

The Graduate School Action Plan 2007-2009

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The Graduate School is the administrative home of four interdisciplinary Centers and Schools. Each of these is either a top 20 program or has great potential for becoming top 20 with infusion of some space or faculty resources. The Centers and Schools are discussed in the second half of this report.

- The Patterson School of Diplomacy and International Commerce
- The Martin School of Public Policy and Administration
- The Graduate Center for Biomedical Engineering
- The Graduate Center for Nutritional Sciences

The Graduate School serves as the administrative center for graduate program activities for the University. We offer 95 master's and 66 doctoral programs, as well as a variety of graduate certificates. We serve as the admissions office, funding and recruitment center, home to campus-wide graduate student enrichment activities, and quasi-registrar for graduate students. The Graduate School's strength lies in its dedicated staff, its generally collegial relations with Directors of Graduate Studies and DGS staff assistants, and its collaboration with many staff and academic support units on campus. We aim to be the most efficient, patron-centered academic support unit on campus. Even with snafus and challenges, we pride ourselves on reducing bureaucracy in small steps every year. The Graduate School is in a unique position to help support cross-college and cross-disciplinary initiatives such as the Superfund, training grants, and the Clinical Translational grant proposals. These in turn will help us rise in stature, extramural funding, and research productivity.

The weaknesses of the Graduate School are 1) historically underfunded student support mechanisms, 2) antiquated practices and the challenges of IRIS, web, and other IT implementation, some of which have disrupted our services in the last two years, and 3) staff turnover.

The goals of the Graduate School as a whole for 2007-2009 are:

- to provide a consistent framework for recruitment, retention, and graduate student professional development
- to enhance the intellectual and creative environment on campus for graduate students and to provide outlets for interdisciplinary collaboration
- to maximize student funding to get the best possible student body
- to adopt or adapt best practices in innovative graduate studies used Elsewhere

What can the Graduate School do to help graduate programs achieve Top 20 status?

- Refine the funding and awards structure
- Improve recruiting mechanisms
- Provide more research enhancements for graduate students
- Encourage efficiency in reduced time-to-degree, increased graduation rate, and retention

- Help increase doctoral enrollment and degree production
- Enhance quality of life for graduate students
- Revamp TA Orientation and enrichment activities
- Reduce bureaucracy and streamline service

We need to reassess the efficacy of our funding models. By making a few shifts in timing and focus, we can maximize current dollars to enhance doctoral production and support our nationally competitive programs. Moving up the announcement of tuition scholarships will give programs flexibility and a time advantage in recruitment.

Task 1: move up the spring tuition scholarship competition by 1.5 months

TORAs and Dean's Tuition Scholarships: we inherited a structure in which timing of tuition awards is counter to the recruitment season. Next year, we want the competition to start when the CPE gives approval to our tuition in December, and send out awards the first moment we can.

Change: Spring 2008

Task 2: restructure KGS into a fall tuition scholarship competition

The Kentucky Graduate Scholarship is an automatic entitlement program begun in 2001. It awards out-of-state tuition scholarships for all non-Kentucky students with a domestic GPA of 3.25 or higher. Equivalent GPA is calculated for all international students and then awarded on this basis. The scholarship program was meant to serve as a recruitment tool, which it does for some excellent programs with few funding opportunities. In fall 2007 we will do an automatic allocation, based on an average number of entering KGS first year students for each program. The Graduate School will retain a percentage for ad hoc allocations. In fall 2008, we will transition to a new model of allocation, with priority given to excellent programs with limited funding opportunities and national aspirations. We want to maintain support of high quality, nationally competitive master's and doctoral programs with few or no funding mechanisms.

Change:

Fall 2007: transition model

December 2007: develop specific criteria

Fall 2008: enact new model

Task 3: Re-assess timing and efficacy of fellowship competitions

The Graduate School will interview DGSs and conduct "exit surveys" of those students who turn down our offers. This may help adjust the pricing and timing of offers. We will also assess the completion rates and time-to-degree for fellowship holders to see if this funding is effective in getting students finished successfully.

Begin: summer 2007

The Graduate School, in consultation with graduate programs and college deans, needs to develop a national strategy on recruitment. We need to maximize our national presence at conferences, showcase our students effectively, and get undergraduates interested in UK at much earlier stages in their careers. The strategy needs 3 prongs:

more effective self-presentation, more opportunities to showcase student research, and more campus visits by prospective students for meaningful events.

Task 4: Enhance travel and early research funds for advanced pre-Qualifying doctoral students

We need to enhance travel to conferences and other research venues. This is an ever-growing need as our doctoral student body expands and student research and publication advances.

In addition, the Graduate School should develop a competitive fund for pre-Qualifying Exam student travel (summers only) to archives, field sites, or other areas in order to lay the groundwork for their dissertation; and for research costs associated with preliminary surveys and pilot projects in the social sciences. The earliest stages of the dissertation are now falling in the pre-Qualifying period, and pre-proposals are now common requirements at the Qualifying Examination. In order to lay the groundwork for their research, so that they can write competitive grant applications for the dissertation work itself, students need support at this earlier stage. We currently have only the highly competitive "Dissertation Year Fellowship", which comes too late for many projects. We also have travel grants of \$400 and \$800 to give papers at domestic and international meetings respectively. A more substantial research travel grant will accelerate the early stages of archival and field work, and thus contribute to more efficient progress toward completion.

Cost: \$250,000

Task 5: Create competitive RA positions in Arts and Humanities

We will encourage the university to establish a fund for competitive research assistantship positions to support faculty research in the arts and humanities. This will support faculty productivity in some of our Top 20 programs, encourage faculty retention, and fund students who learn research methods. Currently this is handled on a very limited, ad hoc basis from the Graduate Schools funds, for retention or recruitment packages or to support a journal. It would be a formidable recruitment tool for our successful arts and humanities programs and would heighten the research capacity of research active faculty. Given the current distribution of faculty and student enrollment, these RA positions could also support minority and women faculty in greater numbers.

Change: Fall 2008

Cost: 5 stipends at \$15,000 plus tuition scholarships

\$125,000

Task 6: Create an Over-Offer Pool

We propose to create a carefully controlled Over-Offer Pool for smaller graduate programs, so that they can make offers beyond the limit of their available student funding. This will allow them to recruit the best possible class from top tier students, and use funding most effectively. When programs over-offer now, they run the risk of budget deficit. If they level-offer and get late refusals, they can lose the second tier students and must go too deep into the third tier to fill assistantships. The Graduate School could operate as a bank for overages, which could be leveled out in the next recruiting year.

Begin: fall recruiting 2007

Cost:

Reserve of \$100,000

Task 7: Get TA stipends to competitive levels

We will work with the Provost and UCAPP on getting competitive TA stipends in top 20 and aspiring programs. The College and Arts and Sciences and the Graduate School are currently preparing a survey of TA stipends, workloads, and benefits among the benchmarks. We encourage the Provost to use the results and the recommendations of the Graduate and Professional Domain Committee in adjusting stipends to maximize our ability to recruit nationally in our most competitive programs.

Cost:

\$1,500,000

Task 8: Encourage multi-year funding packages

With the Provost Budget Office, we propose to hold meetings with programs to assist in organizing multi-year funding offers, where feasible.

Task 9: Revise all GS web pages and hire out web design for graduate program templates

In recent in-depth interviews with selected DGSs, the UCAPP Graduate Domain Subcommittee found that programs desperately need web and print design support from centrally managed and maintained resources for graduate recruitment, admissions, and funding. They need web templates for recruitment. We need a UK brand for graduate studies that relates to the University's overall plan. According to minority students who were interviewed, we need a centralized web site for minority graduate student resources. To do so we need to implement SharePoint for the whole Graduate School web site, outsource some web design, and hire a web master and desktop support person for the Graduate School, who will also assist the 3 Graduate Centers and Schools in desk top support.

Change: 2007–2008

**Cost: \$60,000 recurring
\$40,000 non-recurring**

Task 10: Establish a university-wide, nationally competitive summer research experience for undergraduates finishing sophomore year

Recent interviews with minority students indicate that we need to bring the very best students to campus EARLY in their undergraduate careers, before they and their advisors have already made decisions about graduate or professional schools. The students emphasize that first-generation college goers are so focused on immediate financial rewards that they need time and hands-on research experience to rethink other options. The summer research experience is ideal for this activity. Currently, the Graduate School supports such a research experience for minority, first generation and women students (underrepresented disciplines) from Kentucky only (KYSS). We need to expand this program to recruit minority students and other underserved populations from other regions, not just Kentucky. But we also need to have such a nation-wide research experience for excellent undergraduate of all races and backgrounds. To do so, we will need to make this an all-university endeavor. This should be a collaborative effort from the Provost's Office, Research, the colleges, and other academic support services. This summer program needs to be at nominal cost to the students, so travel, room, board should be included. A stipend for the summer faculty members will also be necessary.

Change: Summer 2009, (Summer 2008 if possible)

Cost:

\$200,000

We need to enrich the intellectual environment for graduate students. Part of the attraction of our aspiration universities is that there are opportunities for graduate students to advance their own research, interact in informal settings, meet others from related disciplines, and generate new ideas in a stimulating environment. UK is far behind the mark in creating these opportunities on campus and in the urban environment.

Task 11: Ensure that research ethics courses are available to all students and post-doctoral scholars – move down to task 8 – cluster all \$\$ tasks first?

The Graduate School should plan or help coordinate research ethics courses or non-credit seminars which are accessible to students in all fields. While these courses already exist in some programs, they are not available to all students at this time. A combination of currently existing courses, on-line tutorials, and summer seminars would be an ideal framework for accessibility.

Change: summer 2008

Cost: \$30,000

Task 12: Create more public events for graduate students

The Graduate School has sponsored a limited number of campus social and intellectual venues for graduate students, such as free or low-cost tickets to one campus event per semester (dramatic productions at UK Theatre or Opera Theatre) since 2005. We would like to begin a film-plus-discussion series, receptions for alumni of HBCUs and other universities and colleges, support for the activities of the Graduate Student Congress, fellowship celebration events, and dissertation roundtables. We think these community building activities will help build a cross-campus intellectual environment and attract the attention of potential students,

Task 13: Showcase student research through electronically submitted dissertations

With substantial support from and collaboration with University Libraries, we are moving toward fuller and more streamlined submission and electronic archiving of dissertations and theses. The library staff has established software and server space for this project which will enable automatic checks for formatting, and enable electronic storage and retrieval. We plan eventually to move to required electronic submission. To do so, we will need trained support staff in the library to assist students, so that services are available evenings and weekends. To this end, we will support such a staff request from the library.

Change: Fall 07

In order to achieve the goals of the Business Plan, the Graduate School needs to encourage programs to make the graduate experience as efficient as possible. The Graduate School has recently introduced **time limit requirements** for the pre-Qualifying period and shortened the maximum time limit for master's degrees. We have streamlined the University Scholars program to entice our brightest UK undergraduates into master's programs. Once the reporting mechanisms in Campus Management are in place, we hope to provide programs, chairs, and deans with data on completion rates, and if feasible time to degree and retention (for continuing enrollment programs). With that information, we can encourage programs to assess where there are drop-out and slow-down issues.

Task 14: Continue and refine the Dissertation Boot Camp and other enrichment workshops. This is an intensive 2-week writing session, held in a wireless campus dormitory setting, with afternoon programming on personal and professional issues. The Boot Camp has just completed its first cycle (a two-week camp in early summer 2006 and a 3-day intensive writing session in January 2007). This has been an extremely successful event. It allows students employed elsewhere a structured way to return to campus for intensive work on the dissertation. Students whose work has stalled are given an official re-entry point, which has often sufficed to get work started again. It also provides access to a range of services including libraries and helps reestablish contact with faculty advisors. We plan to refine the offerings in summer 2007 and make housing rental an option for out-of-towners. Likewise we should continue to offer workshops on grant writing, resume preparation, how to get published, and “getting to graduation.”

Task 15: Put pressure on programs to do annual progress assessments of all doctoral students. This is now a requirement for annual assessment of progress (since 2005), but the Graduate School has not yet enforced it. Now is the time to impress on DGSs the necessity of doing so, to keep students on a timely path, and to advise students who are not making progress. In collaboration with successful programs, we will develop templates for communicating with students about their progress.

Task 16: Introduce automated electronic processes for doctoral graduation. We are poised to introduce an email-driven process (started by the student, approved by the DGS) for appointing doctoral committees, scheduling the qualifying and final examinations, applying for the degree and approving the dissertation. This should simplify and speed up a process that has been a cumbersome and inefficient process for programs and students. A similar system is also planned for establishing master’s committees and scheduling final examinations.

Task 17: revamp TA orientation

The University-wide Teaching Assistant Orientation has not been revamped in many years. It is overly bureaucratic and often repetitive. All events should be meaningful to the participants, giving them useful information, accomplishing the legal requirements and above all being more flexible. We should continue with holding a make-up Orientation for TAs hired late in the season. The University Senate has recently accepted our proposal for an early language screening mechanism for International TAs. This may help with departmental planning and hiring of teaching staff each August.

With the help of our new Director of Graduate Student Professional Development, we need to create more exciting and focused activities for TA Orientation. We need to have many portions of the TA Orientation available for online tutorial and testing. We need to separate out TA cohorts with very different needs and backgrounds, and give them either the microteaching experience or other meaningful preparatory activities.

Task 18: reestablish the ongoing teaching and professional enhancement workshops run by the Graduate School, in tandem with offerings in TASC, the Career Center, Office of International Affairs, and Office of Multicultural Student Affairs.

SACS has required UK to hold ongoing training for teaching assistants, and the Graduate School has been charged with providing part of this training. TASC also holds workshops in teaching, and we work closely with the TASC academic team on these

topics. We propose even closer collaboration to save resources and take advantage of campus expertise. We would also like to work more closely with the Career Center in providing outlets for professional training and enhancement for graduate students in areas such as advanced internships, professional and scientific resume building, and advanced interview practice.

It is possible that the Graduate School will become more officially involved with the Office of Multicultural Student Affairs. We want to reinstate our former workshops on teaching in a diverse classroom, introduce more social events for minority and other underserved cohorts, and provide programming that focuses on an intellectually and culturally diverse world.

Task 19: work with the new Graduate Student Congress to identify graduate student needs

Graduate students have traditionally not had access to many student support services on campus such as the Student Government Association, the Career Center, and various student activities. Now students are beginning to make use of more of these services. The Dean should work with the new Graduate Student Congress to identify needs and resources for students.

Task 20: create APEX self-audit pages for each graduate program

We began this project before the advent of IRIS, but were asked to put it on hold until after IRIS implementation. We want all programs to be available for students and advisors. We think this self-auditing tool will help students stay on track and eliminate last-minute anxiety and mistakes at final examination scheduling. Self-audit will help us streamline academic services and problems arising only at the end of the student's career. We anticipate that it may take one year after the successful implementation of IRIS for us to complete the APEX project for all graduate programs.

Change: Summer 2008

Task 21: Reduce paper and print usage

We need to rethink every paper activity in light of IRIS capabilities. If our system will allow it, we want to move to paperless files for students by 2008-09. This will entail scanning and attaching transcripts and all student actions, using the official university email for all student processes and contact, and obtaining electronic signatures for all Graduate School professional staff and DGSs. This change will save money and time to spend on all other tasks.

Reaching the Top 20: Assessment and the Role of the Graduate School staff

The measures by which the success of the Graduate School will be assessed are clear in the Top 20 Business Plan: we are to double the number of doctoral degrees by 2020. The Graduate School Assessment Office will be an integral part of that activity.

The Graduate School will continue to respond to faculty queries about the National Research Council Survey of Research Doctorates, as it moves into the next phase, ranking of programs by individual faculty. We will continue to work with Academic Analytics in the Faculty Productivity Index to hone faculty lists and get materials out to deans and programs on current national rankings. Our Assessment Office will continue to work with the Vice President for Institutional Planning and Effectiveness to ensure we are ranked appropriately and well in national surveys.

The Graduate School staff is an efficient, gifted group of professionals who care deeply about their patrons. Once we are past the implementation of IRIS, the Graduate School deans need to work with the staff to retain our collective knowledge and expertise and to rethink information flow within the organization. We need to encourage ideas and innovations to emerge from staff members. Finally we need to find productive ways to acknowledge and reward them for a job well done.

The Graduate Centers and Schools

The Dean of the Graduate School is the chief academic officer for four Graduate Centers and Schools:

The Patterson School of Diplomacy and International Commerce
The Martin School of Public Policy and Administration
The Graduate Center for Biomedical Engineering
The Graduate Center for Nutritional Sciences

These have all seen significant changes since the restructuring of the University in 2001. When the Graduate School was split from Research and Graduate Studies, all six degree-bearing Centers, School and Institutes were assigned to the Graduate School. Gradually, we lost support certain support services, such as print and publicity services, some budget services, and some computer desk top support. Two of the Centers have relocated since 2003: The Graduate Center for Toxicology moved to the College of Medicine and the Graduate Center for Gerontology moved to the new College of Public Health. The Graduate Center for Nutritional Sciences is planning to move to the College of Medicine in 2007; the proposal is now under consideration at the Health Care Colleges Council. The Martin School of Public Administration and Public Policy is considering significant growth and a series of significant changes, which may include a different reporting structure. The School has prepared a proposal for expansion, which the Provost is now considering.

The task of the Graduate Dean and the administrative staff of the Graduate School is to make these transitions happen as smoothly as possible; to advise the Directors as they face new administrative challenges; and to ensure that faculty processes and records are maintained properly. The Dean's role for the Patterson School and the Center for Biomedical Engineering is to support their interdisciplinary aims while providing an infrastructure for continued growth and productivity.

For Patterson, Martin, and Biomedical Engineering, the most crying weakness is **space**. Biomedical Engineering's antiquated facilities limit research collaborations and compromise and endanger research projects. Sufficient **student funding** is a challenge for program building for Patterson and Martin. The Futures Committee report, which recommended new reporting lines for all units under the Graduate School, had a debilitating effect on faculty morale, since these relocations were not immediately enacted or budgeted. The timing of that report was unfortunate. Instead, with two Acting Provost periods and an extended Acting Dean period, these **programs were kept in limbo** for several years. The dual reporting structure of the Graduate School (to Provost and Research) and the absence of critical infrastructure led to much bureaucracy and redundancy. Only in 2006 were the reporting lines and budgetary arrangements for the

Graduate School finally clarified. Some central services have now become available or have been regularized.

The Graduate Center for Nutritional Sciences

Since the documents concerning the future of the **GCNS** are underway and will be scrutinized by the University Senate, we will not report on their future plans in detail in this Action Plan. Suffice it to say that Nutritional Sciences is a major growth area for the University, since this research encompasses diabetes, obesity, and cardiovascular disease, in addition to clinical nutrition. These are not only high priority research areas for growth, they are also of substantial importance for the health and economy of the Commonwealth. The center has won two training grants (NIH and USDA) and its 6 core faculty are PIs on current NIH, EPA, and AHA grants totaling 1.7 million and co-PIs on grants of 2.9 million. Seven students have won peer-reviewed AHA predoctoral fellowships. The GCNS has new and well-utilized laboratory space in the Wethington Building, in close proximity to researchers in related medical sciences. There is efficient use and sharing of equipment, and a highly productive core and affiliated faculty, and interdisciplinary placement of students in faculty labs.

The Graduate School and its constituent faculty support the growth plan for the GCNS as it is laid out in their agreements with the College of Medicine, in collaboration with the nutrition and food programs in the College of Agriculture. We find that this Center has grown substantially since 2003 and in order to grow more, needs access to an infrastructure for support of its funded programs (specialized budget officers, grant writing support, a large, shared pool for startup funds, equipment funding, sharing and maintenance). In the College of Medicine, the Center can take advantage of shared graduate recruitment resources, doctoral program management, and direct access to a shared curriculum for its doctoral students.

The Martin School

The Martin School is ranked number 9 in public finance and budgeting by *US New and World Report* and in the top 25 programs of public administration in public institutions. The School's 8 core faculty members generate more than \$100,000 in research funding per faculty member per year. Their students have won regional or national awards for papers or dissertations every year since 1993.

Since the Martin School's draft of its growth plan must be first vetted with the Provost and his budget office, we have not included them here. Once the Provost has considered that plan, we will append it in its approved form at a later date. There are 4 areas of this growth plan that the dean strongly advocates. These areas will contribute to the growth in undergraduate and graduate enrollment, the internationalization of campus, and the attainment of top 20 status for the University.

The growth plan includes:

- The proposed creation of an undergraduate major in public policy studies, which is anticipated to serve approximately 200 students (based on national norms for such programs).
- Substantial expansion of the number of graduate students
- Substantial growth in the faculty of the Martin School, to serve the undergraduate population and to strengthen offerings in health policy and international policy studies

- Development of faculty strength and establishment of a Center in public finance, already a top 20 specialty area in the Martin School

Currently the Martin School and the Patterson School share one floor of Patterson Office Tower. If the Martin School's growth plan is approved, it will demand a doubling of space needs. Martin will need the equivalent of 30 offices and 3 seminar rooms over the next 3-4 years. Both Martin and Patterson need computer desktop and software support.

The Patterson School

The Patterson School, which in 2006 was ranked 18th in the nation among schools of diplomacy by the journal *Foreign Policy*, has recently hired 3 faculty, including an expert in national security, an international economist, and a recently retired career foreign service officer, Ambassador Carey Cavanaugh, who is now the Director. The School will have a visiting professor from the U.S. Department of Commerce in 2007-2008. Ambassador Cavanaugh has an ambitious plan for the School:

- To increase development activities to enhance student funding and programming
- To bring in nationally and internationally known speakers
- To recruit a larger class from a broader pool nationally and internationally
- To enhance student experience through international internships, experiences with multinational corporations, and participation in national conferences
- To stage an internationally significant series of speakers, events, and galas during the 50th anniversary of the School in 2009

The expansion of activities, along with the number of distinguished visitors and lecturers makes further demands on already cramped space. As the prominence of the events grows, so will infrastructure needs. To maintain this Top 20 program, the Patterson School needs more contiguous faculty and student space, common rooms, and space for its unique library collection. By 2008, the Patterson School will need an event planner/public relations officer to handle public information requests, alumni and donor relations, and bookings for the faculty and students.

Currently the Martin School and the Patterson School share one floor of Patterson Office Tower. The Patterson School needs at least 10 faculty offices and 5 staff/student work spaces, plus common rooms, library and seminar room. Both Martin and Patterson need computer desktop and software support.

The Graduate Center for Biomedical Engineering

In 1997, the Task Force on Research and Graduate Education Priorities (a.k.a. Reedy Committee) identified CBME as a "program positioned to achieve national stature". As the Center entered the 21st century, addition of new faculty and excellent productivity led to increased extramural funding, over 60% growth in the number of graduate students, and nearly a tripling in the proportion of Ph.D. students compared to M.S. students. Unfortunately, departure of two faculty members in 2002, accompanied by budget cuts, a hiring freeze, and release of the report from the Task Force on the

University of Kentucky Future: Faculty for the 21st Century (a.k.a. Futures Committee), significantly disrupted this upward trend.

The current faculty includes 3 Professors, 2 Associate Professors, 1 Assistant Professor (who arrived in September, 2006), and 1 Research Assistant Professor. (A Professor retired in June, 2005, and an Assistant Professor resigned in May, 2006.) Searches are ongoing to hire up to three junior faculty members. In part because of factors mentioned in the previous paragraph, the student body has shrunk to about 21. CBME continues to be housed in the Wenner-Gren complex, parts of which are over 60 years old; none of the facilities were designed for modern biomedical research.

CBME Role in UK's Quest for Top 20 Status

Through analysis of the expertise of core CBME faculty and in other units on campus, three research areas have been targeted for growth. These foci are:

1. Tissue engineering and reparative medicine – focusing on interfacing implantable materials with biological tissues, including the engineering of cells and tissues; specific foci include connective, cardiovascular, or neural tissues
[Current grant record: 3 PIs (primary faculty), 2 PIs (secondary faculty), 6 co-Is involving Chemistry, Dentistry, Pharmacy, Internal Medicine, Mechanical Engineering, and Orthopedic Surgery
Total IDC of \$189K]

2. Systems biology – focusing on integrating complex molecular, cellular, and organ system mechanisms to understand disease processes using experimental, theoretical and computational approaches, and on combining experimental and computational methods for diagnosis and therapy; specific foci include cardiopulmonary and/or neural disorders
[Current grant record: 4 PIs (primary faculty and staff), 1 PI (secondary faculty), 4 co-Is involving Cardiology, Chemistry, Pediatrics, and Physiology
Total IDC of \$130K]

3. Biomedical imaging and image processing – focusing on cellular and molecular imaging; specific foci include neurodegenerative diseases and cardiac arrhythmias.
[Current grant record: 1 PI (primary faculty), 3 co-Is involving Anatomy and Neurobiology and MRISC
Total IDC of \$11K]

Augmentation of these research foci will allow CBME to continue strengthening its ties with numerous units across campus. Collaborators span multiple units throughout the Colleges of Arts & Sciences, Dentistry, Education, Engineering, Health Sciences, Medicine, and Pharmacy, as well as research centers, such as the Center for Applied Energy Research.

In addition to the two faculty searches that are ongoing, hiring another new faculty member in the area of bioimaging would provide a bigger impetus in this exciting field and would enable CBME to make the fullest contribution to the University's quest for Top 20 status. While joint appointments are being explored during the current faculty searches in an attempt to leverage funds, additional funding may be needed to complete the hire.

The Center's faculty must also take advantage of additional funding mechanisms and applications to other funding sources must be utilized. Regrowth of our faculty will enable preparation of applications for NIH training programs (T32) and Centers (P20

and P50) in addition to R01 and R21 grant proposals. Funding opportunities from private foundations, such as the Wallace H. Coulter and W.M. Keck Foundation, also should be explored.

Measurable Goals

2007: Fill two (2) junior faculty positions

Apply for an NIH P20 grant

Increase graduate student enrollment to 22 (2.75 per RTS faculty member)

2008: Apply for an NIH T32 grant

Increase number of joint (secondary appointment) faculty by two (2)

Initiate Affiliated Faculty series

Increase graduate student enrollment to 25 (3.125 per RTS faculty member)

2009: Apply to the Kentucky NSF EPSCoR Research Infrastructure Initiatives Program

Apply, individual or as a program, to the Coulter or Keck Foundation

Increase number of joint (secondary appointment) faculty by two (2)

Increase graduate student enrollment to 30 (3.75 per RTS faculty member)

Resources Needed

Physical resources are the biggest impediment to productivity and growth of CBME. Parts of the Wenner-Gren complex are over 60 years old, and the buildings were not constructed with modern biomedical research in mind. For example, there are no fume hoods or central lines for deionized water, vacuum, air, or gas. Recurring water leaks continue to cause damage to the building as well as to research and teaching equipment. Recent (FY06) upgrades to the computer network and August 2006 roofing of the original Wenner-Gren Lab simply delay addressing the ultimate problem of inadequate physical facilities for a program that had been “poised to achieve national stature”. Modern research space in close proximity to the Medical Center, for easy access to animal and clinical research facilities, is a high priority for the future of CBME. CBME recognizes that a “Biomedical Engineering Building” is not practical and may not even be desirable. The interdisciplinary nature of biomedical engineering is facilitated best in a collaborative environment. While preferable to remain contiguous, investigators in the three research focus areas (see previous sections) may need to be separated to be in proximity to appropriate collaborators. Both typical wet bench labs and labs with open floor space for equipment (cell culture equipment, mechanical test instruments, tilt tables, instrumentation racks, *etc.*) are needed. The light- and vibration-sensitive experiments conducted by some investigators, as well as their use of animals and human subjects, require enclosed labs, rather than large, multi-PI spaces. Other specialized equipment, such as servohydraulic mechanical testing systems, need extra ceiling height for test frames and floor space for pumps and drums of hydraulic fluid. Table I details the office and lab space needs of CBME faculty based on their current space.

Approximate space and needs of CBME faculty

8 labs at 850 sf

7 offices at 110 sf

1 faculty office at 275 sf

If the University decides to pursue an undergraduate biomedical engineering program, additional resources would be required. Provost Nietzel had requested an analysis of

what would be needed for such an endeavor, and the results were submitted in the “Report from the Curricular Planning Committee for a New Undergraduate Program in Biomedical Engineering” in January of 2003. The reader is referred to that document if the University were to consider such a move.