

MINUTES OF THE 321ST GRADUATE COUNCIL MEETING
UNIVERSITY OF NOTRE DAME
September 9, 2010

Members present: Greg Sterling, Panos Antsaklis, Brian Blake, Sunny Boyd, Julia Braungart-Rieker, David Campbell, Paolo Carozza (for Dean Nell Newton), Ed Conlon (for Dean Carolyn Woo), Greg Crawford, Jennifer DuBois, Jeremy Fein, Patrick Flynn, Susan Harris, Peter Kilpatrick, Dan Myers (for Dean John McGreevy), Gerald McKenny, Susan Ohmer, Kasey Swanke

Graduate School representatives present: Brian Flaherty, Ed Maginn, Nyrée McDonald, Barbara Turpin

Members excused: Bob Bernhard, Phil Bess, Laura Carlson, Dennis Doordan, Bill Evans, Victoria Froude, Steve Fallon, Umesh Garg

Invited Guests: Profs. Mary Ann McDowell, David Severson, Katherine Taylor (Eck Institute for Global Health); Profs. Steven Buechler and Andrew Sommese (Applied and Computational Mathematics and Statistics)

Reporter: Mary Hendriksen

Dean Sterling welcomed members and guests to the first meeting of the 2010-2011 academic year. After introductions, he took up the agenda items as follows:

1. Minutes of the meeting of May 3, 2010: The minutes of the Graduate Council meeting of May 3, 2010, were approved as presented.

2. Election of the executive committee: In accordance with the bylaws of the Graduate Council, ballots were distributed for the election of the executive committee. Faculty members elected were: Profs. Sunny Boyd, David Campbell, and Gerald McKenny; with Victoria Froude, Graduate Student Union president, elected as the student representative. The four elected members will join Dean Sterling, the Graduate School associate deans, and Prof. Antsaklis (liaison to the Graduate Council from the Academic Council) on the executive committee, which sets the agenda for Graduate Council meetings.

3. Proposal for a master's of science in global health: Dean Sterling explained that the proposal for a master's of science in global health was endorsed by the Graduate Council at the meeting of May 3, 2010, with final approval pending agreement on the appropriate governance structure.

He further explained that the deans and the provost have now agreed on a governance structure for all professional master's programs that he called a "hybrid" of reporting lines. The direct reporting line is to the dean or director who sponsors the professional master's program. Thus, in the case of the program at hand, the direct report is to the Dean of the College of Science. The direct-report dean or director is responsible

for personnel appointments and the program's fiscal health. Because professional master's programs are generally revenue-generating programs (in that students pay tuition), in accordance with standard University procedure, 15% of revenue will go to the University, with the remaining 85% kept by the dean or director. If the program runs a deficit, the dean/director is responsible for meeting the deficit; in the event of a surplus, the dean/director has the authority to allow the program to keep those monies, or he/she may choose to allocate the surplus for a different use.

The secondary reporting line is to the Dean of the Graduate School. The Graduate School will process applications, and professional master's students will be classified as "graduate students" with the same rights and responsibilities as other graduate students. The Graduate School will provide monitoring information to the program director and the dean/director. If an issue arises in respect to the program, the Graduate School will take it up with the appropriate dean or director. Because professional master's programs are revenue generating, they will cover the costs the Graduate School incurs in processing applications—approximately \$50.00/applicant—and other administrative costs incurred by the Graduate School.

Dean Crawford commented that a value of the program is that it will help break down disciplinary silos at the University.

Prof. Severson said that the proposal has been amended in some ways after feedback at the May Graduate Council meeting. The committee is in the process of hiring a director, and several students on campus have already expressed their interest in pursuing this master's of global health degree.

Dean Sterling asked for a vote on the proposal for a master's of global health. By a show of hands, it was approved unanimously, with one abstention. He noted that the proposal will now continue on through the Academic Council—beginning with the Advanced Studies Subcommittee, headed by Prof. Antsaklis—to gain final approval.

4. Proposal for a Ph.D. in applied and computational mathematics and statistics:

Dean Sterling introduced Profs. Steven Buechler and Andrew Sommese of the new Department of Applied and Computational Mathematics and Statistics (ACMS), approved by the Academic Council last spring. Dean Sterling noted that the new department and the proposal before the Graduate Council was a response to the University committee appointed by the Provost to explore the need for computational and statistical support across the campus. The need was pointedly expressed by members of the Graduate Council last year during the discussions over the minor in Quantitative Psychology.

Prof. Buechler began by explaining that the proposal for a doctoral degree is a central aspect of the new department's mission; in fact, the department's research and educational goals depend on it. Graduate students are a part of the department's research teams, and training and mentoring students and junior colleagues are other ways to impact the discipline and society.

The program aims to train students who have a deep understanding of the underlying tools and can apply them to solve complex problems in an area of application, often in interdisciplinary teams. Program graduates will find employment in academia, research labs, and industry. The emphasis on applied projects, Prof. Buechler said, will attract students who want to solve real-world problems and who like doing computational projects.

The combination of statistics and applied math in one program, he said, is unusual but reflects the direction of research in these fields and gives the Notre Dame department a competitive advantage. For example, applied math models that are predictive of a disease need to be tested with statistical methods. And, statistics is a field that is increasingly computational. Methods from computational mathematics are used in statistical analysis of the data arising in genomics. Especially in the new field of computational biology, blending the subjects under one degree program gives the department a notable advantage—in research, graduate and undergraduate education, as well as in recruiting faculty.

As is true of all doctoral programs, Prof. Buechler said, the proposal for this degree contains course work, exams, thesis research, and a formal defense. The department has structured the coursework so that it is as flexible as possible, allowing students to take courses in other departments early on. The department also is instituting a communications course that will help train students to give presentations, to write material for various audiences, and to explain their work orally. The course is required for first-year students. He expects that it will evolve into a course that students will repeat and use for deeper training as their research progresses. These communication skills are extremely valuable in interdisciplinary research, as students must learn how to explain their work to non-technical people.

Prof. Buechler said that the proposal's creators recognize that there are faculty members in other departments skilled in the department's research areas. Concurrent faculty can advise graduate students, subject to the approval of the ACMS department chair. The department's current faculty (six in number) have been advising students in the Department of Mathematics for some time. This history allowed them to include direct placement data in the proposal. There are 11 students, currently enrolled under Mathematics, who have agreed to transfer to this new program if it is approved.

Dean Kilpatrick questioned the stipend amount—\$18,000 over nine months. Might that not be problematical in attracting the best students? The highest-ranked programs in the nation offer considerably more. Would it be preferable to offer fewer stipends at higher amounts?

Profs. Buechler and Sommese responded that they fully expect to supplement stipend amounts by funds from research grants. They have submitted a training grant proposal that would allow them to raise stipends to \$25,000.

Dean Sterling added that he is expecting to admit more Schmitt and Notebaert fellows next year. These select fellowships would be available to the very best of the new doctoral students, who would compete for them across the University.

Dean Kilpatrick also asked about the course sequence outlined in the proposal. Prof. Sommese explained that students would enter the program with vastly different backgrounds and aspirations. The ACMS faculty want to remain flexible with requirements to accommodate this variation. There are essentially two “tracks” with the proposal—the first is the applied and computational mathematics side, and the second is the statistical side. There is a very small common core. Given the careful advising planned by the department, the faculty will monitor each student’s progress every semester to make sure that students are taking the proper courses.

Prof. Myers voiced his support of the proposal but asked how the Graduate School will budget for 16 more stipends every year. Given a fixed budget, what do these additional stipends mean for other programs and the goal of raising graduate student stipends across the board?

Dean Sterling said that six of the 16 stipends will come from the Center for Applied Mathematics—an arrangement agreed to by all from the start. The students transferring from Mathematics are not bringing their stipends with them. The additional 10 stipends have been carved out in a fairly complicated way, with the bulk coming from new funds received by the Graduate School last year. There is not a single place to identify as the source of the remaining funds. As he has done on other occasions—for example, the increase in summer funding from \$3,600 to \$4,000—Dean Sterling said, he can sometimes harvest funds from a series of small funds that have not been used for a variety of reasons.

Prof. Braungart-Rieker asked about plans for connections with the social sciences. Prof. Buechler answered that the faculty intend to hire statisticians who would connect with the social sciences. He also expects that some of the more quantitatively-oriented social science doctoral students will enroll in ACMS classes. The department is also preparing to propose adding a master’s degree in this area, which will be advantageous to social science students.

As for the consulting service, Prof. Buechler explained that this is a common feature of statistics departments. Faculty who have projects can contact the center, which will analyze proposals and assign graduate students to them. These collaborations can be both short- and long-term. In the latter case, a student might be embedded in a research group and add a statistical component to it. This will very often lead to collaborative research, with the student being co-advised. Non-University groups can contract for the consulting services as well.

Prof. Ohmer sought clarification on the proposed library expenses. Prof. Buechler explained that the one-time purchases are largely books and monograph series. There are

some excellent statistics volumes that the library does not have. The Dean of the College of Science has committed to providing these funds.

Dean Sterling asked members to vote on the proposal to launch a doctoral program in applied and computational mathematics and statistics. It passed unanimously.

Dean Sterling said that this proposal, too, will go next to the Academic Council. Dean Crawford thanked all who expedited the proposal. If it is approved at the September Academic Council meeting, students can enter next year.

5. Dean Sterling's response to the Attrition Committee report: Dean Sterling gave a point-by-point response to the report of the joint Graduate Council-Director of Graduate Studies report, presented last year by Prof. Boyd and her committee (included as Appendix A).

Since his report was written last April, there have been a few developments that should help to decrease attrition at Notre Dame:

- (a) The Graduate School will be partnering with the Educational Testing Service this fall to serve as a trial site for the "Personal Potential Index" (PPI), a diagnostic tool that is designed to assess applicants' "soft" skills, such as team-work and communication. The survey is completed by recommenders and submitted with the letter of recommendation. The assessment will be voluntary at this point.
- (b) Further exploration of a web-based student file system that will allow both DGSs and the Graduate School to keep better tabs on student progress.
- (c) Dean Sterling commissioned a faculty-student committee (led by Prof. Kathie Newman and Associate Dean Barbara Turpin) to explore how the Graduate School can better meet the needs of women and families. (The report will be presented to the DGSs in October and then to the Graduate Council.)

As Dean Sterling continued through his response, a large portion of discussion related to the committee's recommendation that the Graduate School guarantee a sixth year of support and move more aggressively to develop mechanisms to provide summer support. Dean Sterling said that he does not believe that the Graduate School can implement this recommendation. For the humanities and social sciences alone, it would cost the University a little over \$1.3 million dollars per annum to do so. While everyone agrees that we need to raise the base stipend, he wonders if the current nine-month stipend should be spread out over 12 months. While that move would not raise additional money for students, it might help students budget more easily.

Members then discussed why humanities doctoral students generally require six to seven years to complete their program and dissertation. Dean Sterling said that in history, for example, a year of archival research might be necessary, and then the writing itself takes time. In many disciplines, the expectation is that the dissertation must

essentially be a first book, which then must be converted into a published book for tenure. The fact that the stakes have been raised to such a high level makes the dissertation even more important.

Prof. Harris said that in her department, English, faculty have been trying to shorten the time to degree; however, given research demands, no one completes a doctoral degree in under six years unless they enter the program having completed all their coursework. Both she and Prof. Ohmer reiterated Dean Sterling's comments on the importance of having the dissertation serve as nearly as possible as a finished book. This matters both for initial placement, when the expectation is "book contract in hand," and for securing tenure. When students are hired as assistant professors, teaching demands are so heavy that they simply do not have time to undertake the research necessary for a first book.

Dean Sterling mentioned a special section of the *Chronicle Review* that explored problems with humanities doctoral degree structure: "Broken: The Crisis in Graduate Education in the Humanities," April 9, 2010. One contributor's recommendation is that humanities students write three major articles rather than one dissertation.

Prof. Antsaklis said that the question may not be how long students take to meet a certain discipline's requirements but whether the University should support them throughout this time—either via tuition or stipends. He wondered why they were not supported by external grants. Dean Sterling explained that the problem in the humanities is that there are very few grants that a faculty member can win that provide student support. This is not a case of faculty neglect. The Notre Dame humanities faculty have won more NEH fellowships since 1999 than any other faculty in the country: they have won 42, the faculty at Michigan 32, and the faculty at Harvard 25. The problem is that the humanities are not funded in the same way as lab-based disciplines.

Dean Crawford asked about Notre Dame's practice—unusual among AAU privates—of not charging tuition to grants. Dean Sterling said that he is in favor of reversing University practice. Prof. Bernhard is chairing a committee on the subject, which is sensitive. Some faculty are in favor and believe that the size of the awards would be larger; others believe that changing the practice will force them to back out other needs. He is also working hard to gain tuition dollars in other ways—for example, through the BECAS Chile arrangement.

Dean Crawford asked whether it might be a better practice to shorten funding—say, to 4.5 years—rather than to lengthen it. Dean Sterling responded that while this was an intriguing suggestion, it would be difficult to implement in light of the recommendation to move in the opposite direction.

Finally, Prof. Boyd, chair of the committee that explored attrition and retention, closed discussion by reminding members that members were tasked with investigating causes for attrition and ways to decrease it. In that context, they found that the average time-to-degree at Notre Dame is 6.3 years, with the sciences and engineering closer to 5

years, and the humanities closer to 7. The causes for attrition are a major part of the report. Financial reasons are about one-third of the reasons for attrition. While she appreciates the complications members have raised, more funding is a way committee members believe will lead to lower levels of attrition.

There being no further business, Dean Sterling adjourned the meeting at 4:50 p.m.