

**University of Wisconsin–Madison
Reaccreditation Self-Study**

**Team 2:
Integrating the Processes of Discovery
and Learning**

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I. EXECUTIVE SUMMARY

Through the support of state, federal, and private funding and the extraordinary efforts of faculty, staff and students, the University of Wisconsin–Madison continues to sustain a world-class reputation. Our university ranks second in the country in overall research expenditures in a recent report by the National Science Foundation and eighth among public institutions in the annual rankings by *U.S. News and World Report's* 2008 edition of *America's Best Colleges*. This community of excellence has created a learning environment to inspire the quest of new knowledge, either as undergraduate, graduate or professional student learners or by making new discoveries through research, scholarly activities, or other out-of-classroom experiences. Excellence in research has also allowed us to integrate our research approaches into our teaching, which enables us to enrich the learning experiences of our students in a manner only possible at a research university. The dissemination of this knowledge benefits our state by providing an educated citizenry, a trained workforce, and new or expanded businesses, and by catalyzing additional discoveries and technologies outside the university, which improve the lives and the economic well-being of the citizens of Wisconsin, and exemplify our historic embrace of the Wisconsin Idea. Our goal over the next ten years is to do everything possible to maintain this excellence and continue our tradition of integrating discovery and learning. In that spirit, we outline both our strengths and our challenges and offer recommendations to sustain and strengthen those traditions. We present four visions to reach this goal.

Vision 1. Ensure a World-Class Research and Teaching University in a Time of Limited Resources

Our commitment to teaching and the discovery of new knowledge through research and scholarly activities extends across the university and is reflected in our national rankings in all divisions: Arts and Humanities, Physical Sciences, Biological Sciences, and Social Studies. Yet academic and scholarly excellence requires continual attention to acquiring new resources (both public and private), new facilities, and new personnel. In addition, to remain competitive nationally, we must provide an infrastructure and environment that encourages and rewards faculty, staff and students for their dedication and achievements. Because federal funding for research has not kept pace with inflation for the past several years, a major funding stream that supports our outstanding research activities is vulnerable. The percentage of the state tax component to the university budget has also been slowly declining, adding further uncertainty to our ability to remain competitive through the next ten years. The arts and humanities and the social studies are particularly susceptible in such times, because there are fewer financial resources available to buffer against economic uncertainties or pressures. Despite these financial challenges, our priority is to ensure that our undergraduate, graduate, and professional students reap the benefits of first-class instruction at a world-class institution, where research and teaching, discovery and learning, continue to be mutually reinforcing endeavors. We also want to maintain a culture that embraces the tenets of the Wisconsin Idea to bring the advances from the university to the state of Wisconsin. Our challenge for the next ten years is to acquire the

resources to maintain academic and research excellence throughout the university and not allow any of the major pillars of academic scholarship to weaken.

We thus recommend to:

- reaffirm to our citizens and legislators the benefits resulting from support of all scholarly activities at the University of Wisconsin–Madison.
- strategically fund-raise for the arts and humanities, social studies and social sciences for a building to house and establish the Wisconsin Institute for the Humanities and Society.
- support continuing efforts to fund raise to provide resources to implement the master plan for new facilities on the east end of campus.
- provide market-level compensation for faculty and staff to both recruit and retain outstanding educators.
- identify and emulate best practices in research and teaching, for the benefit of undergraduate, graduate, and professional students alike.

Vision 2. Promote, Foster, and Support Interdisciplinary Research

The culture of collaboration and interdisciplinary work has been a vital part of our academic excellence and this synergy must be rewarded and supported. Our institution has a long tradition of faculty, staff and students interacting across disciplines, and in 1998 a “cluster hire” program for hiring faculty whose research was interdisciplinary was created. The interdisciplinary interactions by these faculty as well as those with traditional departmental affiliations have enhanced our research and scholarly activities as well as provided student learners the opportunity for interdisciplinary course work. While the cluster hire program and the work produced by interdisciplinary faculty are of exceptional quality, the institutional infrastructure needs to evolve to maximize the interdisciplinary facet of their work. For example, some cluster hire program faculty report that to achieve tenure, a traditional departmental model was easier to follow. Our investment in interdisciplinary faculty has also had a positive role in encouraging collaboration and formation of interdisciplinary research programs—e.g., the BACTER Institute (www.bacter.wisc.edu/). We do not yet have an administrative infrastructure to guide integration of interdisciplinary work and grants into the traditional funding mechanisms of departments.

We thus recommend to:

- enhance interdisciplinary research and programs by increasing resources that sustain interdisciplinary endeavors, including (1) recruiting new faculty through the cluster hire program with interdisciplinary competence, (2) funding for joint ventures between departments and interdisciplinary units, (3) providing access to common space for research and creative productions, and (4) informational technologies that enable storing, archiving, and sharing of digital materials for researchers in all campus units.
- help ensure the success of junior interdisciplinary faculty by (1) improving the mentoring of interdisciplinary junior faculty, especially those with split appointments, (2) continuing to develop appropriately flexible standards to be used by departments,

interdisciplinary units, and divisional committees for the equitable evaluation of interdisciplinary research and creative work; and (3) amend current divisional committee eligibility guidelines to allow membership of faculty with a minor (less than 50 percent) appointment in a department that is already represented on the committee.

- enhance research initiatives and collaborations by (1) increasing the de minimis in effort reporting to encourage exploratory research between funded researchers on projects not yet funded and (2) developing an equitable system for indirect cost-sharing that encourages grant-funded interdisciplinary projects.
- establish campuswide procedures and policies to increase our success at obtaining and completing large, interdisciplinary research or scholarly programs.
- enhance interdisciplinary educational opportunities that support the creation of cutting edge courses that do not fit into traditional department or college curricula.
- enhance the public visibility of interdisciplinary work by encouraging and supporting the presentation of interdisciplinary research in publicly accessible formats, especially in cases where such formats constitute an appropriate alternative to conventional academic publications.

Vision 3. Increase Competitiveness in Graduate Education and Research

Graduate students are critical to the research and teaching missions of the university and epitomize the importance of integration of learning and discovery in education. As a campus, we are enormously proud of the contributions of our graduate students. Our graduate programs are routinely ranked within the top 25 in the country (many are in the top 10-15) and the campus is generally recognized as a leader in graduate education. In addition, nearly 25 percent of our Ph.D. and 35 percent of our M.S. students remain in Wisconsin after graduation, further contributing to our state's economy and economic development. Thus, we place high value on training and mentoring graduate students. Yet, the pressures of flat state support and extramural federal funding, combined with the increased costs associated with supporting graduate students as research or teaching assistants, threaten to reduce the number of graduate students that can be supported from grants, fellowships, gifts or departmental funds, jeopardizing our research and teaching missions. Graduate student support costs include the stipend to support the teaching or research activities, fringe benefits to pay for health insurance, as well as a tuition remission surcharge to recover tuition costs for research or project assistants; all three components have increased at rates well above inflation over the last ten years except for teaching assistant stipends, which have remained relatively flat.

It is important that our graduate students develop a range of skills, academic and professional, that equip them to carry out research and scholarly activity in the diverse, global communities of scholars. Faculty advisors, with institutional support, need to be increasingly intentional about how they mentor students and in making sure that they have adequate professional development activities. We outline four goals in graduate education that should be addressed to maintain our outstanding cohort of graduate students.

It is equally important that we continue to invest in enhancing the diversity of our graduate student population. The proportion of graduate students who are minorities has remained constant over the last ten years at about 89 percent. To retain our international position of prominence, as a leader in graduate education, UW–Madison must be intentional about increasing diversity in this arena.

Our recommendations are to:

- Solve the graduate-student funding problem by evaluating the possible solutions put forth by campus or college task forces that range from (1) identifying new sources of support to offer competitive graduate student stipend packages and (2) reducing the tuition remission surcharge by following the recommendations of the Tuition Remission Task Force, to (3) reducing the cost of tuition to trainees and fellows by pursuing in-state tuition resident status. We recognize that each solution requires new funding and that each of these potential actions may influence the ability to implement others.
- Examine how campus administration, including the Graduate School, can improve its decision making and communication of policies that affect funding of graduate students so that faculty and departments can engage in a dialogue with campus on the impact of funding decisions on our research, teaching and outreach missions.
- Increase the diversity of our graduate student population by (1) reviewing the effectiveness of existing admissions, recruitment, and retention programs; (2) increasing the pipeline of qualified Ph.D. students by developing new partnerships with M.S. programs on and off campus, sustaining our partnerships with colleges and universities that have a large underrepresented student population, and supporting summer research programs that are targeted to underrepresented students; (3) support and expand department-based best practices to recruit and retain underrepresented graduate students; and (4) support faculty-initiated programs to recruit and retain underrepresented students.
- Advance best practices for graduate student mentoring and professional development by (1) continuing to provide students with opportunities for professional development; (2) creating a culture where graduate students are encouraged to acquire these skills; (3) developing a workshop and materials to improve faculty-mentoring skills; and (4) establishing a requirement that all graduate programs develop an advising and orientation program for incoming students as well as initiatives to proactively monitor and mentor students' development on a regular basis.

Vision 4. Advance and Articulate the *Wisconsin Experience* for Undergraduate Education

UW–Madison continues to provide exceptional educational experiences for its undergraduate

students both within and beyond the classroom, resulting in our students graduating into exceptional leadership roles. In a state that is relatively sparsely populated, largely rural, and with a low percentage of its population possessing college degrees, we have created a university that graduates exceptional national leaders: More Peace Corps and Teach for America volunteers are UW–Madison graduates than almost any other university in the country. More leaders of major corporations have graduated from UW–Madison than any other university in the country. We are among the top producers of faculty members who teach at research-intensive institutions around the world. Finally, many local, state, and national elected and appointed officials are our graduates. The goal of combining discovery and learning rests on helping students find ways to connect their living and learning experiences in both formal and informal learning environments. This combination of learning will constitute students’ “Wisconsin Experience”—which makes getting an education at UW–Madison unique and meaningful.

To this end, our recommendations are to:

- endorse campuswide liberal education goals of learning (e.g., LEAP), and strengthen the alignment of undergraduate education to these goals;
- reaffirm academic excellence for all undergraduates, ensured by strengthening the comprehensive nature of UW–Madison ;
- advance our commitment to academic excellence and the Wisconsin Idea by cultivating, nurturing, and offering high quality, integrative experiences that blend in- and out-of-class learning;
- develop valid and eclectic ways to assess the effectiveness of our efforts to enhance learning for all undergraduates.

II. INTRODUCTION AND BACKGROUND

A. Charge

The charge of the self-study team “Integrating the Processes of Discovery and Learning” was to examine how we can build upon the amazing strengths of the University of Wisconsin–Madison as a preeminent research university by enhancing the integration of research and learning, while providing students (undergraduate, graduate, professional) with extraordinary learning opportunities.

The specific questions from our original charter were:

- How will we enhance the integration of the teaching and research missions in our new “public university”?
- How are research and learning integrated to best address world problems and improve the quality of our lives?
- How do we effectively strengthen and reward our culture of collaboration and interdisciplinary discovery and learning from classroom to community?

- How can we enhance graduate education through a reexamination of our processes of discovery and learning?

B. Importance of the Theme “Integrating the Processes of Discovery and Learning”

While “integration of the processes of discovery and learning” can have different meanings depending on the audience, we considered this process in a broad sense, such as when the discovery of new knowledge through research or creative work stimulates the learning process. Because we are a research university, the integration of discovery and learning represents a core principle underlying our approach to education, especially for students who engage in research or other forms of discovery. The wide access to research and other types of in- and out-of-classroom experiences at our university should have a broad impact on what and how our students learn. The campus shares a fundamental faith in the importance of discovery and learning, which in their many forms are also essential to the quality of life citizens enjoy in a free and democratic society. In our report, we only briefly acknowledge the many aspects of this process that we do well. Rather, we emphasize the challenges in maintaining this core value, which cuts across most of the university. For practical reasons, we were able to focus on only a few topics in our report.

C. Approach to Developing This Report

Our team held six meetings to discuss the above questions, define our goals, and develop our recommendations. During the first two meetings, we discussed our questions from the charter, decided what would be our focus, and began outlining four areas for further examination. We were greatly aided in this process by our facilitator, Darin Harris from the Office of Quality Improvement. In between meetings, we collected data from various campus resources (expert support was provided by Jocelyn Milner, director of the Office of Planning and Analysis). The two co-chairs met with the dean of the Graduate School, and one co-chair met with Professor Doug Henderson of the College of Engineering and Darrell Bazzell, vice chancellor for administration, and David MacDonald, chair of the Task Force on Tuition Procedures for Fellowships and Traineeships. At two meetings, we worked in groups to develop our recommendations, which were then reviewed by the entire team at two subsequent meetings. Comments were solicited from the team for our draft documents and incorporated into the final document.

D. Background

For well over a century, the University of Wisconsin-Madison has been widely regarded as a premier university. Through the support of state, federal, and private funding and the extraordinary efforts of faculty, staff and students, the University of Wisconsin-Madison continues to sustain a world-class reputation. Guided by a visionary ideal, the Wisconsin Idea, we have built an enviable academic reputation based on the lofty goal of excellence in teaching,

research, and service, while also serving the citizens of Wisconsin in a wide range of off-campus activities including community involvement and leadership, outreach teaching, and extension (where the latter involves shared federal, state, and county funding of outreach activities in agriculture, natural resources, community development, family living, 4-H, etc.).

Over the course of the twentieth century, our university endeavored to meet the high expectations of our citizenry, offering undergraduate and graduate students, alike, the strongest academic programs possible while expanding our larger service to the state and also meeting the high standards set by a very competitive national, even international, academic community. Our community of excellence has created a learning environment to inspire the quest of new knowledge, either as undergraduate, graduate or professional student learners or by making new discoveries through research, scholarly activities, creative work or other out of classroom experiences. Excellence in research has also allowed us to integrate our research approaches into our teaching, which enables us to enrich the learning experiences of our students in a manner only possible at a research university. The dissemination of this knowledge benefits our state by providing an educated citizenry, a trained workforce, new or expanded businesses, and by catalyzing additional discoveries and technologies outside the university, which improve the lives and the economic well being of the citizens of Wisconsin, and exemplify our historic embrace of the Wisconsin Idea. Our goal over the next ten years is to do everything possible to maintain this excellence and continue our tradition of integrating discovery and learning. In that spirit, we outline both our strengths and challenges and offer recommendations to sustain and strengthen those traditions. We present here four visions to reach this goal.

III. VISIONS

A. Vision 1. Ensure a world-class research and teaching university in a time of limited resources

The value of a research-extensive university. An understanding of history and the place of universities in society guides our deliberations. When they first arose centuries ago, universities educated and trained a small number of young men to serve and strengthen the professions and to advance the interests of church and state. The modern university is now a more socially inclusive, multipurpose institution whose educational role has expanded enormously in our global, increasingly knowledge-based economy. As in the past, the university in the twenty-first century will continue to serve vital intellectual, social, and economic needs. Ensuring a comprehensive university is critical to accomplishing our research mission, and to providing an outstanding education to the citizens of Wisconsin. Few public universities have been able to attain our stature as both a great public and a great research institution. Indeed, in ten years, we would predict that because of mounting economic pressures nationwide, only a handful of public universities would rank among the leading research universities in the United States. Our challenge is to ensure that the University of Wisconsin-Madison remains one of them. In addressing our charge, we concluded that as a first priority, the university must remain a top-tier

research university.

Commitment to the Wisconsin Idea. Our recommendations reaffirm our historic commitment to the Wisconsin Idea, recognizing that the boundaries of our university are coterminous with the geographical boundaries of the state. That tradition cannot be honored by sitting still or running in place. The boundaries of knowledge have grown exponentially over the last century, and an educated citizenry is strengthened by access to the deep well of knowledge generated in the arts, humanities, agriculture, medicine, business, engineering, sciences, and other academic domains. Training minds that are well-disciplined and have mastered a breadth of knowledge has long been a hallowed goal of higher education. In addition, we now recognize that we live in a dynamic world. To address age-old problems such as poverty as well as new ones on the immediate horizon requires citizens who can think critically, creatively, and imaginatively and with full regard for the ethical dimensions of personal conduct and concern for the common good. Addressing timeless concerns as well as those of immediate interest in improving everyday life rightly affirms our respect for the intrinsic value of discovery and indicates to citizens and students our continual engagement with the world and its perennial and emerging concerns. We outline some of the challenges we now face.

Challenge: Effectively communicate our wide-ranging value to the citizens of Wisconsin. Our commitment to the Wisconsin Idea ensures that we eschew the image of a university as an ivory tower. At every opportunity, our public university must reaffirm to our citizens and legislators that an economically secure university yields incalculable benefits to our state and to the overall well-being of society. Life is enriched every time pain and suffering is alleviated thanks to a medical breakthrough, every time an artist or musician brings aesthetic pleasure to the world, every time school children learn more thanks to instructional improvements resulting from university-based research. These are but a few of the many examples of how higher education makes a positive difference in the lives of citizens, not just those formally educated at the university. The generation of knowledge and the search for truth have long been central to our academic mission. It remains basic to our commitment to excellence in teaching and research and in service to our state and to the larger society.

Challenge: Limited resources. While the university has been enormously successful relative to the rest of its peers in securing extramural funds, nationally, federal funding for research has not kept pace with inflation for the past several years. Thus a major funding stream that supports our outstanding research activities is vulnerable here and across the country. In addition, the percentage of the state tax component to the university budget has also been slowly declining, adding further uncertainty to our ability to remain competitive through the next ten years. The arts and the humanities, and social studies are particularly susceptible in such times, because there are less financial resources available to buffer against economic uncertainties or pressures. Thus raising money through private donations will be even more critical in achieving our goals.

Challenge: Noncompetitive faculty salaries. The pursuit of excellence in research, teaching, and

service will be possible only if our university attracts and retains our outstanding faculty, staff, and students. However, our faculty salaries rank in the bottom half among our peer group of public universities, with full professors ranking at the bottom, a sign of our vulnerability (see <http://apa.wisc.edu/FacultySalary/AAUP%20peer%20comparison%20for%202007-08.pdf>). Losing faculty, staff, and potential graduate students to wealthier, well-endowed universities jeopardizes our academic and research enterprise. It threatens our capacity to offer the highest quality instruction to undergraduate, graduate, and professional students. It also undermines our rich and productive interdisciplinary research traditions, which have often enabled faculty and staff to cross departmental and disciplinary boundaries, which has in turn led to countless innovations and breakthroughs in science, the arts and humanities, the social sciences.

Challenge: Maintain our academic strength across all divisions (Arts and Humanities, Biological Sciences, Physical Sciences, and Social Studies). No single program area, department, or school alone can provide the broad knowledge and specialized skills that help shape an educated person, whether teacher or student. We have long been a multipurpose university, and the boundaries of knowledge as reflected in our research and teaching have thus grown over time to include far more than was contemplated when the University of Wisconsin was founded in the mid-nineteenth century. The challenge of every leading university is to maintain an essential balance between instructing others in the specialized knowledge and skills necessary for success in different areas of study and ensuring that the boundaries of knowledge between academic departments and disciplines remains open. This latter trait is a hallmark of our university and one of our unique characteristics as an institution. A humanist unaware of the latest developments in science has a diminished capacity to help us understand our world.

The same is true of a scientist unfamiliar with how artists see and understand reality through their particular scholarly lenses. Science and the arts, the humanities and the professional schools, the social sciences and social studies: these and other pillars of the university for many decades have collectively supported and enriched our material and intellectual life. Despite this, there has been erosion in morale in the humanities and social sciences, which threatens the very core of our comprehensive university. Many departments face serious concerns about how to maintain academic excellence given the lack of competitive salaries campus wide. For example, the political science department has lost a significant minority of its faculty, and so has another esteemed department, geography. These are departments with a venerable history of scholarly distinction. The history department, another perennial power in academe, has lacked the resources to hire in areas of European history to replace key faculty members; it currently has one historian of the ancient world, its senior medievalist will soon retire, and it does not have a single faculty member in Chinese history, a very serious concern given China's rising stature in world affairs and our desire to be leaders in globalization. Other examples of the weakening of particular departments can be cited, but the point should be clear: our esteemed position as a great public, comprehensive university is under serious threat.

We now outline four goals for Vision 1, which addresses these challenges. Specific

recommendations to achieve these goals are also provided. In the executive summary, the goals and specific recommendations are combined together under the recommendations listed for each vision.

1. Goal 1. Ensure Excellence in Academic Areas that Lack Access to Traditional Major Sources of Extramural Support

Undergraduate, graduate and professional students alike deserve an education equal to the best. This can be achieved only if we have the institutional capacity to maintain academic excellence. It will require determination and hard work from faculty and staff and exceptional and determined academic leadership. Ensuring academic excellence throughout the university, from the sciences to the humanities, is essential. The overall quality of undergraduate and graduate instruction depends on shoring up and enriching areas that lack access to major external funding and sustaining and enhancing support for those that do.

While the full range of disciplines is necessary to a vibrant community life and academic community, knowledge generated in the arts and humanities will never have the market value of other disciplines, and thus can not provide the amounts of extramural funding obtained by the biological and physical sciences. It should be noted that our campus ranks first nationally in research expenditures in nonscience disciplines (see NSF report <http://www.nsf.gov/statistics/infbrief/nsf07336/>) indicating that we are quite successful in competing for the small amount of dollars that are available to support research and other creative works. Thus, a case can be made that more effort should be placed in fund-raising in the arts and humanities, and social studies. We predict that such an investment will lead to new partnerships across campus and in the long term, new sources of funding streams to improve the campus facilities and support for arts and humanities.

The important role of gifts to campus. Leading private universities in particular have raised billions of dollars for their endowments, ensuring their competitive edge in the academic marketplace, and sustaining the arts and humanities. While there is little doubt that the impact of external resources has played a decisive role in maintaining our strength in the sciences and medicine at UW–Madison, historically there has been a dearth of resources available for the arts, humanities, and social studies. The University of Wisconsin Foundation, which is our fund-raising organization, and the Wisconsin Alumni Research Foundation, which invests funds back into the university from university-generated patent revenue are key sources for providing private (non state GPR funds) support to the university. The newly established Wisconsin Institutes for Discovery—funded with state, WARF, and other private monies—will help sustain our academic reputations in the sciences. The research towers for the School of Medicine and Public Health are funded largely by federal, private, and corporate resources and will help promote basic and translational medical research. Likewise, the generous gift to the School of Medicine and Public Health by Blue Cross Blue Shield to create new programs in public health should propel public health education and research and improve the health of Wisconsin's

citizens. John and Tashia Morgridge have been particularly generous benefactors to the university providing gifts to many different areas, including financial grants for Wisconsin undergraduates, the Wisconsin Institutes for Discovery, and the Morgridge Center for Public Service. Finally the recent, generous infusion of WARF dollars into graduate fellowships in the humanities and other divisions was not only welcome but also essential, given the difficult state of university budgets.

Fundraising for the arts and humanities. Despite these generous gifts and awards, we remain very concerned about those areas of campus, so vital to our teaching, research, and service missions, that do not have as much access to federal grants or considerable extramural support as the sciences. It is inconceivable that we can continue to be a great public university unless we demonstrate a commitment to the arts and humanities, and social sciences and social studies. Our ability to deliver a high quality, state-of-the-art education to undergraduates and graduate students depends upon our attending full speed to this serious concern. Thus fundraising for the arts and humanities, social sciences and social studies must be a priority to maintain a comprehensive university.

Creation of a Wisconsin Institute for Humanities and Society to synergize teaching and research. Knowledge in the modern university is often highly specialized, but the lines of communication among various schools, disciplines, and program areas must be widened and strengthened in every way possible. As noted later, cross-disciplinary study has long been a fruitful means to ensure that scholars are flexible and nimble as they respond to new public concerns, whether they involve discovery of the sources and prevention of disease, the preservation of the languages and cultures of native peoples, or improving the computational skills of the coming generation attending the nation's schools. The arts and humanities enrich lives everyday, and maintaining excellence in our undergraduate and graduate teaching requires that they hold an eminent place on our campus.

We propose a new capital campaign leading to the establishment of a new building and institute, the Wisconsin Institute for the Humanities and Society. This facility would house, coordinate, and concentrate programs and efforts now diffused across campus, including but not limited to the current Center for the Humanities and the Institute for Research in the Humanities. It should include such centers as the Center for the Study of Upper Midwestern Cultures (and others too numerous to mention) as well as the proposed Wisconsin Alliance for Global Solutions; this latter initiative could thus serve as a suitable bridge to the newly established Wisconsin Institutes for Discovery. Besides raising money for a new building, fund-raising for endowed chairs and professorships, and lecture series that exemplify the Wisconsin Idea of community outreach, fellowships and scholarships for graduate and undergraduate research in the humanities, social sciences, and social studies will be more easily achieved if campus administrators make the establishment of this institute a priority. Individual departments have, with the guidance of the UW Foundation, made great strides in fund-raising. The scale and cross-disciplinary goals of a new initiative will require a coordinated effort of campus leadership and the Wisconsin Alumni

Foundation to make its establishment a reality. In 2012, the Wisconsin Idea will enjoy its one-hundredth birthday and a capital campaign capitalizing on this landmark achievement may provide a fund-raising theme for this building.

Recommendations

- Establish a Wisconsin Institute for the Humanities and Society and begin a capital campaign to raise funds for a new building to house this interdisciplinary institute.
- Identify critical needs for fund-raising in the humanities and social sciences, especially those that could lead to other cross departmental ventures or other “Big Ideas.”

2. Goal 2. Ensure Excellence in Faculty and Staff

Elite, well-funded private and public universities have increasingly and successfully raided the faculty of economically vulnerable institutions; they have lured the best and the brightest with enhanced compensation, better funding packages for graduate students, library support, and state-of-the-art facilities. States that hope to improve their economies and the overall well-being of their citizens are similarly eager to invest more heavily in higher education. Attracting and retaining the best faculty and staff at the UW–Madison will therefore be a challenge but must be a priority over the next decade. Certain policies must therefore be pursued vigorously to enhance our academic position vis-à-vis our private and public competitors.

Excellence depends upon adequate funding but cannot be achieved unless we continue to build the most welcoming and productive environment for faculty and classified and academic staff (see Team 5 report). The failure to do so will undermine most aspirations to excellence in research, teaching, and service. Faculty have traditionally been recruited from a national or international pool of candidates. While state employment rules limit flexibility in the appointment of classified staff, it remains clear that the shared goal of excellence is essential and benefits everyone. Integrating faculty, classified and academic staff into a shared universe of mutual respect and commitment to excellence is imperative.

Recognizing the fiscal realities that the state will face in the coming years, university leaders must pursue every legitimate opportunity to convince the legislature that the economic health and overall well-being of Wisconsin rests upon a well-educated citizenry and workforce. More human resources must be invested in this effort; this will require more efforts from administrators, faculty, staff, alumni, and others concerned with the short- and long-term welfare of our university.

Recommendations

- Pay market-level compensation to faculty and staff.
- Reaffirm to our citizens and legislators the benefits that accrue to the state resulting from

their support for the University of Wisconsin-Madison.

3. Goal 3. Enhance Faculty Excellence and Development in Teaching and Research

A university, especially a public institution such as ours, has always aspired to excellence in research, teaching, and service. While its research mission is the distinguishing feature of a university (as opposed to a college, for example), the synergy that exists between research, teaching, and service is a central part of the Wisconsin Idea, both in theory and practice. We applaud the numerous, ongoing efforts throughout the university to expose undergraduates to research, as students learn the skills necessary to the art of discovery and learning. We applaud the many initiatives underway to identify best teaching practices, which hopefully can be emulated by others. To cite a single prominent example, the Delta Program (www.delta.wisc.edu) on our campus is a concerted effort to improve classroom instruction, specifically teaching on the university level in science, technology, engineering, and mathematics. This program promises to reveal new insights on such important issues as collaborative learning and how to ensure academic excellence and success among a more diverse student body. Excellence in research and teaching are not mutually exclusive goals; we have an old and worthy tradition whereby many of our most esteemed research scholars regularly teach undergraduates, bringing their latest research findings and those of their colleagues and peers worldwide into the classroom.

A tradition of interdisciplinary research. While our university has long maintained national and international pride of place for its highly ranked departments, schools, and academic units, it is also critical that we continue to support the numerous faculty, who also have multiple or joint appointments, thus energizing faculty research and teaching and breaking down barriers between departments, disciplines, and areas of study. This culture of collaboration, which is fairly weak at many universities, has been a vital part of our historical development and is elaborated on in Vision 2. In particular, our Cluster Hiring Initiative to increase our number of interdisciplinary faculty has been successful in fostering interdisciplinary work and collaboration. Maintaining this synergy across traditional academic lines and programs of study is essential. Thanks to such efforts, we have enviable reputations in areas as diverse as foreign language teaching and environmental studies. Encouraging interdisciplinary research and teaching also has the salutary effect of attracting a more diverse faculty, themselves often educated to think beyond familiar disciplinary boundaries. The Cluster-Hire Initiative may also provide an excellent opportunity for initiating the cross disciplinary objectives of the Wisconsin Institute for Humanities. A cluster could attract faculty in history, economics, business, public health, etc., whose focus would be on a global discipline such as Chinese or Asian studies. This would aid not only in invigorating humanities and social studies, but also in establishing a presence in a critical area of global importance.

Integration of research and out of classroom experiences with teaching. Since the creation of

knowledge and its widest dissemination, both in the classroom and through other means, is a primary goal of the university, systematic efforts should therefore be undertaken on our campus to study how well undergraduates are exposed to research, the effects of technology in reshaping the future classroom, and the role that cross-departmental research, teaching, and service plays or should play on campus. Follow-up studies are necessary to show the possible contributions of cluster hires to maintaining our traditional culture of collaboration, and the ability of departments to hire faculty in core areas central to their mission. We need to continue to value teaching and research alike, learning as much as possible about how to extend best practices in teaching in the disciplines, area studies, and the array of academic pursuits that help define our comprehensive university.

Recommendations

- Continue to identify and emulate the best practices of teaching available and ensure that undergraduate and graduate students can master state-of-the-art research skills.
- Do everything possible to ensure that cross-disciplinary scholarship, in research and in teaching, remains protected and supported at our university.

4. Goal 4. Maintain the infrastructure to support our comprehensive university

Facilities. Excellent facilities and equipment are necessary for attracting and educating the best students, faculty, and staff. Since 1990, \$1.125 billion has been spent on new buildings, major additions, and major renovations. Currently under construction are projects valued at \$496.97 million and projects in planning valued at \$398.6 million. Thus the campus has made remarkable progress in its commitment to provide excellent facilities. The long-range vision and plan for the campus is outlined in the Campus Master Plan 2005, where continued upgrades to facilities and building replacements are described. The challenge to meet many of these goals is in the funding.

Computational infrastructure. Electronic resources and computing play an increasingly important role in scholarly activities. UW–Madison must ensure that the campus computational infrastructure and security continue to keep pace with or exceed national standards. The 21st Century Network project is modernizing the campus network, providing more reliable, secure and faster access. Over the next ten years, we must continue to be vigilant about updating these resources to provide a world-class research environment. This campus also has exceptional advanced research computing capabilities, such as Condor, that enable a wide variety of high-throughput, computationally intensive projects. Access to this type of advanced infrastructure tends to be local and originate from grassroots efforts of individual PIs and teams of investigators. While it is expected that research on computing is a research endeavor led by researchers, it is important to recognize and embrace the advances emerging from this work and expand access to the graduate researchers and staff throughout the campus to fully reach the

potential these technological advances offer.

Computing, ubiquitous wireless networks, and access to up-to-date computer hardware and software are key to the research and teaching activities of graduate students. Training on basic software is available without charge to the participants through the Division of Information Technology; however, this training does not cover software tools that support basic productivity for students in specific disciplines. In addition, licenses for this type of software may be too expensive for individual research groups to provide for graduate student use. The output of graduate student research and creative endeavor is often digital, yet many graduate students work in research settings where data management systems they need to acquire, store, back up, and safeguard their research data may be inadequate or lacking.

Recommendations

- Maintain the currency of the campus network systems.
- Develop sustainable methods for peer-led software training that includes problem-solving approaches in specific disciplinary areas. The programs at the Computer-Aided Engineering Center (College of Engineering) and the Social Sciences Computing Cooperative may serve as models for training initiatives in other areas.
- Explore options for sharing costs of software licensing to increase affordability such as coordinating site license purchases and/or establishing key server systems.
- Study the feasibility of centralized campus facilities and services for data storage, backup, and archiving.
- We must implement the Campus Master Plan, especially for the east end of campus and pursue fund-raising for these projects.

B. Vision 2. Promote, Foster, and Support Interdisciplinary Research

Interdisciplinary research has long been and will continue to be at the creative center of the UW–Madison's mission. Confronting complex environmental, social, cultural, economic, and medical changes and challenges, whether local or global, requires the collaborative, visionary efforts of faculty and staff across multiple disciplines. An interdisciplinary campus engaged with the constant ferment of our larger world is likewise essential for attracting and retaining the best faculty, as well as for preparing students to be active thinkers, workers, and citizens.

The Cluster Hiring Initiative, begun in 1998, was an incentive plan designed to facilitate interdisciplinary strategic hiring. This plan resulted in the funding of 49 clusters including 147 new faculty members with full or partial centralized cluster funding. Aligned with senior “cluster coordinator” faculty who had already been engaged in work across academic disciplines and campus units, new cluster hires have built networks of affiliated faculty, created new curricula, undertaken pioneering research and creative work, and presented their accomplishments through both conventional and innovative formats. For example, the strategic approval of numerous

biological science clusters (Bioethics, Biomedical Engineering, Biophotonics, Chemical Biology, Computational Systems Biology, Molecular Biometry, Structural Biology, Symbiosis, Zebrafish Biology, and more) has vaulted the university to a position of international prominence in these areas. The report of the Cluster/Interdisciplinary Advisory Committee to evaluate the Cluster Hiring Initiative was released in April 2008.

In addition, campus infrastructures poised to assist researchers seeking external funding for integrative research programs will help us maintain strong support from outside the university. For example, several interdisciplinary initiatives, notably the Wisconsin Institutes for Discovery, the Wisconsin Bioenergy Initiative, the Institute for Clinical and Translational Research, and the Center for the Study of Upper Midwestern Cultures have attracted funding from outside the university and brought together research partners from on and off campus to work on large-scale projects.

In order to retain our preeminence as leaders in interdisciplinary research, we must effectively address five broad, often overlapping goals: (1) departmental structures; (2) faculty positions and tenure guidelines; (3) research initiatives and infrastructures; (4) student programs and opportunities; and (5) public visibility. Increased funding, both internal and external, will benefit each area, yet open minds and strategic methods are equally critical.

1. Goal 1. Develop Structures within Academic Departments to Enhance Interdisciplinary Research and Programs.

Formal interdisciplinary units have been an integral part of campus life since at least 1927, when the Experimental College was established. The Women's Studies Program and numerous ethnic, area, and international studies programs, to cite a few examples, began to flourish in the 1970s, while the creation of the Biotechnology Center in 1984 heralded the steady growth of interdisciplinary programs in the sciences, engineering, and medicine. Currently the campus includes more than 260 interdisciplinary research centers and institutes, 63 certificate programs, and many departments whose varied tracks and faculty interests epitomize an interdisciplinary stance.

Despite the evident presence and worth of interdisciplinary campus units, however, some departments resent, even resist, their growth. While such sentiments may be attributed in small part to the canonical, status quo stance of some senior faculty, far more frequently they stem from the steady loss of faculty lines, inadequate or nonexistent space for departmental staff and research activities, and the understandable fear that, during periods of economic decline, more support for interdisciplinary programs results in correspondingly less support for departments. Hence the important responsibility of departments to value both their center and their various peripheries may favor the former over the latter when times are hard.

Recommendations

To ensure symbiotic relations among disciplines, while sustaining the intellectual boundary-crossing critical to a great university, we must continue to foster collaborative research and creative work across departments and complementary units through increased communication and the reduction of interdepartmental barriers. Most crucially, we must:

- increase access to resources that sustain interdisciplinary endeavors, including internal funding for joint ventures between departments and interdisciplinary units, common space for research and creative productions, and informational technologies that enable storing, archiving, and sharing of digital materials for researchers in all campus units;
- address the critical core staffing needs of campus departments, while at the same time strongly encourage departments to make increasingly active alliances with kindred campus units by recruiting new faculty possessing **both** disciplinary and interdisciplinary competence.

2. Goal 2. Ensure the Success of Junior Interdisciplinary Faculty

Challenges of cluster hire and interdisciplinary faculty in achieving tenure. Untenured faculty who have contributed to clusters, however, have typically faced greater challenges than junior faculty whose contracts do not require interdisciplinary efforts. Each must meet the expectations of their home department, yet many who have split appointments must do the same for a second unit. Likewise more than a few cluster appointments span two colleges (e.g., CALS and L&S) and expectations are further complicated by contractual affiliations with one or more centers. Thus some junior cluster faculty, who are especially dedicated to interdisciplinary work, have been regarded by their home departments' disciplinary centrists as having an unfair entitlement. Still other junior cluster faculty have been constrained by departmental demands against engaging in too much interdisciplinary work prior to gaining tenure.

Cluster faculty appear to be tenured at the same rate as noncluster faculty (Report of the Cluster/Interdisciplinary Advisory Committee to Evaluate the Cluster Hiring Initiative July 2008; <http://www.clusters.wisc.edu/pages/show/1#evaluation>). Yet, to thrive, some cluster hire faculty report that untenured cluster faculty must successfully absorb and satisfy sets of standards and practices that are seldom congruent, justify conducting research that some of their diverse colleagues might regard as betwixt and between, and make a case for presenting their work in formats or outlets that, because they are pioneering and avowedly interdisciplinary, may not be recognized by some colleagues as sufficiently prestigious. Even so, divisional committee guidelines work against the inclusion of senior faculty with split appointments whose experience provides a concrete understanding of the challenges faced by interdisciplinary junior faculty. Currently two members of the same department, even if one has only a partial appointment, cannot serve simultaneously on a given divisional committee. To cite a recent example, a faculty member with a 75 percent appointment in astronomy and 25 percent appointment in physics was ineligible, in keeping with current rules, to serve on the divisional committee because, even

though there was not a member from astronomy, there was a member from physics.

Recommendations

To ensure ongoing and future success of interdisciplinary faculty, we must continue to hire interdisciplinary faculty whose expertise spans disciplines; learn from and build upon successful interdisciplinary hiring processes that involved departments, programs, centers, and colleges working together; and foster increased communication between disciplinary and interdisciplinary campus units, as well as divisional committees regarding the status of junior faculty who have contractually explicit interdisciplinary responsibilities. Most crucially, we must:

- systematically improve the mentoring of interdisciplinary junior faculty, especially those with split appointments;
- develop appropriately flexible standards to be used by departments, interdisciplinary units, and divisional committees for the equitable evaluation of interdisciplinary research and creative work;
- amend current divisional committee eligibility guidelines to allow service of faculty with a minor appointment in a department that is already represented on the committee.

3. Goal 3. Enhance Research Initiatives and Infrastructures

Initiatives and infrastructures that catalyze and facilitate interdisciplinary research and creative work between participants from different campus units have been and will continue to be essential to the university's continued excellence. Future-oriented building projects ranging from the ever-expanding medical school complex, to the recently transformed engineering campus, to the emerging Wisconsin Institutes for Discovery, to the establishment of the Arts Institute and corresponding development of an "arts district" are among many examples wherein the spatial proximity of disciplinary diversity fosters a creative intellectual commonwealth. Plans afoot to house complementary arts and humanities units under the same roof augur comparable synergy. Several internal funding sources, including the Graduate School's research competition and the Baldwin Wisconsin Idea Endowment, support the conduct and dissemination of interdisciplinary research, while interdisciplinarity has become an important criterion for such significant external granting agencies as the NIH and NSF. The campus libraries and the Division of Information Technology offer training, technical assistance, digital laboratories, and web space and networks supportive of research. And competitive cluster-enhancement grants offer administrative support to emerging research efforts.

Funding and administrative challenges to interdisciplinary research. At the same time, there is a considerable dearth of arts and humanities research support relative to the sciences. Federal grants from the National Endowment for the Arts, for example, never exceed \$100,000 and are most commonly awarded in amounts of less than \$30,000; nor is funding appreciably better through the National Endowment for the Humanities. Small awards in the sciences, in contrast,

are many times the amount of large awards in the arts and humanities. Meanwhile the levying of tuition remission charges on project and research assistantships has reduced graduate student participation in interdisciplinary research since there are seldom either grant funds or the equivalents of departmental gifts to cover the added \$4,000 per semester. The new rules for effort reporting for campus researchers supported by research grants also hinders collaborations outside of grant-funded projects because of the newly imposed 1 percent de minimis limit on non-project-related activity.

At the same time, the current system in some parts of campus that channels indirect costs to only one campus unit further inhibits the development of interdisciplinary grant applications because of the funding inequities. Some units are reluctant to let investigators from their academic unit work on grants in cases where the indirect costs go to another unit.

Recommendations

In support of research initiatives and infrastructures, we must continue and, when possible, increase current efforts, while exploring low-cost methods to help collaborators from different disciplines find one another, possibly through an online “matchmaker service,” as well as through the annual campus-sponsored conference on interdisciplinarity. Most crucially, we must:

- provide administrative assistance to faculty seeking and implementing externally funded interdisciplinary research programs;
- address the arts and humanities/sciences funding divide;
- waive or otherwise ameliorate tuition (or tuition related) charges for graduate student researchers;
- evaluate the de minimis for effort reporting;
- develop policies for indirect cost sharing that encourage grant-funded interdisciplinary projects.

4. Goal 4. Enhance Interdisciplinary Educational Opportunities

Undergraduate and graduate students alike seek interdisciplinary research experience in growing numbers, through both their courses and assisting with or independently undertaking projects. From 1996 to 2006, interdisciplinary certificate programs increased markedly from 25 to 63, while the number of students earning certificates more than doubled from 345 in 1996 to 745 in 2006. The latter figure might have been larger had not such certificate programs as Jewish studies and religious studies also developed undergraduate majors. There are such joint graduate programs as the Ph.D. in History and History of Science, and the M.A. in Urban and Regional Planning and Public Affairs, as well as units like the Nelson Institute for Environmental Studies that are active in brokering joint graduate degree programs. Likewise from 2000 to the present, thirty-eight doctoral students have been approved by the Graduate School to earn joint Ph.D. degrees with two majors, while thirty-seven students on the master’s and doctoral levels have

either earned or been approved for interdisciplinary “special committee degrees,” with several concentrating in such areas as folklore, mathematics and computation engineering, public policy, and textile art and design. Additional interdisciplinary certificate and degree programs are in development (e.g., clinical investigation, computational biology/bioinformatics, museum studies, visual culture). Dual campus degree programs with research opportunities are also in the works, notably the joint venture in architectural history involving UW–Madison’s Ph.D. in art history and UW–Milwaukee’s Ph.D. in architecture. Increased numbers of cross-listed courses and new tracks within existing departments further support interdisciplinary ferment, as does the elimination of the L&S 10 Credit Rule, which had formerly limited students’ ability to take more than a few courses in a department outside their major.

Many certificate programs, however, struggle to offer their students research opportunities. Graduate and undergraduate research fellowships, special funding for field schools, and aforementioned faculty grant support for students have all declined in recent years. Likewise interdisciplinary certificate programs sometimes lack adequate administrative support, while would-be certificate and degree programs such as comparative ethnic studies have moved slowly because of administrative and fiscal challenges.

On the graduate level, would-be students who wish to pursue an advanced degree in any of the university’s numerous, prestigious, and emerging interdisciplinary programs are regularly denied acceptance or simply apply elsewhere—despite the presence of faculty, courses, and research initiatives aligned with their interests—because they must enroll in an established degree-granting unit that regards their candidacy as a marginal fit.

Recommendations

To ensure graduate and undergraduate acquisition of interdisciplinary research skills and participation in related research projects, we must continue to support the interdisciplinary aspects of departmentally-based degree programs; encourage undergraduates to augment their major with a certificate; explore opportunities for resource sharing between complementary programs; sustain and monitor special committee degrees, some of which might merit formal degree programs; and create new opportunities for interdisciplinary student research and creative endeavors. Most crucially, we must:

Empower the Graduate School to admit, on an experimental basis, promising graduate students who wish to pursue special committee M.A., M.S., and Ph.D. degrees in interdisciplinary fields not currently defined by existing programs.

5. Goal 5. Enhance the Public Visibility of Interdisciplinary Work

Excellent interdisciplinary research and creative work is too important to be confined solely to student and academic audiences. The interdisciplinary research and creative efforts of university

faculty, staff, and students are frequently, justifiably featured in local and national media, including public radio and television. The newly launched Big Ten Network may provide another means of publicizing campus-based interdisciplinary research and creative work.

Some interdisciplinary research and creative work, however, in addition to being the subject of media attention, is best presented primarily through publicly accessible means rather than through conventional journal articles and books with more exclusive academic orientations. Arts faculty and staff, of course, have long been involved with creative public exhibitions and performance, yet their colleagues in the humanities, social sciences, and sciences have increasing opportunities to present their findings through sophisticated Web sites, museum exhibits, films, radio documentaries, and the like. CALS faculty, especially, share their work through such modes as Extension with constituencies around the state, often collaborating with local communities. Elsewhere on campus, the Baldwin Wisconsin Idea Endowment, instituted in 2003, has made possible such interdisciplinary research-based outreach projects as Wisconsin Weather Stories (involving the Department of Atmospheric and Oceanic Sciences, the Folklore Program, the Wisconsin Arts Board, and K–12 science and language arts teachers) and Native Star Stories (involving the Department of Life Sciences Communication, the Space Science and Engineering Center, the American Indian Studies Program, and tribal educators).

Recommendations

As a public research and land grant university with a unique relationship with our state and its legislature, we must continue to collaborate with appropriate external organizations on projects with public impact; and persist in sharing our interdisciplinary work with the larger world through public media, forums, and communiqués. Most crucially, we must:

- encourage and support the presentation of interdisciplinary research in publicly accessible formats, especially in cases where such formats constitute an appropriate alternative to conventional academic publications;
- partner with UW System and CIC Institutions, as appropriate, to develop the most effective means of presenting interdisciplinary work to a broad public audience.

C. Vision 3. Increase Our Competitiveness in Graduate Education and Research

Graduate students are critical to the research and teaching missions of our university. Research carried out by our graduate students drives the discovery and knowledge engine of our university; it is one of the unique attributes of our university, which enhances our ability to recruit excellent faculty and staff. Our graduate students elevate our teaching by passing their enthusiasm and knowledge to our undergraduate students and moreover, many courses depend on graduate student teachers. In addition, ~ 25 percent of our Ph.D. and 35 percent of our M.S. students remain in Wisconsin after graduation (http://apa.wisc.edu/degrees_alumni.html), further contributing to our state's economy and economic development. Thus, we place high value on

recruiting, training, and mentoring graduate students.

Yet, the pressures of flat state support and extramural federal funding, combined with the increased costs associated with supporting graduate students as research or teaching assistants, threaten to reduce the number of graduate students that can be supported from grants, fellowships, gifts or departmental funds, jeopardizing our research and teaching missions. Graduate student support costs include the stipend to support the teaching or research activities, fringe benefits to pay for health insurance, fees, etc., and a tuition remission surcharge to recover tuition costs for research or project assistants; all three components have increased at rates well above inflation over the last ten years except for teaching assistant stipends, which have remained relatively flat. Because of limited resources and increasing costs associated with graduate education, we are now at a crossroads. Will we continue to invest in graduate education to maintain our excellence as a top tier research institution?

As leaders in graduate education, we also recognize that while the number of minority students obtaining M.S. and Ph.D. degrees at UW–Madison has remained relatively steady over the past ten years, the numbers do not yet reflect the diversity of our state and the nation, limiting our ability to capitalize on changing demographics. Finally, integrating the training of our graduate students into a rapidly changing global landscape is a constant challenge. Mentoring and professional development skills require continual evaluation to ensure the training of outstanding graduate students and capitalize on their creative and intellectual potential. Here, we outline four goals in graduate education that should be addressed to maintain our outstanding cohort of graduate students.

1. Goal 1. Resolve the graduate student funding problem.

Ten years from now, we must be able to compete for the brightest and most diverse graduate students to maintain our standard of excellence as a top tier institution. Yet, graduate education is at great risk because costs to programs and faculty have risen beyond their available resources. Over the last ten years, the cost to a grant or department for stipends and the tuition remission surcharge for graduate assistants have dramatically increased and now threaten the ability of graduate programs to fund their students. If nothing is done to reverse these trends, the quality and quantity of graduate students could decrease and have a profoundly negative impact on research and teaching at our university (see figure 1 and table 4 for current trends).

The increase in the cost of graduate tuition has created a burden for funding prestigious fellowships and training grants. Over the last ten years, tuition for a nonresident graduate student has increased ~\$10,000 from \$14,395 to \$25,454, while resident tuition has increased ~\$4,500 (table 1). In addition, fringe benefit costs have increased by more than 100 percent in the same time period. Since the majority (65 percent) of graduate students are classified as nonresidents, the overall costs of fellows and trainees have risen substantially in the past decade, creating a burden for (1) the Graduate School, which normally funds a portion of the tuition

costs for trainees and fellows, and (2) faculty or departments, who often fund fellows' tuition. The increases in tuition and fringes have outpaced the amount available from the Graduate School, thus creating a budget shortfall, and causing some departments to have to ask students *not* to seek external fellowships for which they would otherwise be eligible. Because the Graduate School can no longer afford to fully supplement the tuition component of traineeships, a task force was appointed to find an equitable solution to this. No qualified students who have been awarded highly competitive prestigious fellowships from funding agencies or foundations should be turned away because of insufficient university resources to pay the tuition component.

The cost to programs of the tuition remission surcharge has increased dramatically over the last ten years. About a decade ago, the types of graduate student appointments that were granted waivers of tuition (remissions) changed. This policy led to more graduate students eligible for tuition remissions, and together with the large increases in tuition during the last ten years, dramatically increased the amount of tuition dollars waived. The history of tuition remission policies and how tuition remissions factor into the base budget can be found in the report by the UW–Madison Tuition Remission Task Force (www.secfac.wisc.edu/TRTFFinalReport.pdf). While a tuition remission surcharge to recoup some of these tuition dollars from gifts grants and sponsored research was in place before 2007, this policy did not recoup sufficient funds, resulting in a base budget deficit. The policy before 2007 also led to inequities in the amount of the surcharge per student, because the formula was based on the percentage appointment rather than enrollment status. In addition, not all appointments or funding sources were subject to the surcharge, placing the largest burden on graduate appointments funded from federal grants.

To address these issues, the Tuition Remission Task Force recommended a new formula, which in 2007 led to a large increase in the tuition remission surcharge and in the number of graduate assistant stipends that were now “taxed.” For example, in 1999, the average cost of the tuition remission surcharge in a typical program in the biological sciences programs was ~\$4,000, whereas in 2007, the cost increased to \$8,000. Because this policy also changed the type of graduate appointment subject to the surcharge, this placed a huge financial burden on many graduate programs *including those* that previously did not pay the tuition remission surcharge.

The impact of the 2007 tuition remission surcharge policy on graduate recruiting and education has been of great concern to graduate programs across campus; these concerns have been articulated in the report from L&S (*Report of the College of Letters and Science Graduate Student Stipend Committee* (March 2007) (www.greatu.wisc.edu/theme-teams/documents/Grad_Stipend_Com_Report.pdf)). As described in this report, many departments lack the resources to pay the cost of tuition remission surcharge even when stipend support is available, resulting in a cutback on the number of students admitted. In addition, because grant awards typically have a three- to four-year cycle, the increase in the tuition remission surcharge decreased the number of students that could be supported from existing grants and accordingly, put research productivity in jeopardy.

Together with increases in tuition remission, the total cost of supporting a research assistant in the biosciences (average for a typical biological sciences program: \$22,331 in 1999 compared to \$36,942 in 2007) is now nearly equivalent to the stipend of a first-year postdoctoral research associate, who already has a Ph.D. Many faculty members have expressed great concern that postdoctorates will replace graduate students because of the high price tag associated with the training of graduate students balanced against the need for productivity to renew grants in a funding climate of diminishing resources. Already, several large cross-campus bioscience graduate programs (microbiology, cellular and molecular biology) have decreased the number of admitted students in response to the rising costs of graduate student support and the downward turn in federal funding of grants.

*In addition, TA salaries have become seriously noncompetitive with peer institutions. As indicated in table 3 and the *Report of the College of Letters and Science Graduate Student Stipend* (March 2007), stipends for teaching assistants have not kept pace with increases at peer institutions. Peer institutions routinely use multiyear stipend packages to recruit students, with TAships accounting for one to four years of the package, depending on discipline. Setting TA stipend levels is a complex issue at UW–Madison because of the way TA salaries are negotiated and the previous agreement made with the TA union to cap salaries in favor of tuition waivers. Nevertheless, the current data in this report and table 3 demonstrate that UW–Madison TA packages are not competitive with their peers, thus eroding our ability to compete for the best graduate students.*

Recommendations

We must be able to compete for the brightest and most diverse graduate student population to maintain our standard of excellence as a top-tier institution. To recruit outstanding students, we must offer competitive stipend packages, and make funding graduate support costs to departments, grants, fellowships and gifts more affordable to accomplish our research and teaching goals. We recognize that each solution requires new funding and that each potential action may affect the ability to implement others. Thus, each recommendation must be carefully considered to consider the larger impact. To achieve our goals, we recommend that our campus:

- **Offer competitive stipend packages (including health insurance).** The campus must be diligent in identifying new sources of support to fund graduate students. Where multiple-year packages are necessary to compete, colleges or schools should develop a safety net fund for departments to ensure multiple-year offers in the rare case where resources for support do not materialize.
- **Reduce the tuition remission surcharge by following the recommendations of the Tuition Remission Task Force.** The increase in the surcharge was intended only as a short-term solution; as noted by the Tuition Remission Task Force, long term resolution of the budget deficit must address the cause of the budget deficit and eliminate it from the

budget, thereby reducing the surcharge. Thus, we strongly endorse the recommendations of the Tuition Remission Task Force to find alternative mechanisms to fund the tuition remission shortfall.

- **Reduce the cost of tuition to training grants and fellowships.** Currently there is a task force studying possible solutions to reduce tuition costs for fellowships and traineeships, including changes in residency requirements, tuition waiver options, and increased funds from a variety of sources, both public and private. We recognize that a reduction in tuition alone would still create a campus budget shortfall that would also require a solution, and that many stakeholders must participate in the solution to this crucial issue.

2. Goal 2. Improve the proactiveness of the Graduate School in communicating and establishing graduate student policies related to funding and recruiting.

The Graduate School has a key role in overseeing both research and graduate education; there is no doubt that the strength of our graduate programs has benefited from this synergy. Yet, there is a perception among faculty that the Graduate School has not been sufficiently proactive in solving the current graduate student funding problem, which is necessary to maintain our strength in graduate education and if not remedied, research productivity will erode. The obvious negative impact on securing extramural grants (already a difficult situation for federal grants) and recruiting of faculty and students is of concern. Thus, how these problems are being solved needs to be better communicated to the faculty.

Another challenge in graduate education is coordinating and anticipating programmatic needs for developing new graduate programs or accessing new trends in graduate student recruiting. Screening applications and recruiting of prospective graduate students by departments or programs is a time and resource-intensive activity that is critical to obtaining an outstanding pool of graduate students. In general, this is a strength of our campus. Yet, there are large differences across campus in recruiting practices that appropriately reflect our different disciplines and cultures; different disciplines have different needs and a one size fits all solution is neither practical nor desired. However, while maintaining programmatic control over recruiting allows “local” responses to changes in some recruiting practices (e.g. stipends, types of visits, program curriculum), we lack any infrastructure or incentive to respond to national trends that would require cross-campus coordination of efforts (e.g. formation of umbrella programs, new degree programs, cross-disciplinary training, developing new Graduate School resources) or to identify changes that have a broader impact on campus recruiting (e.g. stipend levels, training grant policies). Graduate School coordination, planning, and communication are needed in this area.

Recommendations

The Graduate School should be more proactive in considering and communicating policies that affect funding of graduate students, and establishing best practices in graduate recruiting and identifying new programmatic needs. We thus recommend to:

- **determine how to best communicate with faculty on issues related to graduate student funding and other policies.** The campus committees for fellowships in each of the four divisions may be an appropriate resource for addressing these questions and determining how communication can be improved.
- **develop best practices and trends in graduate student recruiting.** Data should be collected and reviewed by the Graduate School on a yearly basis to identify changes in recruiting trends and stipend levels, and to establish best practices in recruiting, and to communicate this information back to departments and programs (this already occurs to a certain extent in the Biological Sciences Division). General materials for advertising the university, its cross-campus strengths, and the community of collaboration should be developed and distributed to all programs and departments. The Graduate School should partner with colleges and schools to respond quickly to needs for new graduate programs, particularly those that cross traditional disciplinary boundaries.

3. Goal 3. Increase the diversity of our graduate student population by developing new programs and pipelines.

We must continue to make diversity of the graduate student population a priority and significantly increase the population of underrepresented graduate students in the next ten years. The number of underrepresented Ph.D. candidates and their success rate in graduation has remained relatively steady during the past ten years (see http://registrar.em.wisc.edu/students/acadrecords/enrollment_reports/diversity.php). A few programs stand out for their successes in recruiting under represented students, particularly NIH training grant programs and the Graduate Research Scholars program in engineering. Their successes point to possibilities for new approaches in this area.

Role of the Graduate School in recruitment of underrepresented graduate students. The Graduate School through its Office of Graduate Student Diversity Resources and Fellowships Office has historically managed the resources, such as Advanced Opportunity Fellowships (AOF) and travel to targeted colleges or conferences, and to some extent coordinated these efforts. The Graduate School also sponsors a Ronald E. McNair Scholars program and Summer Research Opportunities Program (SROP) with approximately 12 different programs on campus, designed to increase the pipeline to graduate school for a diverse population. The Multicultural Graduate Network (MGN) is aimed at retention, professional development, and community building, and works in cooperation with the Graduate Research Scholar (GRS) communities and

the Graduate Student Collaborative (GSC) on a series of events, workshops, and presentations throughout the year. (See <http://info.gradsch.wisc.edu/education/diversity/index.html>.) However, despite these efforts, the campus has not significantly increased its success rate in recruiting under represented graduate students during the past ten years. These programs (as far as this committee is aware) have not been reviewed nor have they been subject to input from other successful external programs.

Recently, the Graduate School has shifted some of the responsibility and corresponding budgetary authority to schools and colleges by establishing Graduate Research Scholars (GRS) communities (see <http://info.gradsch.wisc.edu/education/diversity/gradscholar.html>) following the successful model of the College of Engineering. However, it is unclear whether this shift of resources will be more successful than the previous model without developing specific criteria for success and accountability. Thus, all these programs need to be reviewed on a regular basis.

Increasing the pipeline of qualified applicants is a critical need. While recruitment is certainly one key component to increasing the representation of graduate students, developing partnerships to increase our applicant pool is just as critical. In the biological sciences, some effective partnerships have been established. For many years, two faculty members in the Department of Bacteriology made frequent trips to University of Puerto Rico campuses, which provided a steady flow of applicants to the microbiology programs. More recently, a graduate of the UW-Madison Department of Bacteriology Ph.D. program encourages applicants from the University of Puerto Rico—Mayaguez, where he is currently a faculty member, to apply to UW—Madison. In addition, the School of Education has established a successful partnership with UC—Irvine in counseling psychology and other social science programs, and faculty in all divisions have established relationships with Howard University, the University of New Mexico, Xavier University of Louisiana, and others. The Graduate School helps to establish formal and informal partnerships with schools that have large numbers of underrepresented students. The effectiveness of those partnerships still needs to be documented. Building and maintaining bridges with colleges and universities that have large numbers of underrepresented students should be a priority.

The UW—Madison Center for Biology Education administers a large number of summer research programs in the Integrated Biological Sciences Summer Research Program (www.wisc.edu/cbe/srp-bio/), which provides a source of underrepresented student applicants. A number of other programs (including programs in the physical and social sciences) are described at <http://info.gradsch.wisc.edu/education/diversity/srop/index.html>. There is a perception that we could improve recruiting efforts among this group of students by developing a systematic process to increase their application rates to our campus, either through follow-up contacts when returning to the home institution or through more active education about the application process, the strength of our programs, and funding opportunities. The Graduate School is in the process of developing a large-scale tracking program that will include UW—Madison and other CIC SROP students and applicants, McNair scholars from around the country, and contacts with

prospective students made at graduate fairs, conferences, and other campus visits, whether at partnership or other schools, which should aid in this goal.

Partnering with master's program—the SFSU model—for increasing the pipeline of qualified students. One model that has worked nationally in the biosciences to increase recruitment of Ph.D. students is to build connections with a small number of colleges that train underrepresented master's-level students in the biological sciences and provide a pipeline of qualified students to Ph.D. programs. Dr. Frank Bayliss of San Francisco State University presented data at UW–Madison in 2007 on placement of master's students from SFSU in top-tier, U.S. Ph.D. programs in the biosciences. Funding from NIH and NSF supports M.S. students at SFSU, providing them with stipends and the competencies necessary to be successful in top-tier, biologically oriented Ph.D. programs. Establishing other successful partnerships as exemplified by SFSU should be vigorously pursued.

Retaining underrepresented students. The Department of Counseling Psychology can be seen as an example of a “best practice” department in its efforts to recruit and retain students of color. The department determined that climate was one significant barrier to past efforts. Thus, the department rewrote its mission and vision statements in order to put diversity and social justice at the core, and then undertook efforts to align all aspects of the program with the new, and renewed, mission/vision. The department (1) comprehensively reviewed and made changes to courses, methods of delivery, and requirements to overcome obstacles that stood in the way of student recruitment and retention; (2) comprehensively reviewed and made changes to mentoring and support (financial and otherwise) practices to make them more effective; (3) redoubled efforts to recruit faculty of color; and (4) created a comprehensive marketing campaign to promote the academic mission. The department's comprehensive approach not only resulted in tripling enrollment of students of color within the past eight years, but also moved the department's national standing from a second-tier program to one that is in a perennial tie for first. Details of the department's strategies and programs can be found at www.education.wis.edu/cp.

The role of faculty-initiated programs. Douglass Henderson, professor of engineering physics and a campus leader in developing initiatives for improving diversity, developed the Graduate Engineering Research Scholars (GRS) program based on a model at Rice University. This model has been replicated across campus, launching the Community of Graduate Research Scholars (C–GRS) in the College of Letters and Science; Science and Medicine Graduate Research Scholars (SciMed–GRS); and Education Graduate Research Scholars (Ed–GRS). Professor Henderson and Professor Molly Carnes, School of Medicine and Public Health) brought UW–Madison into the large NSF-supported network of Louis Stokes Alliance for Minority Participation programs with a proposal establishing the Wisconsin Alliance for Minority Participation. This NSF grant established an alliance with twenty-one institutions throughout the state including the thirteen UW System four-year campuses to increase the number of ethnic and racial minorities graduating with degrees in a science or engineering major.

Further capitalizing on national funding initiatives to support graduate training of ethnic and racial minority students, Professor Carnes led a team of investigators including Professors Ian Bird and Gloria Sarto (School of Medicine and Public Health) and several key academic staff (Drs. Chris Pfund and Angela Byars-Winston) that received a 2 million dollar grant from the National Institutes of Health to increase the successful recruitment and retention of diverse graduate students in the broad area of women's health. Professors Henderson and Carnes along with Drs. Chris Pfund, Jennifer Sheridan, and Manuela Romero also submitted a proposal to the National Science Foundation to establish the Wisconsin Institute for Research and Evaluation on Diversity in Science, Technology, Engineering, and Mathematics, which would provide an administrative umbrella for diversity programs in STEM areas on campus. Together, they are seeking grant support to establish the North Country Alliance for Graduate Education, consisting of UW-Madison, UW-Milwaukee, and the University of Minnesota, whose goals are to increase the number of underrepresented minority students earning Ph.D.'s in science, technology, engineering and mathematics, and those pursuing academic careers, as well as transforming the cultural norms within these institutions.

Recommendations

Despite the best efforts and intentions of many faculty, students, and staff, and the competitiveness of our graduate programs, we lack an effective strategy to increase the diversity of our graduate student population. Thus, we must develop effective and accountable programs for increasing the number of and retaining underrepresented graduate students at UW–Madison. We recommend that we:

- **review campus programs for increasing graduate student diversity.** To improve our success in this area, we recommend that the campus review the efforts of the Graduate School and other units that administer programs whose goal is to enhance recruiting and retention of underrepresented graduate students. An external panel of experts should review the GRS programs and the programs housed within the Graduate School diversity office. The review panel should provide advice and recommendations on how to improve our recruiting strategies and how to establish criteria for achieving campuswide success and accountability.
- **develop partnerships with M.S. programs to increase the pipeline of qualified students.** Our campus should strengthen its relationship with San Francisco State University and the master's program developed by Dr. Bayliss. We also suggest that our campus should identify other master's programs at the UW–Madison, in the UW System, and in the Midwest and South to create new partnerships, using the SFSU program as a model. We should support existing M.S. programs at UW–Madison such as Afro-

American studies, which already provides a pipeline of qualified Ph.D. candidates to the history Ph.D. program.

- **continue partnerships with colleges and universities that target recruitment of undergraduates for graduate degrees.** We recommend the formation of cross-disciplinary faculty teams that work together to increase recruitment of underrepresented students across all divisions. The Graduate School should be responsible for organizing visits of the cross-disciplinary teams to targeted colleges and universities, where they would meet with administrators, faculty, staff, and students. . They should continue in their efforts in developing a database to aid graduate programs in tracking prospective graduate students.
- **continue to support summer research programs targeted to underrepresented students to increase the pipeline.** We recommend that all tenure divisions should have summer research experiences for undergraduates as a way of increasing the applicant pool for Ph.D. programs. The campus should help colleges and schools identify external funding sources that would support these summer programs and develop a process to increase application and recruitment of students who have participated in a summer research program.
- **support faculty-initiated programs.** Faculty-driven initiatives are particularly important in achieving diversity goals, but faculty have limited time and resources to engage in these activities. Campus should support these efforts by providing some relief from other duties when a faculty member takes on a significant administrative duty. In addition, administrative as well as budgetary support should be provided to facilitate establishment of new programs.
- **Continue to support, and expand, department-based best practices to recruit and retain students of color.**

4. Goal 4. Develop best practices for graduate student mentoring and professional development

Mentoring. We have an outstanding graduate student population, who are preparing to become our next leaders, entrepreneurs, researchers, and teachers. We are fortunate to have exceptional faculty to help students acquire research skills. While faculty mentoring is a key component of the Ph.D. training experience, little training is available to faculty to learn mentoring skills. In addition, we have a large disparity in the orientation and advising programs available to first-year graduate students across campus. Graduate students are an investment in our future and we should use campus resources to improve mentoring and advising for all graduate students.

The value of graduate student professional development. To be competitive in a rapidly changing

world, graduate students will need skills in addition to their formal Ph.D. training. For example, interdisciplinary training, collaborative skills, and a broad global and cultural understanding will be an asset to many students in the next decade. While faculty and graduate students understand the short-term value of training outstanding students, it is less clear to what extent their long-term success is considered. In the short term, well-trained students provide critical research needed to sustain research efforts. However, long term, the success of former Ph.D. students is used as one criterion in evaluating faculty. For example, if a student aspires to become a faculty member, teaching experience and expertise are critical professional skills. Thus development of professional skills must also be provided and encouraged. Currently, many opportunities are available for professional development at UW–Madison (e.g., <http://info.gradsch.wisc.edu/education/gspd/skills.html>, Delta, library-based writing instruction, ethics courses, etc.) but these experiences are not always well publicized or their importance to career building is not always appreciated or reinforced by thesis advisors. Other opportunities to be considered are internships in industry, business, or other venues, programs to develop leadership skills, and communication with the public sector.

Best practices for first-year orientation and advising programs. Much effort and resources are spent in recruiting graduate students to our campus. Despite this, not all graduate programs have an advising and orientation program for new graduate students to increase their chance for success. Many graduate programs in the biological sciences have a structured orientation and advising program and a general example is described here. Typically students arrive a week before classes begin, where registration, payroll, and health insurance are explained. Students are also introduced to the faculty and students in their programs through a variety of planned events. The process by which students find a thesis advisor is also clearly explained; in most biological sciences departments, this consists of a series of three rotations where students select three faculty members to carry out research for a period of four to six weeks. Students typically meet with a “first-year” faculty advisor who provides essential academic advice until a thesis advisor is selected. Some programs assign student mentors to new students, who are usually third- or fourth-year students, to help integrate incoming students into the graduate experience and the culture of a department. At the end of the fall semester, most students will have identified a thesis advisor, and then advising and mentoring are transferred to this advisor and the student’s committee.

Recommendations

We must create a culture to facilitate the best possible mentoring and training of Ph.D. students. Faculty and students should recognize that the more prepared our students are to face the challenges of the future, the more successful our students will be, and the more it will enhance the reputation of the university and the faculty. The following recommendations should be viewed as a win-win situation.

- **Develop a workshop to improve faculty-mentoring skills.** A yearly workshop for both

new faculty and new graduate students should be created to learn how to be a good mentor and mentee, using the model of the current workshop offered by divisions for junior faculty and their mentors. The workshop would also identify existing resources at the UW–Madison that are available to faculty to aid in mentoring graduate students.

- **Create a culture where graduate students are encouraged to acquire professional development skills during their graduate education.** Faculty should allow students additional time to acquire teaching experience and other skills during their Ph.D. training. We should also continue to support the efforts of the Graduate School in developing the professional development skills of graduate students.
- **Require that all graduate programs develop an advising and orientation program for first-year students.**

D. Vision 4. Enhance Undergraduate Education at UW–Madison

Advance and articulate the *Wisconsin Experience* for undergraduate education at UW–Madison. UW–Madison continues to provide exceptional educational experiences for its undergraduate students both within and beyond the classroom. The university has consistently produced more Peace Corps and Teach for America volunteers than almost any other institution of higher learning in the nation, and it has produced more CEOs of major corporations than any other college or university. We graduate leaders who positively change the world. We attribute this to our university’s unique grounding in its service mission (the Wisconsin Idea) and the state’s progressive-movement history; we also attribute our success to our ability to support rich and varied opportunities for undergraduates to blend in- and out-of-class learning. Our ability to graduate exceptional leaders is due to the unique *Wisconsin Experience* that we offer to our students.¹

The comprehensiveness of our university, and the “balance” of excellence across our divisions, is the foundation of our success. We consistently rank in the top three universities in the nation for external research funding, and first in funding in the social sciences. Our undergraduates are thus exposed to excellence everywhere they turn on campus. We offer an extremely rich array of academic programs and majors.

- We offer 134 majors at the bachelor’s level, 153 majors at the master’s level, 107 majors at the doctoral level, and 7 professional programs.
- We are one of only a handful of universities that contain their medical, law, and other professional schools on one contiguous campus.

¹ The *Wisconsin Experience* campaign is championed jointly by the Office of the Provost and the Offices of the Dean of Students. For more information, see www.provost.wisc.edu/teach.html and www.wisc.edu/students/wiexperience.htm.

- We offer to our undergraduates 9 capstone certificates, and 39 certificates overall; we offer 22 certificates to our graduate and professional students. In each of the last three years, about 700 undergraduates have earned certificates.

While we have continued to do an excellent job at preparing college graduates for a variety of employment opportunities, we must continue to retool and remain nimble in the face of rapidly changing needs, abilities, and student expectations. Admission to the UW–Madison has become more competitive due to heightened demand, necessitating a balance between selectivity and accessibility. Understanding who represents the incoming classes and remaining flexible in response to future shifts in this population will require that faculty, staff, and administrators remain cognizant of students’ changing needs and expectations, particularly as technology and increasing costs continue to transform higher education.

It is our responsibility as faculty and staff to help students recognize and achieve identifiable educational goals through their breadth, general education and major requirements; as in the past, we need to provide students with educationally rich opportunities and experiences both inside and outside the classroom.

Integrative learning at UW–Madison. In a recent issue of *Liberal Education*, Mary Taylor Huber et al. (“Leading Initiatives for Integrative Learning,” spring 2007) noted “a growing consensus that breadth and depth are not enough ... [and that] the most promising initiatives for integrative learning are about finding strategic points of connection, threading attention to integrative learning throughout (and between) an institution's various programs, and encouraging and scaffolding students' own efforts to connect the parts.” (Available at www.aacu.org/liberaleducation/.)

Indeed, LEAP (AAC&U’s Liberal Education and America’s Promise) defines integrative learning as being “demonstrated through the application of knowledge, skills and responsibilities to new settings and complex problems.” UW–Madison is well poised to provide a strong educational commitment to this objective with, for example, the Morgridge Center and service learning, our FIGs (First-Year Interest Groups) and URS (Undergraduate Research Scholars) programs, Chadbourne and Bradley residential learning communities, International Academic Programs, and many other initiatives that provide excellent opportunities for students on this campus and beyond. What distinguishes UW–Madison from other public research universities is our history and commitment to the Wisconsin Idea—the dual commitment to address important problems in the state and nation through our research, teaching, and service, while extending the borders of the university beyond the the borders of the state. In essence, we provide a unique education to our students through their *Wisconsin Experience*. Excellence must be the touchstone, whether in formal or informal learning environments.

The challenge lies in effectively implementing integrative learning in its various iterations. Although this currently happens through disciplinary majors and breadth requirements, creating

meaningful cohesion between campus-sponsored or related student experiences remains a challenge. Developing critical thinking skills, engaging in inquiry-based analysis, understanding how to apply knowledge to practice, and recognizing the value of empathy and understanding as the nation grows smaller through technology but remains ethnically, religiously, and racially diverse: such concerns already undergird undergraduate education. How these talents and skills become manifest in one's education varies, of course, across disciplines. Different ways of knowing distinguishes disciplines and programs of study across campus, and students should engage in the many ways scholars study and solve problems and pursue intellectual pursuits that produce informed, thoughtful, creative, productive, and responsible citizens.

Regardless of their major, undergraduates should rigorously pursue their studies with an eye toward both future employment and their expanding roles as members of society. Setting learning outcomes obviously varies by discipline and area of study, and the aim of undergraduate education is always broader than one's major. Program faculty and staff encourage students to become and remain active learners, not passive recipients of knowledge. This goal is common to all sound education, leading to success in the present and in the future, long after one's formal education comes to an end.

We should continue to expect our students to achieve in the classroom and the laboratory, and to integrate the knowledge they gain in various courses and disciplines and use it to solve real-world problems. Existing models, such as capstone courses and internships, should be fostered and expanded into majors in which they do not yet exist. In addition, service-learning opportunities should be incorporated into the curriculum whenever possible, in both advanced and introductory courses. This could be facilitated by relying on recent graduates, such as those working in their respective fields or those serving in organizations such as the Peace Corps. Forming alliances with county extension agents and field-based employees of other state or federal agencies should be used to identify service learning opportunities or to pose real-life problems that could be addressed or discussed in the classroom. We must capitalize on the enormous resources available on the UW–Madison campus to provide diverse approaches to learning, recognizing that many different instructional paths may lead us toward academic excellence.

Recommendations

Combining discovery and learning is best achieved by connecting learning and living, in and out of the classroom, as well as in formal and informal learning environments. This has aptly been described for undergraduates as the *Wisconsin Experience*. To formalize that experience, we offer the following recommendations.

- The campus should ensure that all students aspire to and embrace the basic tenets of liberal education, campuswide. We support AAC&U's LEAP Essential Learning Outcomes for several reasons: (1) they articulate Liberal Education skills, abilities, and

competencies that apply equally as well across disciplines and levels throughout the university; (2) they articulate outcomes that easily translate to practical skills, abilities, and competencies; and (3) they capture student learning outcomes that higher education—and especially excellent public research universities—are able to offer to their students.

- Departments, programs, and academic units must honor the ideals of liberal education and ensure that undergraduates, whatever their major, are able to reach the Essential Learning Outcomes. The foundation of a high-quality undergraduate education is a rich and integrated experience that blends classroom and lab-based instruction with out-of-class learning experiences. Whether in classrooms, through service learning or study abroad, or the mastery of general education and major-specific requirements, undergraduates must see the many aspects of learning as symbiotic, mutually reinforcing, and intellectually rigorous and engaging. Departments, program areas, and, indeed, every area of academic instruction should work to link their various contributions to undergraduate learning to more universal, campuswide goals.
- We encourage programs that state clear learning goals, combine in-class and out-of-class learning, utilize small groups of diverse learners (diverse in background, learning style, and year in school), and are actively mentored by faculty and staff.¹ Analyses show that students are more likely to succeed when they participate in these types of programs. Many students have already benefited from such learning experiences. In particular, we should encourage experiences in arenas in which UW–Madison excels: involving students in research and generation of knowledge, in global and cultural competencies, in leadership and activism, and in opportunities that apply knowledge to real-world settings. These four types of opportunities comprise the best of students' *Wisconsin Experience*.
- The campus must support faculty and instructional staff to meet the broad goals of liberal learning for all undergraduates. We need to cultivate and develop even more opportunities for faculty and staff to have the capacity to teach students as effectively as possible both in and out of the classroom. This will range from professional development in traditional classroom-based settings, to productive mentoring, to using technology wisely, to creative ways to team-teach and reach across disciplines. Both Delta and WISELI provide excellent examples of how professional development can be provided to graduate students, faculty, and instructional staff. In particular, the literature is clear that

¹ For a summary of the research behind these findings, see E. Pascarella and P. Terenzini *How College Affects Students: A Third Decade of Research*. San Francisco: Jossey-Bass, 2005. Our local analyses are consistent: analyses by the College of Letters and Science Office of Student Academic Affairs finds that programs that engage small groups of diverse students (diverse in abilities as well as background) with faculty, staff, and older students has a significant and positive impact on first-semester success and subsequent graduation. These analyses were done on FIGs, URS, and other similar, small-group programs.

traditional models of passive learning, already abandoned by many faculty, should be substituted with collaborative and other innovative approaches to teaching, learning, and discovery.

- Finally, we have a long tradition of assessing student learning, as evidenced in our history of regularized program reviews, general education assessment, and our university's ability to make educational program decisions based on learning outcomes.² We can continue to seek ways to assess the effectiveness of our teaching on student learning. There is no single gold standard of evaluation, but UW–Madison's assessment audit exemplifies one strategy, as does further exploration of the feasibility and utility of an ePortfolio, leadership record, or other means to help students capture and reflect on the clear and positive educational outcomes obtained through their in- and out-of-classroom experiences.

² For a sample of recent reports and learning outcome assessments, see Office of Academic Planning and Analysis, <http://apa.wisc.edu/>

II.

III. TABLE 1: TRENDS IN ACADEMIC YEAR TUITION AND REQUIRED FEES¹

IV.

V. TUITION & FEES	VI. 1997-98	VII. 1998-99	VIII. 1999-00	IX. 2000-01	X. 2001-02	XI. 2002-03	XII. 2003-04	XIII. 2004-05	XIV. 2005-06	XV. 2006-07
XVI. FRESHMAN UNDERGRADUATE	2,248	2,408	2,738	2,791	2,809	2,842	2,813	2,866	2,828	2,873
XXVII. NON-RESIDENT UNDERGRADUATE	986	1,588	3,052	4,189	5,976	8,426	9,139	9,866	10,284	10,730
XXXVIII. FRESHMAN GRADUATE	4,692	4,928	4,406	4,887	4,361	4,880	4,593	4,320	4,738	4,184
XLIX. NON-RESIDENT GRADUATE	4,395	5,190	7,110	8,597	10,500	12,150	13,283	14,390	15,408	16,454

LX. ¹FROM “DATA DIGEST”,
[HTTP://WWW.GREATU.WISC.EDU/RESOURCES/](http://www.greatu.wisc.edu/resources/)

LXI. TABLE 2

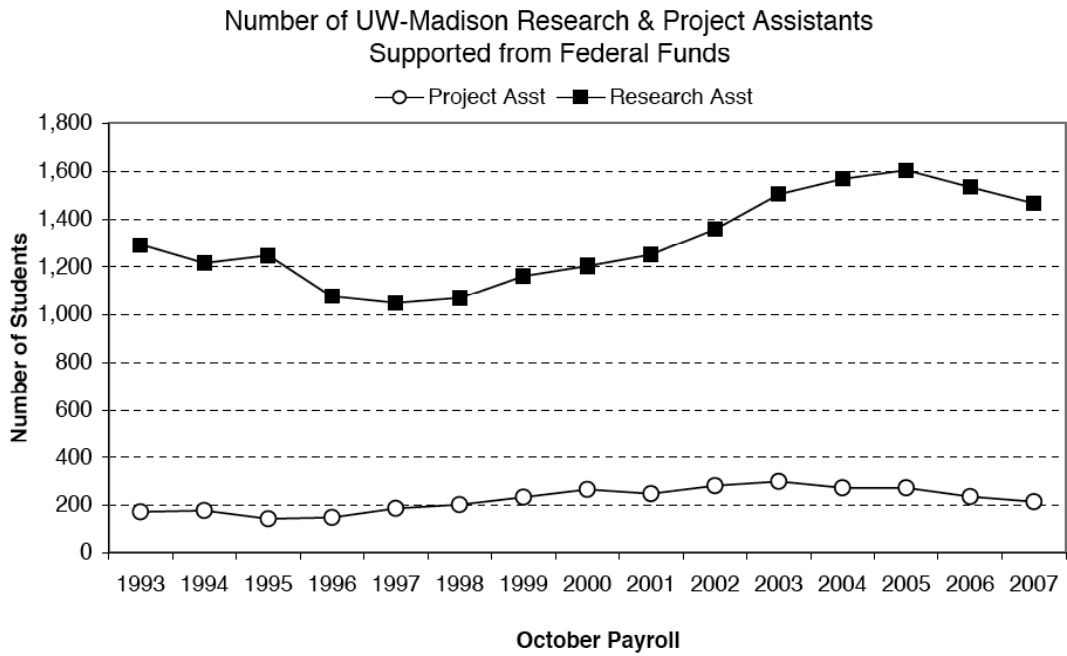
Average 2006-07 Stipends for Graduate Assistants
For Half-time Appointments at Public AAU Universities

University	Teaching Assistants	Research Assistants	Other Graduate Assistants
V	\$19,052	\$20,781	
X	\$16,783	\$17,484	
Z	\$16,663	\$16,412	
S	\$15,889	\$16,238	
Q	\$15,741	\$15,116	
G	\$15,705	\$17,286	
O	\$15,698	\$17,091	
K	\$15,660	\$16,022	
C	\$15,053	\$17,746	
Y	\$15,024	\$14,713	
E	\$14,997	\$16,314	\$11,696
T	\$14,890	\$15,214	\$14,816
P	\$14,486	\$15,969	\$13,745
U	\$14,323	\$16,060	\$13,012
I	\$14,261		\$11,430
A	\$14,244	\$15,926	
M	\$14,070	\$14,528	\$12,487
W	\$14,067	\$17,118	
B	\$13,813	\$21,050	\$14,638
F	\$13,521	\$14,174	
J	\$13,514	\$12,065	
H	\$13,316	\$14,426	\$12,120
UW-Madison	\$13,282	\$15,120	\$13,310
N	\$13,119	\$14,335	\$10,597
R	\$12,547	\$13,121	\$11,162
L	\$12,244	\$13,041	
D	\$11,858	\$14,952	\$10,925

Notes: All average stipends are for graduate assistants on the basis of half-time appointments (0.50 FTE) for an academic year (9-month or 10-month) contract. The following public universities are included: Purdue, SUNY Stony Brook, Maryland, Oregon, Florida, Michigan St, San Diego, SUNY Buffalo, Pittsburgh, Indiana, Irvine, Kansas, Minnesota, Ohio State, Santa Barbara, Colorado, Davis, Wisconsin, Texas A&M, Berkeley, Michigan, Illinois, Rutgers, Washington, Iowa, Nebraska, and UCLA.

Academic Planning & Analysis, Office of the Provost, UW-Madison bdb 2/5/2008

LXII. FIGURE 1 AND TABLE 3



October Payroll	Project Asst	Research Asst	Total
1993	173	1,291	1,463
1994	178	1,215	1,392
1995	143	1,246	1,389
1996	149	1,077	1,226
1997	187	1,049	1,236
1998	203	1,070	1,272
1999	233	1,162	1,395
2000	266	1,202	1,469
2001	248	1,249	1,497
2002	282	1,357	1,638
2003	299	1,503	1,802
2004	272	1,568	1,840
2005	272	1,604	1,876
2006	236	1,533	1,769
2007	215	1,466	1,681