

Planning for the '90s

Five-Year Academic Plan for the University of Pennsylvania

Two years ago we began a new phase of our academic planning process: an intensive campus-wide effort to think through the University's priorities for the 1990s. The genesis of this effort grew out of a retreat of the Academic Planning and Budget Committee that focused on the role of the central administration in assisting and facilitating the academic investments made by our schools and resource centers while at the same time ensuring that the initiatives they undertake individually fit into a larger University-wide strategy.

As a result of that discussion, ten working groups of faculty, students, and administrative staff were established to examine the areas of undergraduate education, financial aid, admissions, advising and retention, Ph.D. education, professional education, research, faculty development, the academic information environment and international dimensions. Their final reports were published in *Almanac* in December of 1989 and served as the basis for extensive discussions and review by both the Academic Planning and Budget Committee and the President's Advisory Group (consisting of the dean of each school, the Provost, the President, and the President's senior administrative colleagues). These two groups also evaluated proposals developed by individual schools, resource centers and administrative units. Their task was to draw together the key elements in all these initiatives that they deemed essential in meeting the critical challenges facing Penn.

From the beginning, the Academic Planning and Budget Committee, the Deans, and the central administration have worked closely with other interested faculty and students in helping to develop the Five-Year Plan. Key issues have been reviewed with the Faculty Senate, the Council of Undergraduate Deans, the Council of Graduate Deans, and the Board of Trustees.

Not all the recommendations contained in the reports of the ten working groups have been included in the plan. This does not mean, however, that they have been ignored. Many of the recommendations on Ph.D. education, for example, shall become the responsibility of the Vice Provost for Graduate Education; issues of undergraduate retention are now being examined by the four undergraduate schools; recommendations about innovative financial aid support are being explored by a special ad hoc committee.

With the publication of the proposed plan, we have reached a new phase in our planning effort. During this first stage, we have identified a limited set of issues and concerns requiring priority attention and leadership, particularly from the central administration. Yet our vision of the University must be a collective one, reflecting both a common sense of purpose and the needs and goals of our individual components. The adoption of a new University Five-Year Plan provides an opportunity for each of the twelve schools to review, update, and, where appropriate, recast their own plans. It is our expectation that during the coming year each school shall begin its own review and then plan accordingly, taking into account University priorities as well as its own sense of future challenges and opportunities.

The document that follows is for comment. We solicit your suggestions and encourage full review by faculty, students, and staff. Because it is our intention to publish a final report before the end of the semester, we would appreciate receiving your reactions by November 2. Please send your comments to either of us.

Sheldon Hackney, President

Michael Aiken, Provost

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1. Setting the Context

Penn is fortunate in its heritage. Two and a half centuries ago, Benjamin Franklin inventively conceived of an academy that melded both theory and practice. The University that stands as the inheritor of Franklin's legacy—now comprising twelve schools and several hundred departments, programs, centers, and institutes—remains equally committed to the learned professions and to the arts and sciences that constitute the center of the modern university.

Penn stands out among great research universities for its strength across a wide array of schools and fields and its ability to foster innovative connections among its disciplines, faculty, students, and the broader university community. It is a university that takes as a guiding metaphor the image of the brain, with its vast number of individual neurons connected along wondrously complex pathways. Creative intelligence comes not only from the quick retrieval of information stored in millions of cells but from the unusual ways in which that information can be connected.

Penn's comparative advantage lies in its ability to develop that same sense of interlocking connections. In the years ahead, many of the most exciting breakthroughs will likely come from bold attempts that bring together disciplines, techniques, and bodies of knowledge that previously have not been regarded as contiguous. Molecular biology is now infused throughout the life sciences, making possible the integration of new knowledge and the emphasis on structural biology. Another example, and one of Penn's most integrative endeavors, has been the creation and expansion of cognitive science, which, at Penn, combines the interests and talents of engineers, philosophers, mathematicians, logicians, linguists, and psychologists, as well as pioneers in the School of Medicine who are using imaging to alter fundamentally how physicians diagnose and treat illness. The rate of borrowing among the social sciences, humanities, and learned professions is increasing everywhere, creating more similarities and connections even as each area produces more and more specialized knowledge.

This vision of a university constantly forging intellectual and scholarly connections provides the framework for the University's Academic Plan. The specific initiatives that comprise it reflect both an internal sense of how Penn can best achieve excellence in its three historic missions—teaching, research, and public service—and a broad understanding of the critical challenges facing all major research universities on the eve of the 21st century.

Sustaining the Research Enterprise. The first of these challenges requires a fundamental commitment to strengthening the research enterprise itself. The decade ahead will be one of escalating costs and increasing competition. To sustain their standing among the first rank of research universities, competitive institutions will have to secure an increasing share of research funding, of the research faculty who will be in increasingly short supply, and of the capital funds available to construct new facilities and obtain state-of-the-art equipment across a wide range of disciplines and fields.

This combination of escalating costs and increased competition will likely yield a reordering among the nation's leading research universities. Those that cannot afford to compete—cannot pay competitive salaries, cannot fund graduate students, cannot make the capital-

intensive investments that modern research requires—will find themselves outdistanced by better-funded rivals. The effects will be felt even by the most successful institutions, where there will be a sharpening of mission and focus—the inevitable result of not being able to compete in all fields and specialties. Winning institutions will prosper by doing more of what they do best—judiciously streamlining programs, leaving some fields to others, and generally insisting that new investments benefit the institution as a whole.

For Penn, remaining competitive means becoming both better financed and more sharply focused in how the University links its traditional research strengths. Penn will require an integrated strategy for making targeted investments in new research facilities, for recruiting and retaining leading scholars from junior faculty to senior professors, and for acquiring state-of-the-art equipment and scholarly materials. As a university, we will have to choose among competing projects, learning to gauge better which will be most beneficial in building the University's research profile.

Strengthening Teaching and Learning. The second challenge confronting major research universities is to design educational programs that better sustain the intellectual curiosity and intensity of their students, principally by strengthening the institutional commitment to teaching and learning. There is a general call for the nation's leading universities to reaffirm that teaching is central to their mission, a new willingness to say out loud that good teaching depends on renewed efforts to see the world whole again.

Penn has taken important steps in kindling the type of dialogue that will invest its curricular reforms with new energy and insight, along with a strengthened commitment to the centrality of the liberal arts. The first step has been a recasting of undergraduate general education requirements, seeking a more encompassing definition of what students are expected to learn en route to their baccalaureate degrees. The next steps involve extending that dialogue—to review and, where appropriate, revise the undergraduate major, and to take a new look at how the University teaches its graduate and professional students. Ph.D. education poses particular challenges, since many of those whom the University trains over the next decade will provide critical leadership to colleges and universities well into the next century. Their commitment to teaching and learning will help shape the future of American higher education.

Building Inclusive Communities. The third challenge facing major research universities is to become substantially more inclusive in their membership and more explicit in their commitment to the scholarly and social civility on which the open exchange of findings, ideas, and opinions depends.

Many major research universities are urban, intrinsically linked to cities that have come to symbolize both the vitality and the dissolution of modern life. Working together, scholarly communities have a special obligation to lessen the sense of polarization that threatens to make the 1990s a decade of social turmoil. They must lay the foundation for a new academic pluralism in which distinct groups become enriched by each other's differences, sharing their experiences and building together a community of pooled creativity.

In important ways Penn is a very different institution from what it was just a generation ago. The Penn community has become far

more heterogeneous than most of our alumni remember. The modern Penn reflects a commitment to diversity that presumed that good intentions could resolve conflicts, that the values of intellectual and cultural tolerance associated with academic life would prevail. Yet today's reality is both more complex and less reassuring than was expected. Often overwhelmed and threatened by the scale and unfamiliarity of life on an urban campus, people tend to retreat to groups that reproduce their own backgrounds or special interests. Left to find community on their own, whether faculty, students, or staff, people often cope by creating their own islands of psychological safety and, more often than not, homogeneity.

Penn's determination to open its community to individuals of much more varied backgrounds, identities, and outlooks has both enriched the University and created new tensions. The most rapid and effective way to diminish these tensions is not just to acknowledge, but to embrace fully the implications of the diversity we as a university have introduced into life at Penn. As a community, we need to affirm that our commitment to free and open inquiry necessitates a University-wide commitment to the goals of diversity. The necessary first step is to recruit substantially more students, faculty, and staff from historically under-represented groups. Next, all members of the university community need to search out occasions for extolling diversity, making it central to their social and intellectual definitions of the University and to all aspects of campus life. The University must create and use occasions that bring Penn people together, across all barriers and divides, to realize their commonality and to renew their common commitments to the ideals of the University. The result will be a new spirit for negotiating the difficulties that will inevitably arise from one of the greatest of Penn's educational challenges—to build and maintain a genuinely pluralistic community.

Educating and Recruiting a New Generation of Faculty. The fourth, and in many ways the most far-reaching challenge facing research universities derives from a fundamental change in faculty demographics. In the 1990s, higher education will have to replace most of the scholars trained in the decade following the Second World War. These faculty—extraordinarily talented and dedicated to producing disciplinary research—shaped the contours of today's American research university. Their pursuit of specialized study changed the nature of research and the structure of the undergraduate curriculum. They came to academia as a "first choice" and brought with them a commitment to excellence and competition that will be sorely missed in the coming years.

Replacing this generation of scholars will be no easy task, given the diminished pool of candidates prepared to provide scholarly leadership to their disciplines and institutions. Indeed, major research universities will have to be both adroit in their recruitment and retention of faculty and steadfast in their commitment to strengthen their graduate programs in order to meet a growing national need. It will not be enough to lure away another institution's stars. Leadership in the next century will come to those institutions that prove most able to train a new generation of scholar-teachers.

The demographics of the Penn faculty exhibit clearly the dimension of the problem we face as a university. Between now and the year 2000, more than 230 of Penn's most senior and distinguished faculty are expected to retire. The School of Arts and Sciences will be the most affected. The University has begun to address the problem, having over the course of the 1980s used generous gifts from the Mellon Foundation and The Pew Charitable Trusts to appoint or retain faculty members in anticipation of retirements that will take place in the 1990s. This smoothing of the demographic profile provides Penn with some breathing room that the University must use to plan carefully the recruitment and development of new junior and senior faculty.

Just as important, our University must also see to the continued renewal of current faculty. The more than 1,800 members of the standing faculty are Penn's most essential asset. Their talent and energy—and their commitment to research, service, and teaching—provide the University with both its distinctive signature and its membership in an increasingly competitive international community of scholars. Their hard-won achievements deserve the University's continuing support—in the form of access to state-of-the-art facilities and equipment, research and scholarly materials, and seed funds needed to change the course of research and instructional programs.

Penn also will benefit from remaining attentive to the needs of faculty after their formal retirement. These efforts will add a sustaining luster to the University and will help Penn attract and retain leading scholars.

Penn faculty belong simultaneously to their schools and to the University as a whole. They share a sense of obligation to foster commonly defined endeavors—to integrate both their teaching and their research into the life of the University. Many of those common endeavors involve Penn faculty and students in the delivery of professional services through the University's hospitals and clinics, through its programs of executive and continuing education, and through its work with educational and social service institutions across the Delaware Valley and the nation.

Senior faculty, in particular, have the additional responsibility of being mentors to their junior colleagues, of taking the lead in ensuring that Penn's teaching is characterized by the same degree of excellence as its research, and of taking part in the life of the campus that extends substantially beyond normal working hours.

Finally, all faculty have a special obligation to make Penn a collegial and supportive place for their colleagues, including new scholars who are women, African-Americans, Hispanics, and members of other groups that have been historically under-represented, not just at Penn, but in all of higher education.

2. Planning Initiatives

In large part, the University's Academic Plan derives from and supports the successful plans that precede it: from the statement of academic purpose celebrated in President Hackney's *Choosing Penn's Future*; from the schools' five-year plans developed over the last decade; and from the planning for the \$1 billion Campaign for Penn, which will provide a substantial portion of the funding for many of the major initiatives described below. The University's Academic Plan is also part of a more general planning effort that includes developing a new land use plan for the campus; planning for the campus center and for the Division of University Life; planning for the Medical Center's new initiatives in basic research and patient care; and the regular review of and planning for the University's administrative and financial functions.

Yet this Academic Plan also breaks new ground, drawing together many of the separate initiatives of the schools and resource centers in a more comprehensive strategy for broadly strengthening the University as a whole. Underlying this planning is the assumption that the 1990s will require new incentives and programs that explicitly encourage a greater pooling of resources and more purposeful investment in University priorities.

The process used to develop the University's Academic Plan reflects that growing spirit of partnership. Most of the specific initiatives described below were first identified by one or more of the ten working groups appointed in the fall of 1988 that brought together faculty, students, deans, and administrative staff from across the University. Their reports were published in *Almanac* (December 5, 1989) and present important documentation for the initiatives presented below. Some initiatives were first developed by an individual school, resource center, or administrative unit: these initiatives have also been evaluated by the relevant planning committees and have been published in *Almanac*.

The planning process has been overseen by two groups, working in parallel, that reflect Penn's renewed efforts to develop a more common vision of itself and its future. The first is the Academic Planning and Budget Committee, which brings together faculty, students, and key administrators to address the University's priorities. The second group is the President's Advisory Group, consisting of the dean of each school, as well as the President, Provost, and their principal administrative colleagues.

Research Capacity

The University must make major investments over the next five years in its research capacity. The cost of research—in terms of recruiting and retaining faculty, acquiring state-of-the-art equipment as well as research and scholarly materials, and building modern research facilities—has increased dramatically over the last decade and will probably escalate further into the next century.

In the coming years competition among major research universities is likely to intensify—competition not only for research dollars

but for the most promising graduate and undergraduate students who seek the vitality of a research environment. In this competition, Penn's comparative advantage—to students and faculty as well as to those who financially underwrite the nation's research agenda—lies in its linking of traditional disciplinary strengths through an interlocking network of cross-disciplinary research efforts.

Making greater use of this advantage requires a dramatic increase in the University's direct investment in its own research enterprise. A primary goal of Penn's planning must be to develop an integrated strategy for making focused investments in research facilities. Planned construction will provide new space for research initiatives, and it necessitates focused planning for the revitalization of existing space. Four major projects, each a major goal of the capital campaign, are envisioned for the next five years:

- **An Institute for Advanced Science and Technology**, designed to integrate the research strengths of related disciplines from the School of Arts and Sciences and the School of Engineering and Applied Science. This facility will provide critical new research space for leveraging Penn's distinction in the physical and engineering sciences and for promoting collaboration with related research efforts in other schools. The Institute will comprise four major components: a modern laboratory equipped for demanding chemical and bioengineering experiments; the complete renovation of existing space and the construction of new space to provide an area suitable for computing activities and other dry-lab experiments; the renovation of Hayden Hall to provide modern, high-quality space for the Center for Scientific and Technological Information Resources, an advanced technological and scientific research information center that will incorporate the latest in library and computing capacities; and the retrofitting of space vacated in the Engineering and Chemistry buildings. The new laboratory building will provide space for three principal research thrusts: molecular understanding of life processes; new materials; and bioengineering approaches to human injury and aging. The renovated space plus new dry-lab construction will be used for the Center for Technology Transfer as well as for research in four areas: computer and information sciences; cognitive sciences; imaging and graphics; and ultrafast detectors. Space will also be provided for common facilities, such as advanced workstations, graphics/design, and microfabrication.

Construction of these facilities, with funding supplied by a combination of Campaign for Penn gifts, public appropriation, and internal financing, will begin in FY 1991-92 and continue through FY 1995-96.

- **A life sciences facility.** To preserve and strengthen Penn's historic standing as an international leader in life-sciences research will require an accelerating set of investments in new facilities to complement the just-opened Clinical Research Building. First priority among these needs will be given to a new laboratory facility that will provide research space for investigators working in molecular and structural biology throughout the entire range of the life sciences at Penn. To be located on Parcel 4 of the Philadelphia Center for Health Care Sciences, this facility will principally serve and be funded by the University of Pennsylvania Medical Center. Because the horizons of biomedical research are rapidly changing as molecular and structural biology become the paradigm common to all biomedical research and cross all the traditional boundaries of the biological sciences, the program for the new life-sciences building is being developed by a committee chaired by Perry Molinoff of the School of Medicine and including members from the Schools of Veterinary Medicine, Dental Medicine, and Arts and Sciences. Once that committee has reported, the University will proceed immediately to the creation of a financing plan and architectural specifications. The hope is that construction of this facility can begin as early as FY 1991-92.

- **A new clinical and research facility for the School of Dental Medicine.** To sustain the School of Dental Medicine's standing as an international center for clinical and basic research will require the planning, financing, and construction of a state-of-the-art clinical facility to be integrated with the research setting currently provided by the Leon Levy Center for Oral Health Research. The planning for this facility is well underway, under the leadership of the School and its dean. Actual construction will

depend on the completion of this planning plus a successful fund-raising effort through the Campaign for Penn.

- **A new Law School library** designed to increase significantly the size and accessibility of the information resources on American and foreign law available to researchers throughout the University. The library—the first priority for the Law School—will be housed in a 68,700 net square feet (nsf) building to be constructed at the west end of the present Law School courtyard on the current site of the Law dormitories. Occupying roughly 59,000 nsf of the building, the new library will functionally integrate comfortable study seating options with computer-assisted research capability and a 450,000 volume research collection. The facility will provide service points for the multiple information technologies represented in the collection, including book, microform, video and audio tape, and a variety of electronic formats. In addition, the building will contain space to be used by student publications, student activities, student services, curricular programs, and three seminar-sized teaching spaces. Finally, the rehabilitation of space currently occupied by the Law School library will represent a direct investment in the research capacity of the School's faculty.

The capital for this project will derive almost exclusively from the Law School's component of the Campaign for Penn, with the central University bearing much of the cost for additional utility capacity and for relocating dining facilities that currently serve both the Law School dormitories and Kings Court/English House. Construction of this facility is scheduled to begin June 1, 1991.

Major, new, state-of-the-art facilities are a necessary but not sufficient condition for research excellence. In the final analysis, the imaginative support of the research conducted by faculty and students matters most. In this area, much of Penn's planning for the next five years not only builds on but accelerates the successful initiatives launched through the last academic planning process. The following goals are intended to ensure that Penn has the ability to retain its current distinguished faculty and to recruit simultaneously both a new generation of younger scholars and senior investigators who, in the prime of their careers, can provide research and instructional leadership to Penn:

- **Establishment of new endowed chairs, to be occupied principally by current members of the Penn faculty.** As of fall, 1990, the Campaign for Penn had yielded pledges for 88 fully-funded endowed chairs—a national record. In the School of Arts and Sciences, for example, more endowment has actually been received for chairs in the first three years of the campaign than since the School's establishment in 1974. To date, 21 of the University's new chairs have been filled, mostly by current members of the standing faculty. These endowments honor the faculty recipient, often provide additional research support, and, by providing budgetary relief, frequently increase the discretionary funds available to the schools for further investment in their research and scholarly enterprises, including salaries across each school.

- **Completion of the scheduled recruitment of Trustee Professors.** As of spring, 1990, 10 of the anticipated 50 Trustee Professors had been recruited. These designations, which stress the critical importance of both teaching and research, have already helped bring to the University a distinguished cadre of scholars who are providing critical leadership to the research and instructional programs of their departments and schools. Over the next five years, the University will complete the recruitment of the Trustee Professors, using the distinction and additional research support provided by that honor to ensure that Penn is well-positioned in the increasingly expensive competition for the nation's scholarly leaders.

- **Expansion of the Research Foundation.** Using 1989-90 awards as a base, Penn will double the amount awarded annually by the Research Foundation, making special efforts to increase participation by humanities and social science faculty, especially in areas for which external support is not readily available, and to support the work of junior faculty.

- **Expansion of the Research Facilities Development Fund.** To ensure that current research facilities are maintained and new

equipment and research materials are made available to Penn's faculty, the scale of the Research Facilities Development Fund will be substantially increased over the next five years. To guarantee the full integration of school and University planning objectives in the disbursement of these funds, the additional University monies will have to be matched on a one-to-one basis by school funds. The University will create an additional set-aside, to be similarly matched by the benefiting schools, for start-up funds for new faculty.

- **Establishment of a Social Science Research Institute (SSRI).** The goals of SSRI will be: to facilitate interdisciplinary research in the social sciences; to increase intellectual interchange among faculty with similar interests; to foster interdisciplinary social science training and research among both graduate and undergraduate students; and to focus the intellectual resources of the University on major public issues. Examples of Institute programs might include the formation of core seminars and the establishment of a technical support unit. Such seminars could address topics of broad significance and interdisciplinary interest in the social sciences, with each seminar also sponsoring intellectual exchange, research, and graduate instruction. The development of a technical support unit would make a number of services more broadly available: assistance with research design, programming, data collection, and other technical aspects of research; database maintenance; and workshops and summer courses.

- **Completion of a systematic, multi-year review of the capital research needs of the University.** As a prelude to its next five-year planning effort, the University needs, over the next five years, to launch a thorough review of its long-term needs for research facilities. That review should be conducted with the recognition that capital-intensive science, because it is inherently more expensive than other research endeavors, will require substantial amounts of funding. Also important, however, though different in their functions and capital requirements, are the research needs of the social sciences and the humanities. One purpose of the planned review will be to enable the University to make focused investments in these areas as funding opportunities become available.

Penn's research investments must build directly on partnerships forged among the schools and between participating schools and the administration of the University. In building those partnerships, deans must play a leading role, both as leaders of their faculty and of the University as a whole. Over the next year, a review will be conducted for the purpose of simplifying budgetary and other management procedures that too often work against inter-school cooperation.

Equally important is a better understanding of the steps the University must take to increase external funding for research. The Vice Provost for Research will lead the effort to strengthen existing mechanisms for bringing together key school administrators and leading principal investigators to develop research enterprises, each drawing on the strengths of two or more schools. The Offices of Policy Planning, Federal Relations, and Research Administration will work with the deans to develop a strategy for better positioning research at Penn in the competition for federal research funds.

Undergraduate Education

Over the last decade there has been a significant strengthening of undergraduate education across the University—renewed attention to the undergraduate learning process, greater recognition of the importance of undergraduate life to the University as a whole, more direct investment in key undergraduate facilities like the Quad and College Houses, and greater focus on the academic importance of the freshman year. Key milestones in this process include

- A strengthening of the undergraduate curriculum, involving, among other things: reform of general requirements; increased faculty participation from across the University in small freshman seminars; major support in all four undergraduate schools for the Writing Across the University (WATU) program; promotion of undergraduate research opportunities throughout the University; and increased opportunities for cross-school study.

New faculty initiatives in College Houses that, over the past decade, have begun to fulfill the desire of both faculty and students for cross-disciplinary, cross-school, and other shared experiences and for an environment rich in intellectual excitement.

Major renovation of the Quad that, to date, has required the expenditure of \$34 million, and that has made possible the establishment of the First Year House Program and the creation of laboratories, seminar rooms, libraries, and attractive common spaces that support the activities of the Houses.

Over the next five years, undergraduate education in general and the curriculum in particular must be a major planning focus for the University. In that context, Penn will

- **Continue to enhance the freshman year** by building on the efforts first articulated in *Choosing Penn's Future*, which include: bringing faculty and students together to promote conversation and the exchange of ideas and increasing the number of freshman seminars and the proportion of senior scholars teaching those seminars;

- **Increase support for undergraduate advising**, placing emphasis on a greater reliance on faculty advisors as well as on the development of advising and support systems that are more active in their outreach than are the current efforts;

- **Establish an Undergraduate Initiatives Fund** that will provide incentives, principally through the schools to their departments, for enhanced teaching and instructional programs;

- **Experiment more broadly with providing research options** and capstone experiences for undergraduates;

- **Provide additional support for undergraduate financial aid**, chiefly derived from the success of the Campaign for Penn, that will sustain Penn's commitment to need-blind admissions and increase the competitiveness of the University's financial-aid offers;

- **Expand efforts to recruit and retain undergraduates from historically under-represented groups** by providing new fellowship funds, such as those offered through the new Mellon Minority Undergraduate Fellowship Program, and by fostering an atmosphere of pluralism on campus;

- **Encourage efforts in all four undergraduate schools to internationalize the curriculum** through the development of new courses with an international dimension as well as the integration of international perspectives into existing courses.

Even as Penn takes these steps to continue its substantial investments in undergraduate education, it must initiate a broad discussion of the purposes and directions of an undergraduate education. In the next century, the nation's leading institutions of undergraduate education will be those that, in this last decade of the 20th century, took careful stock of how a changing world of learning affects both what undergraduates need to know and how they might best acquire the requisite knowledge and understanding. That discussion must necessarily involve the very best minds at Penn, who must make clear that undergraduate education itself requires the same level of scholarly effort as does the University's commitment to research. To stimulate and sustain that critical discussion, the University will take two steps:

- **Establish a University-wide colloquium on undergraduate education** to explore the potential for enhanced teaching and learning experiences;

- **Establish an external visiting committee** of distinguished scholars and undergraduate teachers from across the country to work directly with the schools and their faculties to help ensure that Penn's undergraduate curricula take advantage of the University's unique strengths and serve as an exemplar for the strengthening of undergraduate education in the United States. This external visiting committee will be guided by a small task force comprising the deans of the schools with undergraduate programs and will report its findings and recommendations to both the Academic Planning and Budget Committee and the President's Advisory Group.

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Ph.D. Education

Penn's standing as a university of the first rank depends on its reputation as a center of graduate Ph.D. education and its commitment to train a new generation of scholar-teachers. Doctoral students are critically important in sustaining Penn's role both as a center of advanced scholarship and research and as a strong undergraduate institution. Excellent research and fine doctoral students attract outstanding faculty, who, in turn, attract the most creative students and strengthen the reputation and quality of instruction of the University.

The challenge of recruiting and educating the next generation of faculty involves more than a need to fill numerical shortages of men and women seeking the Ph.D. As a university that aspires to excellence in both teaching and research, Penn must create as an integral part of its Ph.D. programs an intellectual coherence that yields superior scholars and teachers. The key lies in making graduate education itself both more coherent and important. Renewed attention must be paid to the mentoring relationship between graduate students and professors. At the same time, graduate education must be seen as striking the right balance between teaching and research. As a university, we owe no less to the generations of students who will be taught by faculty who have earned their graduate degrees at Penn.

Currently, the University's external reputation as a graduate institution does not match Penn's standing as a center for important and innovative scholarship. Too many of Penn's efforts suffer from a lack of visibility both inside and outside the University. Too often, the national standing of Penn's very best graduate groups is diminished because other graduate programs within the University are not nationally competitive for outstanding graduate students. To improve the quality of its less competitive programs and, more importantly, to provide increased support, cohesion, and coordination to its stellar graduate groups, Penn will, over the next five years

- **Develop a University-wide expectation** that faculty should engage in mentoring relationships that cultivate teaching and research skills in future faculty;
- **Establish the Office of Vice Provost for Graduate Education** to guarantee consistent and comprehensive leadership for all graduate programs;
- **Develop clear rules and expectations** for graduate groups and for graduate students;
- **Develop a University system** of five-year internal and external reviews of graduate groups.

In building on the strengths of its graduate groups, Penn must make a concerted effort to attract outstanding graduate students—students who are not only distinguished intellectually, but also exhibit the hallmarks of leadership: maturity, judgment, commitment, and tolerance. To recruit and retain graduate students of the highest caliber, Penn will

- **Substantially increase the central pool** of funds that support graduate fellowships, with matching funds from schools.

Increased fellowship funding is necessary to building nationally competitive graduate programs. Such investments will fall short of that mark, however, if they are not matched by a new commitment on the part of each department and graduate group to invest more of its own energies and leadership in the development of coherent programs of graduate education. In addition to strengthening their academic and recruitment programs, graduate groups must take more direct responsibility for the co-curricular dimensions of graduate study. Working in parallel, the University must arrange the hours and vacation schedules of facilities such as libraries, recreational facilities, and the new campus center, taking into account the rhythms and schedules of graduate education. A first step in the process has already been taken by establishing the Vice Provost for University Life as an ex-officio member of the Council of Graduate Deans to ensure that he or she understands and can respond to the special University life concerns of doctoral students.

Penn's Ph.D. programs must also attract in increasing numbers promising applicants from historically under-represented groups—specifically women, African-Americans, and Hispanics—both to en-

rich graduate education at Penn and to help ensure the diversity of the professoriate of the future. To achieve this goal, the University will

- **Promote the establishment of a mentoring program** linking key Penn faculty and Ph.D. students from historically under-represented groups, as an integral part of the more general incorporation of faculty mentors.
- **Encourage each graduate group** to include in its five-year plan an explicit strategy for recruiting students from historically under-represented groups;
- **Work with the Minority Permanence Development Fund Oversight Committee** and the deans of each of the schools to provide full funding for the program for Enhancing Minority Permanence, which promotes graduate student recruitment and retention through first-year and pre- and post-doctoral fellowship support;
- **Allocate increased resources for travel and other expenses** involved in recruiting outstanding Ph.D. candidates from historically under-represented groups.

Professional Education

Penn is internationally recognized for its strength in professional education, with each of its professional schools contributing to the University's standing as a major research institution. To take greater advantage of these strengths, however, requires that Penn encourage new linkages among its professional schools, and between professional programs and graduate programs in the arts and sciences as well as the liberal arts components of the University's four undergraduate schools.

Some linkages require just modest investments. The creation of courses on subjects that span several disciplines—statistics or ethics, for example—demands relatively little effort and funding, yet it could yield ongoing interaction that is highly beneficial to all the schools and students involved. Other connections—for instance, dual degree programs—involve considerably more organization, but have important intellectual merit. To promote linkages among the professional schools and between the professional schools and the rest of the University, Penn will, over the next five years

- **Encourage dialogues among the professional schools**, and between the professional schools and graduate programs in the arts and sciences, to explore and develop curricular commonalities;
- **Experiment with the joint teaching** of subjects often common to professional curricula;
- **Explore potential connections** between the graduate professional and undergraduate schools that would reinforce the liberal arts dimension of professional study while providing undergraduates with purposeful introductions to the perspectives of graduate professional study and research.

While professional education can be enhanced by faculty who are themselves engaged in professional work, the link between the world of work and the world of learning demands a clear understanding of the roles assigned to adjunct faculty and the standards by which they are to be appointed. To ensure a reasonable balance between standing and associated faculty and academic support staff, the University will

- **Appoint a study group** to focus on the relationship between professional practice and instruction in professional programs. This group will examine the roles of clinician-educators and practice professors, including the appropriate use of part-time faculty drawn from the realm of professional practice.

Continuing education plays an important role in the education of professionals. It is crucial, however, to guarantee the consistent quality of continuing education courses, to monitor faculty participation in these courses, and to use continuing education programs to create synergies across schools. Toward achieving these goals, the University, working with the deans and faculties of the professional schools, will review University and school policies governing continuing professional education and will identify new opportunities for shared programs.

The Information Environment

The information resources of the University should be regarded as an intellectual commonwealth open to all members of the University community. To ensure the continued high quality of research and teaching at Penn, the University must make sustained investments in its capacity to supply knowledge and information that underlie the act of learning. The library is the traditional repository and symbol of this capacity at research universities; to maximize this capacity to supply information resources, however, the University must also invest in the technology necessary to generate, acquire, store, access, and deliver these vital commodities.

Penn must increase substantially its rate of investing in information resources, both traditional and machine-readable. The University also needs to extend, integrate, and speed the services supplied to users of information and research materials, and to develop working prototypes of the information resource centers that will be one of the hallmarks of great universities in the 21st century.

In order to attract and support faculty and student scholars of the first rank, the University must also substantially increase the funds currently available for acquiring journals, books, and other instructional resources, both in electronic and traditional formats, as appropriate to the needs of Penn's academic functions. Rapid access and delivery systems, which are becoming increasingly vital for both research and advanced graduate instruction, will also be required. Distributed local access to information—in laboratories, libraries, offices, and classrooms—must be established to serve the new and increasingly interdisciplinary information needs of the research community in the sciences and the social sciences. For the humanities, the challenge remains to maintain Penn's historically important collections, to provide ready access to resources not at the University, and to extend the reach of current collections as important new avenues of research are opened.

To achieve these goals and sustain the University's standing as an international institution of the first rank, Penn will

- **Make a fundamental, University-wide investment** in the Library's capacity to acquire and deliver traditional library materials, making certain that additions to the collections are closely integrated with the academic plans of the schools and research centers;
- **Extend the Library's capacity** both to acquire and provide access to needed machine-readable data files, bases, and sets. The Library should have principal responsibility for acquiring, cataloging, and negotiating appropriate computer homes for these resources and for providing subject expertise and an agreed-upon level of consulting to guide faculty and students in their use.

PennNet, the University's campus-wide computing network, is the principal means by which the University will provide access to electronic information across the campus. Computing at Penn is widely distributed, a reflection of the direction of the new technology for computing as well as the University's decentralized management system. Decentralization has both advantages and costs. By decentralizing computing policy and decisions about the allocation of resources, Penn fosters a creative atmosphere that locates information services close to users. Decentralization has meant, however, the formation of isolated islands of data, software, training material, documentation, and expertise. To begin to address the problems of decentralization, the University will

- **Create a committee structure and organization** with faculty and students from across the University, and with administrative participation, to guide policies and help set priorities concerning computing on campus.

In academic computing, schools bear most of the financial responsibility. Over the next five years, these funds will be augmented with central funds to support initiatives that

- **Increase research computing capacity by promoting resource sharing** among the schools, maintaining PennNet's compatibility with the academic Internet, and actively participating in consortia and other organizations that promote and operate state-of-the-art computing facilities;
- **Create greater access to scholarly information, instructional materials, and administrative services from desktop computers** across the University, from faculty and student residences, and from the library by establishing consistent, easy access through PennNet;

To promote the efficient management of resources across the University, Penn must make a parallel commitment to administrative and management computing systems that use the same network facilities developed for academic computing. Meeting this goal over the next five years will require both development of critical applications and acquisition of reliable processing platforms. Hardware and software platforms must be able to handle more complex applications as well as facilitate more distributed transaction processing and information access. Critical applications include financial information systems, student-focused information systems, personnel systems, and research administration.

Penn as an International University

In a world without walls, universities everywhere must strengthen their international connections both in research and in instruction. At Penn, this means both building upon and taking greater advantage of the substantial investments the University and its schools have already made in international programs. Penn needs to continue to enhance the international perspective within the undergraduate curriculum by actively supporting study-abroad programs, strengthening foreign language requirements, and emphasizing international issues within more majors and programs. The University must become more active in assisting individual faculty as well as departments and programs in establishing ties with institutions and their faculties abroad. A parallel commitment must be made to creating a welcoming and supportive environment for international students, supporting area-studies centers and institutes, and reaching out to other schools and institutions of higher education with innovative international programs.

To facilitate these efforts and enhance the coordination and visibility of Penn's current international strengths, the University will

- **Establish a Provost Council on International Programs** to underscore Penn's goal to make the international dimension an integral part of the University's signature by, for example: facilitating undergraduates' participation in well-designed and properly monitored programs abroad, and increasing support for the Office of International Programs to coordinate and publicize existing international programs and to expand its efforts to serve Penn's broad population of international students;
- **Increase support for the University Libraries' international holdings**, especially in vernacular languages;
- **Encourage undergraduate schools to strengthen their foreign language requirements** for specific applications and to use foreign language as an integral part of standard coursework;
- **Support the Penn Language Center**, established in 1989, which is responsible for designing and implementing new methods of language instruction and for extending Penn's capacity for teaching non-traditional languages;
- **Establish a telecommunications uplink and downlink capacity** at Penn to provide students with ready access to foreign language broadcasts and to allow the University to participate in international teleconferences;

- **Enhance and strengthen existing area studies programs and establish new initiatives** in East Asian and African studies;

- **Make Penn an integral part of an international network of major research universities** so that the University can promote scholarship that draws on international connections and encourage the interaction of Penn faculty with faculties and students abroad.

Quality of the Campus Environment

Making Penn a more inclusive and supportive community will require major commitments of time and energy. The University's drive for diversity grows naturally out of its commitment to free and open inquiry and in that sense represents Penn's highest ambitions. It means simply that reaching the University's scholarly and educational goals depends directly on Penn's ability to provide all students, faculty, and staff with a welcoming, safe community in which to learn and explore. More specifically, it means promoting a climate of inclusiveness and civility, in which members of historically underrepresented groups play an equal and recognized part in the intellectual and administrative leadership of the University.

These issues have now been addressed comprehensively in the *Report of the President's Committee on University Life*. The Committee's commentary as well as its specific recommendations deserve the same careful review and support given the initiatives presented as an integral part of this Academic Plan for the University. A related effort is the work of the Locust Walk Committee, which is charged with considering and recommending how best to make the University's central artery more reflective of the diversity that gives this University its special character. Taken together, the efforts of these two committees provide a critical context for understanding how to sustain the quality of University life that is necessary to support Penn's academic agenda.

Of equal importance are the continuing efforts by the University community to ensure the physical safety of the campus and the individual members of the Penn community. Over the last year, substantial augmentations have been made to the budgets of the University's security services, and a new organization has been established to ensure the effective utilization of those resources. The University is pledged to the close monitoring of the security of the campus and to make those investments necessary to sustain a safe and secure learning environment.

A welcoming campus must offer a central gathering place to serve as common ground for students, faculty, and staff from across the University. Among the major capital projects of recent years that have helped transform the Penn campus into one of this nation's most vibrant urban parks, none is more important than the landscaping of College Green. Blanche Levy Park has become an inviting focal point—a place where people can meet and gather, a place that is essentially Penn. To create a major indoor counterpart to Blanche Levy Park, Penn will build a new campus center that is expected to provide the same sense of cohesiveness and extend the center of the campus northward across the Walnut Street divide. The campus center will be designed to bring together and serve the entire Penn community: faculty, staff, graduate, professional, and undergraduate students alike. The goal is to begin the design and construction process within the 1990-91 academic year of

- **A campus center** that will draw its distinguishing characteristics from three components: a gateway that both welcomes the University community and provides intimate spaces for gathering; a bookstore befitting a major research university; and a Reading Library and Learning Resource Center that provides both study space and access to Penn's computing resources. The building will also provide space for performance and cultural activities, for

student organizations, and for student support, including Student Activities, Student Life, Penn Student Agencies, and the Women's Center.

3. Next Steps

The adoption of a new University Five-Year Plan is also an invitation to Penn's schools and resource centers to review, update, and, where appropriate, recast their own plans. As in the past, these plans will reflect the individual aspirations, challenges, and opportunities of each school and center. Increasingly, however, they must also address the central priorities identified in the University's Plan—research capacity, undergraduate, Ph.D., and professional education, the information environment, Penn as an international university, and the quality of the campus environment—in ways that help build connections across the University. The school and center planning process will follow the same procedures developed over the last decade, with each plan being shared with the Academic Planning and Budget Committee, the President's Advisory Group, and the larger Penn community through publication in *Almanac*.

In the early 1970s, Penn was a pioneer in the development of a decentralized management system that came to be known as Responsibility Center Budgeting. This system has served Penn well, allowing the University to recruit strong deans, to attract and reward entrepreneurial faculty, and to create an understanding across the University of the importance of generating sufficient income to fund its aspirations. Much of the current financial strength of the University is directly attributable to the incentives and fiscal discipline that Responsibility Center Budgeting helped create. Planning for the 1990s, however, may require the University to strike a new balance between the interests of individual schools and faculty, and the interests of the University as a whole. The Academic Planning and Budget Committee and the President's Advisory Group, working in concert, will begin the process of reviewing the University's planning and budget procedures.

The Office of Planning Analysis and Institutional Research has been asked to develop a series of timely reports for informing the campus of the progress being made toward implementing the initiatives adopted as part of this Five-Year Academic Plan. It must be understood, however, that the plan itself has not been carved in stone. Planning for a great university requires a special sort of balance. By their nature, universities are conserving institutions—resistant to change, skeptical of fads, often cynical about administrative and organizational enhancements. For several centuries now, the world's great universities have stood fast in their preservation of traditions and values that make the life of the mind a calling of civilized people everywhere.

Yet great universities are also places of incessant change. Their commitment to traditional values is more than matched by their constant search for innovation, for the new and the different. They are judged harshly, and rightfully so, whenever they close themselves off to new ideas or rest complacently on past laurels.

The challenge of good planning is to preserve the primacy of free and unfettered inquiry without either forcing change for change's sake or reinforcing that institutional inertia which can too easily lead to a future that is only an extension of the present. In this context, good planning is more a matter of guiding and shaping an enterprise than of designing and building an edifice. It requires a sense of vision and purposefulness that draws the institution together without limiting either individual initiative or self-determined exploration. Good plans communicate a sense of the possible and necessary without producing a blueprint immutable to change. The purpose of this Five-Year Academic Plan, then, is to establish a common agenda defining the investments and modifications the University intends to make and to which we are all committed.