Affairs

Swanlund Administration Building
601 East John Street
Champaign, IL 61820



November 2, 2004

Abbas Aminmansour, Chair
Senate Committee on Educational Policy
Office of the Senate
228 English Building, MC-461

Dear Professor Aminmansour:

Enclosed are copies of a proposal from the Department of Statistics for revised degree requirements for Bachelor of Science in Statistics.

This proposal has been approved by the Committee on Courses and Curricula, Academic Affairs Committee, Executive Committee and the Faculty of the College of Liberal Arts and Sciences; it now requires Senate review.

Sincerely,

Keith A. Marshall, Ph.D.
Assistant Provost

Enclosures

c: Carol Livingstone
Jeffrey Douglas
Douglas Simpson
Ann Mester

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of the Dean

College of Liberal Arts and Sciences
294 Lincoln Hall
702 South Wright Street
Urbana, IL 61801-3631



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OFFICE OF THE PROVOST

October 21, 2004

Keith Marshall
Assistant Provost
Swanlund Administration Building
MC-304

Dear Keith:

The Committee on Courses and Curricula, Academic Affairs Committee, Executive Committee and the Faculty of the College of Liberal Arts and Sciences has voted to approve the following proposal:

Revised degree requirements for Bachelor of Science in Statistics

This proposal is now ready for review by the Senate Educational Policy Committee for proposed implementation Fall 2005.

Sincerely,

Ann M. Mester
Assistant Dean

C: Professor Jeffrey Douglas
Professor Douglas Simpson

EP.05.11
(Rev. 1/31/05)

PROPOSAL TO THE SENATE COMMITTEE ON EDUCATIONAL POLICY

Title: Revised degree requirements for Bachelor of Science in Statistics.

Sponsor: Jeffrey A. Douglas, Associate Professor, Department of Statistics, Phone: 244-7302, e-mail: jeffdoug@uiuc.edu

Brief Description: The proposed changes for the Bachelor of Science with a major in Statistics degree requirements feature the inclusion of a newly developed class in data analysis, Statistics 200, the elimination of a required programming course in computer science, and the elimination of 12 hours in a secondary subject. In addition, minor changes have been made in options for selection of statistics and mathematics courses. A result is that the minimum number of hours required for courses administered by the statistics department increases by 9 hours. Please refer to the attached summary of the current and proposed programs for complete details.

Justification: In the time since the current BS requirements were proposed, the field of statistics has undergone tremendous change. Statistics is being applied in more and more areas of business, science, and industry. To facilitate this, numerous statistical software packages have been developed for data analysis, research, and specialized applications. Graduate degree programs in statistics are flourishing as both domestic and international students recognize the tremendous career opportunities in statistics. Our proposed changes will enable undergraduates, especially freshmen and sophomores, to more quickly discover the wide range of areas in which statistics plays vital roles through taking the new course Statistics 200. This course, and the increased emphasis on statistical computing in 400 level courses (including a course solely dedicated to statistical computing) with specialized statistical software, greatly reduces the need for a separate programming course in computer science, motivating the elimination of this requirement. The current curriculum prepares students to work in diverse fields, and there is no need to pick a specialized area of application. Students with a special interest can work with the undergraduate adviser to see that electives are chosen to meet such interests. By eliminating the requirement of 12 hours in a secondary subject, we make room for a minimum of 9 more hours of work in statistics classes, compared with the current program. This will leave students better prepared for the job market or for graduate school in statistics or a related area.

Budgetary and Staff Implications: (a) The proposed requirements include an additional course, Statistics 200, which has recently been developed and is not part of the

current degree requirements. This is a laboratory course in data analysis that will require a faculty instructor as well as a 50% teaching assistant for one semester. Also, the addition of Statistics 420 as a required course implies that the enrollment in that already popular course will increase by about 5-10 students per semester. It is reasonable to expect that an additional 25% TA will be needed for that course each semester. (b) The changes in degree requirements can be expected to increase the number of undergraduates pursuing this major. We anticipate an increase of about 10 students in each year of study. This will translate in increased enrollments of about 5-10 students in each class that is offered once per academic year, and 2-5 students in classes that are offered each semester. Statistics 420, which is not currently required, should experience an increase of 5-10 students per semester. (c) The proposed degree changes no longer require Math 380 or a programming class in computer science. As a result, these classes may experience a decrease of about 5-10 students per semester. (d) The proposal to include Statistics 200 in the Bachelor of Science degree requirements will have an impact on computer and laboratory use. This class will meet in a computer laboratory 1-2 times each week, and students will do homework in the computer lab.

Guidelines for Undergraduate Education: The current undergraduate degree program in statistics, together with general LAS requirements, satisfies every guideline for undergraduate education. The proposed changes will place even greater emphasis on certain guidelines, such as development of writing and speaking skills, and professional preparation. A new requirement, Statistics 200, will place a great emphasis on communicating the findings of statistical analyses, both in writing and through oral presentations. This will help prepare students for a course in statistical consulting, Statistics 427. With the rapidly increasing demand for statistical consulting on campus through the Illinois Statistics Office, Statistics 427 has provided ideal training for future professional statisticians, with projects coming from a wide variety of disciplines.

Douglas G. Simpson 7/30/2004
Department of Statistics

Ann M. Yett 10/21/04
College of Liberal Arts and Sciences

Kevin A. Mauldall 10/22/04
Office of the Provost

Statement for Programs of Study Catalog: Statistics

Statistics is the science of modeling, summarizing, and analyzing data, and of using mathematics and computing tools to make predictions in the face of uncertainty. Statistical ideas are applicable in any area involving quantitative measurement and in almost every area of scholarly pursuit. The major, administered by the Department of Statistics, is designed to provide students with an understanding of the concepts of statistical inference and a familiarity with the methods of applied statistical analysis. A major in statistics will prepare students for a career in business, industry, or government, and for further graduate study in statistics or in a related area.

Major in Statistics Curriculum

Degree title: Bachelor of Science with a Major in Statistics

Minimum required major and supporting course work equates to 41-42 hours

General education: The LAS General Education requirements are set up so that students automatically complete the Campus General Education requirements.

Minimum hours required for graduation: 120 hours.

Departmental distinction: Distinction will be awarded on the basis of the selection of 300- or 400- level courses and the grade point average in required courses. A GPA of 3.25 is required for Distinction, 3.5 for High Distinction, and 3.75 for Highest Distinction.

HOURS	Requirements
10-11	Select one from Calculus through MATH 242-Calculus of Several Variables Calculus through MATH 245-Accelerated Calculus II
3	Select one from MATH 415-Linear Algebra MATH 418-Advanced Linear Algebra
3	STAT 200-Data Analysis
4	STAT 400-Statistics and Probability I
3	STAT 410-Statistics and Probability II

3 STAT 420-Methods of Applied Statistics

3 STAT 425-Applied Regression and Design

12 Select 4 courses from the following

STAT 424-Analysis of Variance

STAT 426-Categorical Data

STAT 427-Statistical Consulting

STAT 428-Statistical Computing

STAT 429-Time Series Analysis

STAT 430-Topics in Applied Statistics

STAT 456-Probability Theory II

MATH 444 or 447-(Elementary Real Analysis or Real Variables)

Twelve hours of 300-or 400- level courses in the major must be taken on this campus.

All foreign language requirements must be satisfied.

A Major Plan of Study Form must be completed and submitted to the LAS Student Affairs Office before the end of the fifth semester (60-75 hours).

Proposed Effective Date: August 24, 2005.