The External Review Committee consisted of Olof B. Widlund, Professor of Computer Science and Mathematics at New York University’s Courant Institute, and Robert E. Megginson, Deputy Director of the Mathematical Sciences Research Institute at Berkeley and Professor of Mathematics at the University of Michigan. We visited the university and its mathematics department on February 20–21, 2004 and had extensive discussions with departmental and university administration, department faculty, and graduate students about the history and current status of the department’s research and graduate program.

Our general conclusion is that there is much to admire in this department, with many faculty members doing work well and above the call of duty. The most pressing problem that the faculty face is clearly that the department is very short-staffed, and that appointments every year over the next few years, multiple appointments each year if possible, will be required to renew the program and to make the existing groups more cohesive and functional. It is also clear that the department has a core of active members who are quite capably equipped to guide and assist in this rebuilding effort and the selection of new high quality faculty.

Some specific observations and recommendations in the major areas we observed will follow in this report. Underlying these recommendations is the assumption that demand for Ph.D.s in mathematics will remain substantial enough in the near future that there is no need to downsize the graduate program due to lack of demand for its graduates. This was mentioned in the recommendations of the internal review committee’s report as an item that needed some demonstration. Hiring trends in mathematics are notoriously hard to predict and have been subject to several boom and bust periods since the late 1960s. In the latest academic year for which mathematics Ph.D. hiring data is available, 2001-02, the final unemployment rate for new mathematics Ph.D. recipients graduating that year was only 2.9%, the lowest since 1990 when it was 2.2% (Notices of the AMS, vol. 50 no. 7, p. 802). The severe funding problems affecting many U.S. educational institutions have clearly had some effect on hiring since then; however, anecdotal evidence from research institutions hiring many postdocs, such as the Mathematical Sciences Research Institute in Berkeley, the University of Michigan, and the Courant Institute (among the largest employers of mathematics postdocs in the U.S.), as well as evidence from more teaching-oriented institutions, seems to indicate that hiring of new mathematics Ph.D.s into both teaching and research positions remains fairly strong. In short, we do not see evidence of any medium-range contraction in demand for new mathematics Ph.D.s that would justify a reduction in the size of the KSU mathematics graduate program.

TENURED/TENURE TRACK FACULTY SIZE AND BREADTH

It is difficult to make precise statements about the comparative size of the KSU mathematics faculty over time, since almost any effort to do so amounts to comparing various forms of apples and oranges. It is mentioned in KSU’s Department of Mathematical Sciences Doctoral Program Review: Review Report 2003 that in 1971, the
year following the inception of the doctoral program, the mathematics department had 33 full-time faculty. It is not clear whether those were all tenured/tenure track; however, we infer from context that they were. The growth of computer science and the allocation of positions to this discipline, at the expense of mathematics, and the subsequent splitting of the departments reduced the size of the T/TT mathematics faculty to numbers in the low twenties, and attractive retirement options for senior faculty threaten to reduce the size even further in the near future. At the same time, there has been a partially compensating growth in non-tenure-track faculty, in particular with thirteen hires in the 2000–01 and 2001–02 academic years, so that full-time NTT faculty now comprise nearly half of the department’s faculty.

On paper, this may leave the total full-time faculty size larger than it was at the time of the founding of the doctoral program, and the NTT faculty clearly do make valuable contributions to the teaching mission of the department. However, the research reputation of the department, the maintenance of its graduate program, and efforts to bring in outside funding through grant proposals will obviously rest primarily on the shoulders of the T/TT faculty, and its size has become dangerously small. Some of the consequences of this to be described in more detail in subsequent sections are high teaching and service loads, and a shortage of faculty in certain areas in which important graduate courses must be taught.

It is appropriate for departmental strength to be focused in several areas rather than spread as uniformly as possible across the subdisciplines of mathematics, and the department’s emphasis on faculty who can support the Banach Center and the Institute for Computational Mathematics contributes to the department’s national reputation. However, the small size of the T/TT faculty appears to have caused some contraction toward these core areas at the expense of others. This has resulted in inadequate coverage of areas of mathematics in which expertise is needed for teaching courses, and which will increase in importance for the department as the emphasis on interdisciplinarity in mathematics continues to grow. We are not recommending that faculty departing from these core groups be replaced by faculty in other areas of mathematics to achieve more breadth; the maintenance of the strength of these core groups is too important. More breadth is needed, but it must be achieved through additional hires that increase the size of the T/TT faculty rather than at the expense of these core areas.

For the above reasons, we recommend in the strongest possible terms that additional tenured/tenure-track hires be made as soon as possible. To achieve this, additional T/TT positions should be allocated to the department, as well as converting some number of NTT positions to T/TT as they become open. For a department serving this size university and graduate program and having this sort of national reputation, a T/TT faculty size of over thirty is not inappropriate.

TEACHING LOAD FOR TENURED/TENURE TRACK FACULTY

One obvious consequence of a too-small tenured/tenure track faculty is too-high teaching loads for those faculty, and that is in evidence in this department. It was clear from our discussions with faculty that individual teaching loads for tenured/tenure track faculty vary greatly depending on assigned departmental service loads and other duties, but in
general they seem quite high. The too-small number of T/TT faculty has resulted in their having to cover extra courses beyond a reasonable commitment for faculty who are supposed to be encouraged to pursue active research programs, and those programs are going to suffer. As one (we hope extreme) example, the Coordinator of Graduate Studies, a well-known figure in Banach space theory, has found it necessary to teach a 3/3 load while directing the graduate program and attempting to continue his research. This problem adds some urgency to the needed increase in T/TT faculty size, since the longer the high teaching loads are allowed to continue, the more they will be perceived both internally and externally as the standard for KSU T/TT faculty rather than an aberration that is in the process of being fixed, and the harder it will be to recruit new research faculty who need time to pursue their programs of scholarly activity. In addition, a teaching load that is higher than for many departments similarly situated could result in a loss of active faculty who would otherwise play a central role in the rebuilding of the department.

Though the nearly half of the department’s faculty who are full-time non-tenure-track are making valuable contributions by picking up much of the undergraduate teaching load, the further growth of the NTT faculty is not a good solution to the teaching load problem. There are important graduate courses, such as general topology, that are not now being taught on a regular basis, and normally it will be the T/TT faculty who will have the background to be able to cover those courses. Also, the NTT faculty are generally not going to be able to contribute as much as the T/TT faculty to such areas as graduate student advising and committee work, and with rare exceptions will not contribute to the department’s research reputation and activities. Also, in mathematics departments in which a majority or near-majority of the faculty are not eligible to participate in the department’s governance, tensions often arise that detract from the smooth operation of the department.

LINGERING EFFECTS OF THE CS/MATHEMATICS SPLIT

As alluded to above, the mathematics department at KSU had over a number of years taken over an increasing responsibility for a computer science program, with many or most of faculty vacancies being filled by computer scientists. A mathematics and computer science department evolved over the years. Two departments were finally created a few years ago leaving the mathematics department with considerably fewer tenure track positions than two decades ago. Many computer science departments have similar histories even if the split on most campuses happened earlier. Generally speaking, with the disciplines increasingly separate, the creation of separate departments is almost always a necessity. Only one member of the mathematics department expressed some regrets that the split had occurred. Several others expressed a natural frustration that the resources for mathematical research had decreased so considerably and that at least one recent hire had come on a line borrowed from another department. As we already have stressed earlier in this report, allocating more tenured and tenure track positions to compensate for the reduction in mathematics faculty due to the CS/math split and other causes is absolutely central to the future health of mathematics research and graduate study at KSU.
APPLIED AND INTERDISCIPLINARY EFFORTS

This part of the department has considerable strength and several of the faculty are well known and very active. There are also interesting joint research efforts conducted by several of the pure mathematicians. Generally speaking, it is hard to encourage or plan joint efforts of this kind since good people almost always are very busy with worthwhile projects, but such efforts deserve applause and they undoubtedly help broaden the perspective of the faculty involved and also indirectly benefit the educational programs. It also deserves to be noted that federal funding agencies continue to stress interdisciplinary efforts, often funding such areas more generously than individual researchers.

Our conversations with senior faculty in computational mathematics suggested that there is a good core of people but that the group could become even more cohesive if some additional faculty could be hired in areas which would complement and strengthen existing research. Among the areas mentioned was multiscale analysis, which indeed is increasingly important.

PROPOSAL WRITING AND OTHER DEVELOPMENT EFFORTS

In some disciplines it is not uncommon for certain faculty to be supported entirely on soft money; for example, engineering faculty in a department with strong industrial contacts sometimes have this expectation placed on them. This is not desirable in mathematics, since funding patterns change quickly for the National Science Foundation, the major funder of university research mathematicians, and a single year’s change in such patterns or the resources made available to the NSF by Congress could leave solid research mathematicians without a salary base. We were encouraged to find that there seems to be little support at KSU by either the administration or the department for planning an expansion of mathematics faculty size solely with soft money.

However, the number of KSU mathematics faculty holding grants does seem somewhat smaller than one would expect for a department with the research stature of this one, and this is an area in which we recommend that the faculty be more active. We understand that KSU’s system does recognize and reward faculty for development efforts, even when not successful, but a string of unsuccessful grant proposals can, obviously, still be discouraging. Despite this, applying for grants should be stressed as part of the departmental culture, both for the possibility of immediate funding of them and for the contacts established with program officers at the granting agencies that can lead to the success of future efforts.

The standard NSF grant for mathematicians can be particularly helpful for supporting the graduate program through the funding of graduate students, particularly for summer research. The strong summer support that KSU already offers its graduate students is perhaps a disincentive for faculty to apply for such funding, but this disincentive could be removed by an agreement to share with the department some of the savings realized through the support of graduate students on grants. Also, grants can provide a mechanism for supporting advanced international graduate students who come only to do work toward dissertations at their home institutions. These tend to be strong students who
contribute much toward the research life of this department, but we were told by some of them that funding for them through standard KSU channels has been a problem.

Many of KSU’s mathematics faculty, particularly those working in interdisciplinary areas, are certainly aware of funding sources beyond the NSF’s Division of Mathematical Sciences, but others may want to look at some of these other sources rather than viewing DMS as being the funder of first and last resort. In particular, NSF’s Division of Undergraduate Education is always seeking volunteers for reading its proposals for curriculum development and instrumentation for education, and after a few sessions reading stacks of such proposals (each session admittedly an intense few days in DC), it often becomes clear how to write a substantial proposal to DUE that could bring up to two hundred thousand dollars to the department in classroom equipment and salary buyout. For this reason, participation in such sessions should be recognized as being at least as valuable as writing unsuccessful grant proposals; the lessons learned are certainly as great. Also, faculty who are not aware of current funding priorities for agencies such as NSA, ONR, and DARPA (both published and unpublished; here, again, it pays to know and talk to program officers) should see whether they are doing work that could be of interest to such agencies. (It should also be recognized that some faculty do have philosophical objections to having work sponsored by certain agencies, and of course this must be respected.)

Kent State is a member of the Community of Science, and mathematics faculty should be strongly encouraged to maintain current COS profiles, have the weekly funding alerts e-mailed to them, and study them for funding opportunities. Admittedly, with even the most selectively narrowed profile, it is possible that almost all of the alerted opportunities will be of no interest, but a good funding lead worth following up may still occur once a month or so. This will likely happen more often for those working in interdisciplinary efforts, but even for pure mathematicians working in tightly focused fields such opportunities can pop up more often than one might expect.

Again, many of the mathematics faculty will be aware of all this, but it could profitably be called to the attention of those who might not be, along with the service it provides to the department to tap some of these resources.

GRADUATE STUDENT ISSUES AND ATTITUDES

We interviewed about twenty graduate students in two sessions, including about eight women graduate students who were asked to return at the end of the two larger sessions for separate discussions about issues that might affect them in particular.

We were aware that some students might be reluctant to air grievances in front of their peers in public meetings, so in all sessions we stressed that the students could arrange to talk to us individually if they had anything further to say, and we also provided our e-mail addresses if any wished to contact us that way. We assured confidentiality for any such contacts. None of the students took us up on this, although one did seem as if the student might wish to do so; however, the student did not follow up. With the sole exception of that one student whose comments seemed guarded, the feedback struck us as forthright and genuine. We are fairly confident that the picture the students were giving us about the program from their points of view reflected their actual attitudes.
In general, the graduate students seemed quite satisfied with the programmatic and economic arrangements made for them. They characterized their workload as instructors as appropriate and allowing time to focus on their own studies. They particularly liked being given full classroom responsibility, and stressed that the common exams given at the end of the course kept them from abusing that responsibility by not covering required material. They felt that the training program to prepare them for teaching for the first time (four days prior to entering the classroom, then a one-hour course about teaching during the first semester at KSU) did its job, and that the ongoing support structure for instructors gives them adequate information and places to turn during the semester when issues come up in their classrooms.

The students were less enthusiastic about their tutoring responsibilities, although they did accept those as part of the job they have to do. When asked whether they felt they receive adequate training for tutoring, the reply was that only those who had also participated in a university-wide tutoring program outside the mathematics department had received any training at all. Because of this, we recommend that the mathematics department provide all graduate students some training in tutoring as part of its instructor preparation program. As an example of what is done elsewhere, the University of Michigan provides all persons working in its mathematics tutoring center (“Math Lab”) with an evening workshop on how to tutor to guide students toward solutions that build on the knowledge they already have, rather than handing students the answers. The tutors and students at Michigan both seem to feel that this approach is more satisfying and better prepares the student for mathematical problem solving.

The students generally felt that the exam structure required of Ph.D. students is fair and appropriate. They generally characterized the qualifiers as “scary” (but, again, fair), and the orals taken later in their career as far less worrisome. They pointed out that for someone who has prepared adequately and taken advantage of practice sessions, at least half of the qualifier material will not be a surprise, and the portions that might be more of a surprise can be addressed with the problem-solving skills that graduate students should have developed.

One concern voiced repeatedly is that graduate students sometimes get shut out of courses central to their programs due to low enrollment and lack of faculty who can teach the courses. It was mentioned by several that though general topology is an important course for many of them and an option within the Ph.D. exam structure, the course has not been offered for several years. This seems surprising, since introductory general topology is a course that many functional analysts and mathematicians besides topologists can teach. We assume that this course’s not being offered is some sort of scheduling artifact and that the course will again be offered in the near future; however, the shortage of tenured/tenure track faculty to teach such courses is again in evidence here.

The students generally felt that their stipend levels are good. They were particularly enthusiastic about the summer support they receive, and several pointed to that as the reason they had selected KSU over other institutions from which they had received offers. (This was also pointed to by faculty as one reason for the incident in the recent past when twelve offers to prospective graduate students were made, with the usual assumption almost all of us make in such situations that only some will accept, but all
If possible, this feature of the support package for the students should be maintained, since it is clearly attracting students to the program.

When asked about access to computers and needed software, the students responded that they felt this was fine, with shared computers in offices and availability of computer labs.

Some concern was expressed in the report of the internal graduate program review committee about the clarity of degree requirements. We specifically asked the graduate students about this, and the response was uniformly that they saw few problems; indeed, some seem puzzled that this would have been thought a matter for concern. They pointed out that the requirements are available on the web in a clear form, and that they are kept informed of their individual status within the program as they proceed. A few did think that there might be a lack of clarity about certain deadlines, but others felt that this information is easily available. Based on this feedback, we recommend that the department should make sure deadlines are clearly stated in the materials provided the graduate students and on the department web site, but otherwise we do not see clarity of degree requirements as a cause for concern.

One issue that can arise in a Ph.D. program that also has students whose final goal is the masters is whether the masters students feel or are treated like second-class citizens. We asked some of the masters students about this, and they responded that they felt as well integrated into the department as the doctoral students, and saw no difference in the way they were treated or the resources available to them. One student who had originally been a Ph.D. student but now has the masters as a final goal said that the student saw no change whatever in treatment or attitude toward the student after announcing the changed intent. We had also asked faculty about whether there was some feeling that the masters was a consolation prize for not being able to finish the Ph.D., as is unfortunately true in some other departments, and we were assured that this is not so, but rather that the masters is itself a valued goal. That attitude seems to be communicated well to the students.

In sessions without male graduate students present, we asked the women whether they felt they were treated any differently from the men, and the answer was uniformly, and fairly emphatically, no. We also asked specifically whether they felt they got all the same information in as timely a fashion as the men, since one issue that sometimes arises in other mathematics graduate programs is that the women find that there is an “old boys network” for information of which they are not a part. We were assured that they are kept fully in the loop, and one said that they might even get the information faster since there is a departmental secretary who makes sure they do not miss anything important. Several did say that they wished there were more tenured/tenure track women on the graduate faculty as role models and mentors, and we recommend that this be kept in mind when recruiting. Recently, about 30% of the new Ph.D.s coming out of mathematics graduate programs have been women, which makes it somewhat easier to obtain more gender diversity in a faculty than the thornier problem of ethnic diversity that will be taken up later in this report.
NATIONAL RECRUITMENT OF GRADUATE STUDENTS

The external review committee was specifically asked to explore whether there would be value in a stronger national recruiting program for graduate students. We were told that the graduate students in this department are almost exclusively international students or from Ohio and neighboring regions of Pennsylvania, and our discussions with about twenty graduate students bore this out. All but two were either international or local, and of the two, one (from Wisconsin) had been an undergraduate at KSU, while the other (from Buffalo, New York) had been recruited to KSU by one of its Ph.D. alums.

First of all, there is no strong reason in principle not to recruit more heavily nationally where it can be done without using substantial additional resources—for example, by further encouraging Ph.D. alums through mailings or e-mailings to send good prospective students KSU’s direction, as did the alum mentioned in the preceding paragraph. Obviously, the larger the applicant pool, the more choices the department has from which to find a solid group of new graduate students each year. Of course, if the department were to select from this larger pool in such a way as to decrease substantially its commitment as a state university to educate students from Ohio, then this could be in opposition to KSU’s core mission. However, it was our sense that this commitment would remain strong with the department’s administration.

If the case is to be made for a stronger national recruiting program that will require noticeable additional resources, then the need for such a recruiting effort should be clearly articulated. One reason for such an effort would be if the visa problems now threatening the flow of international students into U.S. programs begins to constrict KSU’s pipeline. In that case, a strengthened U.S. recruiting program could become essential to maintain the number and quality of KSU mathematics graduate students, and in this case we would recommend devoting the additional recruiting resources needed.

If the purpose of a stronger national recruiting program is to increase the quality of the graduate student body and thus the reputation of the KSU mathematics graduate program, and this is considered important enough to risk the possible loss of local focus mentioned earlier in this section, then one question is whether there is a problem with the strength of the graduate students now. It seemed as if the faculty with whom we spoke were generally satisfied with the graduate students already at KSU. (One exception was a concern by some, expressed particularly strongly by one faculty member, about the large collection of students admitted one year when everyone who was made an offer accepted it; however, we understand that, to prevent this from recurring, fewer offers will be made in the future with a higher acceptance rate assumed.) Also, the ranking and respect for KSU’s mathematics graduate program is already high, and this may be an area where there could be diminishing returns with the devotion of significantly more resources.

If a stronger national recruiting program is to be undertaken to increase the size of the mathematics graduate student body without suffering a loss in quality, then a case must be made that the graduate program can support such a size increase, and signals for that were mixed. We did hear from some faculty that not everyone who wants Ph.D. students can get them, but we also heard as an argument for increasing the size of the faculty that more were needed to support the program already in place, and further that the faculty directing the most dissertations were nearing retirement and that this would make it
difficult for students to find advisors. It could be that arguments for increasing the size of both the faculty and graduate student body are valid; more faculty may be needed to cover the breadth of courses required for the graduate program, and this increased faculty size may result in an increased need for Ph.D. students for active faculty. However, it still seems that the case for increasing the faculty size is stronger than that for the graduate students, and in an era of limited resources the former may be a better use for those resources.

In summary, the department could continue and expand its efforts to have its Ph.D. graduates help recruit good U.S. students from all parts of the country into its graduate program, and should also maintain national advertising to assure that students who might be interested in the program know about it. Beyond that, unless the visa problems described above come about, we do not see this as an area in which the payoff justifies significant extra expenditure of resources.

One area in which stronger national recruitment could definitely be of advantage to the department and institution is with students from under-represented minority groups. This will be taken up in the next section.

RECRUITMENT OF GRADUATE STUDENTS AND FACULTY TO ACHIEVE ETHNIC DIVERSITY

The department and administration have both expressed much interest in having more ethnic diversity among faculty and graduate students, but have had difficulty recruiting for this purpose. A glance at the demographics within the profession shows the root source of this difficulty, particularly for faculty—There are very few doctorates awarded to African American, Chicano/Latino, and Native American mathematicians every year. For example, in 2001–2002, the most recent academic year for which the American Mathematical Society has figures, only twelve of the 418 U.S. citizens or permanent residents receiving mathematics doctorates were African American (actually an unusually high number, given historical data), eight were U.S. Hispanic/Chicano/Latino, and two were Native Americans. These 22 new Ph.D.s amount to less than half a person for each U.S. state, hence one obvious obstacle to recruiting. In addition, members of these groups who receive mathematics Ph.D.s are known to look for jobs in industry at rates higher than the majority population; though numbers are hard to come by and this last information could reasonably be labeled as anecdotal, one of the authors of this report, Robert Megginson (himself Native American), has served on a number of national committees that address the under-representation problem and has seen the evidence for this phenomenon.

However, it is still appropriate for the department and administration to try to recruit a more ethnically diverse mathematics faculty, because it is important for a university serving a state with increasing diversity as well as to have role models and mentors for the ten percent of KSU’s students who are from minority groups. It is generally not effective just to specify in advertising that applications from members of under-represented minority groups are encouraged; almost everyone does that these days, and such a statement is often only notable when it is absent.
It is far more effective to go where faculty and students from these groups gather for annual meetings of professional societies serving these groups. These include:

1. The annual Conference for African American Researchers in the Mathematical Sciences, which every year has a hundred or more faculty, recent Ph.D.s, and graduate students gather to discuss both mathematics and issues specifically affecting African American mathematicians. Most participants are African American, but other interested persons are quite welcome to attend. The 2004 CAARMS conference will be at the Mathematical Sciences Research Institute in Berkeley and nearby Lawrence Berkeley National Laboratory; see www.msri.org/calendar/workshops/WorkshopInfo/258/show_workshop.

2. The annual conference of the Society for Advancement of Chicanos and Native Americans in Science (SACNAS), usually held in October; see www.sacnas.org for further information. Mathematics has become an important strand in the annual SACNAS meetings, and many Chicano/Latino mathematicians and graduate students, as well as undergraduates looking for a place to attend graduate school, can be found at this meeting. More Native Americans are attending than in past years, but most participants are from U.S. Hispanic backgrounds.

3. The annual conference of the American Indian Science and Engineering Society (AISES), usually held in November; see www.aises.org for more information. Frankly, mathematics is not a strong strand at these particular meetings, but this is the largest gathering of Native American scientists, graduate students, and undergrads to be found, and some mathematicians and mathematics students do attend.

KSU should consider looking at participation in these conferences as a recruitment activity that will benefit all science departments, not just mathematics, due to the large diversity of fields represented at all of them (even CAARMS, which is attended by computer scientists and mathematical physicists, for example). Budgeting for participation could thus be justified from sources other than the mathematics department, or shared with other departments likely to be impacted.

Patience is required for this type of recruitment; one trip to one of these conferences without any recruits to show for it should not be considered a failure. It can take a while to get the lay of the land and to build up some name recognition with the groups attending these meetings.

SACNAS and AISES (but not CAARMS) do have a college and career fair at which it is possible to purchase booth space, and many university recruitment groups do that. A first trip could be for the purpose of checking out what happens at these meetings, and then one could plan for booth space the following year. Alternatively, if there happen to be persons from KSU already attending these meetings, then they will already know what happens at them and may be willing to staff a booth at a meeting in trade for getting their travel expenses covered by the university. Student attendees from KSU can also be quite effective for this, although some faculty member should also be there when questions about life as a faculty member at the institution come up.
DEPARTMENTAL WEB SITE

We looked at the departmental web pages to learn more about the department and gather information that helped us put some comments we heard during our visit into context. Though we appreciate the graduate students’ opinion that the information available there on program requirements is quite helpful, the site could stand some improvement. For instance, the home pages of a number of faculty members simply do not exist, and several that supposedly do exist (including those of two persons instrumental in building the modern mathematics department, whose pages we really would have liked to visit) generated “404 Not Found” or “403 Forbidden” errors when the hyperlinks were clicked. This is one of the more frustrating experiences of a web surfer shopping for information, and can be easily avoided by having someone test the hyperlinks at the site on a regular basis.

Students shopping for graduate programs often rely primarily on departmental web sites and home pages of faculty about whom they have heard. Having those pages available for such prospective graduate students is a relatively low cost matter that should be done to bring the web site up to a satisfactory level of usability.

It is equally important that faculty who try to get grants have a good home page and that they routinely make preprints accessible there as soon as they have them available. Funding agencies now definitely have the attitude that they want the research findings that they sponsor available easily and without delay to the community at large.

It would also be desirable to have additional graduate course information beyond bare-bones catalog material available at the departmental web site. Faculty should be strongly encouraged to have home pages for their courses, including handouts (for example, in pdf format), and maybe even a few sentences on what was covered in each lecture. Examples of this can be found at other departments’ web sites, and it is often possible to download the source html code of a useful page to use as the outline for a course page.

SUMMARY OF MAIN RECOMMENDATIONS

1. Additional tenured/tenure track hires should be made as soon as possible. To achieve this, more tenured/tenure track positions should be allocated to the department, as well as converting some number of non-tenure-track positions to tenured/tenure track as they become open. Appointments every year over the next few years, multiple appointments each year if possible, will be required to renew the program and to make the existing groups more cohesive and functional.

2. One result of additional hiring should be a reduced teaching load for active faculty, which requires that more be done than just a one-for-one replacement of non-tenure-track faculty with tenured/tenure track faculty when NTT positions become open.

3. The size of the core groups supporting the Banach Center and the Institute for Computational Mathematics should not be reduced, and could even be increased to add to these areas of strength. However, additional hiring should also increase the mathematical breadth of the department to add to the department’s interdisciplinarity and so that important graduate courses can be taught.
4. Faculty should be more active in proposal writing and other development efforts.
5. As part of their teacher training, graduate students should receive instruction in tutoring.
6. Graduate students should be kept better informed of upcoming graduate program deadlines.
7. A more extensive national recruiting program for graduate students should be undertaken only to the extent that it can be done without a major allocation of additional resources, or if worsening visa problems restrict the pipeline of international graduate students.
8. More tenured/tenure track women faculty should be hired.
9. Attempts to recruit a more ethnically diverse faculty and graduate student body should continue, which includes participation in national conferences that draw persons from groups underrepresented in mathematics.
10. The departmental web site should be upgraded, with particular attention paid to having a meaningful web page for every faculty member and substantive information available for every active graduate course.

AFTERWORD

We wish to express our appreciation for the ready access to information and candor in answering our questions by the leadership, faculty, and graduate students of the mathematics department, which made our job much easier. We would also like to thank Dean John West, Dean Joe Danks, Associate Dean Bill Anderson, Associate Dean Dan Finotello, Associate Dean John Stalvey, and their staffs for the great hospitality they showed us during our visit to KSU. In addition, we wish to thank these deans for the support they have expressed for the mathematics department and the great interest they have shown in maintaining it as a strong center for excellence in mathematics research and graduate study. With this administrative support and the quality of the faculty that the KSU Department of Mathematical Sciences already has, it should be possible to address the most pressing issues faced by this department and assure it a bright future.