Present: Baumgartner, Cassidy, Damodaran, Dawson, Falkoff, Gordon, Gorman, House, Jung, Koren, Matuszewich, Prawitz

Guests: Donna Askins, Research Associate, Office of the Provost; Sanjib Basu, Director of Graduate and Undergraduate Studies, Division of Statistics; Brad Bond, Dean, Graduate School; Stephanie DeCicco, Assistant to the Dean, College of Liberal Arts and Sciences; Carolinda Douglass, Associate Vice Provost for Academic Outcomes Assessment, Office of Assessment Services; Bernard Harris, Chair, Department of Mathematical Sciences; Rama Lingham, Director, Division of Statistics; Chris McCord, Dean, College of Liberal Arts and Sciences; John Wolfskill, Assistant Chair, Department of Mathematical Sciences

The meeting was called to order at 3:10 p.m. by Assistant Chair Prawitz. It was moved and seconded to approve the minutes of October 10, 2011 and the motion passed unanimously.

Chris McCord, dean of the College of Liberal Arts and Sciences; Rama Lingham, director of the Division of Statistics; Sanjib Basu, director of graduate and undergraduate studies in the Division of Statistics; Stephanie DeCicco, assistant to the dean in the College of Liberal Arts and Sciences; Bernard Harris, chair of the Department of Mathematical Sciences; and John Wolfskill, assistant chair of the Department of Mathematical Sciences were introduced.

Chris McCord provided an overview of the department. The Department of Mathematical Sciences includes the Division of Statistics, and this is one of the largest units in the college. The department seeks to fulfill a diverse mission; its mission covers the full spectrum of the university’s mission. The department has an important presence in the teacher certification program, it provides focused service courses to other departments, and it provides massive service to the university as a whole. In fulfilling that mission, the department has strengths and weaknesses, and they are attending to the areas where there are weaknesses. The department has been successful in delivering gateway lower-level courses that are essential to the university. One predictor of students’ success is the scores on the math placement test. The teacher certification program is under consistent pressure to adapt to new standards at the state and national level. The department is looking at raising the research profile with an emphasis on engaged learning, and it would like to grow the Statistic Consulting Services unit.

Bernard Harris provided a departmental overview. One of the major emphases in the department is math education, and we are one of the largest producers of high school math teachers in the nation. Another focus in the department is the Ph.D. program that has an application requirement. This requirement increases the time that students are here (by at least six months), but this requirement distinguishes us from other Ph.D. programs.

Rama Lingham thanked the subcommittee members for their constructive suggestions. The data for the Division of Statistics is hidden in the department data. Many of the faculty in the division supervise Ph.D. students and some of this is done on overload. We are the only unit in the college that teaches 12
courses off load. Credit hour production is on an upward trend during the review period. Our contributions are quite substantial for the size of the unit.

Geoff Gordon presented the subcommittee report; he thanked the department, division, and college representatives for coming to the meeting today. He thanked members of subcommittee B for their contributions in developing the report. He also thanked the department for all the students it serves.

This department is an integral part of the university. Due to time constraints we will not go through every point in the report.

There were many strengths in the Departmental Context section. The report was well written. The faculty possess strong teaching, research, publishing, and academic leadership skills. Service to non-majors constitutes 25,000 credit hours each year; the math core and general education courses generate 90 percent of the credit hours. The department contributes to external entities through the services offered by the Statistical Consulting Services unit.

The highlights of the areas for improvements and discussion were presented. Increasingly we have unprepared students coming into the university who have math deficiencies, and we are being pushed to graduate students in four years. What are some of the things the department is doing to help prepare students to get them through a program in four years? We will be piloting a math emporium model for Math 110 in spring 2012 that has been used pretty widely and has had good results. We are trying to increase the success rate for students. Does ACCESS provide tutoring for your courses? We have a math assistance center staffed primarily by GAs, which is getting a fair amount of use. Is there a certain combination of features in the use of that service that helps students be successful? Do you have any data on this? I don’t have data, but I am told by the people who work in the center that it is common to have students who come in several times during the week. We do have some data on tracking student attendance in classes. We have tried several different things to improve instruction in Math 110 over many years, but the results were not good. Is there a solution for students who come in underprepared? I don’t think there is any one thing we can do to solve this problem. All of these students have been exposed to math at sometime. Our experience has been if we teach them well, put in resources to help them succeed, and the students are motivated, they have a reasonable chance of success. One of our students in the Ph.D. program started off in Math 110. The state is trying to align the skills for what students need to be taught in high school so they are prepared for college. High schools find it very difficult to change what is required; they have pressures that we don’t have. I think this is a positive step that people are working on this, but we are in the early stages of this initiative. I don’t see any concrete changes arriving soon. We are looking at a lot of different strategies. What can we do so students can graduate in four years? We have to take the students if they come here. We are not the admissions office. We can get these students through, but we cannot take generic NIU students and get them through a scientific major in four years. Many of the students who are admitted to NIU are not ready for our programs. The more hours that students are taught by the professorial faculty, it is more likely that they will have the ability to master critical mathematical concepts. If a potential math major is ready to enter Calculus I when they start at the university, they are taught by professorial faculty, but we can’t do that right now. The instructors are very good; they have skills the professorial faculty don’t have. It is not ideal to have them teach math majors. We like professorial faculty to teach Math 101 because for some of our students this is the only math course they take at NIU. Have you seen any differences in the outcomes for students who are taught by professorial faculty versus instructors in Calculus I? I am not aware of any differences. Our courses are extremely vertical. Would you explain your efforts to recruit minority and women faculty? Whenever we have a vacancy, we send out information to all the historically black institutions and to minority lists. There are relatively very few people available. Are there more opportunities for collaborations with external entities to bring in funding? We do this in
terms of our graduate program; our Ph.D. students are required to do internships (these are paid
internships). We have an ongoing program with Rockford to deliver the M.S.T. degree, and we have
ongoing relationships with schools where we place student teachers.

The strengths of the B.S. in Mathematical Sciences program are the students’ achievements, alumni
support, and faculty collaborations with other departments. There is strong alumni support for program
activities as evidenced by their willingness to act as mentors, speak to current students, etc. The faculty
are receptive to working with other departments and programs to develop specialized and cohort
offerings (e.g., calculus directed to biology).

One discussion point is the percentage of women and minorities completing the program. You note in
the report the percentage of women and minority graduates does not mirror the percentage of students
who enroll in the program, and you said female students migrate to the College of Education. I have
thought about this, and I don’t think this is true. These students would go into other programs in the
College of Liberal Arts and Sciences. The program is extremely vertical and can be taxing to some
students. There really isn’t anything we can do about this issue. Have you thought about developing a
mentoring system? Mandatory advising is what we are thinking about doing. About one-third of the
faculty are women; do they see it as their role to mentor other women into the math program? Honestly,
no. What do you see as the pros and cons of mandatory advising? We will know what is going on with
students, and we can advise students what courses to take so they are much more likely to be successful.
We are moving towards mandatory advising.

Another discussion point is that transfer students do not enter NIU with the correct math course work
to allow them to complete a college degree in mathematical sciences in four years. What is contributing
to this problem? When transfer students come into the university, they think they have done the first
two years of a four year degree. This is not the case. If they have only had Math 110, there is no way
they can complete our program in two more years. If they come into the university and are ready to take
Calculus I, they can complete the program in two more years. Some students really think they should be
able to finish in two years. Some students may not be declaring the right major at the community
colleges.

The report states that approximately 55 percent of majors pass the required Math 430 course on their
first attempt, and the internal benchmark target is set at 65 percent. This is a problematic. What efforts
are being made to prepare students appropriately for this course? Does the statement on page 37 about
students avoiding the more rigorous courses have any bearing on the inability to pass Math 430? What
plans do you have to improve this number? We were disturbed by this, so we looked into it further. For
the latter part of the review period, the success rate is significantly higher; 366 students out of 499 (73
percent) graduated with a “C” or better on their first attempt. Only 27 percent got below a “C” on the
first attempt. The original number was for the first part of the review period. What happens to the 19
percent of the students who don’t pass after the second attempt? What percentage of your students who
took Math 430 graduated? I would need to look at this. Approximately 15 students out of 600 just
didn’t graduate at all. How does this affect time-to-degree? Students need to stay longer and we offer
the course in the summer.

When you talk about student learning outcomes, you use the phrase “ability to.” This phrase should be
removed. On pages 37-38 when you talk about assessment activities, you need to talk about the activities
and findings using the same wording.

There are a couple recommendations for the future. One is to develop and begin implementing a plan
to increase the math proficiencies of less-prepared students. Another recommendation is to make a
catalog change that would require mandatory advising in order to register for classes. Figuring out a way to achieve this would benefit the students. Do you have a sense of what other schools are doing to serve unprepared students? This is a national problem. We keep an eye on what is going on at other institutions. We don’t water down the curriculum for upper-division courses. When you try solutions to help with these problems, tracking data would help you find were you should use your resources. Both ACCESS and the University Writing Center track students’ use of their services, and you might be able to talk to them about how they do this. Gail Jacky and Shevawn Eaton could be good resources for you. Yes, we can do this. We can track students’ use of the services.

The APC turned to the discussion points for the M.S. in Mathematical Sciences. Ph.D. students enroll in the master’s program for one semester. Do they have to drop the Ph.D. in order to do this? The standard is that students can be enrolled in two graduate programs simultaneously. Students only enroll in the master’s program very briefly to earn that credential. The stipend for Ph.D. students is higher than it is for master’s students. Please clarify this early on in the report. You state in the report that the lack of students following the mathematics education track is a cause for concern. What are you doing to address this concern? I don’t know if there is anything for us to do. We are waiting for things to settle down in the high schools. If individuals don’t know if they will have a job next year, they won’t come to pursue graduate work. If you have a master’s degree, the school system that you work in has to pay you more money, so it could be more advantageous at the point of hire for graduates to enter teaching with the bachelor’s degree. Consider offering an off-campus cohort program at Hoffman Estates or Naperville using adjunct faculty. The department could also promote math as a second master’s for students in other areas. We are stretched on faculty resources, so we can’t do this right now. What percent of the master’s program is made up of full-time versus part-time students? The students in the Ph.D. program are full time; and the students in math education are part time. The master’s degrees awarded at some other public institutions are increasing and NIU’s is decreasing. What are you doing to address this concern? At the end of the previous review period, there was a national shortage of students in the Ph.D. program. We offered a joint degree with the College of Engineering, and this was extremely successful. Two things happened: students from the College of Engineering stopped coming into the program and our recruiting of Ph.D. students paid off. We couldn’t support both programs running efficiently, so we focused on the Ph.D. students in mathematical sciences. Add this to the review. Use the alumni survey data with caution because of the small numbers. In the Internal Benchmarking section (page 64) you seem to have an almost perfect gender balance, but your baseline of women was 50 percent and your target was 40 percent. You may want to reconsider this statement. In Section IV., Parts B and C must match. This needs to be changed in all the program sections.

Recommendations for the future are to consider offering more off-campus cohort programs and to increase enrollment in the mathematics education track. It sounds like the one off-campus cohort that you offered worked well. As the budget allows, you should develop a plan to increase enrollment in the mathematics education track. The off-campus cohort was part of the M.S.T. that was grant funded, not the M.S. program, and the grant paid the students’ tuition.

The strengths of the M.S. in Applied Probability and Statistics are the faculties’ ability to obtain external funding, the statistical consulting courses, the student achievements, and alumni satisfaction.

One area for discussion is: have you considered a lock-step, cohort program at one of our off-campus facilities? Our biggest concern is to keep the integrity of all of the programs. Before I think of off-campus activities, I need to be sure that what we are doing on-campus is good. I don’t foresee this as a viable option in the future.
Does the Statistical Consulting Services unit generate revenue? If so, can these funds be used to support stipends? The course prepares students to be student consultants. The unit serves students and faculty outside the division. Its mission is to provide students the opportunity to learn how theory meets practice, and the unit is seriously underfunded. There is one faculty consultant who runs the unit, and he only gets one course release per semester (20 percent of his time). There is no backup for this faculty member. There is no permanent GA support in the summer. The schedule of fees is designed not to overburden faculty and students with charges. We don’t want to increase the fees at this time. The dean is looking at redefining the model and adding more resources for the unit. In the new model, we need to have some compensation in the summer for the faculty member. Demand in the summer is very high. There will be one month summer salary for the faculty; part of the salary is guaranteed, and the other part is based on incentives. This is a very valuable engaged learning activity for the students providing the services. Wouldn’t it be possible to have a different fee structure for non-NIU clients? There are some federal guidelines that come into play on this issue. One is what you charge someone on a grant vs. someone who is not on a grant.

If the student/faculty ratio is 2.5, why is there no room to grow the program due to faculty shortages? It is probably because you provide so much service to the university, and this point should be added to the report. This information can go in the Departmental Context section where you talk about faculty, and it can also go in the program section. These faculty are not dedicated just to the program; they are involved in many other activities.

You have two direct assessment measures of student learning (comprehensive examination and thesis), but the measures reported are indirect measures (exit survey and alumni survey). We would encourage you to use more quantitative measures. We do have data; 100 percent of the students who take the comprehensive examination or thesis completed them by their second attempt.

The recommendations for the future are to continue to explore ways to make Statistical Consulting Services viable and use and report the assessment findings. Just include the assessment data that you already have.

Again same kudos for the Ph.D. in Mathematical Sciences. These are great programs.

There are several discussion points. If the average number of degrees awarded is 5 and enrollments average 36 to 40, is time-to-completion between 7 and 8 years? That is about right. The Application Involvement Component lengthens the time that students are here. Female students take longer to complete the program typically because of family issues. Why have so few minority students graduated? What is the average time-to-degree nationally? I don’t know the national time-to-degree. In looking at your internal benchmarking table it seems like your baseline is better than your target. Are stipends lower at NIU than at comparable peer institutions? The last time I checked we paid a little more than UIC and a little less than UIUC. Are there alternatives to increasing stipends? Our Ph.D. students take a little longer than usual to complete the program because our core is broader than most Ph.D. programs and we require the internship. The internship helps place students. Clarify how you plan to address the decline in the number of faculty members in the table on page 129. If you plan to hire more faculty members, then say so.

There are a couple of recommendations for the future. One is to reach out to alumni and employers of graduates to build up some funds for stipends. The second recommendation is to research the time-to-degree at other institutions. If we are comparable, just say so. If not, tell us why we are not comparable.
What is the next step in this review process? We will send you the minutes and a written memo outlining things that need to be done in the report. The reports are due back to our office in March, and these will be the final reports. We will use these reports to write our reports to the Board of Trustees and the Illinois Board of Higher Education next fall.

The meeting adjourned at 5:00 p.m.

Respectfully submitted,

Carolyn Cradduck