Student Learning Outcomes Assessment Summary

MASTERS PROGRAM IN STATISTICS
Department of Mathematics & Statistics, College of Natural Science & Mathematics
Academic Years 2013-2014 and 2014-2015

Assessment information collected
In accordance with the Student Learning Outcomes Assessment Plan for the Statistics MS program, the following assessment information was collected:

1. Evaluations of students’ research projects or theses
2. Descriptive information of graduates’ successive careers
3. Evaluations of the written and oral parts of students’ comprehensive exam
4. Surveys of graduates to obtain their evaluation of the program
5. Evaluations of students’ performance in the statistical consulting seminar

A summary of each information item is given in the appendix corresponding to the item number. In addition, appendix six lists the program graduates over the past 18 years.

Conclusions drawn from the information summarized above
The information collected gives the program faculty insight into the degree to which the program satisfies its stated objectives and outcomes, which are:

• Students will master a wide variety of statistical tests, statistical procedures, sampling methodologies and will be able to design experiments and analyze data using software including SAS and R.
• Students will understand and be able to use statistical theory
• Students will have consulting skills
• Students will display effective written communication skills

The fact that all students who were scheduled to graduate during 2014 and 2015 successfully passed their oral exams, prepared adequate research projects and theses, and performed satisfactorily in the statistical consulting seminar evidences that all objectives and outcomes are being met.

An analysis of the alumni surveys and their career trajectories makes possible a more nuanced evaluation. The respondents’ comments in the survey indicate a desire for a) more emphasis on statistical and data-manipulation software, such as SAS and SQL, b) more statistics faculty so that more courses may be offered, and c) statistics courses with emphasis in the medical sciences. In addition, the first respondent to the survey gave sub-optimal ratings to the program’s core courses and its provision of modern computing equipment and software.

An assessment of graduates’ career paths indicates that some have not had success in obtaining the traditional statistical jobs they desired. One student works as a research scientist for a non-profit agency but desires, and has been unable to obtain, a job that more directly involves statistical methods.
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We conclude from these survey responses and career descriptions that the students of these two cohorts would have been well-served by the offering of a statistical computing course. Also, we conclude that a fourth faculty member would have been helpful. Finally, we conclude that students and their post-graduate careers are potentially benefitted by courses that provide instruction in the application of statistics to specific fields and disciplines.

Curricular changes resulting from conclusions drawn above

As a result of these conclusions, we have made the following changes to the program and the department:

- A one-credit statistical computing course has been developed and piloted during the Spring 2016 semester by Ron Barry. Further evaluation of this course and the feedback it generates (in addition to future budgetary constraints) will determine whether it becomes a regular offering.
- A fourth statistics faculty member has been hired.
- We will consider adjusting the focus of one of the elective graduate courses so that it specifically addresses statistical methods for a particular discipline.

Faculty members involved in reaching the conclusions drawn above and agreeing upon the curricular changes resulting

The four program faculty have all been involved in drawing the preceding conclusions and planning the curricular changes. Namely, these are Ron Barry, Margaret Short, Julie McIntyre, and Scott Goddard. Additionally, Elizabeth Allman served on the search committee for the recent faculty hire.