March 21, 2010

Clifford Fedler
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Dear Dr. Fedler:

Attached please find my review of the graduate program at the Department of Mathematics and Statistics.

Sincerely yours,

Raymond J. Carroll
Review of the Department of Mathematics and Statistics. March 2010

Raymond J. Carroll
Department of Statistics, Texas A&M University

I visited the Department on March 1, 2010. I was asked to focus primarily on the Statistics Graduate Program, and my report will be confined to this topic. I did meet with a few of the Mathematics Program faculty members, so some of my comments are informed by these meetings.

Program Overview and Vision
The M.S. Program in Statistics is well designed and quite thorough. There was some confusion about its requirements in terms of number of course, so that unlike the M.S. in Mathematics, 30 credit hours of coursework are required for the M.S. option, and 33 for the Report option. The Ph.D. program is also well-designed, but there are too many required courses. The requirement to take 3 preliminary exams seems somewhat onerous, especially for someone wishing to write a dissertation in Statistics, and the additional of a preliminary examination on methodological and computational statistics would be a welcome addition.

Overall Score: M.S. Program design = excellent, Ph.D. program design = fair.

Faculty Productivity
A great majority of the Department faculty is research active and there is clearly greater emphasis on obtaining external funding. The teaching load of two courses per semester is high for a university that aims to be Tier I soon, and this will necessarily limit research productivity. The younger hires in both Statistics and in Mathematics seem excellent and have great promise.

Overall score: Compared to the faculty in the comparison schools that were listed in the document, the statistics faculty research is excellent.

Quality and Quantity of Graduate Students and Graduates
The statistics group currently has 6 FTE, although only 5¼ teaching FTE because of an administrative appointment for Dr. Mansouri. With approximately 13% of the Department FTE, they have graduated at least 20% of the M.S. students in the past 3 years, and if one counts the M.S. students in Statistics supervised by Dr. Martin (who has personally graduated 20% of the M.S. students in the Department in the past 3 years), this percentage becomes much higher. The percentages listed above are for M.S. students, but for Ph.D. students seem much the same. Thus, in terms of quantity, the Statistics Program is more than holding its own, and is underrepresented in numbers.
Overall score: The quantity of the graduate students in Statistics is excellent, especially in relationship to the faculty numbers.

It is difficult to assess the quality of the graduate students and graduates. The graduates seem to be much in line with their Mathematics counterparts in terms of quality of their placement. The M.S. in Statistics students seem to disproportionately go on for the Ph.D. in statistics at other places, largely I believe because of the preliminary exam system in place.

Overall score: The quality of the M.S. students appears to be good, although the quality of the M.S. thesis work is mixed, according to the faculty themselves, so the overall score is good. The quality of the Ph.D. students was difficult to assess by me, given the time that was spent on the M.S. program and its controversies. The Ph.D. students in Statistics, and presumably also in Mathematics, are at a distinct disadvantage given their massive course and teaching loads, plus the fact that for the former, preliminary exams must be taken in areas largely irrelevant to Statistics. I judge their quality to be good, but the program design to be fair.

Curriculum and Programs of Study
Most students taking an M.S. degree in Statistics take 2 courses in real analysis, 8 courses in statistics, and do an M.S. thesis. They do this although the alternative is only 1 more courses plus a report. This is very different from the Mathematics M.S. There is a unanimous perception among the Statistics Program members that many of the M.S. theses that are supervised by non-Program members are inadequate in quality.

Overall Score: The curriculum and program of study for the M.S. in Statistics is excellent. That for the Ph.D. program for students specializing in Statistics would be excellent except for the number of required courses and in their necessity to take course in Mathematics that are not particularly relevant to Statistics.

Facilities and Resources
While not luxurious, the offices seemed adequate although outdated. There were issues raised about the comfort in terms of heating and air conditioning. The conference room we met in for much of the day on the 2nd floor was noticeably and uncomfortably cold.

I heard many good things about the computing facilities available to faculty members. There was high praise from both faculty and graduate students for the IT staff, both in terms of competence as well as in their friendly attitude. The computing facility run by Dr. Phil Smith also came in for praise in terms of helping faculty be productive computationally.

Overall Score: The facilities and resources are fair. The help with computing is excellent.
Conclusions

1. Control over the Quality of the M.S. Degree
Unanimously among the Statistics Program members, and others I talked to, there is a perceived lack of control over the quality of the M.S. thesis work done towards an M.S. degree in Statistics, because an unusual number of these degrees are being supervised by a single faculty member. This loss of control subsequently leads to frustration and a loss of morale among the Statistics Program members, and no doubt does nothing good to relationships with the Mathematics faculty. Unless other changes are made, I strongly recommend that all M.S. thesis committees consist of 3 faculty members, 2 of which are full members of the Statistics Program. It will then be up to the members of the committee to police quality.

2. Lower the number of required courses for a Ph.D.
Currently, students are required to take 20 3-credit hour courses to obtain a Ph.D. Along with the requirement to teach two sections of a course and to take 13 semester hours to get T.A. support, this is an undue burden. If the Department wants to have higher quality Ph.D. dissertations, more time must be allotted for research. It is all very well to say that students need broad training, and they do, in both Mathematics and Statistics, but many other programs are able to give a Ph.D. with 48 required hours of course work, and the additional time left for research actually results in publications in good journals. My comments are meant to apply equally to both Mathematics and Statistics, since the Department offers a Ph.D. only in Mathematics.

3. Provide a Preliminary Exam in Methodological and Computational Statistics
There are two major aspects of current statistical research. The first, Theoretical Statistics, is adequately examined in the current system. An arguably much greater field in terms of importance and size is Methodological and Computational Statistics. Adding a preliminary examination in this field would not only make intellectual sense, but it would also help attract more students for Ph.D. study.

4. Fill the Open Faculty Positions in Statistics
Because of the departure of Dr. Paige and the fact that Dr. Mansouri is on a reduced teaching load because of administrative duties, there are only 5¼ faculty members in Statistics. Depending on how one counts, these faculty members disproportionately train the M.S. and Ph.D. students in comparison to their ratio to Mathematics faculty. It thus should be very high priority to return the faculty to 7 functional FTE in the very near future.