

Tradition and Innovation: A Strategic Plan for Scholarship in the School of Arts and Sciences of Tufts University

I. State of the School

The School of Arts and Sciences offers excellence in both undergraduate and graduate education. The College of Liberal Arts (approximately 4,000 students), consistently ranked highly by national publications, is "the heart and soul" of Tufts University. Undergraduates are attracted to Tufts by the close personal relationships with outstanding faculty, the resources of a major research university and the seamless connection between Liberal Arts and Engineering. These factors have enabled us to recruit an outstanding and still improving student body; this year's entering class has a mean SAT composite score of 1394, 92 points higher than the mean score of entering students 5 years ago. Part of the School's excellence lies in the rich racial, ethnic, religious, geographic, political, and intellectual diversity of the students and faculty. Approximately 13 percent of our undergraduates are international students or non-resident aliens, coming from 62 foreign countries, and, since the class of 2000, students of color have averaged over 27% of the entering class.

The Graduate School of Arts and Sciences (just under 1,000 students, including over 250 Ph.D. students) is a vital and thriving part of our educational and research missions. Within Arts and Sciences, 16 of the 20 undergraduate departments also grant graduate degrees. Ten departments grant Ph.D.s, and 3 grant graduate degrees only. Tufts University is one – and the smallest in terms of enrollment – of only 29 private institutions in the United States classified as "Doctoral Extensive," a classification based in part on the number and range of Ph.D.s awarded each year. The 10 Ph.D. granting departments within the School contribute significantly to this distinction. Each year, approximately one-third of the total Ph.D.s granted by Tufts University are awarded to students in the School of Arts and Sciences. With some exceptions, the faculty of the College of Liberal Arts and of the Graduate School of Arts and Sciences are one and the same. Although this dual role presents significant challenges for the faculty, it also provides a real opportunity for distinguishing ourselves in undergraduate education from our comparison schools and offers the greatest potential for increasing and enhancing the research and scholarship within the School of Arts and Sciences.

We have clear strengths as a liberal arts institution in the areas of global education and active citizenship. While many other schools are aspiring to distinction in these important areas, we have already established ourselves as a leader in both. We also have particular expertise in the life sciences because of our success in knitting together the research of our faculty with that of faculty in the other schools of the University, including the School of Engineering, the Friedman School of Nutrition Science and Policy, the Medical and Dental Schools, the Cummings School of Veterinary Medicine, and the Sackler School of Graduate Biomedical Sciences. In addition, we have strength in the arts and humanities, the foundations of any excellent liberal arts institution. By virtue of our

outstanding faculty research profile, our doctoral and master's programs, our place in a vibrant arts community, and our relationships with the School of the Museum of Fine Arts and the New England Conservatory, we have achieved the ability to excel in these areas. We need to celebrate these accomplishments in the School of Arts and Sciences in part to counter the misperception, even among our own faculty, that the best research and scholarship takes place at the other schools. In matter of fact, we are by far the largest educator of graduate students among the eight schools, and our researchers are second to none at Tufts.

We are, however, at a critical crossroads in the School of Arts and Sciences. The number of tenured and tenure-track faculty has not grown over the last quarter of a century, during which time the number of courses offered, the pressures of advising and mentoring student research, and the demand for research productivity have all increased. Faculty cannot continue balancing these pressures, let alone move to the next level in their research, if we remain at our current size.

II. Vision

We aspire to bring the School of Arts and Sciences to the next level of academic excellence while preserving what has earned our national and international reputation. We wish to achieve greater recognition for our faculty research while continuing to offer a strong liberal arts education provided by scholars who enjoy teaching and working with undergraduates. Our goal, therefore, is *to be recognized as one of the best liberal arts colleges within a major research university*. The means to that end is the continued investment in areas of current strength and increased investment in target areas in which we can become recognized for our research and scholarship. As described in this document, three of these – Life Sciences, Civic Engagement, Global Research and Education – are areas that characterize the several Schools of Tufts University while the fourth, Culture and Society, is focused in the School of Arts and Sciences with its deep tradition in the liberal arts.

As part of a research university, we strive to have a faculty internationally known for the new knowledge it creates yet still dedicated to undergraduate and graduate teaching and mentoring. Regrettably, as we have put in place programs, policies, and hiring packages to attract, develop, and retain the very best faculty, we have come to rely more and more on part-time and non tenure-track instructors to teach our undergraduates. To compete for the very best faculty who will nonetheless spend significant time with undergraduates, we need to increase the size of the tenured and tenure-track faculty. We believe that the size of the undergraduate population, however, should not increase and that the relative portion of Engineering to Liberal Arts undergraduate students should be no higher than its historic high of 15%.

To guarantee that scholarship stands at the center of our mission, we must find ways to continue enhancing the quality and quantity of faculty research. We must above all ensure that our faculty maintains a life-long commitment to research and scholarship, and that this commitment becomes foundational to its culture. This commitment cannot be a mere mandate; we must provide new levels of support to faculty research. To do this, we must move in two directions simultaneously. First, we must focus faculty resources through a careful review of programs. Second, we must commit ourselves to increasing the number and size as well as the quality of our graduate programs, so crucial to the research and scholarship we produce. While we need to grow, we view our small size as a research institution as an advantage that makes us nimble and flexible in predicting and

adapting to changes in the disciplines as well as in the cross-disciplinary trends that are the future of research and teaching. The School we envision will be continually poised to respond to and take the leadership in emerging fields and discourses across the arts and sciences.

III. Faculty Development

Tufts has undergone a gradual but nevertheless dramatic transformation from a small New England college to a top-tier research university. Since these changes have been incremental and because members of the current faculty were hired over a span of more than 40 years, different cohorts were hired with different expectations. In entering the next stage of the University's development, we must couple our high aspirations with a clear statement of what we expect of tenure-line faculty.

First and foremost, because we are a Doctoral Extensive (Research I) University, our faculty should maintain an active research program throughout their career. Although the form of their scholarship will vary by sub-field, the School's general expectation is that faculty will conduct research and scholarship on an ongoing basis and place a priority in publishing their work in professional journals, with scholarly presses or, in the case of creative work, in other recognized venues. Research is essential to building a University that is intellectually vital and internationally respected. Other scholarly endeavors – consulting, community involvement, popular writing, and collaborative work with students – should build upon a foundation of original research. We recognize that the professional programs that are part of the School may value a somewhat different mix of basic research and other types of professional activities. Even so, we expect professional programs to place a premium on traditional scholarship and publication for their tenure-line faculty.

As Tufts evolved into a leading research university, its faculty and administration took justifiable pride in their commitment to excellence in teaching and in the accessibility of the faculty to students. We do not want to lose this special quality as we improve our faculty. We recognize that some believe there is a tradeoff between superior teaching and an active research agenda, and it is a meaningless platitude to claim that excellence in teaching goes hand-in-hand with excellence in research and scholarship. They will only be so joined if there are clear incentives and expectations that are conducive to both. Thus goals in hiring and promotion, in salary decisions, and in retention, should recognize and reward those faculty members who excel at both.

Active service to the University should remain a core expectation as well. Given the research and scholarship demands for tenure, most departments try to protect their junior faculty from extensive service commitments. This goal is a laudable one, but as junior faculty make the transition to tenured positions they should recognize that tenure brings with it an obligation to give more of their time to service and to faculty governance. Consideration must be given in this regard, however, to the inordinate demands placed upon our faculty of color, who often have heavy advising loads as they are sought out for mentoring by students of color. They also tend to be asked much more often to serve on committees by well-meaning administrators and colleagues attempting to seek out diverse opinions. While we must always attempt to protect our junior colleagues from such pressures, the only long-term answer to this inequity is for us to redouble our efforts to hire and retain more faculty of color as well as women in fields and departments in which they are under-represented.

Expectations of strong research output must be realistically linked to a suitable research environment. Research infrastructure, set-up and seed money for research and scholarship, and leave time for faculty are all expensive, and it will be a challenge to provide what is necessary as we move forward. In recent years, the School has made great strides in improving its research environment. Junior faculty research leaves, for example, help us to provide pre-tenure faculty a fast track to accelerate their careers. New or renovated office space and labs in Psychology, Chemistry and Child Development have been critical for research in these departments. But what the School has accomplished in this respect is unexceptional in comparison with our peer institutions. We are in the position of having to run faster just to stay even. As we have added more and more accomplished faculty, the pressure on the research infrastructure and the demands for financial support for cost sharing, equipment, research assistants, graduate fellowships, data storage, books, journal subscriptions, and administrative assistance have all grown significantly. Outside grants, contracts, and fellowships have brought money into the University, but this increased revenue has not matched the demands for support.

One side-effect of the faculty's increasing success in research and scholarship is that tenure-line faculty are on leave more frequently. This good news for our research productivity is a mixed blessing for students. On the one hand, there are more opportunities for collaborative and hands-on research with faculty mentors. On the other hand, students find more of their classes being taught by part-time faculty. As dedicated and accomplished as these part-time instructors are, there is no substitute for experienced tenure-stream faculty who are actively engaged in research and able to offer ongoing guidance to both freshmen and departmental majors. Moreover, we present ourselves as an institution committed to small classes and close faculty-student interaction. This is an appealing image to project, and we should ensure that it is accurate. To enhance the University's competitive position as a research institution, to provide more continuity in classroom offerings and advising, and to reduce class size, the number of tenure-line faculty in Arts and Sciences must grow.

IV. Graduate Education

Graduate programs in the School of Arts and Sciences play an integral role in the mission of the University, enhancing the intellectual climate and contributing to faculty research programs. Graduate students work in direct collaboration with faculty mentors, and these collaborative efforts are essential to the research and scholarship conducted at Tufts. Without these collaborations, investigators would struggle to obtain outside funding to support this research. Faculty take pride in educating the next generation of scholars and leaders. Indeed, the opportunity to teach and collaborate with outstanding master's and doctoral students is integral to the School's ability to attract and retain excellent faculty. Graduate students in all fields also serve as role models and mentors for undergraduate students and are essential for increasing the research and scholarly opportunities for them.

Our doctoral students competed successfully for faculty positions at other leading academic institutions in this country and abroad, as well as contributing their expertise to public service, business and industry, the arts, and education. Several of our academic master's degree programs are recognized as among the best in the country. Students from these programs matriculate into the highest rated Ph.D. programs and go on to take prominent positions in their fields. Like faculty in the doctoral programs, many faculty in these departments report that the opportunity to work with

graduate students was one of the main factors which attracted them to Tufts. Our three professional master's degree programs in Education, Occupational Therapy, and Urban and Environmental Policy and Planning also have well-established reputations.

Recently, Provost Bharucha provided funds for increased stipends to doctoral students, and this support has resulted in a significant increase in the yield of our graduate applications. We need to follow his leadership and continue building resources to support graduate studies. To maintain excellent graduate programs, the primary challenge for the Graduate School of Arts and Sciences is to recruit and retain the best graduate students. Financial support is perhaps the most important factor in determining where students decide to go to graduate school; if we are to meet our goals as a research institution, we have no choice but to provide competitive fellowships, benefits, and support packages. Once enrolled, these students also need support for their research efforts and professional advancement, and they must be provided with opportunities to develop their research and teaching skills. Moreover, we need more funds to achieve the diversity in the graduate student body that is the hallmark of true distinction.

As we develop new graduate programs, we need to evaluate our present ones and to continue to do so on a regular and systematic basis. This evaluation, which is essential to maintaining excellence, should examine the strength of the faculty, the quality of the students, the professional outcome for students (are they entering the best Ph.D. programs and postdoctoral programs, or finding the professional positions they desire), the size of the program, and the overall costs and benefits of the program to the School.

Because of the relatively small size of most departments in Arts and Sciences, we cannot develop outstanding Ph.D. programs in all sub-fields or disciplines. Our strategy should be to focus investment, recognizing excellence in a few areas. In order to promote innovative cross-disciplinary research, we should enhance our Interdisciplinary Doctorate, which has grown into a selective program that has attracted strong, mature students, many of whom are interested in bringing scholarship to bear on their experience as practitioners. We should also explore ways to enhance collaboration with other schools within the University, making graduate students the yarn that knits together the various schools at Tufts.

V. Strengths and Challenges: A Thematic Approach

We have identified the following four areas of strength, opportunity and challenge for the School:

- Civic Engagement
- Culture and Society
- Global Research and Education
- Life Sciences

Three of these build and adapt the University's strategic themes: life sciences and the environment, active citizenship, and an international perspective. The theme of Culture and Society is unique to the School and grows out of its liberal arts mission.

Civic Engagement

The study of civic engagement – the involvement of citizens in their communities and in the governmental process – has long been a central focus of our faculty. Faculty research and scholarship in this area has always been inspired by a sense of social purpose and grounded by the belief that scholarship lays the foundation for significant and lasting social change. Today our scholars actively participate in the national dialogue about community life and public policy.

Research and scholarship on civic engagement take many forms. First, a number of Tufts faculty in Arts and Sciences study civic activity and political behavior. Social movements, race relations, neighborhood governance, grassroots activism, environmental politics and planning, and public opinion formation are just some of the areas in which our researchers work. These scholars, primarily housed in the social science departments, have carried out sophisticated empirical research projects that have made important and lasting contributions to their disciplines.

Second, there is considerable work in the area of public policy. Scholars in the School have undertaken research on policy in important areas such as tax law, free trade, child labor, health, environmental regulation, antitrust legislation, housing and community development, and public school financing. Faculty in these areas are frequently called on for expert commentary by the media, and many have "translated" their scholarly publications into articles for popular journals and newspapers. Many have also testified before Congress and the state legislature or consulted with the governmental, nonprofit, or business sectors.

Third, there is research into civic engagement as it is practiced. Talented scholars across the School have analyzed programs and developed practical solutions to improve those programs' performance. Research in the Eliot-Pearson Department of Child Development continues to make important contributions that directly influence programs in the areas of youth and family development. The Dayton Project at Tufts is known for creating practical solutions to the issues of constitutional reform, economic development, and peace implementation in the Balkans. Our faculty are known for their interdisciplinary research on nonprofits, international NGOs, foundations, and public-private partnerships.

Fourth, in the humanities, scholarship on civic engagement provides a reflective approach to political, social, and cultural institutions and processes, articulating the ways in which concepts such as "civil society" have evolved. Our historians examine structures of civic life from the past, and the scholarship of our philosophers and political theorists sheds light on how enduring debates frame modern political discourse and shape policy change. Other faculty in the arts and humanities study the representations of civic life in drama, poetry, music and art as a way of understanding more closely the symbols and political mentality of a particular historical moment. In this context, many scholars explore the way race and gender structure how we consider the world.

The School of Arts and Sciences is committed to the promotion of responsible citizenship and involvement in civic affairs. Integrated learning and student-faculty collaboration in civic engagement have broadened the traditional boundaries of a liberal arts education. Student voluntarism is encouraged in the belief that community involvement builds a lifelong commitment to responsible citizenship. The creation of the University College, the ongoing vitality of the Institute for Global Leadership and the Leonard Carmichael Society, and notable levels of

participation in the Peace Corps are but a few examples of the engagement of our students in community service and active citizenship.

One challenge going forward is to integrate and strengthen the ties between faculty research and the practice of civic engagement. Both are motivated by the desire to find ways to enable citizens and communities to work together, to increase the responsiveness and effectiveness of government, to diminish the prejudices and ignorance that inhibit community building, and to create the bonds of trust and reciprocity so crucial for civil society. These are complex issues that draw upon the research and practice of a wide range of disciplines. Support for faculty collaboration across departments as well as across schools is a priority. One initiative to explore is a center for public policy within the School of Arts and Sciences. Such a center could bring together scholars focused on public policy scholarship in taxation, housing, poverty, health, the environment, and other critical issues. This initiative would build upon the Domestic Public Policy Forum initiated three years ago by the Departments of Economics, Political Science, Child Development, and Urban and Environmental Policy and Planning together with the University College. It is our hope that such a center could provide the impetus for a new school of public policy that would draw on the expertise of Tufts faculty across the University.

Another challenge is to develop the research infrastructure to better support scholarship on civic engagement. To gain national prominence, we must strengthen the graduate programs that contribute to research on civic engagement and at the same time continue to develop other ways of providing sufficient research assistance to a faculty that is increasingly oriented toward research and scholarship. We will need a larger faculty active in research on civic engagement if our small departments are to achieve national distinction.

Culture and Society

The arts and humanities are a cornerstone of any civilized society, and thus of any great university. Literature, the arts, history, and philosophy concern themselves with the human condition; they constitute the record of our beliefs and aspirations, the mirror of our passions and fears. We look to them for inspiration, to tell us where we have been and where we are going. The purpose of research and teaching in the arts and humanities is to foster deep appreciation of human creativity in its manifold forms but also to challenge and question established ideas and modes of thought. Scholars in the humanities examine our past, question cultural myths, and pressure texts, images, and ideas to yield insights into the profundity of human thought and experience, the richness of cultural diversity, and the complexity of social issues. The arts perform a similar role through formal innovation and non-linguistic expression in a range of media and venues. The strength of the arts and humanities within the School of Arts and Sciences lies in its dedication to critical inquiry and creative expression, to the assurance that our students become responsible consumers and purveyors of ideas and information. Faculty actively engaged in research, writing, and performance keep the Tufts community at the forefront of contemporary cultural and intellectual developments.

We have broad areas of expertise in both the arts and humanities. At the level of research and scholarship, we have productive and innovative faculty in visual and literary studies (including anthropology), philosophy, political theory, and history. Our Ph.D. programs in Drama, English, and History, in addition to well-established M.A. programs in Philosophy, Art History, Music, and

Classics, have provided a solid foundation for research. We have distinguished scholars who study literature and visual culture from a global perspective. Many of our faculty work in the important areas of ethnic studies and gender and sexuality, areas where we could achieve distinctive strength. The Museum Studies Program has grown in prominence nationally and provides leading-edge practical and academic training to this newly professionalized field. The Mellon Postdoctoral Program and the Interdisciplinary Doctoral Program have helped enhance Tufts' reputation as a place that fosters innovative inquiry across disciplines. We have a number of majors and degree programs that fall under the Culture and Society theme – for example, Architectural Studies, Latin American Studies, Africa and the New World, and Archaeology – that could be bolstered through greater organization and institutional support to attain a more vital research core.

In the arts we bring the strength of "the practitioners on our doorstep," the accomplished artists, writers and performers who live all around us. Our relationship with the School of the Museum of Fine Arts, with whom we share several degree programs, is rich with potential, and we have only begun exploiting our relationship with the New England Conservatory. We have many accomplished writers who could provide the foundation for the proposed M.F.A. program in creative writing, which would in turn showcase those writers. Tufts University Art Gallery is rapidly becoming known as a venue for provocative exhibitions. Our Drama and Dance Department has wonderful programs that reach out to the community, such as the Magic Circle Children's Theater, and we could extend such programming by developing a partnership with a local theater, such as the one Brown has formed with the Trinity Repertory Company in Providence. The College of Special Studies is well-situated to expand and develop such partnerships.

Together with the Aidekman Arts Center and the Balch Arena Theater, the new music building presents an opportunity to harness energies in the arts by concentrating artistic creativity in an "arts corner" at the southern edge of campus. This new constellation of venues and classrooms for the fine arts will help identify Tufts as a dynamic center for the arts to both the outside world and our own community. We should take advantage of recent momentum to improve the rehearsal and performance space for Drama and Dance, upgrade the woeful studios for the fine arts (now hidden in Lane Hall), and expand the Art Gallery to accommodate an increasingly ambitious program of special exhibitions and to display a growing permanent collection.

Challenges lie ahead for us in developing our strength in this area. In both the arts and humanities, we must cultivate and integrate the excellent work being done across departments. Prominent arts and humanities divisions are a hallmark of most of Tufts' comparison schools. While many of the School's most celebrated scholars work in the arts and humanities, and while we are strong in certain fields, we are weak in others when measured against our peer institutions, and we will need to invest strategically in new faculty positions (including lateral appointments) and graduate programs to achieve distinction. Like other departments, those in the arts and humanities at Tufts have traditionally taken a "Noah's Ark" approach to hiring, in service of the undergraduate curriculum. While our students expect and need broad liberal arts coverage, targeted hiring in selected areas will create distinctive areas of research focus. This reputation in research will allow us to attract large numbers of students interested in the arts and humanities and the more balanced student body that will benefit faculty in all areas of research and scholarship.

Global Research and Education

Globally informed research and education are founded on the conviction that knowledge, understanding, and experience of the world are more critical to a university education than ever. This conviction requires that the domains of knowledge that have formed the basis of higher education in the United States since the early twentieth century respond with greater urgency to the rapid transformations in global knowledge, culture, institutions, and societies. Long-held paradigms and theories of human behavior, markets, and cultures are evolving or succumbing at a rate not thought possible even a decade ago. The movement of peoples, ideas, values, goods, and services is unprecedented. It is essential that higher education respond actively and imaginatively to the challenges and complexities of the contemporary world.

Because global interests and issues define the intellectual environment and signature of the University as a whole, Arts and Science departments have worked successfully to attract faculty with strong research agendas relating to global issues, institutions, societies, and cultures. We have identified three broad areas in which these faculty are conducting research and scholarship.

First, many scholars in the School of Arts and Sciences investigate issues and problems that span countries, regions, and eras. In the social sciences, we find research and scholarship on topics such as conflict and conflict resolution, political and economic organization, globalization, the rise and fall of colonialism, trade and finance, and economic development. Our scholars also generate analytic leverage from multi-national comparisons. Such wide-ranging themes as democratization, environmental and health policy, corruption, childhood and socialization, nationalism, and state building are investigated in these comparative frameworks.

Second, many scholars are studying issues of migration and diaspora populations. The accelerating movement of people across borders has had important and enduring economic, political, and social effects. We include under this umbrella the study of racial and ethnic consciousness and identity formation. Faculty in the Anthropology, English, History, Psychology, Political Science, and Sociology Departments are engaged by these issues. This work is set both in the United States and in countries around the world.

Finally, we cover the globe. Nationally, there is an ongoing tension between regional studies and more thematic international studies. At Tufts, we seek to engage that debate and profit from both approaches. Our scholars in the humanities and arts, but also in the social sciences, study national and regional cultures, religions, languages, and literatures. Our language departments teach Greek and Latin, French, Spanish, Italian, German, Russian, Chinese, Japanese, Hebrew, Arabic, Swahili, and Hindi/Urdu. Faculty in these departments and the Departments of Art and Art History, Classics, Comparative Religion, Drama and Dance, and Music illuminate the study of the ideas, arts, material culture, literature, music, theater, and cinema of these various national cultures. Our Anthropology, Economics, History, and Political Science Departments have regional specialists of Africa, Eastern Europe, Western Europe, China, Japan, Latin America, South Asia, Southeast Asia, the Middle East, and the United States.

Alongside the scholarly focus on globalism, the international strength of the School is manifest in the interests, accomplishments, and plans of our students. The International Relations Program is exemplary in this regard. Only 16 of the top 30 schools on the US News and World Report list have such a major. International Relations is one of our most popular majors – roughly 15 percent of our

students graduate with an International Relations degree – a fact that distinguishes us even from our peers that have international relations majors. Roughly 40 percent of undergraduates have an overseas studies experience, putting Tufts in the top five among research universities several years running. Many of these students study in superb Tufts programs in Chile, China, Ghana, Hong Kong, Japan, Great Britain, Spain, Italy, France and Germany. The Institute for Global Leadership is a model of a distinctive and dynamic approach to engaging students in the global enterprise. Tufts is an acknowledged leader in producing Peace Corps volunteers, again in the top five colleges and universities in the country over the past three years. Tufts is among the top 15 universities in producing Fulbright scholars. By any measure, we are producing a distinctive globally informed and engaged graduate.

While we celebrate these strengths, we must also overcome some critical challenges to enhancing our reputation as a leader in global research and education. Our first challenge is to further our relationship with the Fletcher School, which could be expanded to the mutual benefit of both schools. Curricular gaps would be more easily filled, departmental reputations enhanced, and undergraduates, graduate students, and faculty would have greater access to more resources. Second, there is no real center for scholarly interaction on international issues within the School. Such a center could create a more vibrant intellectual community and complement the dynamic international programming at the Fletcher School and other centers outside Arts and Sciences. Third, most of the departments that contribute significantly to this theme do not have Ph.D. programs. Since we cannot have Ph.D. programs in all departments, we have to find other ways to leverage strong faculty scholarship. Finally, as a globally connected school, we must respond imaginatively to the inherently difficult task of keeping up with the rapidity of change in the world. These changes may affect student interests and demands, the priorities of funders and editors, and the research opportunities available to us. This volatility has long been a challenge associated with work in this area and will continue to be so. We must develop global collaborations that will situate us to meet these challenges.

Life Sciences

The life sciences have taken prominence in the scientific and technological landscape of our moment and will undoubtedly dominate the first half of the twenty-first century, much as progress in atomic physics significantly changed the first fifty years of the twentieth century. The sequencing of the human genome is just one of the major conceptual and technical advances that have revealed the intricate details and complexities of biological systems. These advances have set the stage for unprecedented growth in our understanding of life processes, and they present opportunities for investment and collaboration. While systems biology has gradually and only recently come to prominence in the scientific community as a whole, within Arts and Sciences we have long taken an integrated approach to the life sciences. Already in the 1970s, while many other institutions were breaking apart traditional departments and creating small isolated foci of specialized research, at Tufts, the departments most directly related to the life sciences (Biology, Psychology and Chemistry) remained broadly based, creating and strengthening two important interdisciplinary majors, biopsychology and biochemistry.

As in the past, much of the dramatic progress made in the life sciences will be built upon research in the physical sciences, mathematics and computer science. Long-term excellence in the life sciences will be dependent on faculty in Chemistry, Physics, Geology, Mathematics, and Computer Science,

as well as faculty in departments that focus exclusively on biological science. We have to look no further than our own Physics and Astronomy Department for an excellent example: Alan Cormack's pioneering and Nobel Prize winning work on CAT-Scan technology. The interdisciplinary nature and complexity of contemporary life sciences research is now recognized broadly, and this recognition has spawned efforts to explore new organizational models for collaborative work. Tufts' small size provides opportunities to be flexible in implementing new ways to foster research clusters. Collaboration in the life sciences ties together scientists in Arts and Sciences and Engineering on the Medford Campus with all the schools in the University (particularly the Medical, Dental and Veterinary Schools, and Sackler) and with other institutions across the Boston area. Within Arts and Sciences, we have further integrated research in the life sciences into the scholarly life of the University through related strengths in the social sciences and humanities, in areas such as bioethics, medical anthropology, the history and philosophy of science and medicine, community health, environmental policy, and the economics of health care, to name a few.

The major challenge facing the School in the life sciences arena is the critical question of resources. Because research in the sciences requires more resources for space and start-up than in other disciplines, we have lagged significantly behind all of our comparison institutions. Recent investments in major renovations in the Department of Chemistry and in the new Psychology Research Building have enabled us to further strengthen the faculty and the research productivity in these areas. We are delighted that the University is committed to and has started planning for an Integrated Laboratory Complex. We must aggressively pursue funds for the life sciences, while at the same time facing the fact that there are hard choices to be made – decisions regarding focus and cluster development. We have identified three broad areas of research encompassing the life sciences for further investment: neuroscience, molecular bioscience, and conservation and environmental biology. Within these three broad areas, we will continue to focus, articulate, and invest in more specialized areas of established or potential strength.

The life sciences are experimental in nature, and the understanding of the true extent of new knowledge in these areas is only as good as the research design, sensitivity of the measurements, and analysis of the data. Therefore, much of the teaching and learning in the life sciences requires a hands-on approach. Faculty in the life sciences have traditionally recognized the need to introduce students to independent research in the laboratory or the field. Robust, cross-cutting graduate programs that allow collaboration in new and exciting ways would be beneficial to this undertaking and will require attaining critical mass in numbers of faculty, postdoctoral researchers, and graduate students in many sub-disciplines on the Medford Campus. Nor is research with students confined to graduate students. There is a long history of faculty-sponsored undergraduate research projects, many of which have resulted in students making presentations at local or national meetings, or co-authoring journal articles with faculty. For years we have prepared students to pursue advanced degrees and careers in the health professions, each year sending approximately a hundred students to medical, dental and veterinary schools, with acceptance rates above many of our comparison institutions. Moreover, Tufts undergraduates are admitted to the best life sciences Ph.D. programs in the country as well as to law schools, where they pursue degrees that allow them to contribute significantly to the practice of environmental or patent law for universities or biotechnology companies.

To be recognized as a force in the life sciences, Tufts and the School of Arts and Sciences must continue to find ways to achieve the following: promote innovation by building networks that leverage existing research strengths and resources; encourage creative and capable individuals;

facilitate technology transfer and industrial partnerships (without letting these aspects drive the science); invest in translational research to bridge the gap between basic sciences and their application (for example, collaborations with clinical faculty); anticipate scientific trends; and, finally, establish inter-institutional and international "virtual" institutes.

Recommendations for Reaching Our Strategic Goals

Faculty Size: The School of Arts and Sciences at Tufts is committed to improving its faculty. If we are to increase research and scholarship while honoring our commitment to undergraduate teaching and close working relationships between students and full-time faculty, the size of the tenured and tenure-track faculty, which has not increased for over 25 years, must grow. This growth will help us:

1. Foster a more productive research environment.
2. Meet the needs of our students who rightfully expect opportunities for meaningful and sustained educational relationships with our full-time faculty.¹
3. Achieve the thematic vision and create the intellectual synergies articulated in this plan.
4. Further diversify the faculty.

Our goal is the growth of the faculty by 60 additional positions over the next decade. This growth should be funded with new endowed chairs. In addition, to create the resources to enhance faculty research, we propose that funds be raised for further endowed chairs for existing faculty slots, including junior faculty career development chairs.

We recommend that these 60 additional faculty positions be granted primarily in those departments, programs and fields that, in terms of both research and teaching, are currently in the forefront of the strategic vision of the School or are in critical need of significant strengthening to that end.

Research Support and Infrastructure: Faculty excellence cannot be achieved by merely increasing its overall size. The School must develop new resources as well as enhance existing ones for improving the research and teaching capacity of the faculty. As we begin developing those resources, however, we must also move to focus our present resources through a thorough review of interdisciplinary programs. These reviews will provide information needed both to eliminate or consolidate small or weak programs that draw resources from the School and to add research and teaching strength to those important to the vision of the School. We recommend the following initiatives in support of research:

¹ We are mindful of the stricture of the Boyer Commission on Educating Undergraduates in the Research University concerning Research I institutions: "Recruitment materials display proudly the world-famous professors, the splendid facilities and the ground-breaking research that goes on within them, but thousands of students graduate without ever seeing the world-famous professors or tasting genuine research." Reinventing Undergraduate Education: A Blueprint for America's Research Universities, pp. 5-6.

1. Working with the Campus Master Planning Committee, increase the space available to faculty across the School through the creation of new space and the renovation of existing space. New space should be targeted to serve each of the strategic themes. The planned Integrated Lab Complex will be a critical and long overdue first step in the realization of the necessary infrastructure for the life sciences.
2. Add the equipment and technology, as well as the administrative and technical support personnel, to assist faculty in their research and teaching efforts. More specifically, we need to:
 - a. leverage and enhance existing strengths in the areas of database, visualization, and analysis research as well as in data analysis, thereby facilitating multidisciplinary approaches to the creation, analysis, and understanding of data across Arts and Sciences.
 - b. increase support within Arts and Sciences for grant writing, acquisition, and post-award administration across the disciplines, including the hiring of staff assigned to specific departments or groups of departments.
 - c. strengthen the library further, with targeted growth in the research collection as well as in on-line and other electronic resources.
3. Create a publication fund to help faculty with the cost of book subventions, journal submission fees, and other costs associated with publication.
4. Increase research opportunities for faculty through selective leaves and course releases for those with active research agendas.
5. Enhance mechanisms for rewarding faculty research and teaching excellence through a larger salary adjustment budget and increases to the deans' discretionary fund. Identify specific resources to encourage research and scholarship of mid-career faculty.
6. Enhance mentoring programs within the departments and at the School level to ensure that junior faculty are seamlessly introduced to Tufts in a way that allows them to be focused, productive researchers and scholars.

Graduate School: To move Tufts forward as a research institution, we must make major investments in graduate study. We suggest the following:

1. Evaluate graduate programs on a regular basis with a view to improving programs in key areas. Where appropriate, increase the size of existing programs as well as creating new one Ph.D. programs in areas of emerging strength.² Eliminate ones that have ceased to be vibrant, no longer attracting a sufficient quantity and quality of applicants. The evaluation of current programs should come in two parts:
 - a. Beginning in academic year 2005-2006, conduct thorough reviews of all programs. This process should result in the enhancing or elimination of programs.
 - b. Establish a regular cycle of evaluation thereafter.
2. Build on the Provost's recent allocation of funds for doctoral candidates by providing doctoral students competitive levels of financial support (including T.A. stipends and health insurance) through at least five years of training. Provide the infrastructure they need to succeed in their disciplines (e.g. laboratory facilities; library resources; research and travel funding).

² The introduction of new programs should conform to the "Guidelines for Establishing New Ph.D. Degree Programs" developed by the Council of Graduate Schools.

3. Provide competitive levels of financial aid for students in the academic master's programs.
4. Increase the diversity of the graduate student body. Provide funds to recruit talented students from under-represented groups and support research opportunities for these students.
5. Expand and promote the Interdisciplinary Doctorate Program to enable students to explore nontraditional areas of study at the cross roads of disciplinary trends. Appoint a Director with course release so that he or she can devote time and energy to administering and developing the Program.
6. In consultation with the University Council on Graduate Education, establish cross-school and inter-institutional (including international) collaborative programs at the graduate level. This initiative might include the creation of Ph.D. programs in areas relating to International Relations, Neuroscience, Genetics, or Public Policy.
7. Create more prizes for graduate students, particularly in the area of research and scholarship.

Thematic Initiatives: We have formulated initiatives that specifically target the four strategic themes. Each of these initiatives should be developed in a way that increases the connections of Arts and Sciences to the other schools of Tufts or to the affiliated schools. We have identified the following eight initiatives:

1. The creation of a Humanities Center to enhance communication and collaborative research in these disciplines and an Office of the Arts for the three arts areas (and creative writing) to coordinate all arts programming on campus.
2. The creation of a Center of Public Policy to support the community of faculty working in this area and to develop research-enhancing programming.
3. The establishment of a Center for Global Research to supply the infrastructure and administrative support for researchers on the Medford Campus as they develop collaborations for global research.
4. The programming and building of an Integrated Lab Complex to bring together researchers in the School of Arts and Sciences and the School of Engineering in a first-rate research facility. This new facility should be the opportunity for establishing wider inter-school collaborations around identified research clusters.
5. The creation of four "titled" chairs dedicated to the development and integration of scholarship in each of the four signature themes. The term of each one of the chairs would be for 3-5 years, and the position of chair would rotate among faculty whose scholarship has made contributions to that theme. During their tenure as chair, the faculty members would be provided funding, staff support, and course relief to organize faculty workshops, conferences, a speaker series, or other initiatives that would enrich and strengthen faculty scholarship in that theme.
6. The creation of the position of "Distinguished Visiting Professor," a one to two year position that could be held either by leading academic researchers and scholars or by non-academics (e.g., artists, journalists, economists, musicians) who have experiences that would contribute to the intellectual life in the School of Arts and Sciences. We envisage four such positions. These appointments, which should be made by the Dean of the School of Arts and Sciences according to established criteria and in consultation with the faculty, should be connected to strategic themes.
7. The reconceptualizing of the College of Special Studies as a unit that would actively promote programming with the affiliated schools and other institutions. The College could take responsibility for all the initiatives and programs that are "outside the box." Although

the College has in its recent history been associated with the Arts, it has in the past and could in the future work much more broadly to develop relations with other institutions that could bring strengths missing from Tufts.

8. The development of intellectual colloquia to draw academics and intellectuals from the Boston area to Tufts. These colloquia should be in areas and fields in which Arts and Sciences has distinctive strengths. The events should be regular and ongoing so that the larger community comes to identify them with Tufts.

Conclusion

Every goal of this strategic plan – an increase in research productivity, more ladder faculty in the classroom, improved graduate programs, a coherent set of thematic strengths – depends upon increasing the size of the tenured and tenure-track faculty. We do not wish the complexity of our recommendations to obscure this overarching goal. To move forward in the School of Arts and Sciences, we must acquire the resources to increase our faculty numbers and do so with adequate support for research and teaching. This set of recommendations is predicated on that single goal and cannot be implemented without achieving it.

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