Purdue University
Self-Study
West Lafayette Campus
November 1999

Prepared for the
North Central Association
of Colleges and Schools
Commission on
Institutions of Higher Education
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## APPENDIX: Basic Institutional Data Forms
CHAPTER ONE
ORGANIZATION AND CONDUCT OF THE SELF-STUDY

Purdue University has been continuously accredited by the North Central Association of Colleges and Schools since 1913. The last self-study of the West Lafayette campus was conducted during 1989 in preparation for a February 1990 site visit by a team of nine NCA consultant-evaluators. Following the review, the team recommended and the Commission on Institutions of Higher Education approved a ten-year extension of the West Lafayette campus’s accreditation. Now, a decade later, the campus has once again engaged in the introspective effort required to conduct a serious, searching, and comprehensive self-examination and assessment.

While the self-study was conducted and the self-study report prepared specifically to satisfy the requirement of the Commission that the report serve “as the first mechanism by which the Evaluation Team comes to know, understand, and evaluate the institution,” our 1999 self-study and its report have at least three other purposes: a) in the interest of achieving the goal of wide involvement and broadly-based participation, to have assembled and organized a large group of faculty members, staff, administrators and students to engage in a large-scale cooperative and self-informative study effort that enhances their understanding and appreciation of the structure, functioning and accomplishments of the massive, complex institution of which they are a part; b) to serve as a broadly informative guide to the University for a variety of Purdue’s constituencies, both internal and external; and c) in light of the announced retirement of Steven C. Beshear from Purdue’s presidency in June, 2000, to be available to his successor and his or her staff as a comprehensive, informative and direction-setting document at the start of their administrative tenure.

The core of the report consists of Chapters Four, Five, Six, Seven and Eight, each of which is devoted to providing “patterns of evidence” that demonstrate how the University satisfies the following five criteria proposed by the Commission:

1. The institution has clear and publicly stated purposes consistent with its mission and appropriate to an institution of higher education.

2. The institution has effectively organized the human, financial and physical resources necessary to accomplish its purpose.

3. The institution is accomplishing its educational and other purposes.

4. The institution can continue to accomplish its purposes and strengthen its educational purposes.

5. The institution demonstrates integrity in its practices and relationships.

While the order and the content of each of the five chapters correspond roughly to the five criteria, we did not slavishly control and limit the materials dealt with in each chapter to one and
only one criterion. As a result, evidence relevant to more than one criterion was presented in each of the chapters when naturalness and appropriateness of conceptual relationships so dictated.

Preceding these five key and central chapters are Chapters One, Two and Three of the report that deal, respectively, with the organization of the study and procedures followed, a general summation of the major internal and external factors that have influenced what has occurred at Purdue in the last ten years, and our response to the concerns noted by NCA ten years ago. Following the five core chapters are Chapter Nine, concerned with General Institutional Requirements, and Chapters Ten and Eleven, that summarize the report and formally request continuing accreditation.

The project was guided by a twelve-person Steering Committee, consisting of the two co-chairs of each of the five "Criterion" committees; a chairperson - the Assistant Executive Vice President for Academic Affairs - who led and coordinated the entire effort; and a Project Associate, who was responsible for liaison among the "Criterion" chairs and for some of the writing and much of the editing of the document. Each of the "Criterion" committees was composed of ten to twelve members, selected for their abilities, positions in the University and knowledge of the issues confronting the committees. Each committee chose a method of operation most appropriate to its task and to the background and skills of its members. Some committees divided their assignments into discrete parts and parcelled out to various members of the committee the total responsibility for each part: gathering data, organizing it and writing a portion of the committee's chapter. Other committees tended to meet more frequently, to organize and evaluate data in a more communal fashion and to assign to only one or two members of the committee the responsibility for actually writing the entire chapter. In all cases, however, the full committee reviewed and passed upon draft versions of their report.

Responsibility for gathering data and writing the six non-Criterion chapters fell to the Steering Committee chair and the Project Associate. As in the case of those who planned and wrote the five core chapters, the authors of these six other chapters were heavily dependent on the contributions of dozens upon dozens of faculty and staff members and students. In particular, the authors of the various chapters owe thanks to the Information/Data contacts, listed on page 1.7 of this chapter. In virtually all cases, those who were asked for information responded with alacrity and in a spirit of cooperativeness. Unfortunately, because so many were asked in so many different ways for so much information of such varied character, it is simply impossible to acknowledge all of their contributions. Suffice it to say that they know who they are and that this report could not have been completed without their contributions.

Once parts of chapters were completed, we regularly went to both the sources of information and other authorities in the campus community to check on the accuracy, validity and relevance of the materials that were gathered. With so many being involved in the conduct of the study and the creation of the report we can truly say that it was an all-campus effort. Indeed, it is possible that some of our informants were really not - and may still not be - fully aware of all the uses to which their contributed data and analyses have been put.
We hope that going through this exercise has helped and will continue to help our academic community understand and appreciate those things we, as an institution, are doing well and those which challenge us to do better. Continued reflection and dialogue on these issues cannot help but make Purdue a better and more effective university.
NCA Accreditation Committees

Steering Committee

Carolyn T. Jones, Assistant Executive Vice President for Academic Affairs, Chair
Leon E. Trachtman, Professor Emeritus of Communication, Project Associate
Janet C. Meade, Secretary, Office of the Executive Vice President for Academic Affairs, Project Secretary

James S. Almond, Vice President for Business Services and Assistant Treasurer
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Alan H. Rebar, Dean, School of Veterinary Medicine and Professor of Veterinary Clinical Pathology
George E. Van Scyoc, Associate Executive Vice President for Academic Affairs and Professor of Agronomy
H. Lee Weihe, Professor of Biochemistry and Chair, University Senate Faculty Affairs Committee

Study Committees

NCA Criterion One: The institution has clear and publicly stated purposes consistent with its mission and appropriate to an institution of higher education.

Mary Ellen Bock, Professor and Head, Department of Statistics – co-chair
H. Lee Weihe, Professor of Biochemistry and Chair, University Senate Faculty Affairs Committee – co-chair

Otto C. Doering III, Professor of Agricultural Economics
James B. Dworkin, Associate Dean, School of Management and Professor of Management
Connie L. Lapinskas, Associate Director, Office of Budget and Fiscal Planning
Brian S. Morris, Undergraduate Student, Electrical and Computer Engineering
Stuart L. Offenbach, Professor of Developmental Psychology
Margaret M. Rowe, Dean, School of Liberal Arts and Professor of English
Candiss B. Vibbert, Assistant Dean, Graduate School
NCA Criterion Two: The institution has effectively organized the human, financial, and physical resources necessary to accomplish its purposes.

James S. Almond, Vice President for Business Services and Assistant Treasurer – co-chair
Don K. Gentry, Dean, School of Technology; Professor of Industrial Technology; and
Special Assistant to the President for Economic Development – co-chair

James K. David, Director of Budget and Fiscal Planning
Charlene M. Hayes, Director of Personnel Services
Emily R. Mobley, Dean of Libraries and Esther Ellis Norton Distinguished Professor in
Library Science
Keith S. Murray, Director of Space Management/Academic Scheduling
Thomas B. Robinson, Vice President for Student Services
Thomas R. Schmenk, Director of Facilities Planning and Construction
John M. Steele, Director of Computing Center

NCA Criterion Three: The institution is accomplishing its educational and other purposes.

G. Marc Loudon, Associate Dean, Schools of Pharmacy, Nursing, and Health Sciences
and Gustave E. Cwalina Distinguished Professor of Medicinal Chemistry – co-chair
George E. Van Scoyoc, Associate Executive Vice President for Academic Affairs and Professor
of Agronomy – co-chair

Diane Burnett, Outreach Coordinator, Department of Chemistry
Stacy E. Demerly, Undergraduate Student, Agricultural Economics
Deborah R. Ollon, Professor of Curriculum and Instruction
Peter E. Dunn, Assistant Vice President for Research Support and Professor of Entomology
April C. Paxton, Associate Dean for Extension, Consumer and Family Sciences and
Professor of Foods and Nutrition
Marko A. Mychaskiw, Graduate Student, Pharmacy
Cynthia Stohl, Head, Department of Communication and Margaret Church Distinguished
Professor of Communication
Michael S. Stohl, Dean of International Programs and Professor of Political Science
Philip H. Swain, Assistant Executive Vice President for Academic Affairs, Director of Office
of Instructional Excellence and Lifelong Learning and Professor of Electrical and
Computer Engineering
Kasey L. Walker, Undergraduate Student, Food Science
Jeff R. Wright, Assistant Dean, Schools of Engineering and Professor of Civil Engineering
NCA Criterion Four: The institution can continue to accomplish its purposes and strengthen its educational effectiveness.

Wayne W. Kjonaas, Vice President for Physical Facilities – co-chair
Alan H. Rebar, Dean, School of Veterinary Medicine and Professor of Veterinary Clinical Pathology – co-chair

David J. Asai, Professor of Biological Sciences
John J. Contreni, Professor of History
James K. David, Director of Budget and Fiscal Planning
Dennis R. DePew, Associate Dean, Graduate School; Professor of Industrial Technology; and Excellence 21 Coordinator
LaNelle E. Gelles, Professor of Nursing
G. Logan Jordan, Assistant Dean of Administrative Services, School of Management
Linda J. Mason, Associate Professor of Entomology and Vice Chair, University Senate
Mark A. Pagano, Assistant Dean, School of Technology and Professor of Mechanical Engineering Technology
Dennis A. Saviano, Dean, School of Consumer and Family Sciences and Professor of Food and Nutrition

NCA Criterion Five: The institution demonstrates integrity in its practices and relationships.

Christiane E. Keck, Professor and Head, Department of Foreign Languages and Literatures – co-chair
Douglas R. Powell, Professor and Head, Department of Child Development and Family Studies – co-chair

Stephen J. Akers, Executive Associate Dean of Students
Martha O. Chiscon, Associate Dean, School of Science and Professor of Biological Sciences
Laura A. Downey, Director of Special Projects and Executive Assistant to the Vice President for Development
Peter E. Dunn, Assistant Vice President for Research Support and Professor of Entomology
Peggy L. Fish, Director of Audits
Becky H. Herrnstein, Director, Women’s Resource Office
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CHAPTER TWO

THE PAST TEN YEARS: A SUMMARY REVIEW

It is not difficult to identify the two ten-year periods in this century that witnessed the most dramatic changes in the character and the life of the American university. One is the period 1945-55, when the GI Bill of Rights drastically increased the number and altered the socioeconomic composition of the nation’s college student population. The other is the decade 1965-75, when the pressures of student activism in the context of the war in Vietnam and the civil rights movement triggered the introduction of major changes in university governance and curricula.

But now it is becoming evident that a third decade has witnessed changes in the life of the university that, perhaps not as obviously revolutionary or socially disruptive as those of the first two periods, will almost certainly prove to be equally radical and far-reaching in their effects. This decade is the one just completed, that just happens to coincide with the period between Purdue University’s last and current accreditation reviews. This is the decade that has seen the almost total computerization of both academic and non-academic operations of the American university. As we consider the enormously far-reaching effects of this move to computerization on the university’s ways of teaching and learning, its techniques of scholarship and research, its methods of management and administration, and on the general life-style of its students and faculty, we are forced to the inescapable conclusion that almost all of the truly significant changes in the life and operations of the American university are directly or indirectly related to the universal adoption and use of the computer. Purdue University, no exception to this phenomenon, is experiencing computer-induced changes comparable to and as far-reaching as those in evidence on all the major campuses of the nation and, indeed, the world.

In addition to computerization of the campus, other major changes have, of course, taken place at Purdue since its last accreditation review. Some of these changes have been internally generated while others represent the University’s response to external influences. One innovation, a University-wide commitment to the goal of continuous quality improvement, is largely the consequence of a widespread and general desire by employees in all sectors of the University simply to do their jobs better, but it also represents the realization across the campus that increased efficiency of all operations is necessary to compensate for the general flattening of the level of state support of the University that has taken place during the past decade. Another highly significant change has been the internationalization of the Purdue campus, encompassing a variety of study-abroad programs and an increase in the number of international students.

Since an exhaustive accounting of the role and the effects of the computer revolution at Purdue is both out of place in a general survey chapter and out of the question on grounds of space alone, we shall limit our treatment at this point to citing a number of both the most dramatic and most representative cases. Following this review, and in order to provide an introductory overview of the University then and now, we will go on to discuss a number of the other major changes, cited above, that have taken place at Purdue during the past ten years.
I. THE COMPUTERIZATION OF THE CAMPUS

Ten years ago, almost all instructional and research computing was done on centrally operated, time-shared computing systems. There were almost no personal computer-based instructional computing systems on campus. Today, Purdue supports well over 200 instructional computer labs with more than 4,000 workstations available for student use. All faculty members who want computers in their offices have them. In addition, computers also have been placed in the workstations of all administrative, professional, clerical, and service staff members who need them.

In just ten years, the whole phenomenon of high-speed data network facilities has emerged, and now permeates our environment. The Internet has grown from a system available for only a small number of technically-oriented users to one that daily makes huge amounts of information available to millions of users worldwide. Research computing facilities at the University have shifted from large, centrally operated mainframe computers to high performance workstations widely distributed across the campus and housed and operated by individual faculty members and research groups. Most individual faculty members now have on their desks more raw computing capacity than the total that was available campus-wide in 1988.

A. Academic Support Operations

Computing technology has transformed the way most business staff members do their jobs. The availability of computers, software, data warehouses, networks and the Internet has greatly improved our ability to model multiple scenarios and perform ever-more complicated, sophisticated and far-reaching financial and statistical analyses.

It has become almost routine for faculty members to enjoy total electronic service from Sponsored Program Development. Electronically distributed sponsored program opportunities are universally made available to faculty and electronic transmission of research proposals to sponsoring agencies has become standard.

Computerization is not, however, without its problems. The proliferation of the computer as an instructional tool has greatly complicated the problem of assigning instructional space on campus. Many classrooms must be equipped for instructional computing, and faculty demand for special hardware and software has increased greatly the pressure on the Office of Space Management and Academic Scheduling. This faculty demand adds a major new factor to a problem that already involves the physical location of classrooms on campus and the distance students must travel between classes, the size and configuration of classrooms and the design of classrooms to meet the requirements of the Americans with Disabilities Act.
B. Computers in Instruction and Research

The academic orientation of certain schools has mandated almost total commitment to instructional and research computing. The School of Management and the Krannert Graduate School of Management, for example, widely known as technology-driven institutions that prepare their graduates for careers in globally-oriented, technology-based industries, find that they must exploit the most recent cutting-edge developments in hardware and software across the full range of their instructional and research programs in order to meet the needs of their students.

In the School of Science, as in other schools of the University, the explosive adoption of the computer as well as other technologies in the classroom and the laboratory has led to a variety of curricular innovations involving change and expansion in content as well as modification of delivery systems, and has opened up numerous new areas for research that were inaccessible in pre-computer days. Here, as in many other applications, the computer does not simply permit us to do what we were doing before with increased speed and efficiency. Rather, it frequently serves as a driving force to open up new possibilities of teaching, learning, scholarship and research.

C. Distance Learning

In another application of the computer, distance learning, using such asynchronous approaches as delivery via the Internet and the World Wide Web, along with videotape and CD-ROM, has vastly increased the audience for those University instructional offerings designed primarily to address the continuing education needs of professionals in the workplace. Another application of distance learning in the past ten years has seen the technological level of the Office of Instructional Excellence and Lifelong Learning increase from ownership of two personal computers to installation of a workstation on every desk, construction of a large local area network, training a completely new data systems staff, developing the capability of digitizing a variety of visual and audio materials, and producing and duplicating CD-ROMs.

D. Purdue’s Libraries

Ten years ago, Purdue’s library system had 35 to 45 computer terminals. Today, the count stands at 425 and is increasing every day. In less than ten years, the libraries have gone through two generations of integrated library systems. In addition, the quantity of library material in electronic format is escalating rapidly. From an initial concern chiefly with secondary literature and bibliographic resources, the great increase currently is in primary materials—the journal literature itself. It is very clear that, as reported in the February 1, 1998 document entitled Planning for Academic Information Access, Purdue is in the forefront of institutions that have recognized the impossibility of meeting faculty and student information needs largely with physically acquired books and journals and have therefore employed new electronic technology maximally to assure cost-effective open access to academic information for its faculty and students.
E. Computerization of Student Services

In the past few years, the Office of Admissions has introduced an integrated application system with 48-hour turnaround. Computerization of admissions procedures now permits students who send in a complete application to receive, within a two to three day period, an offer of admission, a housing application and a preliminary financial aid award letter. In addition, a computerized student contact system enables the Admissions Office to capture and organize recruitment data in such a way as to efficiently recruit a qualified and diversified student body with increased probability of both enrolling and graduating.

The essentially total computerization of the Division of Financial Aid in the past ten years, including two major software system conversions, has permitted a stable number of staff members to cope with burgeoning growth in student demand for financial aid, a doubling in the total amount of financial aid profiled, and the increasingly complex details of mixed packages of grants, loans and scholarships.

The development during the past decade of the Student Service Information Online system (SSINFO), with individual Personal Access Codes, provides total Internet access for students to a variety of information services: transcript requests, address changes, examination schedules, financial aid information, class schedules and grades. This development has greatly modified and lent great efficiency to all of the services provided by the Office of the Registrar.

As part of the response of the Division of Housing and Food Services to advances in technology, all University housing units are now equipped with computer labs and network computer services in addition to voice mail in every student room, a closed circuit television antenna system and an Access ID system controlling entry to outside doors and dining rooms and for use in vending machines, laundry rooms and cash food outlets. In addition, administrative operations have been computerized to enhance processing of student room applications and provision of conference housing, food services, facilities and maintenance. Staff have access to a full range of networked desktop computers, printers and fax machines, along with appropriate instructional services.

Alumni Relations has likewise been profoundly affected by technological innovations. The introduction of electronic record-keeping, e-mail and the Internet has almost totally replaced hard copy, postal service and telephone exchange with alumni. One consequence of these changes has been the shifting of the focus of alumni attitudes and loyalty from the University as a whole to smaller and more intimately known units, like the academic schools and specific housing units.

At the same time that the University and its varied populations benefit from the speed and scope of information processing conferred by the computer, they are faced with a variety of challenges precipitated by the almost universal adoption of desktop computing.
electronic networking and other information technologies. The University community will need to guard against the inappropriate use of information and communication technologies to breach security and confidentiality of information, to violate copyright laws, to encourage student plagiarism, and to be the vehicle for pornography and for sexual and racial harassment.

II. CHANGES IN AVAILABILITY OF RESOURCES

In common with the experience of most major institutions during the past decade, Purdue has seen its needs increase at a faster rate than its resources. Inevitably, some units, more than others, have had their ability to contribute to fulfilling the University’s mission compromised.

A. Academic Schools

All academic schools have, to some degree, suffered from the gap between needs and resources and from more highly competitive conditions in attracting a compensating volume of outside research support. Inevitably, one result of these difficulties has been, in some cases, to delay employment of new faculty and to put off needed program expansion. This, in turn, has exacerbated current pressures on the schools in dealing with increased undergraduate enrollment, especially in such explosively expanding areas as computer science and computer technology. Yet in spite of this hardship, and with the support and encouragement of the central administration, all the schools of the University, as will be seen in subsequent sections of this review, have made important research, instructional and administrative advances and have designed and implemented a great variety of plans to improve the quality of instruction and research. These advances have been achieved in good part because of the willingness of the central administration to act boldly in recognizing areas of greatest need and greatest enrollment growth, to set priorities and to reallocate resources so as to maximize their effectiveness in meeting the goals of the University.

B. Libraries

Inflationary increases in the costs of operation have probably hit the Libraries harder than any other unit of the University in the past ten years. Prices of both serials and monographs — but especially serials — have increased at a rate far greater than that of inflation. As a result, as indicated in Section 1.D above (p. 23), the University has embarked on a planned program of aggressively pursuing expanded access to information by exploiting as fully as possible existing and emerging electronic technology. This will help compensate for two major reductions in traditional serials purchasing within the past decade that were necessitated by rapidly escalating prices. This is despite the fact that expenditures for serials today are more than double those of ten years ago. To meet the needs of the Libraries’ faculty and student users, the administration had allocated to the Libraries a greater than proportional share of available resources.
While it is always difficult to predict the long-term effects of introducing a truly novel system of information access, it now appears that research, scholarly and instructional efforts on our campuses will be significantly enhanced by the greatly expanded and highly cost-effective electronic access to academic information sources now becoming available. The context and the details of this novel program are contained in the document entitled PLAN 2004: A Framework for Action, 1999-2004, presented by Dean Emily Mobley on May 20, 1999. This document makes it clear that Purdue is now a leader among American academic institutions in its plans to increase the accessibility of information to its faculty and students by the fullest possible use of electronic tools.

C. Cooperative Extension Service

As the land-grant institution of the State of Indiana, Purdue has responsibility for maintaining a Cooperative Extension Service (CES) to reach out and to serve the varied needs of the people of the state. Unfortunately, significantly smaller than inflationary increases in its budget have caused CES to reduce its faculty and professional staff by almost 15% over the past ten years. While high priority programming continues and permits CES to carry out its assigned and statutory functions, numerous valuable and worthwhile extension programs have suffered, and service to its clients has necessarily been curtailed. To permit CES to regain this lost ground, the state has made available $2.8 million for the coming biennium. In addition, use of the Internet as a medium for extension has been inaugurated and is growing rapidly. This development appears to offer exciting and promising opportunities to compensate for the reduction in financial resources available to the Cooperative Extension Service.

D. Interdisciplinary Studies

Interdisciplinary research, exciting and potentially revolutionary in impact, may entail both greater opportunities and greater risks than does more conventional disciplinary research. Regardless, the complexity of many contemporary research problems and the consequent requirements for ever-more sophisticated research tools and techniques mandate interdisciplinary investigative approaches. But within the past decade, funding from federal sources has lagged behind the rate of proliferation of programs of interdisciplinary research characterized by both higher costs and higher risks. Fortunately, this decline has been compensated for at Purdue by increases in corporate sponsorship of interdisciplinary research programs. While this is a highly desirable development, it means that for some programs there has taken place a subtle shift in the measure of success, from increasing basic knowledge to such shorter term payoffs as immediate and practical problems solved and money saved. This shift inevitably affects and colors the character of some research efforts.
E. The Graduate School

Reallocating resources inevitably helps some units of the University and hurts others. Therefore, despite financial hardship suffered in some areas of its operations, the Graduate School has been successful in winning an increase in the number of graduate fellowships supported by the Purdue Research Foundation and in keeping graduate research and teaching assistantships competitive with those of comparable institutions. Net compensation of Purdue's graduate assistants is currently third among Big Ten institutions, and a cost-shared health insurance plan has now been made available for half-time assistants, a most important step forward in providing graduate students with enhanced financial security. This step also had the effect of making Purdue's offers more attractive to applicants for our Graduate School.

F. University Development

The most significant private fund-raising at Purdue in the last ten years was the Vision 21 campaign that raised over $332 million by December 31, 1994, more than 33% above its initial goal. The University's total endowment, which now exceeds $1.3 billion and places Purdue among the top eight public institutions in the nation, has become an important source of revenue for scholarships, faculty support, research, new program initiatives and public service. The culture of giving that has developed among Purdue alumni, friends and organizations has raised expectations and broadened the annual revenue stream until it has become an important part of the University's annual financial planning. At the same time, this culture of giving has continued to provide sufficient funding for Intercollegiate Athletics, a highly visible part of University operations, to meet increased Title IX and other obligations and still retain its self-supporting status. Indeed, by paying tuition for scholar-athletes (a practice very unusual among institutions of Purdue's character), Intercollegiate Athletics contributes revenue to help pay for activities supported by Purdue's general fund.

III. QUALITY IMPROVEMENT IN BOTH ACADEMIC AND NON-ACADEMIC OPERATIONS

During the past decade, Purdue University took the important policy step of adopting and introducing the techniques of Continuous Quality Improvement (CQI) in every sector of the institution. Motivated by the leadership of a CQI coordinator housed in the Office of the Executive Vice President for Academic Affairs, the faculty and staff of the University explored and adopted a great variety of quality improvement plans and procedures. Under the rubric of Excellence 21, employees in every sector of the University were urged to examine the goals, structure and methods of their work; identify areas in which improvements could be made; and introduce conceptual and procedural innovations calculated to increase the efficiency and effectiveness and enlarge the scope of their efforts. The consequences of the Excellence 21 quality improvement program in every corner of the campus are chronicled throughout this self-study report. They encompass a host of
improvements in such areas as business services, physical plant maintenance, management information services and other operations supportive of the institution's central instructional, research and outreach goals.

The following mention of the titles of a few of the scores on scores of Excellence 21 innovations should suffice to communicate the extraordinarily wide range of University services that were materially improved by this broadly based, quality improvement effort over the past several years. Programs of improvement ranged from Assessment of Student Learning in the Department of Computer Science to the Implementing of Strategies for the Recruitment and Retention of Minority Students in the School of Pharmacy, Nursing and Health Sciences; from An Analysis of Shelving and Circulation Methods in the Humanities, Social Science and Education Library to the Development of Resources to provide Child Care, Temporary Sick-Child Care and Elder Care Services by the Office of the Vice President for Business Services; from Development of Goals and Strategies to Enhance International Programs in the School of Consumer and Family Sciences to Creation of a Comprehensive Strategy for Retaining Women Students in Engineering; from a Fundamental Revision of the Veterinary Medicine Curriculum to Development of a Strategic Plan to Communicate Environmental Health and Safety Issues by the Office of the Vice President for Physical Facilities.

IV. PHYSICAL FACILITIES

In addition to the renovation and expansion of Schleman Hall for Student Services, the past ten years have seen the construction and remodeling of a number of other facilities, planned both to enhance academic activities and to enrich the quality of life on campus. Among the more noteworthy of these additional facilities are:

- Major landscaping innovations: the Purdue Mall development (1988), Founders Park (1992), Academy Park (1995) and the Bell Tower (1994) have all contributed greatly to enhancement of the tone of the entire campus. They provide a warm and welcoming environment that prompts and stimulates opportunities for academic, leisure and social activities for students, faculty and staff, and visitors.

- The Class of 1950 Lecture Hall (1989) is a state-of-the-art facility for large lecture classes, offering every technological aid to enhance the efficiency of instruction.

- The Liberal Arts and Education Building (1993) houses the School of Education, the dean's complex of the School of Liberal Arts and the Departments of Political Science, Communication, and Philosophy. It also provides office, meeting and classroom facilities that serve, not only its occupants, but the entire campus. In addition, the space relief afforded by this building has, in a domino effect, provided additional office, instructional and laboratory space for the Departments of English, Audiology and Speech Sciences and Foreign Languages and Literatures.
• The Lynn Hall addition (1993) offers additional and dramatically improved space for the conduct of research and instruction in Veterinary Medicine.

• The Food Sciences Building (1998) provides instructional and research space for a major department that has grown explosively from what was an interdisciplinary research effort only a few years ago.

• Additional research, teaching and service facilities: the Horticulture Greenhouse renovation, Animal Holding Facilities, the Animal Disease Diagnostic Laboratory, and the addition to Stanley Coulter Hall, that serves the Department of Foreign Languages and Literatures, are among the more noteworthy.

V. HUMAN RESOURCE SERVICES

• In its effort to improve total organizational effectiveness, the University used Zenger-Miller training techniques to emphasize the importance of employee development, leadership and teamwork in improving productivity, performance and problem solving. The entire spectrum of University operations was surveyed and studied in an effort to apply the principles of Total Quality Management wherever appropriate.

• Other significant improvements in the human resource area include the creation of an Office of Human Relations and the establishment of the position of Vice President for Human Relations. The purpose of these actions was to provide leadership in defining, developing and implementing policies and programs to enhance the quality of life for students, staff and faculty of the University, in part by guiding and assisting all its campuses to achieve an inclusive community that recognizes and values the unique contributions of all its diverse members.

• Another important step taken was reorganization of the Department of Personnel Services to provide departments with more personalized service and to facilitate faster and more efficient decision-making. Previously organized by such functional areas as employment, compensation and benefits, and employee relations, the human resource organization is now divided into seven human resource service teams and four central core teams: Compensation and Benefits, Organization and Career Development, Human Resource Operations and Human Resource Planning and Policy. As it is restructured, the organization is designed to provide the University’s academic and business leaders with resources to assist them in strategic planning, proactive human-resource management and problem-solving, in addition to the routine services required day-to-day.

• Purdue has also created a variety of mechanisms designed to foster and increase employee participation in decision-making. The University Senate, the Administrative and Professional Staff Advisory Committee and the Clerical and Service Staff Advisory Committee all serve as vehicles for initiating change and providing input and feedback to the administrative and executive leaders of the University. Although all three of these
groups were established more than ten years ago, the past decade has seen an increase in the effectiveness with which they carry out their duties and responsibilities. Working in an atmosphere of improved mutual trust, representatives of these units serve on task forces and study committees and in focus groups that assist with policy development and implementation on such critically important issues as redesign of the University’s medical benefits plan.

- An additional indicator of progress in the area of human resource development is the Worklife Program, created to assist employees in addressing issues they face in trying to balance the challenges of maintaining a home and their health while dealing with the challenge of performing effectively at work. The Wellness Program and the Employee Assistance Program encourage wise and effective use of medical and health services and try to provide help and counseling in developing strategies for managing stress, time and multiple priorities.

VI. GLOBALIZATION

- Following a 1989 directive from the President to the Vice President for Research and the Director of the Office of International Education to develop a University-wide plan for internationalization, committees worked for two years to develop such a plan. In 1992, the plan was presented to the President and the Executive Vice-President for Academic Affairs, who in turn presented it to the Board of Trustees. The plan was approved, and in accordance with its recommendations the Office of International Programs was created by combining the Office of International Student Services and Programs of Study-Abroad with International Education and Research. At the same time, the Office’s first dean was appointed. The influence of the newly-created office is indicated by the increase in the international student population at Purdue from 2,000 to 13,726 in six years, with two-thirds of that increase in the undergraduate student body. International students now account for 5% of the undergraduate student body as compared with 2% six years ago. Programs for Study-Abroad have increased from five, with 30 students, to 127 (primarily exchange programs) with 301 students. In 1998, the Undergraduate Global Studies Program was created to offer undergraduates in all majors the opportunity of earning distinction for their academic achievements.

- Education in the School of Management has been greatly affected by the globalization of business. Ten percent of undergraduates and one-third of master’s degree candidates in management are now from other nations. Professional societies in this area have become totally global in make-up, and the business school accrediting agency now accredits international as well as domestic institutions. In late summer 1999, the Krannert Graduate School of Management entered into an agreement with a German public/private foundation to create the German International School of Management and Administration to offer a master’s degree in industrial administration. These changes have profoundly affected the curriculum as well as recruiting of students and faculty, placement of students, cost structures and revenue base of the school. Comparable moves toward the
internationalization of Purdue have taken place in every school and virtually every department of the University.

* * *

This discussion of the most significant changes at Purdue since its last North Central Association accreditation review is neither exhaustive in issues covered nor detailed in description and analysis. Rather, it is meant as an overview of the virtual transformation the University has undergone during these ten years, and as support for our contention that, except for the decade following the close of World War II and the one during which the war in Vietnam and the civil rights movement so profoundly affected the life of the University, the decade just concluded has witnessed some of the most dramatic changes in the life and the work of the American university of any decade in this century.
CHAPTER THREE

RESPONSE TO THE 1989-90 NCA EVALUATION TEAM REPORT

At the conclusion of its 1989-90 review of the West Lafayette campus, the NCA evaluation team noted the following areas of strength:

1. The University has a faculty and staff of high quality who are dedicated to the welfare of the University.

2. The quality and diversity of the students who choose to attend the University is notable.

3. The Board of Trustees is exceptionally supportive of the institution, understanding of its mission, and concerned for its welfare.

4. The University has strong and effective administrative leadership at all levels.

5. The University is widely recognized for the strength and quality of a significant number of its academic and research programs.

6. The University has a Student Services staff that attempts to be responsive to student needs.

7. The University has a well maintained physical plant with a carefully delineated plan for the development, repair and rehabilitation of that plant.

8. The University has a sound equipment base for its teaching and research programs.

9. The support provided by the Purdue Research Foundation and the development of University/industry relations enhances the University’s ability to carry out its missions.

10. The University is to be commended for the quality of its minority recruitment programs.

The 1989-90 NCA evaluation team also expressed eight concerns, all of which subsequently have been seriously considered and addressed by the University. With the possible exception of the realm of relations with the Indiana Commission for Higher Education, the University has made significant progress over the past decade in dealing with these areas of concern. Among our accomplishments are the following:

1. "The appropriate role of the faculty in the governance of the institution needs to be clarified."

Ten years ago, a significant portion of the West Lafayette faculty supported a recommendation to remove the eight presidentially appointed administrative members of
the University Senate. Declining to accept this recommendation, the Trustees
unanimously adopted a resolution asking the administration to work closely with the
Senate in drafting a new governance proposal. An ad hoc committee comprised of four
faculty members plus an alternate recommended by the Senate and three administrators
was appointed for this purpose by the President. When the NCA evaluation team
came to its site visit in February 1990, the Senate had yet to review the committee’s
recommendations.

Based on the committee report, the Senate adopted the following by-law changes in April
1990:

- The number of Senators was increased from 90 to 100.
- The number of administrators on the Senate was decreased from ten to three. The
  latter three—the President, Executive Vice President for Academic Affairs, and
  Executive Vice President and Treasurer—became Senators by virtue of their
  office rather than by presidential appointment.
- The Senate would elect six to eleven members of the administrative staff to serve
  as advisors. These advisors would have speaking but no voting privileges on the
  Senate floor. The advisors could also serve as members of Senate committees. In
  this capacity, they would have both speaking and voting privileges.
- The number of students on the Senate was increased from one to two—one
  undergraduate and one graduate. Both were accorded speaking and voting
  privileges.
- Although the by-laws continue to designate the President of the University as the
  presiding officer of the Senate, the President has delegated this responsibility to
  the faculty chairperson of the Senate.
- All faculty members on the Senate’s Nominating, Student Affairs, Faculty
  Affairs, Educational Policy, and University Resources Policy committees would
  be elected by the Senate. Previously, two of the faculty members on each of these
  committees were appointed by the President.
- The roles and responsibilities of each of these committees were clarified.

Not only have these changes been implemented, they have accumulated a nine-year
history of working very well. The legislative power of the faculty has increased
markedly, for faculty now have both a greater number and higher percentage of votes in
the Senate than they did prior to 1990. Communication between the Senate and the
administration has improved dramatically. Through working collaboratively, they have
been able to resolve issues before they become problems. Together, they also have
developed and implemented innumerable new initiatives that have benefited the entire
University community. Many of these are described in the ensuing chapters of our self-study.

2. "There is a growing need for participation in decision making by faculty, staff and students: and for communicating the rationale for administration decisions, i.e., a need for greater collegiality in the university community."

One of the University’s on-going goals is "to continue democratization of University governance by further empowerment of faculty, staff, and students." Much of the response provided to the team’s first concern demonstrates some of the increased participation in decision making that has occurred across the campus. Other examples include the following:

- A myriad of special task forces and committees comprised of faculty, staff, and, where appropriate, students have been constituted during the 90’s and charged with recommending new policies, practices and strategic plans. Areas covered range from non-mandatory retirement to academic computing; from campus safety to the evaluation of teaching. Many, many more examples of the work of these special committees and task forces are incorporated throughout the remainder of our self-study report.

- The chair and the vice-chair of the Senate along with the chair of the University Senate Resources Policy Committee are invited to participate in the academic budget planning meetings each year with the President, Executive Vice President for Academic Affairs, and the school deans.

- The administration now consults with the University Resources Policy Committee (URPC) on all budgetary issues. The Executive Vice President for Academic Affairs and the Executive Vice President and Treasurer both are members of this committee, and they make monthly joint reports to the URPC on all budgetary priorities, plans and processes. URPC is encouraged to share these reports with the entire Senate. Minutes of all Senate meetings are sent to each member of the faculty.

- At least one faculty member participates on the team of speakers that presents the University’s biennial request for funding to the Indiana legislature.

- The Executive Vice President and Treasurer and the Director of Budget and Fiscal Planning meet with the leadership of Purdue Student Government annually to discuss the University’s legislative request and budget proposals.

- Academic department heads are directed to engage their faculties in planning departmental budget priorities and strategies. They also are strongly encouraged to talk at least annually with each departmental employee about his/her performance and salary.
• As part of each school’s five year review, faculty now participate in the review of the leadership of their schools and departments as well as the review of their school’s academic programs and accomplishments.

• The Executive Vice President for Academic Affairs routinely consults with the University Senate Faculty Affairs Committee for counsel and advice prior to making administrative decisions that impact the faculty.

• The President regularly seeks the counsel of the University Senate Advisory Committee concerning decisions he needs to make.

• Inside Purdue, a twice monthly newspaper sent to all University faculty and staff, and Perspective, a quarterly publication mailed to employees, alumni, families of students, and friends of the University, chronicle happenings across the campus. Widely distributed faculty, staff, and student handbooks contain summaries, if not the text, of most University policies. Information garnered from University news releases appears daily in the local as well as the campus print and broadcast media. Additional information can easily be accessed electronically via Web pages maintained by the University, the University Senate, and Purdue Student Government.

Great strides have been made since 1989-90 in involving many more faculty and staff in virtually all areas of decision-making. In addition, as topics relating to students are considered, advice from undergraduate, graduate and professional students has been sought. Without question, University decisions have benefited from the broadened input. Programs have profited from a sense of faculty, staff, and student ownership in them, and a healthy sense of collegiality has emerged. While there is more to be done in terms of involving the University community in institutional decision making, remarkable progress has been made.

Mach to our regret, we have been less successful in helping faculty, staff, and students keep abreast of these new policies, programs, and opportunities. Notwithstanding all of the forms of communication noted above plus frequent letters and memoranda; e-mail communiqués; and presentations to faculty, staff, and student groups, the University community continues to be less informed than is desirable about many important developments. There seems to be a “just-in-time” mode prevalent across the campus which results in individuals seeking information only when it is needed. Discussions with colleagues at other large research universities have helped us realize that this condition is not unique to Purdue, for it seems to be the norm elsewhere as well. Therefore, we are fully aware of the magnitude of the challenge before us. While the solution may be rooted to a greater degree in modifying the campus culture than it is in making information more readily available, we will continue to be actively engaged in trying to at least diminish, if not resolve, this problem.
3. “There is at least a perception that staff in the Business Affairs Division make too many decisions that properly belong in the sphere of academic or student services administrators.”

Much has happened since 1989 to change not only perception, but reality. Proactive, collegial discussions involving the campus’s academic and business leaders and their staffs have resulted in a significantly better understanding and appreciation of each others talents and roles and a shift in both real and perceptual “spheres of influence.”

Changes since 1990 which are illustrative of the increased influence the academic sector has in business matters affecting the instructional, research, and service missions of the University include:

- The President, Executive Vice President and Treasurer (EVPT), and the Executive Vice President for Academic Affairs (EVPAAC) now meet weekly to discuss campus needs and priorities, budget, personnel matters, facilities, and campus infrastructure. The EVPAAC also is now involved in virtually all decisions concerning the allocation of funds.

- The EVPAAC and EVPT now jointly make recommendations to the President for special allocations to the library, computing center and other information technology projects.

- Issues of conflict of interest and intellectual properties now are the joint responsibility of the EVPAAC and EVPT.

- A research incentive reserve has been established, and allocations are made from it to principal investigators. Money is distributed through a formula-funding protocol as determined jointly by the EVPAAC and EVPT and approved by the President.

- Income in excess of costs accrued by academic areas such as the Center for Lifelong Learning now flows into an academic area reserve to be used at the discretion of the EVPAAC with the approval of the President.

- Decisions regarding academic facility construction and renovation priorities now involve the EVPAAC and the deans.

- The University’s central administration, upon recommendation of the EVPAAC and with the approval of the President, now provides competitive start-up and matching (leveraging) funds to faculty as part of our recruitment, retention and competitive grant programs.

- Extraordinarily high raises given to a small number of outstanding faculty to meet competitive offers from other institutions no longer are calculated into pre-set
departmental averages. Moreover, these raises only need the approval of the dean, EVPAA and the President.

- Decisions regarding the use of "unfilled position" money now are made by the EVPAA and the school deans.

- Vice presidents, deans, and department heads may now carry over unused supply and expense funds from one fiscal year to another.

- Deans may transfer funds from one budget category to another at their annual budget hearings subject now only to approval by the EVPAA and the President.

At the same time in the early 1990's that the discussions were initiated that led to the changes noted above, both the leadership and the staff in the business office were embracing and implementing the principles of TQM and CQI. It all began in 1989 when the entire staff in the Executive Vice President and Treasurer's area participated in Zenger-Miller training, which emphasized the importance of employee development, leadership and teamwork in improving productivity, performance, and problem solving. Soon thereafter, a foundation for enhanced teamwork and continuous improvement was established. Through continually analyzing their processes and responding to the TQM questions -- What do we do? For whom? What do they need? How can we improve? How can we exceed expectations? -- business office staff have become much more service oriented. Examples of some of the changes that have occurred as a result of this new orientation include the following:

- The Department of Personnel Services has been reorganized and in addition to four central core teams (Compensation & Benefits, Organization and Career Development, Human Resources Operation, and Human Resource Planning and Policy) includes seven multi-function service teams that are located close to the units they serve. The department now focuses on assisting its clients by providing proactive human resource management, problem-solving, and strategic planning consultation and support. As a result of this reorganization, Personnel Services now is much better positioned to help units across the campus develop departmental retreats, manage the introduction of organizational change, clarify the nature of interpersonal conflicts, and improve work processes.

- Many of the areas in Physical Facilities have been reorganized from central craft shops into efficient rapid-response zone maintenance teams.

- Student Services (reporting to the EVPAA) and Management Information (reporting to the EVPT) work very well together on all matters of Student Services computing. Equipment, personnel, and other resources are shared on an "as needed" basis.

- The Office of Contract and Grant Business Affairs (reporting to the EV&T) and the Division of Sponsored Programs (reporting to the EVPAA) have been
combined into a single unit that now offers enhanced, seamless services to those seeking sponsored program support. Among these new services is web-based access to financial information by individual program account.

- The Business Office and Management Information now work collaboratively with the Division of Financial Aid and the USA Group to implement a more efficient guaranteed student loan processing system. The new process has resulted in significant cost savings to students and reduced cycle time for loan delivery.

- PURFAN (Purdue Financial Aid Network) - a new interdepartmental group with representatives from the Business Office, Internal Audit, and Student Services reviews, determines the impact, and implements institutional changes resulting from new or modified federal and state regulations.

- Campus-wide task forces that include faculty and academic staff have been created to review business-related policies and charged with recommending improvements.

- Work-Life, Wellness, and Employee Assistance Programs have been developed by the Business Office for employees in all units across the campus.

- Central management information data bases have become much more accessible across the campus.

- Purchasing procurement cards have been issued to all departments. Rather than submitting purchasing requests, departments can place orders directly with vendors and "charge it." Even airline tickets for business travel and professional conference registration fees can be charged to departmental procurement cards.

- The paperwork necessary to seek approval for almost everything has been streamlined and the number of signatures needed for approval minimized.

- Business office personnel not only are encouraged, but they are rewarded for creating more efficient and effective ways to serve their customers.

The impact of these changes has been enormous. Clearly, the University is stronger, and the University community more collegial and productive as a result of their institution.

4. "There is significant underrepresentation of women and ethnic minorities at upper levels of the University administration and among the senior faculty."

Considerable improvement has been made over the past decade in these areas. Data in Table 3.1 indicate that 41 or 190% more women are in senior leadership positions now than ten years ago while there are seven or 117% more minorities in these positions than in 1989-90. In addition, two minority vice presidents – one African American and one
Hispanic – served the University during this ten-year period. However, both came after 1989, and each left Purdue prior to 1998 to assume a university presidency elsewhere. Similarly, a female Asian associate executive vice president also was appointed and served during part of this decade, but she left Purdue in 1997 to become dean of a college of business at another university. Thus, the presence of none of the latter three is reflected in the ten-year comparisons noted in Table 3.1

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>*University Officers</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Associate and Assistant Vice Presidents</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Academic Deans</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Academic Associate and Assistant Deans</td>
<td>6</td>
<td>10</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Academic Department Heads</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other Department Heads and Directors and Senior Staff Reporting to University Officers and the Director of Intercollegiate Athletics</td>
<td>13</td>
<td>39</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22</strong></td>
<td><strong>63</strong></td>
<td><strong>6</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

* President, Executive Vice Presidents, Vice Presidents
Progress also has been made during the past decade in increasing the number of women and minorities on the tenured/tenure-track faculty. Data in Table 3.2 indicate that the number of female full professors has grown by 43 or 134% while the total number of women in tenured/tenure-track faculty positions has increased by 93 or 36%. There are 15 or 28% more minority full professors than there were ten years ago and 53 or 42% more minorities in all professorial ranks than in 1989-90.

Table 3.2
West Lafayette Campus Tenured/Tenure-Track Faculty
Women and Minorities
1989-90 and 1998-99

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Professor</td>
<td>32</td>
<td>75</td>
<td>54</td>
<td>69</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>89</td>
<td>149</td>
<td>34</td>
<td>40</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>137</td>
<td>127*</td>
<td>39</td>
<td>71</td>
</tr>
<tr>
<td>Total</td>
<td>258</td>
<td>351</td>
<td>127</td>
<td>180</td>
</tr>
</tbody>
</table>

* While the number of assistant professors who are women has decreased 7% since 1989, the number of faculty who are assistant professors has decreased 40% since 1989.

Promotion data for both women and minorities, (Table 3.3), indicate that the promotion rates for each of these groups over the past ten years exceeds the West Lafayette campus average.

Table 3.3
West Lafayette Campus Faculty Promotions*
1989-90 Thru 1998-99

<table>
<thead>
<tr>
<th></th>
<th>To Professor</th>
<th>To Associate Professor</th>
<th>To Assistant Professor</th>
<th>To All Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Candidates</td>
<td>89%</td>
<td>92%</td>
<td>100%</td>
<td>91%</td>
</tr>
<tr>
<td>Women</td>
<td>94%</td>
<td>94%</td>
<td>NA</td>
<td>94%</td>
</tr>
<tr>
<td>Minorities</td>
<td>96%</td>
<td>91%</td>
<td>NA</td>
<td>93%</td>
</tr>
</tbody>
</table>

* Data based on candidates who were approved for promotion by their primary and area committees and thus were reviewed by the University Promotions Committee.

Ten years ago, women comprised 15% and minorities 8% of the West Lafayette campus tenured/tenure-track faculty. Today, these figures have risen to 20% and 10% respectively. In addition, the number of women holding the prestigious rank of distinguished or named professor has increased from one to four and the number of minorities in these ranks has grown from five to ten over the past ten years.
While women and minorities have a greater presence among the upper levels of University administration and senior faculty than they did ten years ago, a campus goal remains "to continue to enrich the campus community by recruiting and retaining more women and minorities among faculty, staff, (and students)." Strategies and initiatives such as our Minority and Dual Career Couple Bridge Programs and Spousal Relocation Assistance Program, which have been instrumental in helping us achieve our present levels of success, will be continued. Plans have been initiated to revitalize our Minority Fellows Program. A new manual has been developed for faculty search committees. The University intends to prepare more women and minorities for leadership positions through sponsoring their participation in summer programs at Harvard and Bryn Mawr and the yearlong CIC Academic Leadership Fellows Program. Additional diversity and gender awareness programs will be sponsored on campus. Annual salary equity reviews will be continued and appropriate salary adjustments made.

5. "There are continuing student concerns about safety and security."

In comparison with many large universities across the country, the West Lafayette campus is relatively safe. Nevertheless, a campus goal has been and continues to be "to provide faculty, students, and staff with buildings and facilities which make research, instruction, and institutional management esthetically and intellectually stimulating as well as environmentally secure experiences."

To enhance safety and security the last ten years, over 400 new exterior pole or building lights have been installed across the campus, and over 60 new phones have been added to the 220 phone outdoor emergency telephone network. A Campus Safety Task Force has been established, and the Purdue Student Security Patrol and two security escort services have been created. A new campus loop bus service now operates in the evening in addition to the daytime. Police patrol the campus on bicycles and on foot as well as in squad cars. Academic buildings and parking garages are checked more frequently in the evening, and university residence halls are secured. The quality and professionalism of the Purdue police department has increased dramatically. In fact, over half of the officers now are Indiana Law Enforcement Board Certified Trainers.

While protective services have been enhanced over the past decade, so, too, have the educational programs directed toward helping students realize they must play an active role in ensuring their own well-being. Hundreds of safety related presentations are made each year in classes, orientation sessions, housing units, and student organization meetings by staff from the residence halls, Office of the Dean of Students, Student Health Center, and campus police. Purdue Student Government also has contributed to these endeavors through sponsoring and publicizing an annual Campus Safety Awareness Week.

Much has occurred over the past ten years to enhance campus safety. By remaining vigilant and continuing to provide proactive educational and protective services, the University is strongly committed to maintaining a safe and secure campus environment.
6. “Some of the academic and research areas suffer from a shortage of quality research and teaching space.”

Since 1989, seventeen new academic buildings encompassing 582,306 assignable square feet (ASF) of space have been constructed to address specific instructional, research, and public service requirements of academic programs at the West Lafayette campus. The primary beneficiaries of this new classroom, laboratory, and office space are the Schools of Agriculture, Education, Liberal Arts, Science, Technology and Veterinary Medicine. Most recently (Spring 1999), the State of Indiana authorized and will provide nearly $21 million for much needed new laboratory and office space for the Department of Visual and Performing Arts. The remainder of the funding needed to construct a major new performing arts center on the West Lafayette campus is being sought from private sources. In addition, the Krannert School of Management has launched a campaign seeking $30 million for a new building that will serve both undergraduate and graduate students. This sum will provide for program support in addition to meeting the costs of property and construction. Based on a recently completed school master plan, Purdue also is in the process of planning the following major additional facilities for the Schools of Engineering: a new General Engineering building, additions to the Chemical and Mechanical Engineering buildings, a large scale structures lab and a Nanoscale Technology Center.

Even though Purdue ranks second to last among the CIC universities in terms of assignable square feet per student (See Figure 5.6, p. 5.28), repair and rehabilitation funds provided biennially by the State of Indiana have allowed the University to upgrade older facilities and reduce deferred maintenance to a manageable amount. Along with numerous research facilities, 103,826 ASF of classroom space and 97,303 ASF of instructional laboratory space have been renovated since 1989. Thus, while the amount of academic space at the West Lafayette campus is generally less than that at most of our peer institutions, the overall quality of the space we have tends to exceed that of many of our counterparts. A more detailed description of Purdue’s physical facilities is included in Chapter Five, pp. 5.26 – 5.37.

The University is committed to providing facilities that will adequately support high quality programs to meet our instructional, research and outreach missions. We plan to fulfill this commitment by continuing to engage in master planning and efficient allocation of space. We also will vigorously continue to seek both public and private funding for the new facilities and for the repair and rehabilitation projects necessary to fulfill our tripartite mission.

7. “Library resources for an institution this size and complexity are limited; and access to them is complicated. There is a need for more resources and improved coordination.”

Ten years ago, the strength of a university library was measured primarily by the size of its holdings. Ease of access generally was gauged by the degree to which library
materials could be found in a central repository. Shortly thereafter, however, emerging
technologies opened new vistas for libraries and dramatically altered the metrics for
determining library quality.

Because the University realized, as did the 1989-90 NCA evaluation team, that
"developing retrospective collections is difficult, if not impossible, due to the
unavailability of the materials and the sheer cost of those still available," Purdue was one
of the earlier institutions to embrace these new technologies and develop strategic plans
for harnessing them to improve our libraries.

To implement these plans, the University allocated higher percentage base-budget
increases to the Libraries than to the schools and the other academic support units across
the campus. The Libraries raised additional funding from outside sources.

Prudent investment of these resources in the appropriate technologies has resulted in
greatly enhanced collections. A fuller treatment of the ten-year accomplishments of the
Libraries can be found in Chapter Five, pp. 5.37 - 5.40. Highlights include the
following:

- The Libraries developed THOR (The Online Resource) as a central electronic
gateway to information. At the same time, they also have continually upgraded
library management software. In tandem, these initiatives make it possible for Purdue
faculty, staff, and students to access information about the print resources available
not only in Purdue Libraries, but also in libraries worldwide. The Library of Congress
now is using the same software.

- Through agreements the Libraries have made with the other CIC libraries coupled
with the completion of CIC’s Virtual Electronic Library Project, Purdue faculty, staff,
and students now have desktop access to the holdings of all CIC library collections.
Moreover, they may use these materials under the same policies each library extends
to its “home” users. Interlibrary loans, whether original or facsimile, are provided to the
user at no cost.

- The greatest enhancement of Purdue’s collection has come through purchasing and/or
licensing electronic databases. The list of resources now available to the University
community is impressive, particularly in science and technology.

- Arrangements have been made with major publishers to access numerous journals
electronically. For example, all journals to which Purdue subscribes from Elsevier,
JSTOR, and the American Chemical Society are available electronically at the user’s
desktop. By 2000, 90% of the physics journals will be similarly available across the
campus. In fact, Purdue Libraries plan to provide desktop access to all journals
subscribed to by the West Lafayette campus as soon as the publishers make them
available electronically.
Part of the concern raised by the 1989-90 NCA evaluation team related to Purdue's decentralized library facilities. While the University has not built nor does it have plans to construct a central library, considerable improvements in library facilities has taken place over the past ten years. A new Veterinary Medical Science Library facility integrating the library into a Biomedical Information Resource Center was constructed as part of the School of Veterinary Medicine Lynn Hall expansion. A multi-million dollar renovation of the Humanities, Social Sciences, and Education Library should be completed in 2001. Major renovation is planned for the Life Sciences Library, and a long-range plan for improving other library facilities is nearing completion.

The concern raised by the 1989-90 NCA evaluation team about the difference in the reporting relationship between the Dean of Libraries and the school deans also has been resolved. All deans now report directly to the Executive Vice President for Academic Affairs, and all are members of the Council of Academic Officers.

Purdue Libraries have made enormous progress over the past decade. In collaboration with the University community, they have established a vision, and they currently are implementing their second five-year strategic plan toward actualizing that vision. We would not be surprised, when NCA reviews Purdue in 2009-10, to see the libraries implementing their fourth five-year plan and to be told that NCA's consultant-evaluators view Purdue Libraries as an institutional strength, unlike in 1989-90, when they viewed them as an institutional concern.

8. "The Indiana Commission for Higher Education appears to pose a threat to traditional and authorized autonomy of the institution and its Board of Trustees."

In 1989-90, Purdue noted in its self-study, "While the Commission has become a strong advocate of increasing participation and making postsecondary education geographically accessible, the Commission, from an institutional perspective, has become overly involved in curricular matters and in re-ordering University budget priorities. Institutional uniqueness has been one of the strengths of Indiana postsecondary education. We are concerned that the Commission's quest for uniformity will erode this strength and lead to institutional mediocrity."

The University and the Commission continue to work diligently on building a more constructive relationship. Over the past ten years, ICHE has approved every proposal the University has forwarded for new academic degree programs. The new Commissioner has been very helpful in building consensus among the state's public institutions regarding the parameters of their requests for funding to the General Assembly. In addition, ICHE's assistance undoubtedly helped the University secure the funding we received from the state for the 1999-2001 biennium.

Nevertheless, there is still more to be accomplished. While ICHE was created as an independent agency, it is our perception that on occasion it has chosen to function as an arm of the governor's office. We continue to urge that the Commission not be constrained in making independent judgments concerning what they think is in the best interest of higher education in Indiana. For example, since the funding gap for Purdue
continues to grow wider compared to its peers and the state has a projected $2 billion surplus, we believe the Commission was in a position to help us build an even stronger recommendation for University funding this past biennium. Even while recognizing that their recommendation was higher than some in the state administration might have preferred, we believe their recommendation could have been even stronger had it not been influenced by the state's administrative agenda. Maybe that is an inevitable part of the political process, but increased funding is essential if we are to serve current and future students in the best way.

While the Commission has often demonstrated the ability to work collaboratively with the public universities, there still is a need for better communication and coordination on some critical issues affecting higher education in Indiana. Some recent examples of areas of potential conflict relate to the Commission's activity in culling academic programs with low student enrollment and in the development of a statewide community college system. In the first case, serious questions arise concerning the statutory authority of the University's Trustees and ICHE respectively. In the latter instance, an "early stage" more open statewide discussion involving representatives of the state's colleges and universities would have negated speculation and rumor about the proposed statewide community college system and surely would have facilitated a better accepted initiative.

In the previous self-studies of 1979-80 and 1989-90 we noted concern that the Indiana Commission for Higher Education was prone to pushing at the envelope of their legislatively granted authority. This remains a very important issue, and the University will continue to work proactively and constructively with the Commission to work through these matters.
CHAPTER FOUR

CRITERION ONE:
MISSION, GOALS, ORGANIZATION, AND GOVERNANCE

"The institution has clear and publicly stated purposes consistent with its mission and appropriate to an institution of higher education."

Purdue has a long history of being recognized among the nation’s leading universities. In this chapter, the mission of the University and the goals, organization, and governance of the West Lafayette campus are described. Their appropriateness to an institution of higher education is demonstrated, and the West Lafayette campus’s accomplishments as well as its challenges relative to these areas are discussed.

I. MISSION STATEMENT

Founded in 1869, Purdue University is Indiana’s land-grant university. Its mission focuses on the discovery, dissemination, preservation and application of knowledge and encompasses the inseparable functions of education, research, and service. Purdue offers the only public university programs in Indiana in agriculture, engineering, pharmacy, and veterinary medicine. It also offers programs in the liberal arts; physical, life, computer, and mathematical sciences; consumer and family sciences; education; management; nursing; health sciences; and technology. Serving a broad range of undergraduate, professional, and graduate student populations, the University confers degrees at the associate, baccalaureate, masters, specialist, and doctoral levels. Comprehensive continuing education offerings along with programs that provide educational and technical assistance to individuals, schools, government, business, industry, and agriculture complement the University’s degree programs. Both on-site and through distance-education technology, Purdue serves statewide, national, and international constituencies.

II. FULFILLING THE MISSION

A. Setting Goals

Since 1869, Purdue’s commitment to “the inseparable functions of education, research, and service” has led to setting, evaluating, meeting, and changing goals to fulfill the University’s mission. For many years, goal-setting was done primarily by central administration with perfunctory participation by faculty and staff and where appropriate, by students. Over the past ten years, however, goal-setting has become a more collaborative enterprise including all sectors of the University community. Much of that collaboration has taken place in a myriad of standing and ad hoc committees allowing for more diverse responses from an ever more diverse University population.

A significant example of recognizing that inclusive participation leads to a greater sense of responsibility on the part of participants can be found in President Beering’s
appointment of three major committees in 1993 (Future Directions of the University, Undergraduate Education, and Faculty Productivity) "to help set up the University's course for the twenty-first century". Each committee was made up of faculty, administrators, and staff and included representatives from both the academic and business sectors of the University. In May 1993, the three committees sent reports including sets of recommendations to President Beering. These recommendations, along with those formulated by numerous other campus-wide committees over the past decade, have led to a wide range of University goals, plans, and initiatives.

B. West Lafayette Campus Goals

Primary as well as secondary campus goals have emerged from the work of Purdue's committees. The primary goals are related directly to the heart of the University mission, "the inseparable functions of education, research, and service." They see:

1. To enhance and enrich instruction at every level.

2. To make a Purdue education accessible and affordable to all interested and qualified students regardless of race, ethnicity, socioeconomic status, or age.

3. To make higher education more available off campus to both degree-seeking students and practicing professionals through use of distance education technology.

4. To heighten the University's position as a major center of basic and applied research.

5. To encourage faculty to collaborate across disciplinary boundaries as they work to understand the complexity and interrelatedness of many contemporary issues and to solve research problems that demand cross-disciplinary and multidisciplinary approaches.

6. To internationalize the University further through curricula, research projects, and student admissions.

7. To continue to enrich the campus community by recruiting and retaining more women and minorities among faculty, staff, and students.

8. To create an environment that provides faculty, staff, and students with the opportunity and the encouragement to excel.

9. To help Indiana communities, businesses, industries, agriculture, school corporations, and government agencies improve by providing them information, consultation, and technical assistance.

The secondary goals are directed toward realizing the primary goals of the University. They are:
1. To continue democratization of University governance by further empowerment of faculty, staff, and students.

2. To escalate the acquisition and deployment of new and emerging technologies so as to advance the quality of research, instruction, and institutional management throughout the University.

3. To provide faculty, students, and staff with buildings and facilities which make research, instruction, and institutional management esthetically and intellectually stimulating as well as environmentally secure experiences.

4. To apply across the campus continuous and interactive quality improvement concepts, principles, processes, and activities as a means of both evaluating and improving performance in every sphere of the University’s work.

5. To increase the University’s fund-raising efforts to secure the resources necessary to achieve its goals.

C. Disseminating Goals

Constituencies on and off campus are kept informed of the University’s goals through Presidential memoranda; University Senate minutes and documents; University publications such as Inside Purdue and Perspective; news releases; reports in government and business forums; university-maintained websites; a plethora of catalogs, handbooks, brochures, and annual reports.

Employees in all sectors of the campus are apprised of their role in helping the University achieve its goals through orientation sessions, staff meetings, and individual conferences with their supervisors. For example, when academic departments recruit new faculty, University goals are clearly articulated. It is made amply clear to candidates for faculty positions that they will be expected to be active and effective instructors of undergraduate and graduate students, to produce new knowledge through their research and scholarship, to disseminate that knowledge in the appropriate professional literature, and to participate in the performance of professional and public service when called upon.

These expectations are re-emphasized and underscored annually in departmental reviews of faculty performance. In the process of promotion and the conferring of tenure, faculty performance is critically evaluated against University goals.

D. Implementing Goals

Goal setting and dissemination are but the beginning of the process of realizing the University’s mission. The more complicated work of implementation is the responsibility of the Executive Vice President for Academic Affairs and the Executive Vice President and Treasurer. Recognizing that diverse participation has become an important element in Purdue’s culture, these administrators have created broadly representative committees
whose work has led to a remarkable series of new academic and administrative initiatives aimed at implementing Purdue's ongoing commitment to "the inseparable functions of education, research, and service."

Among a sampling of the more significant new initiatives over the last ten years are the following:

1. **The Academic Reinvestment Program** has provided $2.5 million for 75 new multidisciplinary and interdisciplinary research and instructional initiatives; related to primary goals 1, 4, 5, and 8.

2. **The University Faculty Scholars Program** and the **Distinguished Professorships in the Scholarship of Teaching** have increased the range of recognition of faculty achievement; related to primary goals 1, 4, 7, and 8.

3. **The Lilly Retention Project** has directed attention and $5 million in new resources to a variety of undergraduate educational projects; related to goals 1, 2, 7, 8, 9 and secondary goals 1 and 2.

4. **Study in a Second Discipline** has provided funds and released time for faculty to move beyond a single discipline; related to primary goals 4, 5, and 8.

5. **The Reorganization of the University Senate** has markedly increased the legislative power of the faculty; related to secondary goal 1.

6. **Office for Instructional Excellence and Lifelong Learning** has been established to address the needs of students of all ages and to support an increasingly technologically sophisticated workforce of lifelong learners; related to primary goal 3 and secondary goal 2.

7. **Purdue Research Park** has provided a site and support for technology start-up business; related to primary goals 4, 5, 8, 9 and secondary goal 2.

8. **Major Instructional Initiatives (Teaching Academy, Focus on Teaching Lectures, Innovative Teaching Grants, Teaching for Tomorrow Awards, Classroom Climate Workshops, University-Wide Teaching Evaluations)** have revitalized the importance and enhanced the quality of undergraduate and graduate instruction at Purdue; related to primary goals 1 and 8.

9. **Excellence 21** has encouraged and facilitated the use of Continuous Quality Improvement practices in carrying out the University's mission of scholarship, teaching, and service; related to primary goals 1, 3, 5, 7, 8, 9, and secondary goals 1, 2, 3, and 4.
10. Vision 21, which raised over $332 million, or 133% of its $250 million goal, along with a wide range of subsequent mini-amps, has provided major private funding to support the mission of the University; related to secondary goal 5.

11. Global Initiative Grants have enhanced the internationalization of the undergraduate curricula; related to primary goal 6.

12. Purdue University Academic Success Awards and the Valedictorian Scholarship Program provide merit scholarships for outstanding incoming freshmen, and Graduate Opportunities Master's and Doctoral Fellowships provide financial support for under-represented minority graduate students; related to primary goals 2 and 7.

13. The Minority and Dual-Career Couple Bridge Programs, the Minority Fellows Program, and the Spousal Relocation Program have helped increase the number of women and minorities on the faculty; related to primary goal 7.

14. Purdue's Endowment now exceeds $1.3 billion and in market value ranks among the top eight public university endowments in the nation; related to secondary goal 5.

15. The Undergraduate Global Studies Program provides students in all majors an opportunity to incorporate a multidisciplinary international component into their degree programs; related to primary goal 6.

16. Student Learning Outcome Assessment has provided new insights and information that have enhanced teaching and learning; related to primary goals 1 and 8 and secondary goal 4.

17. The Office of the Vice President for Human Relations was created and has provided senior leadership in defining, developing and implementing policies and programs to enhance the quality of life for the entire University community; related to primary goal 8.

18. The Wellness Program for faculty and staff and enhanced Health Promotion Programs for students have proactively encouraged healthier lifestyles among all segments of the University community; related to primary goal 8.

19. A State-of-the-Art Fiber-Optic Network provides high-speed electronic distribution of data, voice, and video to and among all campus offices, laboratories, classrooms, and student rooms in residence halls; related to secondary goal 2.

20. Major New Facilities (Liberal Arts and Education Building, Veterinary Medicine Building Addition, Food Science Building), have dramatically increased and improved instructional and research space in these areas; related to secondary goal 3.
21. Reconfiguration and Landscaping of the Entire Campus have provided a safer, more beautiful and more pedestrian-friendly environment for students, staff and visitors; related to secondary goal 3.

22. The New Undergraduate Studies Program has afforded academically-qualified, beginning students the opportunity to enter Purdue and explore academic and career options prior to selecting a school or major; related to primary goal 8.

23. Major Investments in Instructional Computing have resulted in 200 computer laboratories containing over 4000 state-of-the-art workstations; related to primary goals 1, 4, and 8 and secondary goal 2.

24. Boiler Gold Rush – a new multi-day, on-campus orientation program – has helped incoming students make more successful transitions from high school to college; related to primary goals 7 and 8.

25. The New Black Cultural Center facility will enable this already nationally acclaimed organization to enhance its academic and cultural programming and subsequently the quality of life in both the Purdue and Greater Lafayette communities; related to primary goals 1, 7, and 8 and secondary goals 3.

26. The Multimedia Instructional Development Center supports and empowers faculty in incorporating multimedia work into their instructional activities; related to primary goals 1, 3, and 8 and secondary goal 2.

27. THOR (The Online Resource) developed by the Purdue Libraries provides a user-friendly, desktop central electronic gateway to information stored both on-site and at remote locations; related to primary goals 1, 3, 4, 5, 8, and 9 and secondary goal 2.

28. A New Industrial Contracting Process is bringing about increased efficiencies in the acceptance and administration of industrial awards; related to primary goals 4, 5, 8, and 9.

These accomplishments along with a myriad of others during the past ten years are more fully chronicled and discussed throughout the remainder of our self-study.

III. ORGANIZATION AND GOVERNANCE OF THE WEST LAFAYETTE CAMPUS

A. Indiana Commission for Higher Education

A statewide Commission appointed by the governor coordinates publicly supported higher education in the State of Indiana. Created by the Indiana General Assembly in 1971, the role of the Commission is to plan and coordinate the state-supported system of post-high school education; to review appropriation requests for post-high school education and make recommendations to the governor, State Budget Agency, and/or the
General Assembly; to approve or disapprove the establishment of any new branches, campuses, extension centers, colleges or schools as well as the offering of any new degree programs at the state’s public institutions; and to perform other functions assigned by the governor or the General Assembly, except those which are specifically assigned by law to the Trustees of the respective institutions or the State Board of Vocational and Technical Education. The Commission for Higher Education is specifically prohibited by law from having any powers or authority relating to the management, operation, or financing of the state’s public universities. These powers are vested exclusively in the governing boards of these institutions.

B. The Trustees of Purdue University

The power and authority to manage Purdue University are vested by state law in a ten-member Board of Trustees. Nine are appointed for three-year terms. The tenth, the student member, is appointed for a two-year term. Six of the nine are selected and appointed by the governor; three are selected by the Purdue Alumni Association and also appointed by the governor. All of the latter three must be Purdue graduates and members of the Purdue Alumni Association while at least one must be a graduate of the School of Agriculture. The student trustee is selected and appointed by the governor from a list of nominees forwarded by Purdue Student Government.

Six corporation officers serve the Board of Trustees: the Chairman of the Board (the presiding officer), the Vice Chairman of the Board, the Legal Counsel, the Secretary of the Board, the Treasurer of the Board (also Executive Vice President and Treasurer of the University), and the Assistant Secretary and Assistant Treasurer of the Board. Much of the work of the Trustees is coordinated by six standing committees – Executive Committee, Finance Committee, Physical Facilities Committee, Academic Affairs Committee, Audit and Insurance Committee and Planning and Strategy Committee.

The powers and duties of the Purdue University Board of Trustees are delineated in the Indiana Code (Title 20-12-1.2). Major responsibilities include managing University property; prescribing student fees; approving curricula and courses of study including proficiency standards; determining student admission standards; awarding financial aid; regulating student, faculty and employee conduct; setting tuition and other charges; and establishing policies for the investment of University funds.

To accomplish the mission of the University, the Trustees have created a system of shared governance where administration, faculty, staff, and students all serve important roles in directing the operations of the University. While the Board of Trustees has statutory authority and responsibility for governing the University, it has delegated the responsibility with commensurate authority for operating the University to the President of the University, the administrative staff, and the faculty. Thus, the focus of the Trustees’ work is on establishing University policy. While the Board of Trustees is ultimately responsible for all actions, the responsibility and authority for translating University policies into action has been given to the administration and faculty. This model of shared governance continues to work well at Purdue.
C. Administration

1. The President of the University

Purdue University is a system of higher education with campuses in West Lafayette (the main campus), Calumet, Fort Wayne, Westville and Indianapolis (the regional campuses).

The President is the chief executive officer of the University system and, subject to the authority of the Board of Trustees, manages, directs, and is responsible for the conduct of all the affairs of the University except those specifically assigned by statute or Trustee regulations to the Treasurer. With the approval of the Trustees, the President organizes and establishes the administrative staff of the University and charges each administrative office with appropriate duties and responsibilities.

In addition to serving as the chief executive officer of the University system, the President also is the chief executive officer for the West Lafayette campus. It should be noted that all University system officers also are West Lafayette campus officers, but certain West Lafayette officers do not have system-wide responsibilities.

President Beering's style of administration is consultative; he seeks consensus whenever possible but accepts the responsibilities of making a final decision on most matters of critical importance. In his executive roles, he has challenged the campus community to address important issues such as the quality, accessibility, affordability and the organizational structure of higher education. He has surrounded himself with a strong senior staff and created an environment in which people can do their jobs without fear of expressing dissent or being second-guessed. The President will, on occasion, fail to accept or will reverse staff recommendations, but always in a manner which protects a staff member's dignity and ability to continue functioning with a high level of credibility.

The President has set a model for how those who report to him should function. He grasps detail quickly, separates the "signal from the noise", is fair-minded, and generates trust within and among the various stakeholders of the University. He responds to arguments based upon facts and will consider proposals that are "outside the box" if they hold promise to effect desired change. The President works with apparent equal ease with trustees, students, faculty, staff, legislators (in Lafayette, Indianapolis and Washington D.C.), alumni, corporate leaders and donors. His range of interests and knowledge base is broad and includes such matters as university finance, student life, faculty recruitment and development, physical facilities, philanthropy, internationalization, curriculum and degree offerings, campus diversity and learning technology.

The President's immediate staff for administering the West Lafayette campus includes the Executive Vice President for Academic Affairs, the Executive Vice President and Treasurer, the Vice President for Development, the Vice President for
State Relations, the Vice President for University Relations, the Vice President for Human Relations, and the Director of Intercollegiate Athletics. These seven campus officers represent an increase of one person since Dr. Beering became President in 1983 and since the last accreditation report. A new position, Vice President for Human Relations, was created in 1990 and filled in January 1991 to provide leadership at the vice presidential level in defining, developing, and implementing policies and programs to better the quality of life for Purdue faculty, staff, and students. The President of the University also serves as President of the Purdue Research Foundation. (Chart 4.1, p. 4.15)

The President has delegated certain authorities to his staff while retaining others, and this is described in detail in Executive Memorandum No.C-10. Within their areas of administrative responsibility, these officers have been delegated the authority to plan and operate programs and activities and to develop and recommend proposals for new programs. Subject to the approval of the President and the Trustees, these officers also have the authority to select and promote personnel and within state statute and University guidelines, to prepare and administer budgets. Faculty promotion and tenure recommendations are made by a series of joint faculty and administrator membership committees and also are subject to the approval of the President and the Trustees. In addition, the President attends the meetings of the University Senate and select committees of that body and transmits communications to the Trustees from the faculties and their governing bodies. The President has retained authority in all matters directly involving the Trustees, federal and state government, and relationships with other colleges and universities. He also selects and recommends to the Board of Trustees the appointment of all vice presidents, chancellors, and deans.

His immediate staff has been assigned the following West Lafayette campus areas of administrative responsibilities:

- **Executive Vice President for Academic Affairs** – responsible for undergraduate and graduate education, research, extension and outreach, international programs, distance/continuing education, libraries, academic computing, student services and academic space management and scheduling. (Chart 4.2, p. 4.16)

- **Executive Vice President and Treasurer** – responsible for all business and financial affairs of the University, including budget and fiscal planning, internal audits, purchasing, contracts, accounting, investments, personnel services, management information, service enterprises, housing and food services, and physical facilities; also serves as treasurer of the Board of Trustees. (Chart 4.3, p. 4.16)

The two Executive Vice Presidents also meet together with the President at least weekly to discuss activities in their areas of responsibility. These meetings are detailed and very frank, and through these interchanges ways are found to facilitate close working relationships between the academic and fiscal/physical areas of activity. The two Executive Vice Presidents also meet weekly to share information,
consult with each other and plan for cooperation. There is strong and frequent communication among the three most senior administrators.

- **Vice President for Development** – plans, coordinates, and implements private sector fund-raising programs and activities. (Chart 4.4, p. 4.18)

- **Vice President for State Relations** – coordinates University relations with all branches of state government, the Indiana Commission for Higher Education, and the Indiana Higher Education Telecommunication System. (Chart 4.5, p. 4.19)

- **Vice President for University Relations** – responsible for the University News Service and the Offices of Publications, Community Relations, and University Periodicals; also serves as spokesperson for the University and press secretary for the President. (Chart 4.6, p. 4.20)

- **Vice President for Human Relations** – provides leadership in defining, developing, and implementing policies and programs to better the quality of life for students, staff, and faculty of Purdue; also is responsible for the Affirmative Action, Diversity Resource, and Women’s Resource Offices and Relocation Assistance Program. (Chart 4.7, p. 4.21)

- **Director of Intercollegiate Athletics** – responsible for all aspects of the West Lafayette campus’s men’s and women’s intercollegiate athletic programs and facilities. (Chart 4.8, p. 4.22)

2. **Executive Vice President for Academic Affairs**

The chief academic officer for both the University system and the West Lafayette campus is the Executive Vice President for Academic Affairs (EVPAA) who has administrative authority and responsibility at the main campus for instruction, research, extension, distance/continuing education, student services (exclusive of non-academic student counseling in the residence halls and the Purdue Memorial Union), academic services including the libraries and academic computing facilities, faculty affairs, coordination of academic planning for new and remodeled university facilities, and approval of all assignments of space which affect the academic functions of the University. The Executive Vice President has penultimate authority on all matters of the academic budget subject only to the approval of the President and acceptance by the Trustees.

Two vice presidents, four associate/assistant executive vice presidents, twelve deans, and two directors comprise the Executive Vice President’s staff at the West Lafayette campus. Within the framework of the University’s mission, goals, and policies, the vice presidents have administrative authority and responsibility for the following areas:
• **Vice President for Research and Dean of the Graduate School** – Office of Research Administration; Division of Sponsored Program Development, Offices of Technology Transfer and Research Communication; interdisciplinary centers, institutes, programs, and laboratories; industrial relations; federal relations; Graduate School. (Chart 4.9, p. 4.23)

• **Vice President for Student Services** – Office of Admissions, Department of Aerospace (Air Force ROTC) Studies, Center for Career Opportunities, Department of Convocations and Lectures, Office of the Dean of Students, Division of Financial Aid, Department of Military Science, Department of Naval Science, Purdue Musical Organizations, Purdue University Student Health Center, Division of Recreational Sports, Office of the Registrar, University Bands. (Chart 4.10, p. 4.24)

• The deans of Purdue’s Libraries, International Programs and ten academic schools – Agriculture; Consumer and Family Sciences; Education; Engineering; Liberal Arts; Management; Pharmacy, Nursing and Health Sciences; Science; Technology; and Veterinary Medicine – have administrative authority and responsibility within the framework of the University’s mission, goals, and policies for all policy, programmatic, staffing, and budgetary matters related to education, research, and service in their respective areas.

Changes in the administrative organization of the academic sector over the past ten years include the consolidation of four vice president positions into the current two. The roles of the former Vice President for Research and the Vice President/Dean of the Graduate School have been combined into the single position of Vice President for Research & Dean of the Graduate School. The position of Vice President and Dean of Academic Services no longer exists. The Director of the Center for Instructional Services, who previously reported to the former Vice President and Dean of Academic Services, now reports to a new Assistant Executive Vice President for Academic Affairs who also holds the new position of Director of the Center for Lifelong Learning. In addition, the Director of the newly created Center for Instructional Excellence reports to this same Assistant Vice President for Academic Affairs. Likewise, the Dean of Libraries and the Director of the Purdue University Computing Center now report directly to the Executive Vice President for Academic Affairs as does the Dean of International Programs. Within the immediate staff of the Executive Vice President for Academic Affairs, a position of Assistant for Academic Affairs has been deleted. Two positions of assistant executive vice president and one position of associate executive vice president have been added since the last review.

Key characteristics of Purdue’s academic administration are a minimal, three-level structure – executive vice president, vice president/dean/director, department head – relatively small support staffs, and highly competent, visionary people. Pervading this structure is a management philosophy that focuses on hiring highly
qualified people; giving them the responsibility with commensurate authority to lead as well as manage their areas; and making every effort to supply them with the resources and support necessary to carry out their assignments in an effective and efficient manner. Other characteristics of the academic organization include continuity and selective promotion from within the University community. A number of the academic vice presidents and deans either have been in their current positions for a considerable number of years and/or have risen through the ranks at the University. A balancing number of vice presidents and deans have been recruited from other universities. This pattern of internal and external administrative appointments is consistent with that of other Carnegie I institutions.

In such a decentralized organization, good communication is essential. Monthly breakfast meetings with the deans and Council of Academic Officers meetings with the associate and assistant executive vice presidents, the academic vice presidents and the deans; quarterly academic deans and department heads seminars; semi-annual budget reviews; and periodic academic reviews with the schools, student services, and the academic support units complement many individual conferences involving the executive vice president and members of the academic administrative team. E-mail and telephone contact allow for almost immediate discussion of critical issues in a timely fashion. Communication between the executive vice president and the leadership of the faculty is facilitated by his membership on the University Senate and the Senate’s Educational Policy, Faculty Affairs and University Resources Policy committees. Visits to school faculty meetings upon request or invitation, and periodic open office hours during which faculty are encouraged to drop in also enhance communication between the executive vice president and the faculty. Six two-to-three hour meetings with all department heads, other senior administrators, and faculty leadership to discuss topics of general campus interest (topics are selected by attendees) make possible a healthy sharing of ideas, concerns and ways to approach major academic issues. The Executive Vice President for Academic Affairs makes a point of attending many scholarly lectures, conferences and symposia held on the campus and attends an almost never-ending series of social functions so that an informal opportunity for him to meet and talk with faculty is always available.

3. Executive Vice President and Treasurer

The chief fiscal and business officer for both the University system and the West Lafayette campus is the Executive Vice President and Treasurer. In the latter role, he manages all securities, properties and funds. In addition, he has responsibility for business and financial affairs; business services; personnel policies related to employment of clerical and service staff; physical facilities; university residences; Purdue Memorial Union, Elliott Hall of Music, Slayter Center for Performing Arts and the Black Cultural Center; internal audit; planning and financing of buildings and facilities; legal and legislative affairs; and financial
relationships with affiliated corporations. The Executive Vice President and
Treasurer also serves as Treasurer of the Board of Trustees of Purdue University.

To carry out these responsibilities for the West Lafayette campus, the Executive
Vice President and Treasurer is assisted by nine senior staff members who have
the following areas of responsibility:

- Vice President for Business Services and Assistant Treasurer – accounting
  services; collections; disbursements; budget and fiscal planning; costing;
  business administration for academic schools, academic support areas,
  housing and food service operations, and physical facilities operations;
  sponsored program services; personnel services; purchasing; risk
  management; and business services computing. (Chart 4.11, p. 4.25)

- Vice President for Physical Facilities – facilities planning and construction;
  utilities management; safety and security; buildings and grounds maintenance;
  radiological and environmental management; service enterprises including
  airport operations, transportation services, printing services, stores, and
  warehousing operations. (Chart 4.12, p. 4.26)

- Vice President for Housing and Food Services – residence halls, graduate
  houses, married student housing, Purdue Memorial Union, Elliott Hall of
  Music, Loeb Playhouse, Black Cultural Center, and food stores.
  (Chart 4.13, p. 4.27)

- Director of Audits – independent examination and evaluation of financial and
  management activities across the campus.

- Director of Investments – consultation and support in cash management,
  portfolio management, endowment administration, debt management and
  banking relationships.

- Real Estate, Trust, and Endowment Investment Officer – real estate, trusts,
  and endowment investments; also serves as Vice President and Treasurer,
  Purdue Research Foundation.

- Executive Director of Management Information -- administrative computing.

- Director of State Financial Relations – assists the Executive Vice President in
  coordinating financial relations with all branches of state government and the
  Indiana Commission for Higher Education.

- Senior Associate Athletic Director - Business — all business functions related
  to the management of the men’s and women’s intercollegiate athletic
  programs.
In addition to several staffing and title changes, a number of organizational changes have occurred since 1990. The changes include reorganizations involving three areas which previously reported to the Vice President for Business Services and now report directly to the Executive Vice President and Treasurer: Executive Director of Management Information in February 1993; Director of State Financial Relations in January 1996; Senior Associate Athletic Director – Business in July 1996.

Purdue University continues to be nationally recognized for the outstanding management of its fiscal and business affairs, its physical facilities, and its housing and food services. These operations have achieved this level of excellence and recognition through both strong and visionary leadership and an organization staffed with people who believe in Purdue and in its mission. Many staff members in these areas are long-term employees of the University who have risen from entry-level to higher-level positions in accordance with the philosophy of promoting from within, thus capitalizing on their expertise and providing continuity to the organization. Staff at all levels of this organization know the support roles they play are key to the outstanding success Purdue has had in its mission of instruction, research, and public service, and that what they do individually contributes collectively to Purdue’s reputation as a world-class institution. This mindset is ingrained in the Purdue culture and is promoted extensively by Executive Vice President Kenneth Burns via his continuing theme of “providing customer-valued service, every day in every way.”

A well-trained staff is a vital component to the success Purdue boasts in its administrative organization. It has long been recognized that training at a multitude of levels and in a variety of areas is an ongoing requirement to meet the ever-changing needs of the University. With the constant advances in technology, the drive to improve our processes, the commitment to develop our staff, and the ever-increasing need to use our state appropriations wisely, the need to have highly trained, educated, creative and efficient staff has never been more important. The administrative areas of the campus have developed many initiatives to address these needs with the recognition that training, education and staff development are career-long requirements.

Many present and future challenges face the areas reporting to the Executive Vice President and Treasurer. However, these challenges present every person in this organization the opportunity to excel. New processes, innovative approaches, creative solutions will all be the outcome of these ever-changing challenges, and the services provided will be the better for it. These are welcome challenges that entice us to achieve new levels of success.
Staff of the Executive Vice President and Treasurer

Executive Vice President and Treasurer

Kenneth P. Burns

Vice President for Business Services & Assistant Treasurer
James S. Almond

Executive Director of Management Information
Lavene L. Knodle

Director of Audits
Peggy L. Fish

Real Estate, Trust, & Endowment Investment Officer
Jeffrey H. Wilson

Director of State Financial Relations
Kevin P. Green

Vice President for Housing & Food Services
John A. Sautter

Vice President for Physical Facilities
Wayne W. Kjonaas

Director of Investments
James E. Benken

Regional Campus Vice Chancellors*
- G. William Back
- Walter J. Branson
- Gary H. Newson

Senior Associate Athletic Director -- Business
Glenn F. Tompkins

* Also report to their respective campus chancellors

Chart 4.3
Staff of the Vice President for University Relations

Vice President for University Relations
Joseph L. Bennett

Director of Special Projects
Gregory A. Zawisza

Assistant Director of University Relations for Broadcast Services
Raymond M. Cubberley

Director
University News Service
Jeanne V. Neher

Director
Community Relations
Annette C. Goben

Director
Periodicals
M. Lyn Doyle

Director
Office of Publications
David J. Brannan

Chart 4.6
Staff of the Vice President for Human Relations

Vice President for Human Relations
Alysa C. Rollock

Director of Diversity Resource Office
Vacant

Director of Women's Resource Office
Vacant

Relocation Assistance Specialist
Tari L. Alper

Director of Affirmative Action
Charlotte F. Westerhaus
Staff of the Director of Intercollegiate Athletics

Director of Intercollegiate Athletics
Morgan J. Burke

- Sr. Associate Athletic Director for Medical Services and Sports
  - Joni B. Comstock

- Sr. Associate Athletic Director—Special Projects
  - Richard S. Walbaum

- Sr. Associate Athletic Director—Business
  - Glenn F. Tompkins

- Associate Athletic Director for Development and Marketing
  - Nancy L. Cross

- Associate Athletic Director for Compliance, Academic and Sports
  - Roger L. Blalock

- Head Coach, Men’s Football
  - Joseph H. Tiller

- Head Coach, Men’s Basketball
  - L. Gene Keady

- Athletic Public Relations Director
  - James A. Vrugink

Chart 4.8
Staff of the Vice President for Research and Dean of the Graduate School

Vice President for Research
Gary E. Isom

Assistant VP for Industry, Technology & Outreach
John A. Schneider

Assistant VP for Research
Peter E. Dunn

Dean of the Graduate School
Gary E. Isom

Associate Dean of the Graduate School
Phillip E. Pope

Associate Dean of the Graduate School
Candiss B. Vibeert

Assistant Dean of the Graduate School
Vacant

Director of Minority Programs
Dwight E. Lewis

Computing Research Institute
Vacant

Sponsored Program Development
Yeong E. Kim

Cancer Center
Richard F. Borch

Visualization & Imaging Center
Jan P. Allebach

Life Science & Biotechnology Research Institute
Vacant

ESEI
(Environmental Science & Engineering Institute)

IMMERI

IWRBC
Indian Pine

LARS
State Utility Forecasting

Ronald F. Turco, Jr.

Chart 4.9
Vice President for Student Services

Thomas B. Robinson

Assistant Vice President for Student Services
Sandra K. Monroe (interim)

Director, Office of Admissions
Douglas L. Christiansen

Dean of Students
L. Tony Hawkins

Director, Purdue University Student Health Center
James S. Westman

Director, Purdue Division of Recreational Sports
Carol J. Stickel

Director, Student Services Computing
Lee E. Gordon

Director, Department of University Bands
David A. Leppa

Head, Department of Aerospace Studies
COL David R. Hankins

Director, Center for Career Opportunities
Carol L. Barrett (interim)

Director, Office of Convocations & Lectures
Todd E. Wetzel

Head, Department of Military Science
LTC Michael D. Berndt

Head, Department of Naval Science
CAPT Joel N. Weber

Registrar
Marlena A. Roney

Chart 4.10
Staff of the Vice President for Business Services and Assistant Treasurer

Vice President for Business Services and Assistant Treasurer
James S. Almond

Vice President for Research & Dean of the Graduate School
Gary E. Iom

Comptroller
John R. Shipley

Director, Budget and Fiscal Planning
James K. David

Business Manager, EVPAA and Other Administrative Offices
Virginia A. Jacko

Director, Sponsored Program Administration and Purchasing
Larry E. Pherson

Director, Business Services Computing
Herman C. Buchanan

Director, Personnel Services
Charlene M. Hayes

Director, Academic Business Managers
Lucia M. Anderson

Assistant Vice President for Research
Peter E. Dunn

Chart 4.11
Staff of the Vice President for Housing and Food Services

Vice President for Housing and Food Services
John A. Sutter

Fiscal Director
HFS Business Office
Dale W. Daniels

Director
Human Resources
Jeannette S. Gough

Manager
HFS Computing
Ernest F. Poland

Director
Facilities
Timothy Gennett

Director
Conference Operations
Sue H. Graham

Director
Marketing & Communications
Barbara A. Middleton

Director
Hall of Music/Loeb Playhouse
Stephen D. Hall

Director
University Residences
Marvis J. Boscher

Director
Purdue Memorial Union
Robert L. Mindrum

Director
Food Stores
Steve C. Eberly

Chart 4.13
D. Faculty and Staff Governance

Recognizing the virtues and the values of a broadly based and democratic set of decision-making procedures, Purdue has created mechanisms to facilitate employee participation in decision-making at every level. The University Senate, the Administrative and Professional Staff Advisory Committee (APSAC) and the Clerical and Service Staff Advisory Committee (CSSAC) serve as vehicles for initiating change as well as providing advice to the University officers. In addition, representatives of the Senate, APSAC, and CSSAC serve on a variety of University task forces, participate in focus groups, and are member of the University-wide committees that assist with policy development and implementation. One of the many examples of the impact of their contributions comes from their participation on the Health Plan Advisory Committee. With their assistance, Purdue has been able to design medical plans that meet employees needs, manage the University’s health care costs, and keep employee insurance premiums level for the last six years.

1. Faculty Governance

Like other components of the administration of Purdue University, faculty governance is decentralized. Issues of concern to the entire faculty are governed by the University Senate that proposes and/or adopts policies, regulations, and procedures that assure that Purdue University will meet its educational objectives. Each major division of the University including the Graduate School has its own faculty senate or other comparable structure that is concerned with governance relating to school matters. Each departmental faculty in a school also has certain authorities delegated to it.

a. University Senate

The University Senate operates under the authority of the University Code which specifies the powers delegated to the University Senate by the Board of Trustees of Purdue University. The Senate consists of 100 Senators (elected for three-year terms) representing the faculties of the West Lafayette, North Central, Calumet, Fort Wayne, and Indianapolis campuses. Ninety-two of the 100 senators are elected from the West Lafayette and North Central campus faculties to serve on the Senate for three-year terms. In addition, one representative is elected from the Calumet, Fort Wayne, and Indianapolis campuses. The three chief administrative officers of the University (the President, the Executive Vice President for Academic Affairs, and the Executive Vice President and Treasurer) also serve as voting members of the University Senate. Two students, one selected by the Student Senate and one selected by the Graduate Student Association, complete the membership of the University Senate. Faculty representation on the Senate is based on the size of each school’s faculty and is reapportioned annually.
The Senate meets monthly during the academic year. All meetings are open to the faculty and the public at large. The Senate represents the faculty to the administration of the University. The President and Executive Vice Presidents sit on standing committees and meet regularly with the chair and other officers of the Senate. In addition, the Chair of the Senate attends all meetings of the Board of Trustees and makes regular reports to the Board.

There are seven standing committees of the University Senate as well as other committees appointed to carry out specific missions. The standing committees (and a sample of their responsibilities) are as follows: Steering Committee (sets the agenda for regular and special meetings); Nominating Committee (proposes members for election to Senate offices and committees); Student Affairs Committee (considers matters related to the social, cultural, and practical welfare of all students "that would enhance the University environment of the student for learning and living"); Faculty Affairs Committee (considers matters related to the faculty, including promotion procedures, benefits, academic standards and responsibilities); Educational Policy Committee (responsible for matters concerning instruction, scholarship, grades and grading procedures, academic calendar, general educational and research policies, curriculum standards, and general academic organization); University Resources Policy Committee (considers planning for and utilization of physical facilities, staff needs and planning, allocation of financial resources, and non-academic planning for parking, traffic, architecture, and landscaping); and the Advisory Committee (includes representatives from all schools and Senate standing committees, advises the Chair of the Senate, the Senate, and the President of the University regarding any matter of concern to the faculty).

Upon recommendation of the Senate, the President of the University appoints members to special committees who have specific functions delegated via legislation passed by the University Senate.

All matters that come before the University Senate are subject to ultimate review by the faculty. All Senate minutes and Senate committee agendas and actions are available electronically on the desktop of the faculty. A petition filed by 75 members of the faculty results in a reconsideration of any action by the University Senate. In addition, any action of the Senate may be brought to the floor of a University faculty convocation by members of the faculty. The achievements of the University Senate since 1994, the initiatives currently under consideration, and the initiatives that are expected to become important are discussed below.

1) Academic Initiatives

The Undergraduate Studies Program, a pilot program designed to assist entering freshmen in selecting a major, was approved in 1994. The program provides counseling and career guidance for students who are not ready to select a school at the time of their application. This program was reviewed in
1998. Based on the academic performance and retention rate of students in this program, the University Senate recommended that it continue as a regular program.

Policies concerning the graduation index for graduate and professional students, dual credit, grades for incomplete work, and the addition of plus and minus grades to the grading scale have been established.

A document emphasizing the importance of effective teaching was approved. The document recommended that teaching effectiveness be evaluated using multiple parameters and involve participation by students, teaching assistants and peers. Resources to assist instructors in improving the effectiveness of their teaching were included in the policy.

The rapid changes in information and computing technology have led the University Senate to address this issue three times in the last two years.

2) Faculty Initiatives

Promotion procedures were revised in 1994, and guidelines concerning the process of determining merit salary increases were approved in 1998. Further, in 1996 a process was instituted whereby there will be continuous faculty involvement in the budgetary process and in long-range planning.

Policies to guide faculty and students in publishing and distributing their scholarly works in the evolving environment of electronic journals and communications have been approved. These include a position statement on publication control, a revision of Purdue University’s policy on intellectual property, and a report concerning copyright issues. These issues will continue to be examined by the Senate.

The University Senate also recommended that spouses of regular employees and retirees receive a fee remission for courses taken at Purdue University. The Trustees approved this policy for implementation for the Fall Semester, 1999.

3) Campus Life Initiatives

The University anti-harassment policy was added to the Student Code of Conduct in 1994. The timing of Spring Break was changed and coordinated with local school corporations so that Purdue employees and their families could enjoy Spring Break together.
4) University Organization Initiatives

The University Senate reviewed and approved the following changes in the organization of Purdue University:

- Merger of two departments within the School of Veterinary Medicine.
- Reorganization within the School of Management.
- Reorganization within the School of Pharmacy.

In 1996, the Senate reviewed the size and role of the administrative and professional staff. It will continue to monitor the size and growth of these classifications of employees.

5) Current Initiatives

The University Senate is prepared to respond to issues as they arise. However, in the 1999-2000 academic year, major attention will be focused on two initiatives: (1) assisting the Board of Trustees in selecting Purdue University’s next president, and (2) monitoring the impact of the enrollment increase expected for academic year 1999-2000 and recommending any necessary policies.

Planning for the search for the next president began during the 1998-1999 academic year. The Chair of the University Senate participated with the Chair of the Board of Trustees in establishing the procedures to be followed during the search. The search began at the start of the 1999 fall semester. Procedures have been adopted that provide for faculty participation through the University Senate’s Committee on Selection of the President of Purdue University.

In spite of decreasing populations of high school graduates, the enrollment at Purdue University has steadily increased during the past few years. The enrollment for the 1999 fall semester is expected to be the highest in the history of Purdue University. During the last two years of enrollment increases, the number of faculty and support staff has remained relatively constant, as has the number of classrooms, laboratories, and residence halls. It is expected that the University Senate, through its committees, will be active in insuring that the quality of education and campus life at Purdue University is maintained.
6) Future Initiatives

The most important factor in recent years that has led to successful faculty governance has been open communication between the University Senate and the administration. This has allowed issues to be resolved before they become problems. Our biggest challenge will be to maintain this openness with the next administration.

b. Graduate Council

Graduate education is administered systemwide by the Graduate School. The Graduate Council, which is comprised of representatives from the University’s graduate faculty and chaired by the Dean of the Graduate School, is the faculty governing body of the Graduate School. The Council is responsible for all academic policies related to graduate education including those involving admission to the Graduate School, standards of work, courses and programs of study, foreign language requirements, residence requirements, and all other requirements for graduate degrees.

Six standing committees constituted by areas of study – behavioral sciences, chemistry-based sciences, engineering and physical sciences, humanities and social sciences, life sciences, and management sciences – review all proposals for new courses and degree programs and send recommendations for action on these to the Council. Ad hoc study committees are created to draft proposals for the Council to consider relative to special concerns. At present, one such committee is reviewing non-traditional vehicles for delivering graduate coursework and degree programs. This group also is studying the merits of developing graduate certificate programs. A second ad hoc committee is reviewing post-doctoral education at Purdue.

c. School Senates

Each of the schools at the West Lafayette campus has its own faculty senate or comparable deliberative body. The size of these senates varies from school to school. Each of the faculty senates has responsibility for determining curricular matters and graduation requirements; approving courses and programs of study; and considering matters relating to faculty affairs, student affairs, educational policy, and other concerns brought before it by the school’s dean or by the various senate steering or agenda committees. School senates may pass resolutions whose disposition is to the University Senate. Thus, a school senate may suggest that the University Senate consider some change in academic policy (e.g., a change in the academic calendar) or respond to University Senate mandates (e.g., a change in the composition of faculty grievance committees). Each school senate has standing committees with representation from the several departments in the school.
d. Departmental Governance

A number of governance issues are delegated to departmental faculties. In the decentralized system at Purdue University, no specific formula is mandated for departmental governance. Some departments (e.g., Psychological Sciences) have governing by-laws adopted by faculty vote. Other departments are less structured and govern themselves by consensus or by meeting as a committee-of-the-whole.

Departmental faculties have the following responsibilities and authorities: to initiate all academic course offerings; to initiate the promotion in rank or the granting of tenure for their faculty colleagues; to initiate new courses and academic programs; to recommend the hiring of new faculty members; to set academic standards; and to admit students to their undergraduate and graduate programs. Within these parameters, departmental faculties set their own agendas and consider issues of concern to them.

2. Staff Governance

a. Administrative and Professional Staff Advisory Committee

The Administrative and Professional Staff Advisory Committee (APSAC) was established in 1988 to

- Provide members of the administrative and professional staff with a means of representative participation through suggestions and advice in the formation or change of policies affecting conditions of employment.

- Provide a means of communication between the administrative and professional staff and the University's senior administrators.

A University officer appointed by the President serves as the principal liaison between the University administration and the committee. APSAC functions through its own subcommittees and is represented on various University committees including the University Health Plan Advisory Committee and the Faculty Compensation and Benefits Committee. During the past decade, APSAC has been instrumental in establishing recognition programs for administrative and professional (A/P) staff across the campus, encouraging schools and departments to develop review and advancement opportunities for A/P staff, developing a University-wide policy concerning the use of personal days, establishing a professional development grant program for A/P staff, and sponsoring a series of A/P staff professional development courses and programs.
b. Clerical and Service Staff Advisory Committee

The Clerical and Service Staff Advisory Committee (CSSAC) was established in 1965 to

- Provide members of the clerical and service staff with a means of representative participation through suggestion and advice in the formulation or change of policies affecting conditions of employment.

- Provide an effective means of communication between the clerical and service staff and the University administration.

- Act in an advisory capacity and make recommendations to the Department of Personnel Services, which is responsible for planning and recommending policies concerning personnel and staff benefits.

The Vice President for Business Services and the Director of Personnel Services serve as resource members and liaisons with the University administration. CSSAC functions through its own subcommittees and also is represented on various University committees including the University Health Plan Advisory Committee and the Faculty Compensation and Benefits Committee. Major accomplishments initiated by CSSAC include an educational grant program for Purdue's clerical and service employees, grants and scholarships for Purdue students who are dependents of clerical and service staff and retirees, the Purdue Employee Discount Program, the Purdue Employee Activity Program, and the campus-wide volunteer gardening program. CSSAC also has been instrumental in bringing about changes in University policy that resulted in reducing the number of years of service needed to accrue four weeks of vacation, establishing a two-tier premium structure for medical insurance, and removing the 1,000 hour cap on sick-leave conversion upon retirement.

E. STUDENT GOVERNANCE

1. Purdue Student Government

Students at the West Lafayette campus are represented by Purdue Student Government (PSG). PSG serves as a conduit for expressing student issues and concerns to the faculty and the administration. It also sponsors programs and events to benefit the student body.

The executive and legislative branches of PSG involve governance. The third branch of PSG is judicial. As part of the executive branch, the PSG president represents the interests of all Purdue students. The president is chosen in a general election of the entire student body each year in early April. In addition to interacting with the rest of PSG, the PSG president meets twice each month with the President's Round Table (PRT) to discuss current campus issues. PRT consists of the presidents of the student
councils of the various academic schools, as well as the presidents of the more active student organizations on campus. The PSG legislative branch, the Student Senate, is composed of senators usually selected by their housing units. Each residence hall has a senator while the Interfraternity Council and Panhellenic Council have five seats between them. Off-campus students have approximately twenty seats. Graduate students, who are not represented by housing unit, are appointed to eight seats. Two seats are set aside for underrepresented students.

Proposals to initiate or modify University policies that are passed by the Student Senate and signed by the president of PSG are transmitted to the University Senate for consideration and action. Nearly all proposals regardless of origin are referred to committee for review and recommendation before they are directed to the floor of the University Senate for discussion and action. This process, although thorough, seems overly time-consuming to some students. The 1998-99 PSG leadership is particular was disappointed, for proposals initiated during the latter stages of their term were still working their way through the University Senate when their time in PSG office came to an end. Senate action on these proposals, however, will occur in Fall 1999.

Purdue students are represented in the University Senate through two student voting members and through student voting membership in standing committees. The two on the University Senate are the president of PSG and a senator selected by the Graduate Student Association. These two students have full speaking and voting privileges. Students serving on University Senate committees also have speaking and voting privileges. To select students for these committees, the PSG president and the PSG director for university relations prepare a slate of candidates based on petitions from students wishing to serve on the University Senate. PSG's GARC (Governmental Appointment and Review Committee) reviews the slate and recommends its approval to the Student Senate.

A major accomplishment of PSG was the extension of library and computer laboratory hours. PSG has also created a book exchange on the World Wide Web to ensure a competitive alternative to bookstore offers. In addition, it has worked to make AIDS testing available to all students and has held forums for speakers on a host of different issues. Earlier in the 1990's, PSG was instrumental in establishing the Carus Safety Task Force and improving New Student Orientation. They also sponsored several successful lobbying initiatives with the Indiana legislature.

Currently, PSG is working with the University Senate to review the recently approved plus/minus grading system. It also is discussing with the administration the possibility of making the results of teacher evaluations available to students.

With respect to programming, PSG has been and continues to be very successful. PSG sponsors social activities such as the Grand Prix concert in the spring semester and "Boiler Blasoff" in the fall semester. PSG also offers a variety of services for students including, sponsoring educational programming and guest speakers and providing a free legal aid department for students.
2. Graduate Student Association

The Graduate Student Association (GSA) has four main purposes:

- To be the voice of and to act on behalf of all graduate students.
- To promote communication and interaction among graduate students of all departments.
- To investigate and propose solutions to problems unique to graduate students.
- To provide services beneficial to graduate students.

GSA nominates graduate student representatives to serve on University faculty and administrative committees. It also sponsors professional workshops and social events for graduate students.

In 1998-99, GSA organized the West Lafayette campus’s first annual Graduate Student Appreciation Week. Events included a series of information sessions related to graduate student concerns, a campus-wide research poster session, a campus services fair, and departmental activities honoring graduate student accomplishments and contributions to the University. GSA also worked with Compensation and Benefits in surveying graduate students about their health insurance needs and interests. The results of this survey will be used to negotiate increased insurance benefits for 1999-2000. In addition, GSA works closely in an advisory capacity with the leadership of the Graduate School. One member has a voting seat on the Graduate Council.

3. School Student Councils

Students also are involved in their schools through school student councils. The objectives and roles of the various councils vary. For instance, the student councils for Consumer and Family Sciences and for Liberal Arts have representatives who are members of committees within their respective schools. Typically the ratio is one or two students to five or six faculty members or each committee. In some student councils (Management), only graduate students are members of internal school committees. Other schools do not have student representation on internal committees but have strong relationships with their academic counselors (Science). Some student councils give their input via direct communication with their dean (Liberal Arts).

IV. SUPPORT FOR FREEDOM OF INQUIRY

As one of the original signatories to the AAUP “1940 Statement of Academic Principles on Academic Freedom and Tenure,” Purdue University has a long and valued history and
tradition of support for academic freedom. Consequently, Purdue's policies accord well with the AAUP guidelines on this subject.

Purdue University Executive Memorandum No. B-48 states, "A faculty member shall have full freedom as a researcher, scholar, or artist. He/she shall be assured freedom to communicate his/her work, to advocate solutions to human problems, and to criticize existing institutions. This freedom is subject only to adequate performance of his/her academic duties and to obligations he/she may have voluntarily assumed in accepting such support for his/her research. It should be recognized that research activities are also subject to University policies on patents, copyrights, and inventions as set forth in Executive Memorandum No. B-10 or succeeding memoranda and, where applicable, to duly established regulations designed to protect the rights and welfare of human subjects."

Further affirmation of Purdue's strong support for academic freedom lies in the Faculty and Staff Handbook. "It is the established and firm policy of Purdue University to provide, protect and promote an environment of academic and intellectual freedom of scientific inquiry and publication and the freedom and responsibility of teachers to acquaint their students with the various sides of controversial subjects within their fields of subject-matter competency."

Paralleling Purdue's policies guaranteeing its faculty freedom of inquiry and expression are policies offering comparable guarantees to students. Article 6 of the Bill of Student Rights asserts, "Within the limitations generally accepted for proprietary and collaborative work, and those imposed by the relevant standards of academic honesty, the student has the right to freedom of inquiry, to exchange findings and recommendations, and consistent with applicable university regulations, to publish." In addition, Article 4 of the Bill of Student Rights guarantees students the freedom to discuss and express views relevant to course subject matter. Article 7 grants student groups and individual students the right to distribute written material without prior approval. Article 15 guarantees students the right of free assembly, and Article 18 asserts the right of every student to exercise freely full rights as a citizen.

If faculty or students feel their rights to freedom of expression or inquiry have been breached, they may turn to the University's grievance system for academic personnel (faculty) or the Campus Appeals Board (students) for assistance in trying to resolve their concerns. If being dismissed for cause, both tenured faculty and untenured faculty whose appointments have not expired may choose to have their cases reviewed by the University Committee on Censure and Dismissal. Students who are suspended or dismissed may have their cases reviewed by the Campus Appeals Board. Students who feel their grades have been lowered because they exercised their rights to freedom of inquiry or expression may turn to the University Grade Appeals System for relief. These processes provide powerful safeguards to freedom of speech and freedom of inquiry for Purdue faculty and students. In sum, there is no record of any University abridgement of academic freedom.
V. STRENGTHS AND CHALLENGES RELATED TO UNIVERSITY ORGANIZATION AND GOVERNANCE

This accreditation review comes at a particularly significant time in the history of Purdue. The University has a tradition of chief administrators with long tenure. In the 77 years since 1922, Purdue has had but four presidents. When Dr. Steven C. Beeghe retires on June 30, 2000 he will have served the University for 17 years, making him one of the two longest-tenured current presidents of major universities in the nation. Executive Vice President for Academic Affairs, Robert L. Ringel, has been a faculty member and an academic administrator at the West Lafayette campus since 1966. Moreover, he has served in his current position since 1990, a remarkably long period considering that the average tenure of chief academic officers in the CIC is about five years. Executive Vice President and Treasurer Kenneth P. Burns has served in his present position since 1998; however, he too, is a Purdue veteran, for he began his professional career at the University in 1967.

This continuity in leadership has led to continuity in planning and programming. It also has allowed the University community to think globally and to work proactively. However, Purdue’s success during the past decade is not nearly as attributable to the effectiveness of its formal organizational and governance structures as it is to the effectiveness of the communication and especially the relationships among all those associated with the University. It is the vision, the quality, and the energy of these people that have made the University what it is today.

Our challenge in the next decade will be to embrace change in leadership, and perhaps in formal structure, in the same manner that we have embraced continuity. As a community of scholars, our intellectual success comes from our abilities to generate, transmit and apply new ideas and our willingness to take risks. These characteristics bode well for our continued success as a pre-eminent land-grant, student-oriented, research university under new leadership in the years ahead. The degree to which we succeed, however, will be determined in large measure by the openness of communication and the nature of the relationships among all those in the University community.

VI. OUR VISION

Guiding Purdue University as it pursues its goals and fulfills its mission is a vision. This vision is a product of the Purdue’s collective imagination: a view shared by its faculty, staff and students about what their University should be and can be.

Purdue strives to be an open, democratic and civil organization dedicated to the cultivation and enrichment of the life of the mind. It tries to be a true community of scholars in which all—faculty, students and staff—collaborate in the discovery, dissemination and application of knowledge. Our University must continue to be a place of free and open inquiry that encourages spirited debate and exchange of ideas free of prejudice and personal acrimony. It should be a place where all people are valued and respected, both for their commonalities and their differences, and for their varied traditions, beliefs and values. It should be a place characterized by truth in all its members’ utterances and integrity in all their actions. It
should demand respect for the dignity of all the people it touches in its instructional, research and outreach activities.

Our vision is of an institution all of whose members maintain a strong sense of shared purpose despite the honest disagreements they express in their free and open dialogue. It is of an institution whose members bend every effort to see that every person has all possible opportunities to develop to his or her fullest potential.

In so doing, it tries to be both academically and financially accessible to all who seek to learn, and to maintain high academic and behavioral standards for all who are a part of it.

We acknowledge that reality will not conform in all respects to the lineaments of our vision. But we can use it as a model of individual and institutional behavior to which we can all subscribe and toward which we should all constantly strive.

In this striving, our vision resembles a distant star: forever beyond our grasp but indispensable as a steadfast guide in our quest.
CHAPTER FIVE

CRITERION TWO: ORGANIZATION OF RESOURCES TO ACCOMPLISH ITS PURPOSES

"The institution has effectively organized the human, financial, and physical resources necessary to accomplish its purposes."

This chapter demonstrates that Purdue University has effectively organized its financial, human, and physical resources to accomplish the stated purposes of the University. Purdue has a tradition for providing high quality education, research, and service as the State of Indiana's land-grant institution. The dedication, expertise, and loyalty of the people at Purdue are the major strengths of the University. Through these people, its human, financial and physical resources are managed to produce the maximum impact and results for the stated purposes of the institution.

In recent years, greater efficiency and effectiveness have resulted from the Continuous Quality Improvement efforts of the University employees at all levels. Projects coordinated under the University initiative - Excellence 21 - have provided the University the opportunity to expand services and programs even in times of only moderate revenue expansion, while continually improving quality.

The chapter opens with a review of the financial system that supports the University. Purdue maintains a national reputation for excellence in financial management, efficiency, and effectiveness in support of its education, research and service missions.

Section II of this chapter reviews the human resources at Purdue. The past ten years have brought improved organizational effectiveness through the University's Continuous Quality Improvement initiative and individual effectiveness through the University's many new professional development and personal support programs.

Section III outlines the physical facilities resources of the campus and the space management system used to maximize the usage and effectiveness of the resources available. The highlights of the last decade in this area have been improvement of services provided and enhancement of physical facilities to create a better learning environment. The greatest challenge and the most obvious success have been in creating and equipping laboratories and classrooms for computing and for multimedia instructional delivery. Additional success has been achieved in improving life and physical science and engineering/technology laboratory areas. This section also reviews Purdue's highly effective space allocation system that makes the most efficient use of available space while assuring a sufficient number and configuration of course offerings to permit students to design schedules meeting their curricular demands. This section also outlines the tremendous expansion of physical facilities that has taken place over the past ten years.

5.1
The Purdue Libraries are reviewed in Section IV. Special emphasis is placed on the impact consistent escalation in the price of materials and the need to acquire rapidly changing information technology to provide enhanced delivery of service to users is having on the Libraries.

Section V reviews the major support services improvements that have been made available through the rapid implementation of instructional and research computing and network systems on campus. The growth and improvement in computer technology have been the most significant changes that have permeated the entire campus during the past 10 years. Today over 200 laboratories are equipped with computers that are networked through a campus-wide system with over 4300 workstations made available for instructional purposes. These numbers do not include the large numbers of computers in faculty and staff offices across the campus nor the equipment used by Management Information.

Section VI reviews the current resources available through the various academic support and student services units on campus. These units have continued to provide excellent support for students over the past decade through numerous continuous improvement initiatives. One of the major improvements was the development of the integrated application for admission of students to the University with a 48-hour response turnaround. This application consolidates all admission, housing, and preliminary financial aid information into one application. Another system called SSINFO (Student Services Information Online) affords students access to a large variety of information services of the University with a Personal Access Code (PAC) for each student. Expansion of services to disabled students and major customer service improvements in the Housing and Food Services area are also major accomplishments during the past decade.

This review fully documents that Purdue University has effectively organized the human, financial, and physical resources necessary to accomplish its purposes.

1. FINANCIAL RESOURCES

Purdue University maintains a national reputation for excellence in management of the financial resources required to support its education, research and service missions. Members of the staff are committed to effective and responsible stewardship of University resources through the principles of Continuous Quality Improvement. The University has been recognized with eleven National Association of College and University Business Officer (NACUBO) Cost Reduction Incentive Awards. Individuals are often called upon to provide leadership and expertise to national associations or panels on matters ranging from financial accounting standards, costing, taxations, grant management, cash management, to Year 2000 issues.
Not unlike other major research-oriented land-grant institutions, Purdue depends on several sources of revenue (see Figure 5.1).

**Figure 5.1**

**Sources of Operating Revenues: 1998**

These revenues are separated into the following four broad fund groups:

1. General Fund — comprised of state operating appropriations, student fee revenues, sponsored program and other administrative cost recoveries, interest earnings and other sales and service revenues
2. Restricted Funds — gifts, grants, and contracts along with federal and state appropriations for agriculture
3. Auxiliary Enterprises — including residence halls, intercollegiate athletics, service enterprises
4. Student Aid — federal, state, and institutional need-based assistance

Together, these fund groups combined to support the University’s 1999-2000 budget of $895 million.

The budgeting activities for all fund groups follow the same processes, policies and procedures as outlined in this self-study.

**A. General Fund**

The general fund provides for the support of the educational activities undertaken in pursuit of our basic mission and goals and associated infrastructures. State appropriations and student fees provide over 85 percent of the total for the West Lafayette campus general fund. Appropriations from the state are made on a biennial basis, and the funds come with very few constraints. Once appropriated, the funds are vested with the institution and have never been subject to recession. There is no state involvement in position controls, staffing levels, internal distribution or reallocations of

5.3
funding. Further, the University is free to manage its own enrollments, establish fee rates and retain all fee revenues. Public higher education in Indiana is very fortunate in this respect.

Purdue’s budget process may be thought of as the traditional “base-plus” method with several enhancements. The policies are intended to eliminate all dis-incentives to good planning and management. Individual base budgets are established and maintained in each of our academic schools and are under the control of the dean. Individual annual allocations are made to each dean for inflationary costs and other program improvements. Each dean is free to develop budget plans within general guidelines and final approval by the Executive Vice President for Academic Affairs (EVPAA). Salary savings from grants and other budget savings may be freely utilized by the dean or department head. All general fund balances from year-end may be brought forward without restrictions. Central University reserves are provided to assist with specific accounts dedicated to leveraged startups and matching or cost sharing programs consistent with the institution’s highest priorities.

Purdue addressed the first ever reductions in operating appropriations during the 1991-93 and 1993-95 biennia. Through the involvement of students, faculty, staff, administration and trustees, the University was able to establish special operating plans to minimize the negative impact of these reductions on the institution. All four years contained variable percentages of base-budget expenditure reductions totaling $13 million. This was accomplished through the elimination of over 300 positions by attrition and by such means as cancelled searches, downgrading of rank in new searches, and selective reductions in supply budgets. One of the four years had an across-the-board dollar increase to lower paid staff and no increase to faculty and staff paid over $40,000. Finally, the revenue budgets were balanced with higher than anticipated student fee increases.

Following the years of budget reductions, our annual operating appropriations through 1998-99 have increased, but only at very modest levels - averaging less than four percent. Over that same time period, the fee increases have been in the five to six percent range. The current fee structure is still a great value to the students as Purdue ranks eighth in resident and sixth in nonresident fees among the Big 10 public institutions. (See Figures 5.2 and 5.3)
Figure 5.2
Big Ten Public Institutions
Comparison of Resident Undergraduate Tuition and Required Fees
1998-99 Academic Year

Figure 5.3
Big Ten Public Institutions
Comparison of Nonresident Undergraduate Tuition and Required Fees
1998-99 Academic Year

5.5
The University also has been forced to consider implementing special designated fees in addition to our basic fees. Decisions about these selective fee increases were reached only following considerable input from students, and they were applied only to meet special needs or to support especially high cost programs. In Fall 1997, we implemented a technology fee applicable to all students. All revenues from this fee are separately budgeted and applied only to technology costs. For Fall 1998, we implemented a $100 per semester differential fee for engineering students, with all of the resultant revenue made available to the Schools of Engineering for additional support of their instructional missions, with special emphasis on increasing the availability of undergraduate instructional laboratory equipment.

To face continued economic pressures, our budget planning processes provide for ongoing review and reallocation of existing resources. The EVPAA has established an Academic Reinvestment Program that regularly reallocates a pre-planned percentage of each school’s budget to a central pool. That pool is then used to fund newly proposed high priority instructional and research initiatives, as determined through faculty and administrative review of proposals. This was established as a three-year pilot and has worked so effectively that it has been extended for an additional three years. Reallocations are also a part of each dean’s budget planning process within his/her school. The ten academic schools have reported reallocations of nearly $14 million in the last four fiscal years.

Excellent planning and stewardship have served us well, but we cannot totally compensate for the lack of adequate levels of state support. As shown in Figure 5.4, the state share of the state/student partnership has fallen from 72 percent in 1981-82 to 55 percent in the current year.

Figure 5.4
Purdue University – West Lafayette
State Appropriations and Student Fees

![Graph showing State Operating Appropriations vs Net Student Fees over Academic Year]
Table 5.1 demonstrates the magnitude of this deficiency when Purdue is compared with other Big 10 schools. A recent review with each of the ten academic deans at the West Lafayette campus reveals that Purdue is at serious risk of falling behind its peers in the Big Ten and elsewhere in meeting the ever-increasing expectations of students, parents, and employers. Simply put, inadequate revenues result in inadequate and obsolete scientific and computer laboratories and other facilities.

The 1999-2001 request for operating appropriations challenged the legislators to recognize that “educational quality at Purdue’s West Lafayette campus is in jeopardy.” Legislative leaders listened to our message and made an attempt to address our concerns, but they were far from able to meet all of Purdue’s needs. For the first time, funding for technology was included in the operating base as recurring money, certainly a welcome development, although less than we requested.

President Borei made the following comment on the new budget and its impact on Purdue:

“Our legislators have significantly improved the position of higher education in Indiana, especially in the first year of the 1999-2001 budget. Their decision to make a portion of funding for technology needs a recurring appropriation is an important first step in recognizing this ongoing need. These recurring funds will help Purdue and other state-assisted institutions address the pivotal issue of providing up-to-date teaching tools to ensure that our graduates are in the forefront of today’s professional environment.”

For the West Lafayette campus, we had requested a recurring increase of $12 million for the first year of the biennium and an additional $12 million for the second year, totaling $24 million. We were granted a recurring increase of $2 million only in the first year and one-time appropriations of $9.3 million in both years. The overall increase in operating funds will be 5.9 percent for the first year and an additional 3.2 percent in the second year.
<table>
<thead>
<tr>
<th>Rank</th>
<th>School</th>
<th>Appropriations Per Student FTE</th>
<th>Tuition Per Student FTE</th>
<th>Total Per Student FTE</th>
<th>Per FTE Amount Above Purdue</th>
<th>Total Amount Above Purdue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Michigan</td>
<td>8,643</td>
<td>11,825</td>
<td>20,468</td>
<td>8,495</td>
<td>276,741,615</td>
</tr>
<tr>
<td>2</td>
<td>Minnesota</td>
<td>10,440 (2)</td>
<td>5,564</td>
<td>16,004</td>
<td>4,031</td>
<td>131,317,887</td>
</tr>
<tr>
<td>3</td>
<td>Wisconsin</td>
<td>9,884</td>
<td>5,564</td>
<td>15,448</td>
<td>3,475</td>
<td>113,205,075</td>
</tr>
<tr>
<td>4</td>
<td>Michigan State</td>
<td>8,741</td>
<td>5,855</td>
<td>14,596</td>
<td>2,623</td>
<td>85,449,471</td>
</tr>
<tr>
<td>5</td>
<td>Ohio State</td>
<td>7,973</td>
<td>5,966</td>
<td>13,939</td>
<td>1,966</td>
<td>64,046,382</td>
</tr>
<tr>
<td>6</td>
<td>Iowa</td>
<td>9,007</td>
<td>4,274</td>
<td>13,281</td>
<td>1,308</td>
<td>41,610,716</td>
</tr>
<tr>
<td>7</td>
<td>Penn State</td>
<td>5,509</td>
<td>7,363</td>
<td>12,872</td>
<td>899</td>
<td>29,286,723</td>
</tr>
<tr>
<td>8</td>
<td>Illinois</td>
<td>7,835</td>
<td>4,737</td>
<td>12,572</td>
<td>599</td>
<td>19,513,623</td>
</tr>
<tr>
<td>9</td>
<td><strong>PURDUE</strong></td>
<td>6,833 (5,597) (3)</td>
<td>5,140</td>
<td>11,973 (10,737) (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Indiana</td>
<td>5,530</td>
<td>6,358</td>
<td>11,888</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTES:
(1) All student FTE data includes both resident and nonresident. Purdue’s student FTE for Fall 1995 using Research Associates of Washington methodology was calculated to be 32,577 comprised of 21,614 residents and 10,962 nonresidents.
(2) Minnesota’s Office of Planning and Analysis has adjusted the number of FTE students utilized to make the above calculations. FTE has been corrected to 40,938 from 32,692. This change reflects the true nine credit hour average of the part-time population.
(3) Purdue’s Appropriation per FTE figure includes funding for the Agricultural Experiment Station and the Cooperative Extension Service. Excluding AES & CES the Appropriation per FTE becomes $5,597. Tuition per FTE remains $5,140, and Total Revenue per FTE would be $10,737. Other Land Grant Universities need to be adjusted for AES and CES also, but data is not available. However, it is highly unlikely that such adjustments would put any university below Purdue in total.
(4) Total amount column is determined by subtracting each university’s total per student FTE from Purdue’s amount ($11,973). The difference is then multiplied by Purdue’s student FTE of 32,577, i.e., Illinois: $12,572 - $11,973 = 599 X 32,577 = $19,513,623.

5.8
B. Restricted Funds

I. Voluntary Support

Purdue University's development program is a decentralized operation requiring communication and coordination among more than one hundred fifty fundraising staff members, four campuses, eighteen fundraising programs, and four service units. The primary fundraising functions performed by these diverse units and their respective staff members include annual fund operations, alumni relations, event planning, publications, and major gift work. These five functions are undergirded by four support units: gift processing, gift acknowledgement, information systems, and prospect services.

Purdue's development program boasts an endowment surpassing the billion dollar mark, placing the University among only 30 institutions in the United States with over $1 billion in endowment, eighth among the nation's public institutions, and third among Big Ten institutions. In less than thirty years of operation, Purdue's fundraising program also boasts a 15.6 percent donor participation rate among alumni and friends - nearly six percent above the national average. Annual fundraising yielded over $80,000,000 for fiscal year 1998.

Notable advancements in Purdue's fundraising operations include a redesign in gift processing that produced a two day turnaround on all gifts and the implementation of a well-received endowment stewardship program. Fundraising campaigns completed or nearing completion include the University Bands Campaign ($2,000,000), the Brick Boilermaker Golf Complex ($6,500,000), the Black Cultural Center ($3,000,000), and a new Aquatics Center ($15,000,000). Campaigns underway to be completed by year-end 2000 include a Consumer and Family Sciences planned giving campaign ($7,300,000) and a campaign for a new building for the Krannert School of Management ($50,000,000). A more than $50,000,000 campaign to construct a new Visual and Performing Arts Center is in the planning stages, as is a campaign to fund a new General Engineering building and a Nanoscale Technology Center along with additions to the Chemical and Mechanical Engineering buildings.

The University Development Office (UDO) is currently leading several strategic initiatives to improve the efficiency and effectiveness of Purdue's fundraising operations, examining each function in turn. Opportunities for improvement exist in reorganizing UDO's service units to absorb support functions currently being performed independently in fundraising units. The first among these initiatives aimed at improving the efficiency and measure of major gift work is now entering its final implementation phase.
a. Major Gift Work

Major gift work is defined as the strategic interactions between Purdue’s top prospect/donor constituency and fundraising staff to move prospects through the developmental stages of cultivation, asking, and stewardship. Purdue’s prospect management program has sought to define and segment Purdue’s fundraising constituency, define operationally major gift work, develop associated performance metrics, maximize the availability of prospect information, and minimize unwieldy administrative processes. Benefits realized to date include a more than 300% increase in contact reports filed per quarter, a 32% increase of activity on Purdue’s top prospect population, and 100% increase in program participation.

b. The Vision 21 and Successor Campaigns

Purdue University’s Vision 21 was planned to raise $250 million but actually brought in more than $332 million in institutional and program support. Anticipating another comprehensive campaign shortly after the arrival of a new University president in 2000, UDO is focusing the majority of its resources on restructuring its internal operations to meet the challenge. Again, positioning Purdue’s major gift program for the next University-wide comprehensive campaign is a major focus. Overall operational objectives include improving communication and collaboration among fundraising units, increasing the integrity and availability of information, enabling the use of fund-raising performance metrics, and minimizing duplication of support functions among fundraising units. Associated short-term goals include completing outstanding campaigns and increasing annual giving to $99,000,000 by year-end 1999.

2. Sponsored Programs

The efforts of Purdue’s faculty to identify, secure, and manage sponsored program funds is supported by the Sponsored Program Development (SPD) and Sponsored Program Services (SPS) organizations. SPD, staffed entirely by the Purdue Research Foundation, consists of two primary operating units. The Office of Industry Research and Technology Programs focuses on development of corporate sponsorship for research, and the federal agency development directors work with potential federal sponsors such as the National Science Foundation, National Institutes of Health, and Department of Defense. SPS, on the other hand, is staffed jointly by the Purdue Research Foundation and Purdue University’s Business Services and is responsible for submitting proposals to sponsors, negotiating contracts, establishing awards for funded projects, managing sponsored program funds, and overseeing and conducting technology transfer.
During 1997-98, SPS submitted a total 2,156 proposals requesting $410.6 million to a variety of external sponsors. Sponsored program awards received by Purdue University and Purdue Research Foundation in 1997-98 totaled $136.6 million. Of the total awarded dollars, federal sponsors provided 55.0%, industrial sponsors provided 14.7%, and foundations provided 10.1%. Five federal agencies provided $60.7 million of the $75.1 million in total federal awards: National Science Foundation, $19.9 million; Department of Health and Human Services, $19.2 million; Department of Energy, $9.2 million; Department of Defense, $8.7 million; and Department of Agriculture, $3.7 million. Faculty project directors from the Schools of Engineering (31.1%), Science (21.3%), and Agriculture (20.3%) accounted for 72.7% of the total sponsored program awards 1997-98.

In 1997-98, Purdue expended $137.4 million in sponsored program funds. Of this total, 20% was derived from industrial and foundation sources, 15% from the National Science Foundation, 15% from the Department of Health and Human Services, and 11% from the Department of Defense. Research project expenditures comprised 76% of the total 1997-98 sponsored program expenditures.

The ten-year history of trends in sponsored program activity are shown in Figure 5.5. Over the ten-year period from 1988-98, the annual number of proposals submitted to external sponsors increased 21% from 1788 in 1988 to 2156 in 1998, while the cost of the proposed projects remained essentially constant. Over this same ten-year period, the annual number of sponsored program awards increased 33% from 2435 in 1988 to 3233 in 1998, while the amount of sponsored program awards increased 36% from $100.6 million in 1988 to $136.6 million in 1998. From 1988-98, annual sponsored program expenditures increased 50% from $91.6 million in 1988 to $137.4 million in 1998.

A major challenge for Purdue’s SPD organization in the immediate future is planning ways to increase Purdue’s share of the growing federal budget for sponsored research in science and engineering without sacrificing its lead in industrially sponsored programs. To accomplish this goal, Purdue must capture a larger share of the increasing NIH and NSF extramural budgets. In today’s environment, this means competing more successfully for large, multi-disciplinary center projects without sacrificing the base of individual investigator project support.

For SPS, a major challenge will be the adjustment from paper-based proposals and award management to electronic proposals and electronic research administration (ERA). Perhaps the greatest components of this challenge will be building and supporting the information technology infrastructure for ERA and managing the cultural change from paper-based routing and approval of proposals to electronic routing and approval of proposals in digital format.
3. Auxiliary Enterprises

The University is provided many of its necessary support services through auxiliary enterprises. Some units derive their revenues from charges for services to students and other clients, such as the residence halls, the Union Club Hotel, convocations or intercollegiate athletics. Other units are supported through recharges for services or products to university accounts, such as transportation, duplicating, or machine shops. All auxiliary enterprises are fully self-supporting, including any debt service requirements. Many of the units are charged an administrative fee for the cost of utilities or other services provided by the University General Fund.
Auxiliary Enterprises consist of the following:

- Residence Halls System
- Card Services Office
- Intercollegiate Athletics
- Convocations and Lectures
- Recreational Gymnasium
- Recreational Facilities Addition
- Student Concert Committee
- Hall of Music Operations
- Purdue University Student Health Center
- Central Machine Shop
- Transportation Services
- Printing Services
- Materials Management Distribution
- University Press
- Publications
- Telephone Operations
- Airport Operations
- Parking Facilities
- University Warehouses
- Insurance Services
- Library Copy Operations
- Medical Security Operations
- Division for Instructional Services
- Musical Organizations
- University Bands

4. Student Aid

While student aid is the smallest component of the four major current fund groups, it is a vital one that serves over 13,000 students. As the table below outlines, our budget plan for 1998-99 allocates nearly $46 million directly to students.

Table 5.2
Budgeted Student Aid
1998-99

<table>
<thead>
<tr>
<th>Scholarship and Grant Awards</th>
<th>$10,930,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>8,400,000</td>
</tr>
<tr>
<td>Institutional</td>
<td>7,486,000</td>
</tr>
<tr>
<td>Private</td>
<td>4,567,000</td>
</tr>
<tr>
<td>Total Scholarship and Grant Awards</td>
<td>$31,383,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutional and Statutory Fee Remissions</th>
<th>8,465,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowships</td>
<td>5,187,999</td>
</tr>
<tr>
<td>Federal Work-Study Program</td>
<td>868,000</td>
</tr>
<tr>
<td>Total Budgeted Student Aid</td>
<td>$45,903,000</td>
</tr>
</tbody>
</table>

In addition to budgeted student aid, there are a variety of federal and institutional loan programs projected to exceed $83 million. Also, the
University provides graduate and undergraduate student employment consisting of over $52 million and fee remissions related to graduate and other employment of approximately $15 million. Direct aid and other student financial support available to students are estimated to total over $196 million for 1998-99.

C. Strengths in Investment and Debt Management

1. Unitized Endowment Pool

Purdue University’s Unitized Endowment Pool has grown from $163 million on June 30, 1992 to $522 million on June 30, 1998. Together with the value of Purdue’s related foundations, its total endowment exceeded $1 billion on June 30, 1998. The National Association of Colleges and Universities Business Officers (NACUBO) annual endowment study ranks institutions of higher education by market value and by performance. The market value of the University, which includes related foundations, has enjoyed a ranking consistently in the top ten public university endowments. For the fiscal year ending June 30, 1998, the Unitized Pool had an annual total return of 23.82 percent, 23.57 percent, and 18.54 percent for the past three-year and five-year periods, respectively. As of June 30, 1997 (the last period for which data is available), the University Unitized Endowment Pool had outperformed the NACUBO mean performance as shown below.

<table>
<thead>
<tr>
<th></th>
<th>1 Year</th>
<th>3 Year</th>
<th>5 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purdue University</td>
<td>25.30%</td>
<td>23.06%</td>
<td>13.55%</td>
</tr>
<tr>
<td>NACUBO Mean</td>
<td>20.30%</td>
<td>17.60%</td>
<td>13.80%</td>
</tr>
</tbody>
</table>

The University monitors its assets continually through an internal investment committee, which meets monthly with an outside advisor. The committee members monitor market activity and individual assets on a daily basis, utilizing investment tracking software, an on-line custodial system, a dedicated securities system and a network of contacts in the banking and investment community. The University has traditionally managed the majority of its assets in-house rather than employing external managers. However, the investment committee is in the process of reviewing the entire investment process for potential enhancements through the use of additional “outside” managers.

2. Debt Management

Purdue was one of the first public universities to utilize variable-rate instruments to finance capital projects on part of its debt management program. When compared to fixed-rate issues for the period October 1985 through June 1998, Purdue has saved an estimated $42.9 million in interest expense. This is another example of strong financial stewardship.
D. Related Foundations Supporting the University

The foundations listed below were established and are organized exclusively to serve the University by providing funds and other resources. The asset value, income, and support to the University for the last fiscal year for each foundation are shown in Table 5.3

<table>
<thead>
<tr>
<th>FOUNDATION</th>
<th>(BOOK) VALUE</th>
<th>INCOME</th>
<th>DISBURSEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purdue Research Foundation</td>
<td>$325,430,776</td>
<td>$18,852,922</td>
<td>$12,924,930</td>
</tr>
<tr>
<td>Ross-Ade Foundation</td>
<td>35,967,279</td>
<td>1,528,189</td>
<td>1,464,437</td>
</tr>
<tr>
<td>The Purdue Foundation, Inc.</td>
<td>2,330,208</td>
<td>19,484,594</td>
<td>19,481,489</td>
</tr>
<tr>
<td>Purdue Alumni Foundation</td>
<td>80,380,251</td>
<td>13,033,958</td>
<td>10,449,930</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$444,108,514</td>
<td>$52,899,663</td>
<td>$44,340,786</td>
</tr>
</tbody>
</table>

1. Purdue Research Foundation

The Purdue Research Foundation (PRF) manages gifts and endowments, including major gifts of land; contracts with industry for the support of research; and makes agreements with the various research-sponsoring agencies of the federal government. PRF also supports research and fellowships with its own funds as supplements to those obtained from outside agencies. This foundation developed the Purdue Industrial Research Park that provides a program for interaction between research and development activities of industry and the basic research of the University. PRF owns 7,184 acres of land, 3,746 acres of which are used by the School of Agriculture. Three members of the twelve-member Board of Directors are members of the Board of Trustees of the University.

2. Ross-Ade Foundation

The Ross-Ade Foundation was organized in 1924 through gifts from alumni to promote and develop the educational and physical welfare of students with funds that could not be provided from state appropriations. This foundation has built the football stadium, basketball arena, parking garages and golf courses, and has been instrumental in the development of the regional campuses by acquiring land and constructing the facilities. All the facilities are leased to the University on a cost basis. The nine-member Board of Directors of this foundation includes three members of the Board of Trustees of the University.

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3. The Purdue Foundation, Inc.

The Purdue Foundation, Inc. was incorporated in 1979 for the purpose of consolidating the solicitation, receipt, and acceptance of gifts, donations, and bequests from the general public, including individuals, corporations and other sources, for the benefit of the University. Included on the nine-member Board of Directors are five members of the Board of Trustees of the University.

4. Purdue Alumni Foundation

The Purdue Alumni Foundation was created in 1942 for the purpose of soliciting and collecting gifts from alumni of Purdue University to be applied toward the student financial aid program. Five trustees, all of whom are chosen by the Purdue Alumni Association Board, govern this foundation.

II. HUMAN RESOURCES

A. Introduction and Demographics

While adequate financial and physical resources are certainly indispensable foundations for the operation of the University, the absolute \textit{sine qua non} of the total process of education is the people, at every level, who put the financial and physical resources to work in the institution’s programs of instruction, research, and outreach. As of Fall 1998, Purdue University had a total of 12,465 employees, categorized as follows:
### Table 5.4

**West Lafayette Campus Faculty and Staff**

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Faculty</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic, Assoc. and Asst. Deans</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Department Heads</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Professors</td>
<td>724</td>
<td></td>
</tr>
<tr>
<td>Associate Professors</td>
<td>562</td>
<td></td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>351</td>
<td></td>
</tr>
<tr>
<td>Instructors</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Post Doctorates</td>
<td>233</td>
<td></td>
</tr>
<tr>
<td>Visiting Faculty</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Lecturers</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td><strong>Total Faculty</strong></td>
<td>2,288</td>
<td>18%</td>
</tr>
<tr>
<td><strong>Adjunct Faculty</strong></td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>(not compensated by the University and therefore not included in total)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Teaching, Research, and Outreach Personnel</strong></td>
<td>48%</td>
<td></td>
</tr>
<tr>
<td>Field Extension Agents</td>
<td>277</td>
<td></td>
</tr>
<tr>
<td>Grad Teaching Assistants</td>
<td>1,508</td>
<td></td>
</tr>
<tr>
<td>Grad Instructors</td>
<td>475</td>
<td></td>
</tr>
<tr>
<td>Grad Research Assistants</td>
<td>1,194</td>
<td></td>
</tr>
<tr>
<td><strong>Total Other Teaching, Research and Outreach Personnel</strong></td>
<td>3,703</td>
<td>30%</td>
</tr>
<tr>
<td>Administrative Staff</td>
<td>1,153</td>
<td>9%</td>
</tr>
<tr>
<td>Professional Staff</td>
<td>1,569</td>
<td>13%</td>
</tr>
<tr>
<td>Clerical Staff</td>
<td>1,412</td>
<td>11%</td>
</tr>
<tr>
<td>Service Staff</td>
<td>2,066</td>
<td>17%</td>
</tr>
<tr>
<td>Graduate Student Administrative Staff</td>
<td>294</td>
<td>2%</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td>12,465</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: 1996 Workforce File
1. Tenured and Tenure-Track Faculty

The University’s highest priority for many years has been the recruitment and retention of the most capable and productive instructional and research faculty it can identify. To attract and reward these superior faculty members, Purdue encourages department heads and deans to recognize outstanding instructional, research and outreach performance with the most generous and competitive salaries possible. In addition, Purdue currently supports a total of 69 named or distinguished professorships conferred for outstanding achievement in research, scholarship or teaching. We are aware of few institutions of Purdue’s size, stature and mission that specifically recognize extraordinary teaching contributions by conferral of distinguished professorships.

External recognition of the quality of our faculty is attested to through the large number and variety of awards conferred upon them, including a Nobel Prize in Chemistry, the National Medal of Science, the World Food Prize in Agriculture, and the International Award for Entrepreneurship and Small Business Research; by election of eight Purdue faculty to the National Academy of Science, eighteen to the National Academy of Engineering, four to the American Academy of Arts and Sciences and one to the National Academy of Sciences Institute of Medicine; by extending to them numerous Fellowships in such professional societies as the American Association for the Advancement of Science, the American Society of Engineering Education, the Association of Computing Machinery and the Institute of Food Technologists; by regular receipt of Presidential Faculty Fellowships and Presidential Outstanding Young Investigator Awards (more than 75 over the past five years); by selecting them CASE Indiana Professor of the Year four of the past six years; and by honoring them with Best Paper and Best Book of the Year awards from a large variety of scholarly journals and professional societies.

Details of rankings of many Purdue departments may be found in Table 6.2 of Chapter 6, p. 6.4.

The University takes great pride in its faculty’s accomplishments, but there is growing concern that the current federal non-mandatory retirement provisions may have a negative impact on faculty renewal and productivity. While the size of the West Lafayette faculty has remained relatively constant over the past decade, the number of assistant professors has decreased 40%. Currently, 80% of our tenured/tenure-track faculty is tenured, and 7% are age 65 or older. The University has had considerable success in helping faculty remain professionally vigorous through the myriad of faculty development programs noted in section II.C.1, pp. 5.22 – 5.24 of this chapter. Purdue’s innovative partial early-retirement program has provided an attractive and helpful transition into retirement for others. In addition, the University is closely
monitoring pending federal legislation that would allow employers with
defined contribution retirement plans, such as TIAA-CREF in which Purdue
participates, to offer the same retirement incentives currently available to those
with defined benefit plans. Discussions already are occurring at Purdue
regarding how best to capitalize on this potential flexibility if and when it
becomes reality. We continue to collect and analyze data about retirement
patterns at Purdue. We also now are benchmarking practices at other
universities experiencing demographic trends similar to ours to learn how they
are responding to this issue.

2. Non Tenure-Track Faculty

Included in this group are faculty with visiting, adjunct, clinical/professional,
and limited term or continuing lecturer appointments.

The several hundred visiting faculty members who are on the campus each
year bring a variety of special interests and types of expertise to the University.
They come from all over the world and work with regular faculty and graduate
students in every Purdue school. When they are here, visiting faculty
contribute their unique knowledge and skills to the University’s research and
instructional efforts and, when they leave, take back to their home institutions
all they have learned from their Purdue colleagues.

Adjunct faculty, many of these professionals who work in the surrounding
community, provide non-compensated specialized instruction in a variety of
professional fields, ranging from law, medicine and pharmacology to
advertising, public relations, finance and film-making. Others employed by
agencies such as the USDA work full-time on campus in various research and
outreach endeavors.

A clinical/professional faculty track was created in 1994 in response to
growing needs to hire people with cutting-edge clinical/professional expertise
to design experiential programs and teach in clinical/professional settings.
Unlike those with tenure-track appointments, these faculty, by nature of their
expertise, tend to have heavy clinical/professional commitments. Most of
their time is devoted to individual and small group instruction and supervision
in practical settings. They also are expected to remain at the cutting edge of
their practice and to serve as exemplary role models for future practitioners.
Currently, about 25 people are employed in clinical/professional faculty
positions in five schools across the West Lafayette campus.

Purdue has had a long history of employing limited-term lecturers to teach
specific courses for a specific semester. However, these lecturers could only
be hired for up to six consecutive semesters. In response to a growing need to
cover the increased numbers of sections of courses necessary to accommodate
escalating enrollments on an on-going basis, the University created a new
category of lecturers—continuing lecturer—in 1998. Departments may now offer lecturers ongoing employment to teach a specific course(s). Continuing lecturers are not eligible for tenure nor is this classification an appropriate employment alternative for tenure-track faculty who fail to acquire tenure. To ensure that the non tenure-track faculty does not grow beyond reasonable size, the following limits have been set on the total combined number of clinical/professional and continuing lecturer appointments:

- 15% of a department’s total FTE tenured/tenure-track faculty
- 5% of a school’s total FTE tenure/tenure-track faculty
- 5% of the University’s total FTE tenured/tenure-track faculty

3. **Administrative Staff**

The 1,153 administrative staff members comprise about 9% of the Purdue University workforce. The support provided by this group of employees allows faculty members to focus on the University’s educational missions. They maintain a safe, attractive learning environment and provide essential administrative, academic and learning support services. Nearly 75% of this staff group has earned at least a bachelor’s degree, 26% have master’s degrees and another 5% possess the doctorate or other terminal degrees.

4. **Professional Staff**

Some 1,569 employees (about 13% of the University’s workforce) make up the Purdue University professional staff. The professional staff is composed of people with special skills in a technical or professional field. Most work in the academic areas of the University and directly influence the instructional and research activities of Purdue in positions such as electron microscopist, research associate, crystal grower, diagnostic pathologist, glass blower, director of laboratories, instrument specialist, analytical chemist and clinical audiologist. Other Purdue professional staff members serve as graphic designers, computer systems analysts, publication editors, clinical social workers, nurses, athletic coaches, and fund-raisers among others. Over 50% of this staff group has earned at least a bachelor’s degree, 32% hold master’s degrees and another 17% have terminal degrees.

5. **Clerical and Service Staff**

The combined clerical and service staff number over 3,500. They serve Purdue in such roles as secretary, receptionist, grounds worker, electrician, painter and other positions that are critical to the University’s basic infrastructure. Over 50% of this staff have earned University credits, 13% have earned baccalaureate degrees and another 16% hold masters degrees.
B. Diversity

One of the primary means by which Purdue demonstrates its commitment to
diversity is through actively recruiting women and minorities. Search and
screening processes are conducted in the most inclusive manner possible. In
addition, target-of-opportunity hires are both encouraged and financially
supported. The Minority and Dual-Career Couple Bridge Programs, for example,
are designed to help departments attract and hire minority and women faculty
even when all faculty lines on a departmental budget are filled. When qualified
candidates are identified, a department need only make a commitment to fully
support a new hire when departmental funds become available. Over a negotiated
period of time, part or all of the salary is funded on a non-recurring basis by the
Executive Vice President for Academic Affairs. In hirings involving dual career
couples, the department bringing in the lead spouse often provides a portion of the
funding needed to employ the accompanying spouse as well. At the end of the
agreed upon period, the entire salary is funded by the hiring department. Since
1993, fifteen minority scholars and twenty-eight accompanying spouses have
been hired into tenure-track or tenured positions through these two Bridge
programs. Dual career couple hirings also are facilitated through Purdue’s
nationwide acclaimed Spousal Relocation Assistance Program through which the
University assists and supports the employment search in the community of
accompanying spouses of recruits or newly hired faculty or staff.

As a result of the University’s proactive recruiting efforts, the West Lafayette
faculty is considerably more diverse than it was ten years ago. Women comprised
15% and minorities 8% of the tenured tenure-track faculty in 1989. Today these
figures have risen to 20% and 10% respectively. During this period, the number
of women faculty grew by 93 or 36% while the number of minorities increased by
53 or 42%. Moreover, there are 43 or 134% more women and 15 or 28% more
minorities holding the rank of full professor than there were a decade ago.
Promotion data for both women and minorities also are encouraging, for they
indicate that the promotion rates for each of these groups over the past ten years
exceeds the West Lafayette campus average. Additional information about
faculty diversity can be found in Chapter Three, pp 3.8 – 3.9.

Just as the representation of women and minorities has increased on the faculty,
so too are these groups better represented among the University’s administration.
Forty-one or 190% more women and seven or 117% more minorities are in senior
leadership positions now than in 1989-90. More definitive information and data
regarding this growth can be found in Tables 3.1, 3.2 and 3.3, Chapter Three,
p. 3.8 – 3.9.

Because many administrative and professional staff positions have been
reclassified since 1989, ten-year comparisons of changes within these groups are
not appropriate. Currently, though, 62% of our administrative staff members and
44% of our professional staff are women. Despite our vigorous efforts to recruit ethnic minorities, only 5% of our administrative staff members come from minority groups. Within our professional staff, however, minorities comprise 10% of our workforce. An additional 10% are natives of countries other than the United States.

More information about West Lafayette campus policies, practices, and programs related to equity of treatment and efforts to enhance diversity can be found in Chapter Eight pp. 8.5 – 8.6 and pp. 8.8 – 8.10.

C. Professional Development

To ensure that Purdue remains among the nation’s leading universities, a wide range of professional development opportunities are provided for faculty and staff.

1. Faculty

   a. Sabbaticals

      To encourage faculty to strengthen and expand their professional skills and horizons, the University supports a generous program of sabbatical leaves. After three years service, faculty are eligible for half an academic or fiscal year’s sabbatical at half pay. After six years service, they qualify for half an academic or fiscal year’s sabbatical at full pay or a full year’s sabbatical at half pay. Annually, about 85 faculty members, on the average, take sabbatical leaves.

   b. Study In A Second Discipline

      To encourage increased understanding across disciplinary boundaries and to cultivate new research, scholarly, and instructional initiatives, a program was initiated in 1995 to encourage study in a second discipline. To date, 12 faculty have been awarded released time for either a semester or year with full pay plus a $3500 stipend per semester to pursue further study in a new discipline. Study in a Second Discipline differs from a sabbatical leave in that the former grants time away from classroom responsibilities but participants continue to supervise their graduate students and attend to other departmental duties. The benefits of this new program are several. Participants expand their teaching and research horizons and skills while members of the host departments learn from their close interactions with Purdue colleagues from different disciplines.
c. Academic Reinvestment Program

Over 215 faculty across the campus are involved in projects that have received funding through the Academic Reinvestment Program. Initiated in 1995-96, this program provides financial support on a competitive basis for innovative programs that fall outside the scope of current academic unit budgets. Priority is given to proposals that are multidisciplinary and interdisciplinary in nature. Projects may include innovative undertakings which significantly improve learning, affect courses and programs which serve broad segments of students or outreach constituents, initiate new undergraduate or graduate areas of study, or lead to the development of teaching capabilities and course materials which make effective use of advanced learning technologies. Proposals also are sought for projects which can significantly enhance Purdue's position in a research area, integrate existing strengths and activities in different disciplines and schools to achieve critical synergies, tap into exciting emerging domains of research, or augment Purdue's potential for new external research funding.

To date, nearly $2.5 million has been awarded to faculty to support 75 important projects across the West Lafayette campus. The Executive Vice President for Academic Affairs plans to continue to award at least $500,000 annually to support innovative multidisciplinary and interdisciplinary faculty projects through the Academic Reinvestment Program.

d. University Faculty Scholars Program

This program was initiated in 1998 to recognize and support outstanding faculty who are on an accelerated path for academic distinction. Participants receive a $10,000 annual supply and expense allocation for five years to support their scholarly endeavors. Fifty University Scholar appointments will be funded jointly by the Executive Vice President for Academic Affairs and the schools and departments. An additional thirty appointments funded exclusively by schools and departments also will be available. Thus far, 19 University Scholars have been named. More are in the process of being identified.

e. Special Support for Instruction

Over the past decade, professional development opportunities and resources in support of the faculty's instructional responsibilities have mushroomed. New programs and initiatives such as the Teaching Academy, the Teaching for Tomorrow Award, Focus on Teaching Lectures, Conversations on Teaching Seminars, Innovative Teaching Grants, College Teaching Workshops, and Classroom Climate Workshops all have been
initiated the past ten years. Information about each of these plus all of the programs and services available through our new Multimedia Instructional Development Center is included in Chapter Six, pp. 6.33 – 6.41.

f. Special Support for Research

Dramatic increases also have occurred in the resources and support services provided faculty to enhance their research competitiveness. Additional University funding has been made available for research start-up packages. The Purdue Research Foundation has initiated new programs and is providing substantial new fiscal support to build the faculty’s research capacity. In addition, the Office of Research and Graduate Studies has expanded its efforts to help faculty find external funding for their research. Further information about these endeavors, along with the special research support initiatives sponsored by West Lafayette campus schools and departments, can be found in Chapter Six, pp. 6.65 – 6.66.

2. Staff

Together, the administrative, professional, clerical, and service staffs make up about half of the West Lafayette campus workforce. It is important to Purdue that these employees have on-going opportunities to develop in their careers. In addition to providing funds to attend off-campus training and development seminars and conferences, Purdue offers many career development opportunities and programs designed to meet employees’ educational needs and goals. Examples of these programs include:

- A series of Stephen R. Covey courses on “The Seven Habits of Highly Effective People.”
- Zenger-Miller course materials and training techniques for teaching meeting facilitation skills, forward thinking and team empowerment.
- Council for Manager Development – a two-year management development program tailored to administrative and professional staff members in the Executive Vice President and Treasurer’s area.
- Krannert Executive Master’s Program – five new fellowships are awarded each year to high-potential staff to participate in Purdue’s weekend masters degree program (MSM) in management.
- The Richard Hadley/APSAC Fund for Professional Development supports career enrichment opportunities for administrative and professional staff.
• Accomplished Clerical Excellence (ACE) Program is a two-year program that offers high potential clerical employees an opportunity to enhance their established skills, broaden their knowledge and perspectives, and develop a valuable peer network.

• Learning through Education and Practice (LEAP) is an opportunity for clerical and service staff who have earned degrees while working at Purdue to work on an administrative/professional project within a host area.

• The Information Systems and Technology (IST) Education Program was established to provide a comprehensive training and support environment for attracting and developing computer information systems and technology professionals. Current Purdue staff members, as well as external applicants, are eligible to participate in this training opportunity.

• Reduced fees are available for qualified staff to enroll in Purdue University courses.

D. Personal Support Programs

In addition to the professional development opportunities just noted, Purdue offers many personal support programs for its faculty and staff. These include the Work Life Program, an Employee Assistance Program and generous leave policies. As an example, the Work Life Program was created in July 1997 to assist employees in addressing issues they face when trying to balance the challenges of maintaining a home, their jobs, and their health. The program includes two components: Wellness and Work and Family issues. The overall goal is to provide resources to University employees that will minimize the time and effort required to be effective in managing their complex lives. The Wellness Program encourages the wise use of medical services and the adoption and maintenance of healthy lifestyle behaviors. The Ismail Center, opened in 1999 in the Department of Health, Kinesiology and Leisure Studies, is an example of a health-oriented fitness center operated in the interest of faculty and staff, as well as a research center. The Work and Family issues component provides resources for care of children and elderly and other dependents. It also works with the Employee Assistance Program to educate employees with respect to strategies for managing stress, time, and multiple priorities.

An additional personal support provision for tenure-track faculty was initiated in 1991. When conditions arise which substantially interfere with their professional endeavors, faculty may now request that time be excluded from their probationary periods. Justifiable conditions for granting exclusions include, but are not necessarily restricted to, severe illness, disability, child bearing, or dependent care. For an exclusion to be approved by the Executive Vice President for Academic Affairs, the faculty member’s departmental primary committee and
school dean must conclude that the condition for which the request is being made occurred or continues to exist and the faculty member's performance prior to this condition warrants an exclusion. The guidelines clearly state that faculty granted exclusions should not be expected to present a record of accomplishments greater than what would be expected for a normal probationary period. Moreover, faculty should not be required to use the excluded year if their accomplishments merit early promotion and/or tenure. To date, about 30% of those granted exclusions have been promoted and tenured. An additional 30% have yet to complete their probationary periods. The remainder either are no longer at Purdue or are deceased.

III. PHYSICAL FACILITIES AND SPACE MANAGEMENT

A. Overview

On May 6, 1869, the Indiana General Assembly located and named Purdue University near Lafayette in accordance with the Morrill Act signed by President Lincoln in 1862. As an institution established to maintain a college to teach agriculture and the "mechanic arts," Purdue began classes with six instructors and 39 students on September 16, 1874.

From an initial donation of 100 acres from local residents, the West Lafayette campus has grown to 1,579 acres. In addition, there are 14,256 acres of agricultural land, 669 acres of Purdue Research Park, 275 acres at the North Central campus, 184 acres at the Calumet campus, and 565 acres at the Fort Wayne campus. The West Lafayette campus has 144 major buildings. The total physical plant includes 362 buildings containing 10,308,425 assignable square feet and approximately 15,034,387 gross square feet. The oldest building on campus, University Hall, has been in continuous use since its completion in 1877. A major renovation in the 1960’s provided an additional floor level within the existing structure, created more classrooms and offices, and air-conditioned the building. Recent roof and window replacements replicating the original have assured the attractive structure many more years of active, productive use.

1. Space Allocation and Utilization

Of the 4.5 million assignable square feet used for academic/administrative purposes, 64.5% is assigned to the academic schools to support their instructional and research needs; 5.2% is used for general purpose classrooms; 7.5% for libraries; 6.1% for academic support areas; and, 16.7% for administration, including Physical Facilities support.
Table 5.5

Distribution of Assignable Square Feet by Major Functional Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>3,717,397</td>
</tr>
<tr>
<td>Administrative</td>
<td>745,020</td>
</tr>
<tr>
<td>Auxiliary (Union, Athletics, Parking)</td>
<td>2,672,114</td>
</tr>
<tr>
<td>Residential</td>
<td>3,118,676</td>
</tr>
<tr>
<td>Non-Institutional (Airport, Research Foundation)</td>
<td>55,218</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10,308,425</strong></td>
</tr>
</tbody>
</table>

The total academic/administrative space in 1997 represented 130 square feet per full-time student. This is an increase from 124 square feet per student in 1987. Over this period, 560,000 square feet of assignable space have been added in support of academic and administrative areas. The largest components of this increase have been in office, research laboratories and support facilities. The Schools of Agriculture, Education, Liberal Arts, Science, Technology, and Veterinary Medicine have all seen substantial gains in space over this period, as have Student Services and Physical Facilities.

2. Space Needs and Current Efficiency

Although there have been a number of significant additions to campus space over the past decade, Purdue does not have the space resources of many of our peer institutions. A 1997 study that included most of the CIC institutions is summarized in Figure 5.6. It indicates that Purdue is among the schools with the lowest amount of space for its size in the study. As with a similar study on state appropriations per FTE student, other Indiana institutions adjoin Purdue at the low end of this measure.
3. Resource Support

Although its public support may not be as great as that available to institutions in surrounding states, Purdue has been able to maintain high-quality programs by efficient use of space resources and maintaining the quality of existing facilities. Efficient allocation and use of space keeps both initial capital and continuing operating costs to a minimum, leaving a greater share of resources available for space and equipment needed by academic programs. Academic program requirements are assessed on a regular and ongoing basis to determine needs and to make the reallocations necessary to support new efforts. This has permitted the University to maintain high quality in most of its programs despite the pinch of inadequate space. At some point, however, we run out of solutions made possible by high efficiency in the use of space and strategic space reallocation. The space situation of Visual and Performing Arts is perhaps the most threatening to program quality. Fortunately, this problem is now being addressed in the University’s capital plan and will be solved within the next three years. But as new areas of study emerge, bringing with them the need for new classroom and laboratory space and

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equipment, the search for space resources will have to be intensified to permit us to keep pace with comparable and competing institutions.

B. Space Planning and Projections

1. Master Plan

The Physical Master Plan for the West Lafayette campus was approved by the Board of Trustees in the 1920’s. In keeping with the academic needs of the campus, it has been maintained and continually updated since that time. The master plan attests to the stability of the academic mission of Purdue and the consequent ability to plan long-term projections of growth and space requirements. In the mid-1980’s, a Landscape Master Plan was prepared by Sasaki Associates as a complement to the physical master plan. This became the tool to provide the attractive exterior pedestrian spaces to support the proposed future building locations. The beautiful malls, fountains and bell tower were then constructed to enhance the campus experience of the students and faculty.

The Physical Master Plan is the organizational instrument that allows all physical activities to be coordinated. Because of its long-term stability, a Utilities Master Plan is in place to support all of the present and proposed facilities. This orderly growth allows the University to use its resources economically when developing the utilities that are distributed throughout the campus. Steam, chilled water, electrical power, telecommunications, water and sewers must be constantly improved and maintained to support a community the size of Purdue University. Just completed was a $45,000,000 project to provide and update the telephone and computer service to virtually every room on the campus. In recent years, the Master Plan has included the routing and parking of bicycles, which have increased annually to the present number of over 10,000. Combined with pedestrian, auto and service truck traffic, safe bicycling has become a major effort of the planning department. The construction of parking garages on the perimeter of the academic campus and removal of surface parking lots on the campus interior have allowed for not only the creation of pedestrian malls, but for reduction in pedestrian/vehicle conflicts. Ongoing understandings with the local, privately-owned Greater Lafayette Public Transportation Corp. bus company have provided service to the center of campus from private residences, fraternities and sororities in the surrounding area, and the Purdue Airport. Additional agreements between the bus company and the University will assure more broadly-based, more efficient and safer transportation for students and staff alike. Other opportunities for joint-venture solutions to parking for faculty and commuting students continue to result in innovative suggestions and ideas for satisfying the need for efficient people movement. A long-range master plan for parking is now in process with a completion goal of 1999.
2. Space Planning Process

Building efficient facilities that are effective at serving the requirements of our academic program relies heavily on understanding just what those requirements are. The facilities planning process at Purdue, therefore, focuses on clarifying the academic plan which the facilities will support and identifying the nature of the work and study activities that faculty and students will engage in as this plan unfolds. Involving as many of the potential users as possible in the earliest stages of planning allows those who understand the requirements best to have a strong voice in the results.

The facilities planning process at Purdue is true shovel-to-key project management. The initiation of major capital projects begins with a joint directive from the Executive Vice President and Treasurer and the Executive Vice President for Academic Affairs to the Director of Space Management and Academic Scheduling (SMAS) and the Director of Facilities Planning and Construction (FP&C) to establish a users' group of appropriate faculty, students and staff who will form the building committee. The two directors jointly review with the committee the responsibilities, scope, budget and time frame for the proposed project. A project manager (PM) is assigned at that time who will be the "cradle-to-grave" coordinator. SMAS first develops the academic program with a summary of spaces, a complete justification for each space and a description of its use. FP&C then takes the lead in preparing an architectural program which describes each space in detail with area relationships and site analysis. These programs are reviewed and approved by the committee, the appropriate dean and the executive vice presidents. A cost estimate is made by FP&C, and adjustments are made to the program or budget if necessary. If funding is available and approved, an architectural and engineering firm is employed and drawings begin. The committee remains an active participant with full review and approval of the documents for compliance with the program. This process does require time and effort by the faculty, students and administrative staff, but it is a proven method of assuring that the scope, budget and schedule are fully understood by all parties, and that the project satisfies the University's academic mission. The committee's involvement is reduced during construction, unless something happens which affects scope, budget or schedule. In that event, the committee is again activated to assist in resolving the situation to a satisfactory conclusion. At the completion of construction, the PM assists the user department in move-in and set-up activities, calling on the contractor or Physical Facilities to provide services as necessary. The PM works with the user department over the next year to help de-bug and provide a Physical Facilities contact when warranty or other issues arise.

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C. Results of Facility Planning

The above described process has resulted in the request for a major facility for the West Lafayette campus as a part of the "1999-2001 Capital Improvement Budget Request". The state legislature responded with an appropriation of $20,750,000 for the first phase of a building that will house the Department of Visual and Performing Arts, presently housed in World War II Army temporary structures. This is the first part of a larger project to house a 2,500 seat theater and space for Purdue Musical Organizations, Convocations and Lectures, art galleries and a thrust theater for teaching. The first phase includes Art and Design, Dance, Music and Theater.

Other items in the West Lafayette biennial request for 1999-2001 included the replacement of Chiller No. 5, extending the life of a major boiler, upgrading the electrical distribution service to 18 buildings and other utilities upgrade totaling $21,000,000. Of the total requested, the legislature provided $18,554,000, which will permit a large majority of the proposed improvements to be made. The anticipated funding for general repair and rehabilitation items, including infrastructure rehabilitation, totals $26,000,000.


Following is a list of major construction projects undertaken during the past decade:

**Academic:**

- Class of 1950 Lecture Hall 1990
- Animal Holding Facility 1990
- Animal Science Teaching Laboratory 1990
- Animal Disease Diagnostic Laboratory 1991
- Hangar 56 Addition 1991
- Hansen Life Sciences Research Completion 1992
- Animal Holding Facility Phase II 1993
- Liberal Arts and Education Building 1993
- Equine Science Health Facility 1994
- Lynn Hall Addition 1995
- Aquaculture Research Facility 1996
- Horticulture Greenhouse Complex 1998
- Food Science Building 1998
- Aviation Technology Simulator Building 1999
- Life Science Ranges 1999
- Stanley Coulter Addition 1999
- Daniel Turf Research Center 1999
- Black Cultural Center 1999
- Visual and Performing Arts Building Planned and Funded
New Krannert Building  Proposed
New Engineering Buildings  Proposed
Chemical and Mechanical Engineering Building Additions  Proposed

Support Services:
Schleman Hall for Student Services  1989
Freihaber Hall Addition  1989
Mollenkopf Athletic Complex  1990
University Street Parking Garage Addition  1950
South Power Plant Expansion  1991, 1995
McCutchon Drive Parking Garage  1991
Materials Management and Distribution Center  1992
WBAA Transmitter Building  1992
Hillebrand Residence Hall  1993
Grant Street Parking Garage  1995
Telecommunications Building  1996
Physical Facilities Services Building  1996, 1997
Aquatics and Recreation Facility  1999

Environmental:
Engineering Mall  1989
Founders Park  1995
Bell Tower  1995
Academy Park  1997
Women’s Softball Field, 1997
Breck Boilermaker Golf Complex  1998
Varsity Soccer Complex  1999

During this period, the following changes in assignable space have taken place:

<table>
<thead>
<tr>
<th></th>
<th>Academic/ Administrative</th>
<th>Support &amp; Other</th>
<th>Total Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Building</td>
<td>582,306</td>
<td>923,924</td>
<td>1,506,230</td>
</tr>
<tr>
<td>Building Demolished</td>
<td>110,484</td>
<td>286,699</td>
<td>397,183</td>
</tr>
<tr>
<td>Net Building Changes</td>
<td>Plus 471,822</td>
<td>Plus 637,225</td>
<td>Plus 1,109,047</td>
</tr>
</tbody>
</table>

In addition, numerous building repair, rehabilitation, and renovation projects are being carried on at any given time. Examples are rehabilitation of the

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laboratories in the Brown and Wetherill Chemistry Buildings and the Lilly Hall of Life Science that undergo repair and updating on a regular multi-year cycle, renovation of the Michael Golden Laboratory Foundry, remodeling of the second Floor of Store Hall, Fowler House renovation and many, many more. Funding for these repair and rehabilitation projects is supplied by the state utilizing a formula used by the Indiana Commission for Higher Education. Based on the original building cost, expected life and a current cost index, the formula generates approximately 1% per year of the replacement value of a facility. Although the formula allocates the funds to the institutions of higher education on an equitable basis, the formula has not always been fully funded. Nevertheless, over the years it has allowed Purdue to upgrade many of its older facilities, and it has reduced the deferred maintenance problems to a manageable amount.

During the past nine years, the following sums have been allocated for repair, rehabilitation and renovation:

Classroom Rehabilitation 1990-1998 $5,155,064
This program has provided continual improvement of classrooms across campus.

Laboratory Rehabilitation 1990-1998 $3,023,256
Although this program impacts fewer buildings than the classroom program, it has upgraded teaching laboratories in the Wetherill Laboratory of Chemistry and Lilly Hall of Life Sciences; the Chemical Engineering, Biochemistry, and Horticulture buildings; and Grissom Hall of Aeronautical and Astronautical Engineering.

2. Normal Repair and Rehabilitation Projects

Funded by both the state R & R formula and other department and University funds as available, the routine projects are the most difficult to identify and prioritize. To accomplish this task, the planning department and SMAS have begun a major new effort in which master plans for individual buildings are developed to align in the same manner as plans for a new facility are generated.

A users' group is identified to work with SMAS and FP&C to identify the functional shortcomings of their building. Facilities Services work crews inspect the building every two years, and their findings for maintenance and rehabilitation requirements are then blended with the academic needs. A summary and priority list is then prepared for the building which is used to prioritize funding when it is available. To date, master plans have been developed for the Civil Engineering and Agricultural and Biological Engineering buildings. Electrical Engineering is in process.

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Since 1990, in addition to the classroom and laboratory programs noted above, state R & R funding has been utilized for the following:

<table>
<thead>
<tr>
<th>Project</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior Surfaces, Relighting and Electrical</td>
<td>$5,691,500</td>
</tr>
<tr>
<td>Structural/Masonry</td>
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D. Academic Resources and Equipment

1. Classrooms

Although technology is creating opportunities to extend learning environments beyond the traditional classroom, most instructional activity continues to occur in class settings. The personal dialog that can exist among students and between students and faculty in this environment is one of the strategic advantages that university campuses will retain in providing a high-quality and well-rounded education. Classrooms themselves, however, are in the midst of a revolutionary change from four walls and a chalkboard to rooms that must facilitate multimedia presentations and electronic connections to the outside world as well as peer interaction.

Purdue is in the process of making this change. A Classroom Technology Committee was formed and has developed plans for data projection, digital media delivery, teleconferencing facilities, and support of faculty media development. Over the last decade, 75 of our 270 classrooms have been equipped for large screen computer and video presentations, and all but a few rooms have had network connections installed. Most of this progress has been accomplished with special allocations to support these efforts on a year-by-year basis. Additional continuing support for instructional technology will be needed to allow continued progress and to maintain what has been accomplished thus far.

Improvements in classroom instruction are not as simple as purchasing equipment. Our philosophy has been that for the technology to be of value, the total room environment must support its use. Multimedia presentations are effective only if classrooms are designed so that all students can see and hear the material. The Purdue Audio-Visual Electronics Standards (PAVES) have been developed, and are continually being updated, to guide this process. As far as renovation of classrooms to meet instructional needs is concerned, the University is fortunate to be able to count on a state-funded allocation for
repair and rehabilitation. Over the past decade, funds for classroom renovations have increased from $382,900 per biennium to $1,750,600. It will become necessary in the near future, however, to find capital support for replacing some outdated classroom facilities which can not be renovated adequately to support future educational needs.

The amount of classroom space has been increased over the last ten years in proportion to the increase in student enrollments, allowing average room use to remain relatively constant at 38 to 39 hours per week. Although classroom resources are carefully managed, the high utilization rate is driven primarily by a scheduling philosophy that maximizes the ability of students to take courses required for their degree by avoiding concentrations of courses at particular times and keeping sections open throughout the scheduling process. The resulting even distribution of class times is also efficient in terms of classroom space requirements.

2. Instructional Laboratories

Instructional laboratory space has increased by 27,000 square feet over the past decade as a result of efforts to provide instructional computing facilities. Although there is continued effort to provide computer-equipped study areas, the majority of campus computing facilities are heavily scheduled with classes during daytime hours. Computers are also becoming more prevalent in discipline-specific laboratories for data recording and analysis. This, along with a more collaborative approach to problem-solving in some fields, is resulting in an increasing need to update instructional laboratories. Efforts are underway to create a renovation program for teaching labs like that used for University classrooms. Including teaching laboratories in a program with research spaces has resulted in too little attention being given to instructional needs.

E. Campus Safety

1. Police Department

Purdue University operates its own police, fire, parking, safety and security, and environmental departments. The Purdue University campus employs 40 full-time police officers along with approximately 44 Purdue student security patrol units. The Purdue Police Department works closely with local, state and federal law enforcement agencies. The campus is patrolled 24 hours a day by vehicle, foot and bike patrols. The Purdue student security patrol patrols the campus and is radio equipped; however, they are unarmed and do not have police powers. They patrol primarily the parking garages and walk routes between the residence halls and the main campus.

5.35
The Police Department is responsible for publishing a safety pamphlet, which is distributed annually to all students and employees. Police Department crime statistics, as required by law, are also printed in the pamphlet. The Police Department gives approximately 150 safety talks to residence hall counselors, students and maintenance personnel per year. These safety talks are also provided to fraternities and sororities and other housing units when requested. The Police Department, using the Purdue student security patrol, also operates a security escort service and maintains an anonymous drug hotline.

2. Fire Department

Purdue University has its own Fire Department and employs 29 full-time firefighters. Firefighters are divided into three shifts, each working 24 hours. The firefighters are all EMT-trained and operate a full-time ambulance service. The department maintains two ambulances, one aerial bucket truck, one pumper and one mini-pumper. The Fire Department is responsible for all firefighting duties on campus along with the ambulance service.

3. Emergency System

The Purdue campus is equipped with 220 emergency telephones, which ring directly into the Police Department. The Police Department can, through an open telephone line, communicate directly with the caller and determine the exact location through the annunciator panel of any particular call box. Maximum time for responding to an emergency telephone call box for help is approximately two minutes.

The Campus Safety Task Force is a safety group comprised of both students and staff members and answers directly to the Purdue Student Government. The elected Vice President of Student Government is automatically the spokesperson for the Campus Safety Task Force. This group originated in 1989 and has proven very successful as a means for our entire campus community to express their concerns in the area of safety. The Task Force has been directly responsible for recommending actions, with the help of the administration, implementing improved lighting, additional emergency telephones, tree and shrubbery trimming in the interest of safety, along with working with the local bus company to establish night routes around campus for student safety.

4. Radiological and Environmental Management

This office coordinates industrial hygiene and safety inspections and is responsible for asbestos and laboratory management, along with the disposal of hazardous waste. The Radiological and Environmental Health and Safety office employs 46 full-time employees.
5. Parking Facilities

Although management of parking facilities is only tangentially related to the general issue of campus safety, it is noted here because Parking Facilities is a division of the Safety and Security Department, and its personnel report to the Director of Safety and Security. Employing eight full-time staff members, Parking Facilities is responsible for the operation and maintenance of the University's five parking garages (and for the safety of their users), issues all parking permits and collects all fees generated by fines from parking tickets.

IV. LIBRARIES

The last ten years have been a time of exceptional change for the Libraries. A primary driver of change has been a greater application of technology to library operations both for internal operations as well as access to information by users. Changes in the external environment related to scholarly communications and the rapidly escalating costs of scholarly materials have also been forces for change, and they have created numerous opportunities as well as challenges.

It was evident ten years ago that research libraries were entering a time of rapid change for which extraordinary financial resources would be needed. At the same time, it was evident that the probability of garnering significant new financial resources was small. Added to this challenge was the observation, noted in the last North Central accreditation report, of the evaluation team that "the library's available resources have not kept pace with the demands of the changing research and instruction programs of the University." The report further recognized the difficulty, if not impossibility, of rectifying the past. With the challenges of the future which lay before the Libraries, it was clear that an articulated strategic plan was necessary. The resulting strategic plan, "The Libraries of Purdue University, A Shared Commitment to Excellence: A Plan for the Future, 1992-1997," became the road map for success.

The plan recognized the changing environment and gave a powerful vision that the Libraries' success in the future rested with the utilization of sophisticated technologies to provide optimum access to and delivery of information, regardless of its location, rather than serving as a major local repository. Non-articulated, but as important, purposes for the plan were to provide a foundation for the 15 individual libraries to work in concert to present a "single face" to the public, enhance communications and decision-making, and to guide the setting of priorities. Five key directions guided the Libraries during this period:

- User access increased
- Collection quality enhanced
- Library instruction redefined
- Information delivery expanded
- Internal resources optimized
In late 1997, an evaluation of this original plan was undertaken as a prelude to moving into another five-year plan. The evaluation showed that most of the goals had been reached or were rapidly being approached. Greater utilization of technology is very evident. In 1998, the Libraries moved into their third generation of library-management software by installing Voyager software. This software is a client-server based approach with a Web interface, easily linking with other similar systems. The vision of THOR (The Online Eresource) as a central gateway to information is now possible due to the system architecture. The linking and integration of electronic (digital) resources whether at an on-campus site or at a remote location can be essentially seamless. At the same time, access to information concerning the holdings of printed resources in the Purdue Libraries as well as libraries world-wide is easily available. The Library of Congress has begun to use the same software. It will be particularly beneficial to Purdue users to be able to search the holdings of the Library of Congress using very familiar software.

A. Collections

Collection quality has been enhanced partly through various cooperative agreements. The best example of this is the cooperative agreement with the libraries of the Committee on Institutional Cooperation (CIC) whereby faculty and graduate students have access to the collections of all member libraries under the same policies as an individual library extends to its "home" users. Interlibrary loans, whether original or facsimile, are provided at no cost to the requester. A Virtual Electronic Library Project is designed to place requests directly onto the desktop of the user to lessen the interlibrary loan handling costs to libraries and create a speedier service.

The cost of monographs and serials, particularly those in scientific disciplines, has been the greatest deterrent to the ability to greatly increase the collection size. It was not unusual for scientific serials price increases to reflect a percentage two to three times that of general inflation. While the University administration has shown great generosity in increasing the budget to match costs, serials reduction projects needed to be carried out twice in the last eight years. The total of these reductions equaled $1.1 million. Even with these extensive reductions, the Libraries' serials expenditures rose 73% between 1990 and 1997. While monographic purchases have not been reduced in order to support serials, expenditures for monographs increased only 16% during this same period. The result has been a decrease in actual volumes purchased although not nearly as great a decrease as a number of other major research libraries have experienced.

The largest enhancement of the collection has been in the area of purchasing and/or licensing electronic resources. The first significant funds raised by the Libraries nascent development program in the early 90's were for electronic databases along with the supporting software and equipment. Funding from various non-recurring sources was creatively used to increase access to electronic
databases along with the cancellation of some print sources in favor of the electronic versions. The most significant boost to acquiring access to electronic resources in the last two years came as a result of the work of the Information Access Policy Committee. In late 1995, under the leadership of the Dean of Libraries, a university-wide committee was charged by Executive Vice Presidents Ringel and Ford with developing an information access policy. After extensive deliberations and discussion, the completed policy, "Planning for Academic Information Access, 1997," went into effect in 1997. The role of technology in access to information was noted by the committee via the following statement: "In the future, the only way to cost-effectively provide open-access to information will be by embracing emerging technology." A companion document, "Guidelines for Information Access in the Purdue University System, 1998," guides the University Library Committee in the priorities, process, and evaluation for administering funds received for these purposes. Almost $650,000 has been spent in less than 18 months to acquire access to electronic databases. This is new funding for the Libraries collection. The list of resources is impressive, particularly in science and technology. The financial objective for information access is to increase recurring dollars over the next few years until the fund reaches $1 million.

Information delivery has been expanded via a variety of new initiatives. The new automated library management system was noted above. Perhaps the most exciting evidence of the realization of the Libraries' vision is the growing number of primary journals available in electronic form at the user's desktop. In January 1999, all journals to which Purdue subscribes published by Elsevier, the major commercial scientific publisher, will be available electronically and at the user's desktop. As a way of evaluating and improving information delivery services, input has been sought using surveys, focus groups, and committees.

B. Library Instruction

Library instruction has been redefined through the development of an information literacy curriculum. This curriculum outlines the learning outcomes desirable at various stages of a student's course of study. A general studies course (GS 175) is available for all students and is required for Electrical Engineering Technology department students. Nine sections of the course were taught during the last academic year with a total enrollment of 188 students. A team of Libraries' faculty received an IHETS (Indiana Higher Education Telecommunication System) grant to develop an asynchronous version of the GS 175 course which will be offered to statewide technology students beginning in Spring 1999. Undergraduate Library faculty are developing a new version of a computer-based instruction program for introducing undergraduate students to library research skills. The development of critical thinking skills is a major component. An information handling skills survey was distributed to a sub-set of incoming freshmen in Fall 1998. The results of this survey will help guide the development of the undergraduate instruction program. In addition to these developments, an
active program of in-class sessions takes place. The most recent year showed that these sessions took place in 433 classes in 35 departments and reached 7,000 students. The progress of the Libraries instruction program was noted in a recently published book by a nationally recognized expert (Patricia Seen Breivik, *Student Learning in the Information Age*, 1998) in which it was stated, "Librarians at Purdue University have developed one of the best sets of learning outcome statements in use today."

C. Challenges

Improvement in physical facilities has not kept up at the same pace. The 1990 North Central report suggested that "greater centralization into a new general library and branches could address the need for better facilities." The cost of building a new general library, calculated at that time to be a minimum of $50 million, was prohibitive. In addition, environmental trends suggested that scholarly communication, particularly for a curriculum strong in science and technology, was moving away from the medium of print for access to a technology-based approach. As was stated earlier, it was a conscious decision to invest scarce resources into improving access to collections whether on-site or remote and to use technology to enhance that access. But even while meeting this objective, a new Veterinary Medical Sciences Library facility, which integrates the library into a Biomedical Information Resource Center, opened when Lynn Hall was expanded. Other library facilities received repair and remodeling treatment. A major, multi-million dollar renovation planned for the Humanities, Social Sciences, and Education Library is anticipated for a 2001 completion. That renovation is designed to showcase the integration of technology, knowledge creation, and human services with the delivery of on-demand instruction and reference assistance to the desktop of users. A major renovation of the Life Sciences Library is also anticipated either contiguous with or immediately after the one above. A long-range facilities plan is to be prepared in 1999.

Over the next five years, the Libraries will be guided by the next iteration of the strategic plan, "Plan 2004: A Framework for Action". While some language has been updated, the Libraries' vision and mission remains essentially the same as in the last plan. The strategic directions identified have been refined to four thrusts:

- The Learning Library
- Scholarly Communication
- User Services
- Infrastructure

If the experience of the outcomes achieved by completing the last plan are repeated, the Libraries will again make significant strides toward its vision.
V. COMPUTING RESOURCES

The computing facilities and resources at Purdue are distributed widely throughout the campus. Individual components of this distributed environment range from personal computers on faculty desktops, to computers in laboratories and classrooms used for instruction, to specialized high-performance computers used by research faculty and staff.

The Purdue University Computing Center (PUCC) is the central computing organization that has been charged to develop and support several components of this distributed environment. Specifically the Center is charged with the following responsibilities:

- Develop and operate a number of centrally-supported instructional computing laboratories and associated instructional support facilities.
- Provide data networks and data-network services for the campus.
- Develop and support high-performance computing facilities for research faculty and staff.

A. Instructional Computing Laboratories

The Computing Center currently operates more than 90 instructional computing laboratories at locations throughout the campus. These laboratories contain more than 2000 computer workstations that are inter-networked and individually connected to the world-wide Internet. The laboratories are shared by students and faculty in all schools and departments and are operated both as "open-use" walk-in laboratories and as "scheduled-use" instructional laboratories for regularly scheduled classes. These laboratories and their workstations are in addition to the over 140 instructional labs with more than 2000 workstations operated for students by the schools and departments of the University.

Usage records indicate that more than 20,000 different students used the instructional laboratory facilities at some time during the past academic year, and that usage averaged more than 17,000 individual sessions per day. During the same period, there were more than 700 individual class sections meeting in the labs on a regular basis.

The number and variety of instructional software programs that faculty have asked to have installed and maintained for use by their students in the instructional computing laboratories has increased significantly every semester. During the 1997-1998 academic year, for example, more than 300 different instructional software programs were installed and supported in the laboratories.
| Table 5.7 | PUCC Instructional Computing Laboratories  
| Growth in Facilities and Usage |
|-----------|-----------------|-----------------|-----------------|-----------------|
| Instructional labs | 10 | 66 | 78 | 82 |
| Workstations (PC's, MAC's, and Unix) | 259 | 1700 | 2000 | 2222 |
| Class sections meeting in the labs | 50 | 700+ | 700+ | 700+ |
| Instructors assigning work in the labs | 60 | 800+ | 800+ | 800+ |
| Students using the labs | 5,000 | 20,000+ | 20,000+ | 20,000+ |
| Application programs available in the labs | 40 | 500+ | 500+ | 500+ |
| Number of lab sessions per day | 15,000+ | 17,000+ | 17,000+ | 17,000+ |
| Average session length | 35 Minutes | 35 Minutes |
| Hours of operation | 7 am to 2 am |

It is very difficult to visualize and predict the instructional computing environment that will be necessary in the future. However, many current views of the near future predict instructional computing being done in some combination of three ways: in centrally-supported, general-purpose computing laboratories; in school and department-supported, discipline-specific computing facilities; and on student-owned personal computing equipment. All of these modes of instructional computing are now in use at Purdue, and additional general purpose and discipline-specific labs are being built every year.

In addition, the Purdue Academic Computing Environment (PACE) project, is now underway and is planning and piloting an enhanced academic computing environment that will support and promote the use of student-owned computing equipment. This project is a campus-wide initiative with a small but experienced technical staff drawn from several of the major campus academic computing units. The staff has been separated from their home units and relieved of their regular duties to permit them to devote full time to planning and specifying the new environment. Several components of the new environment have been developed and tested during the past two years and have been moved to production status and deployed throughout the campus. This promises to be a seamless multi-platform ubiquitous access operation.

5.42
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(1) Management Information Services, Engineering Computing Network, Agricultural Computing Network, and the Purdue University Computing Center.

(2) Estimates are based on a 35% burden rate applied to the total of Computer Equipment & Software and Personal Services.

(3) Excludes most expenditures for maintenance, operation and upgrades to the data network and all expenditures for construction, renovation and maintenance of computer facilities.

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B. Departmental Specific Computing

The University also operates 148 laboratories for computerized instruction with a total of over 2300 workstations. These laboratories are operated and maintained by the various schools and departments as departmental specific laboratories due to the nature of the instruction taught in the laboratory. All of the computers in the laboratories have access to the University network, and many are also serviced by a local area network maintained by the academic school.

C. Student Access to Computing Facilities

In addition to using computers in the University's central and departmental instructional computing laboratories, students who bring their own personal computers to campus can connect them to the campus data network. The latter gives them remote access to campus computing facilities and the world-wide Internet.

Purdue students in many disciplines have superior access to computing facilities as compared to students in those same disciplines at similar universities. Overall, students at Purdue have access to computing facilities comparable to those available to students at similar universities.

D. Data Network Facilities

The Purdue Data Network is distributed throughout the University and is organized as many individual networks interconnected by a centrally-managed, high-speed backbone network. University-wide standards and operating procedures have been established to ensure that the individual networks are compatible and able to communicate fully with each other.

The University has just completed a major network infrastructure development project that included the installation of state-of-the-art fiber-optic cabling, wiring, and distribution electronics to create new, high-speed network connections in all campus offices, laboratories, and classrooms. Also, new network connections were created in all rooms in the on-campus student residence halls. The cost of this project, including a new telephone switch, was in excess of $45 million dollars and was the largest single construction project ever completed at Purdue University. The infrastructure created by this project now forms a solid basis for an expanding and evolving set of critical, campus-wide network services.

With this new infrastructure, the Purdue Data Network now supports several critical campus-wide network services for faculty, students, and staff. It operates a campus-wide electronic directory service and an extensive electronic mail storage and delivery system that is currently handling between 100,000 to 200,000 electronic mail messages per day.

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The on-campus data network is connected to the world-wide Internet by high-speed access circuits installed and operated by the staff of the Purdue Data Network. The capacity of these access circuits is increased at least annually to support the expanding network connectivity needs of faculty, students, and staff.

Information technology resources are useful only if they can be accessed when and where they are needed. Purdue students, faculty and staff now have uniform access to a common, University-wide data network that enables them to access information resources from classrooms and laboratories, from libraries and offices, and from their residences. The on-campus data network together with its connections to the world-wide Internet is now a vital and critical component of information technology activities throughout the University.

Many researchers at Purdue collaborate and exchange data and computer programs with their counterparts at other research facilities throughout the world. They also use the extensive and unique computing systems located at some of these facilities for computing functions that cannot be accomplished with on-campus systems. To permit on-campus researchers to access and fully utilize the resources at these off-campus facilities, Purdue has installed and now maintains a separate connection to the Internet 2 Abilene network. This connection provides for high-speed data transmissions between campus research groups and many national and international research centers and laboratories.

The current, initial connection to the Abilene network provides for data transmissions at speeds up to 45 million bits per second. While this data transmission rate is significant, it will not be adequate to support future research applications. Therefore, a project is now underway to develop and install a direct fiber-optic connection between Purdue and Indianapolis, the nearest Abilene network node. When this direct connection goes into service next year, Purdue researchers will be able to exchange data with other research institutions at more than 2.5 billion bits per second speed of the Abilene backbone network. The office of the Governor of Indiana is funding this access for both Purdue and Indiana University.

F. Research Computing Facilities

Many research groups at Purdue are currently engaged in research activities that require access to state-of-the-art, high-performance computing facilities. While some groups have very significant computing systems installed in their laboratories and dedicated to their own use, others must depend on access to centrally operated, shared facilities. These facilities are important for small research groups, for new research faculty members that are not yet well established, and especially important for those researchers that have problems too large for computing systems they could afford to acquire for their own dedicated use.
To assist and promote the academic work of these types of researchers, Purdue provides shared, high-performance computing facilities for their use. These freely available, on-campus facilities are a unique capability that almost no other university has been able to provide free for its research faculty.

The Computing Center currently provides the following central research computing facilities:

- An Intel Paragon XP/S parallel computing system.
- An IBM model SP2 parallel computing system.
- Three clusters of computationally powerful workstations that are internetworked and operated as compute servers.
- High-capacity disk and tape storage equipment and a file server computer that are internetworked and operated as a network-based, archival data storage facility.
- High-speed network connections to national and international research networks.

The Paragon and SP2 are highly specialized parallel computing systems that are used by Purdue researchers for two different purposes. Some utilize the systems to develop and test new algorithms and techniques in the science of parallel computing. Others use the systems as high-performance computational tools to solve very large and complex engineering and scientific problems.

The three clusters of computational workstations provide general purpose computing resources for many research groups that require a stable and reliable platform for the execution of standard sets of research application programs. For example, several groups of research chemists use the systems extensively to execute a set of standard molecular dynamics programs.

The data storage and high-performance networking facilities are provided to help researchers utilize the high-performance computing systems effectively. Leading-edge research projects involve enormous amounts of data, both as input to the computing process and in the form of huge amounts of output. In many of these projects, the ability to store and exchange large amounts of data in a convenient and timely manner has become the limiting factor in the size and complexity of problems that can be successfully addressed.

F. Computer Software Training

Formal technical training and development opportunities in computer software are offered by Management Information (MI) and the Purdue University Computing Center (PUCC). MI's audience is almost exclusively composed of the administrative, professional, clerical, and service staff, while PUCC's classes are for faculty, students and staff of the academic areas. Subject matter ranges from
introductory office productivity tools such as word processing, spreadsheets, and online slide presentation software to development of World Wide Web sites, database applications, and programming languages. Over 300 formal course offerings were attended by nearly 4,000 individuals during the last half of 1997 through December 1998.

For administrative computer users interested in learning on their own, MI has licensed a wide variety of computer based training (CBT) courses from DPEC and training videos from Computer Channel, Inc.

G. Management Information

Administrative computing at Purdue is an essential component of the administrative structure supporting the University. Primary accountability for administrative computing services and functions is assigned to the Department of Management Information. The Executive Director of Management Information reports to the Executive Vice President and Treasurer. The department is made up of approximately 135 administrative/professional staff and 21 clerical and service staff, with an annual budget of approximately $8,000,000.

Management Information has system-wide responsibility for accounting, payroll, development, benefits, accounts payable, contracts, grants, and student loan systems. The department is also responsible for West Lafayette's accounts receivable, bursar, financial aid, registrar, admissions, housing and food services, and physical facilities systems.

The Administrative Computing Master Plan, which was adopted in 1993 and is currently under review by a University-wide task force, provides guidance for administrative information technology planning and decision making. An advisory group, the Administrative Computer Steering Committee, provides input and advice on the implementation and review of the master plan. This committee also provides input on establishing administrative computing standards and policies. The Administrative Computing Steering Committee, which meets quarterly, is chaired by the Executive Director of Management Information.

The Executive Director of Management Information serves on the Purdue Academic Policy Committee, Purdue Data Network Policy Committee, and meets quarterly with regional campus computing directors.

Purdue is now in the process of transforming its legacy systems to a service-oriented, Web-based environment. For example, providing students Web access to student schedule information, grades, etc., and providing faculty Web access to financial information on research projects. All administrative applications have been made year 2000 compliant using software developed by Management Information staff and distributed at no cost to all Big Ten institutions. IT staff retention and recruitment is being proactively managed through participation in a
variety of on-campus and off-campus programs. One example is enrollment in
summer intensive credit courses offered specifically for Purdue IT staff by the
Department of Computer Technology.

Overall, Purdue’s Administrative Computing Services are using current technology to
improve administrative services, are well positioned to continue utilizing new
technology into the foreseeable future, and are comparable to equivalent services
provided at peer institutions.

VI. EDUCATIONAL AND ACADEMIC SUPPORT SERVICES FOR STUDENTS

In fulfilling the University’s goal to provide students the opportunity and the
encouragement to excel, Purdue offers a wide range of educational and academic
support services that focus on creating an environment in which students can grow
intellectually, culturally, emotionally, physically, and socially. These services span
the time from when a contact is made concerning possible admission until the student
fulfills his/her objectives in attending the University.

To fully involve the student population, a sub-committee of the Criterion Two study
group met with a representative group of students to assess their response to the
findings in this section. The students were very positive toward the overall quality
and quantity of services provided. They were most complimentary and had general
agreement with the findings of the committee. Although they agreed that progress
was being made on diversity, they felt the University needed to continue to address
this area. There was also a feeling that the Center for Career Opportunities needed to
be reviewed to determine if the placement process was meeting the needs of
employers as well as students.

This section considers the educational and academic support services available to
students at the West Lafayette campus.

A. Enrollment Management

1. Recruiting and Admitting Undergraduate Students

Rethinking how the campus attracts, recruits, admits, and enrolls
undergraduate students has been a major focus during the past five years of
the Office of Admissions. With substantial collaboration among service
providers, new initiatives have been implemented which already have
produced positive enrollment results. Indeed, Purdue’s West Lafayette
campus enrollment was at an all time high in Fall 1998 with 36,878 students,
exceeding the previous 1991 record by 715. The incoming freshman class of
7,086 was the second largest class in Purdue history. The largest beginning
group was the 7,326 students who enrolled in the Fall of 1988. The Fall 1998
class included more valedictorians and other top academic performers than in
years past, and the class’s SAT scores were more than 100 points above the

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state average. International enrollment was up 14.1%. Purdue now has one of the largest groups of undergraduate international students in the nation. Since 1989, minority student enrollment has increased 33%, outsourcing undergraduate enrollment which has risen only by about 2% since this time. New record enrollments are expected for Fall 1999.

Several new recruiting strategies and programs have been instrumental in helping the University achieve these results. One has been to develop new outreach programs that target not only students in high school but those in middle and elementary school as well. Helping them understand what they need to do to prepare for college and in the process acquainting them with Purdue has paid dividends for both these prospective collegians and the University. Simplifying and speeding up the admissions process also has been mutually beneficial. With the advent of Purdue’s integrated application, a prospective student can apply for admission, housing, and a preliminary financial aid estimate in a single process. The University is able to mail a response within no more than two to three days. Previously, response time was measured in weeks. A third very successful enrollment management strategy focuses on programs that encourage admitted students to visit campus. We have found that students who experience Purdue enroll here in greater numbers than those who have never been on campus. Our admitted student programs for high ability students and minority students in particular have been very effective in increasing our enrollments in these sectors.

2. Financial Aid for Undergraduate Students

Another of the University’s goals is to make a Purdue education accessible and affordable to all interested and qualified students. Dramatically increasing both need-based and merit-based financial aid during the past ten years has been an additional effective enrollment management strategy. Since the 1989-90 academic year, student aid at Purdue has increased from $48.2 million, 20,326 filers, and 14,594 recipients, to $117.9 million, 29,023 filers, and 19,023 recipients in 1997-98.

Shortening the timeframe in which student aid is distributed also has been important. In 1998-99, Purdue implemented a new “single source delivery system” for the Family Federal Education Loan program with our partner, USA Group. Through this new process, the University was able to finalize the disbursement of $19.6 million in student loans by the first week of class, compared to $9 million in 1997-98.

Purdue is part of an elite group of universities who have adopted the mission of the U.S. Department of Education’s Institutional Quality Assurance Program to “assure the delivery of student aid funds is conducted accurately, expeditiously, and with integrity.” By participation, the Division of Financial Aid staff is empowered to seek the highest quality standard while
demonstrating a commitment to their clients. The West Lafayette campus was recognized for its excellence through receipt of the Department of Education’s inaugural Model of Quality Award in 1990.

In its commitment to make a Purdue education accessible and affordable, the University has not only sought additional funding for need-based grants, but it also has created the following new institutional merit-based awards to attract more high academic ability students to Purdue:

- **Beering Scholarship Program** – This program provides funds to cover full tuition and fees, housing, books, stipend and travel funds. Scholarships are renewable throughout the recipient’s undergraduate career and can also be used to attend graduate school at Purdue or medical school at Indiana University. Currently there are 31 Beering Scholars. Recipients are selected on the basis of their accomplishments and promise for continued success. Candidates for these competitive awards must have scores of at least 1500 on the SAT or 33 on the ACT and be in the top 5% of their high school graduating class.

- **National Merit Scholars Awards Program** – Fully implemented in 1995, this program makes funding available to all National Merit finalists who list Purdue as their first choice college or university. Funding ranges from $750 to $2,000 based on need and is renewable if award standards are met. Purdue designates approximately 60 awards per year.

- **Valedictorian Scholarship Program** – This program offers a $1,000 award to all valedictorians at the time of admission to Purdue. Between 165 and 175 awards have been granted annually since 1995.

- **Purdue University Academic Success Awards Program** – Created in 1998, these scholarships are for students who meet the following criteria: SAT 1360 (95th percentile), top 5% of high school class or 3.9 GPA if high school does not rank class. Awards range from $1,000 to $3,000 depending on residency status and are renewable for two to four years if the student maintains a 3.5 GPA.

In addition to these institutional scholarships, the academic schools also provide undergraduate merit awards. In total, the West Lafayette campus offered 678 merit scholarships in 1993 and 996 in 1998. It plans to increase this number to 1387 by 2002. In 1997-98, expenditures for undergraduate academic scholarships totaled in excess of $3.5 million. Projected expenditures for 1999-2000 exceed $4.1 million.
3. Recruiting and Admitting Graduate Students

Most graduate student recruitment is done by individual faculty and academic departments. The actual admitting function, though, is administered by the Graduate School.

Graduate enrollment at the West Lafayette campus was about 2% higher in 1998-99 (6013) than it was in 1989-90 (5871). The shift in the mix of subpopulations over the past ten years, however, has been dramatic. The number of women has grown by 10% (1996 to 2194). International student enrollment has risen 22% (1746 to 2129) while minority student enrollment has increased 40% (403 to 565).

Several special recruiting initiatives have helped increase minority enrollment. Foremost among these has been our Historically Black Institution (HBI) Visitation Program through which outstanding undergraduate students from HBIs are brought to the West Lafayette campus for a three-day visit. Since 1989, 195 of these students have enrolled at Purdue. To date, 194 have earned masters degrees. Fourteen have received Ph.D. degrees. A second productive graduate student recruiting initiative has been the University’s MARC (Minority Access to Research Careers) and AIM (Access Internally for Minorities) programs which provide special summer-long, on-campus research opportunities for minority undergraduate students. The goal is to encourage them to pursue graduate study and careers in research. One hundred twenty-nine of the 361 students who have participated in these programs at the West Lafayette campus since 1990 have eventually enrolled in graduate school. Fifty-five of them have matriculated at Purdue. Other recruiting efforts supported by grants from the Sloan Foundation, the GE Faculty for the Future Fund, and the National Institutes of Health also have been instrumental in helping Purdue increase representation of minorities and of women in the Graduate School.

4. Financial Assistance for Graduate Students

One of the keys to recruiting outstanding graduate students is the ability to offer them fellowships. Since 1989, the number of Purdue fellowships available has increased 66% (93 to 148). The average value of these fellowships has increased 9% ($9000 to $12,480). Excluded from this average are the new $15,600 Purdue Presidential Distinguished Fellowships. Nine of the latter were awarded in 1997-98 and sixteen in 1998-99.

A second important financial incentive in recruiting and retaining graduate students is assistantships. While the total number of assistantships awarded has remained between 3550 and 3600, the average monthly stipend has increased 20% over the past five years from $954 to $1156 in Fall 1998.
5. Recruiting and Admitting Professional Students

Two professional degree programs, the Doctor of Veterinary Medicine (D.V.M.) and the Doctor of Pharmacy (Pharm.D.) are offered at the West Lafayette campus. Students are recruited and admitted by the respective school faculties.

Because enrollment in the D.V.M. program is capped, it has grown only slightly (236 to 259) over the past ten years. However, the percentage of the D.V.M. students who are women has increased from 61% to 70% since 1989 and the number who are minorities has doubled (8 to 16).

In Fall 1998, 447 students were enrolled in the Pharm.D. program. Women comprised 69% of the program’s enrollment, while minorities comprised 14%. Ten-year enrollment comparisons would be misleading, however, because of the dramatic growth that has occurred recently in the Pharm.D. program. In 1996, the School of Pharmacy began to phase out its baccalaureate degree program. Since then, entering classes have been admitted directly into the professional degree program.

B. Academic Support Programs and Services

In pursuit of fulfilling Purdue’s goal to create an environment that provides students the opportunity and encouragement to excel, West Lafayette campus faculty and staff are totally committed to helping students achieve their educational goals. An early indication of this commitment can be found in the extraordinary measures that are taken to ensure that sufficient sections of high demand courses – particularly at the entry level – are available to accommodate all of the students who need to enroll in them. Course enrollments are monitored closely throughout pre-registration and when demand exceeds supply, resources are made available to add new sections. For example, for Fall 1999, an additional $1.5 million was allocated centrally to the Schools of Liberal Arts, Science, and Technology to hire more personnel to teach the number of new sections of courses needed to accommodate the West Lafayette campus’s expected record enrollment. Another example of Purdue’s commitment to help students succeed can be found in the myriad of outstanding academic support programs and services that are available across the campus. Among these are the following:

1. Orientation

New student orientation is a multi-phase, on-going process designed to help students make a successful transition from high school or the workplace to college. All sectors of the campus are involved. The most noteworthy program initiated since 1989 is Boiler Gold Rush, a comprehensive, high-energy, optional orientation program that takes place the week before classes...
begin. What involved 100 students in 1993 now has grown to 2700 participants. Well over 3000 students are expected to participate next year. An introduction to the many phases of academic and campus life are included. Incoming freshmen are able to learn about life at Purdue, make new friends, and find their way around the campus before the start of classes. This early immersion in the campus culture seems to be having a positive impact on freshmen retention.

2. Academic Counseling and Advising

Every student at the West Lafayette campus has access to a variety of academic counseling and advising services. Advisors help students set goals and identify strategies for achieving them, determine appropriate majors, select courses, and complete the registration process. Advisors also serve as sounding boards, sources of information about academic policies and procedures, and referral agents to all of the support programs or services the campus offers. Many faculty members across the campus are involved in academic advising. In some schools, advising responsibilities also are assigned to members of the professional staff.

3. Special Academic Support Centers and Programs

a. Learning Center

To help students across the campus succeed in the classroom, the Learning Center in the School of Liberal Arts offers credit courses in both college reading skills and applications and effective study methods. It also offers Supplemental Instruction (SI) in Mathematics 153 (Algebra and Trigonometry I), Biological Sciences 203 (Human Anatomy and Physiology), and Psychology 120 (Elementary Psychology) to help students develop a better understanding of course content while integrating effective study strategies. In addition, the Learning Center sponsors non-credit workshops on topics such as time management, self-motivation, taking and using good lecture notes, memory improvement, overcoming anxiety in math and science, test-taking skills, managing procrastination, reading efficiency and surviving finals week. Individual consultation and computer-assisted instruction also are available. During the past year, 8199 participations were recorded in Learning Center activities and services. Students gave high marks to the multi-faceted support they received.

b. Writing Lab

The Writing Lab in the Department of English provides individual tutorials and workshops for students in all majors seeking help with writing papers, preparing scholarship applications, writing resumes and

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job application letters, learning English as a second language, and learning to use the Internet as a source of information for research papers. In 1998-99, the Writing Lab responded to over 14,000 on-site requests for help from nearly 8,600 users. Ninety-four percent noted the assistance they received through individual tutorials was very helpful, and 93% of the users indicated they would very likely return if further help were needed.

Writing-related information and services also are available on-line through the Lab’s award winning OWL (Online Writing Lab). At anytime from anywhere, students can e-mail questions to Writing Lab tutors who will respond within no more than 24 hours. Those in a bigger hurry can access nearly 150 handouts on writing skills which can be read on-line or printed. Nearly 2,300,000 users on campus, across the nation, and in over 100 countries abroad benefited from Purdue’s internationally-acclaimed OWL’s information and tutorial services during 1998-99.

c. Testing Center

The Testing Center, located in the Office of the Dean of Students, offers interest, aptitude, and personality tests to help students assess their educational and career goals. Advanced credit examinations, CLEP, national and pre-professional admission examinations, and classroom exams for adaptive learners also are administered by the Testing Center. About 8100 tests were taken through the Center in 1998-99.

d. Lilly Retention Initiatives

In 1997, the Lilly Endowment granted Purdue University $5 million systemwide over five years to support new initiatives that would help increase each campus’s baccalaureate degree completion rate 5% by 2002. About $3.5 million was allocated to the West Lafayette campus to support the following endeavors: expanded orientation programming, Purdue Summer Start, first-year seminars, supplement instruction, undergraduate honors and research experiences, living/learning communities, faculty and teaching assistant development programs, proactive academic advising, front-line staff development, and PurdueNet. While it is too early to tell whether these initiatives will have the desired collective impact, early results are promising. Increasing the West Lafayette campus’s 64% six-year graduation rate, however, will be a challenge, for the campus’s graduation rate already is above the national average for comparable institutions.

d. Student Services INFormation Online (SSINFO)

Developed by the Office of the Registrar in the early 1990’s, SSINFO provides Internet access to students for a variety of University information
services. With the addition of the Personal Access Code (PAC) in 1993, SSSINFO enabled online access to transcript requests, address changes, final examination schedules, financial aid information, class schedules, and grades. SSSINFO on the Web was unveiled in June, 1999. Its usefulness and popularity already are evident, for in its first two months, it was greeted with over 930,000 accesses.

4. Support Programs and Services for Special Populations

a. Programs and Services for Exploratory Students

In 1995, the Undergraduate Studies Program (USP) was established to enable academically qualified, beginning students to enter Purdue and explore academic and career options prior to selecting a school or a major. Intensive academic advising and career exploration services are provided. USP students also take a special academic and career planning course. Data suggest that USP is helping improve student retention among exploratory students, for in each of the six semesters reviewed, the retention of the USP entering classes in 1996 and 1997 exceeds that of a matched non-USP exploratory student cohort. In fact, the retention gap between the two groups widens each semester.

The University Division supports continuing students who entered a school rather than USP who either are searching for a major or are trying to meet the required Purdue grade index and/or complete the prerequisites for acceptance into the major of their choice. Individually tailored and designed academic and career exploration assistance is provided.

A study currently is underway to determine whether or not some or all of the elements of the Undergraduate Studies Program and University Division should be combined.

b. Programs and Services for Non-Traditional Students

Span Plan, located in the Dean of Students Office, helps undergraduate students 24 years of age or older adjust to entering or returning to the University environment. Services include an orientation program, counseling, evening programs, a newsletter and handbook, and a modest grant program. The Adult Students Association of Purdue (ASAP) complements the work of the Span Plan staff through sponsoring additional programs and activities that support incoming and established adult learners.
c. Programs and Services for Students With Disabilities

The Dean of Students Office Adaptive Programs staff provide students having temporary or permanent disabilities assistance with course scheduling, accessibility concerns, notetakers, readers, interpreters, and individual counseling. Special computer equipment and software is available through the Computer Center's Adaptive Learning Programs lab (ALPs). Included are provision for voice input and speech output, braille keyboards and printers, scanners, screen readers, and programs for enlarging texts.

Purdue's relatively new yet already nationally-acclaimed program, TAEVIS (Tactile Access to Education for Visually Impaired Students) provides braille and a variety of tactile materials to students who are blind, allowing them to study subjects which were previously considered impossible because of their visual impairment. With TAEVIS assistance, Purdue students have successfully completed advanced courses in biology, chemistry, physics, and calculus.

Diagnostic and remedial services for students with speech, language and hearing disorders are provided through the M.D. Steer Center in the Department of Audiology and Speech Sciences. Sign language services also are available.

d. Programs and Services for International Students

Purdue's international student population is among the largest in the Big Ten. The Office of International Students and Scholars assists students from abroad with academic, personal, financial and immigration-related matters and facilitates communication with the United States Immigration and Naturalization Service and the United States Information Agency. The International Center, an independent organization, offers a program of social and cultural events for the community and is a gathering place for international students. The International Students Association also sponsors several educational activities to promote the spirit of brotherhood and cooperation among all international students and the Purdue community. Special support networks are provided by nearly 50 nationality-specific student clubs.

e. Programs and Services for Women

Many of the special programs and services for women students focus on recruiting and supporting them in curricula which traditionally have been dominated by men. An example is Purdue's nationally-recognized, pioneering program for Women in Engineering. Mentoring and
networking along with a comprehensive series of personal support, social, and professional programs are offered. Similar programs are available or being developed for Women in Science.

The Women's Clinic in the Student Health Center provides preventive health-care along with testing, contraception, and pregnancy-related information, counseling, and services. Special medical and counseling services also are provided for female students who have experienced abusive relationships or sexual assault.

The Women's Resource Office (WRO) is responsible for improving the campus climate for women and encouraging as well as developing programs that address women's issues and gender-related concerns. The WRO also makes recommendations on policies of concern to women, increases sensitivity in the campus community to gender-based issues, and works to correct gender-based inequities.

f. Programs and Services for Ethnic Minorities

Purdue's nationally-acclaimed Black Cultural Center (BCC) is a focal point for gaining information and knowledge about African-American heritage. The BCC serves all students in providing programs and activities that relate to African-American culture.

The Center sponsors several outstanding performing arts ensembles that include: the Black Voices of Inspiration (choir), the Jahari Dance Troupe (dance), the New Directional Players (drama), and the Haraka Writers (creative writing). In a workshop setting, artists-in-residence prepare each group for major performances. The BCC also sponsors concerts, seminars, lectures, and art exhibits.

In June 1999, the BCC moved into a new $3 million 22,000 square foot facility which will help the Center provide better services for students and even more meaningful linkages with Purdue's academic programs. A shared vision of the future of the Black Cultural Center focuses on

- assisting African-American students in gaining greater understanding of their culture and heritage;
- enhancing cultural programming by strengthening ties between the arts and the academic foundations of African-American Studies;
- broadening the understanding of the role of African-American culture in an increasingly diverse and multicultural world;
- nurturing and respecting our historical beginnings while branching out into new areas of challenge and opportunity;
- supporting academic excellence and leadership development by providing more resources and tools, including an expanded library and a modern computer lab;
- collaborating with other Purdue departments to enhance guidance in academic and career preparation; and
- increasing outreach programs that respond to community needs.

Most of the schools at the West Lafayette campus have special recruiting and retention programs for minority students. Special features include peer mentoring, networking, and tutorial activities. Career-related programs and opportunities also are highlighted. Professional staff are available to provide personal consultation and support. The work of the school minority program offices is complemented by a large variety of social, cultural, and professional activities sponsored by over 30 minority student organizations across the campus. Purdue's nationally-acclaimed Minority Engineering Program has become the model for many other minority recruitment and retention programs across the country. The National Society of Black Engineers (NSBE), which had its beginnings at Purdue twenty-five years ago, has become the nation’s premier organization for black engineers. From a single chapter in West Lafayette, Indiana, NSBE has grown into a 270 collegiate and 50 alumni chapter, 10,000 member organization. Purdue's chapter of NSBE continues to be among the nation’s best.

Academic support services for minority students also are available through HORIZONS, a federally-funded program serving students from low-income families, first-generation college students, and students with disabilities. Located in the Dean of Students Office, HORIZONS promotes student success through an orientation course, a faculty mentoring program, tutoring, and supplemental instruction.

g. Programs for Students Interested in Military Careers

Purdue has had a long tradition of outstanding Air Force, Navy, and Army ROTC programs designed to allow students to participate in a full collegiate experience while preparing to assume, upon graduation, a position as a leader and an officer in the military. Purdue’s units continue to excel. The Navy ROTC unit is the eighth largest in the nation. In 1997, the University’s AFROTC detachment received the Air Force Organizational Excellence award presented to the top five percent of all units nationally. In addition, a Purdue cadet was named the top AFROTC junior in the nation. The Army ROTC program also is one the best in the country and has twice been the recipient of the General Douglas McArthur Award, first as the best large unit (1989) then as the premier middle size program (1997).
C. Counseling, Health, and Career-Related Services

1. Counseling Services

A wide array of counseling services are provided for students by several agencies across the campus. Staff in the counseling area of the Office of the Dean of Students assist students who need help understanding themselves, accepting responsibility for their choices, and following a course of action to solve problems. Attention also is given to helping students understand and appreciate cultural, ethnic, and individual differences. Workshops, seminars, and group counseling are offered on topics such as eating disorders, grief and loss, homophobia, sexual orientation, acquaintance rape and sexual harassment. In addition, a Victim Assistance Program has been established to provide counseling and critical recovery assistance.

Counseling and Psychological Services, whose staff includes psychiatrists, psychologists, clinical social workers, and masters level therapists, provides individual and conjoint counseling, group therapy, workshop experiences, outreach, consultation, and psychological testing.

Assistance is provided for personal adjustment; relationship difficulties; and vocational, career, and life planning through the Counseling and Guidance Center, a training site for the Counseling and Development section of the Department of Educational Studies.

Staff in the Marriage and Family Therapy Center, which is located in the Department of Child Development and Family Studies, counsel students as well as faculty and staff experiencing persistent and unmanageable marital conflict. Family therapy is offered for problems involving a child or intergenerational family difficulties. Premarital, divorce, and sex therapy also are available.

2. Student Health Services

The mission of the Purdue University Student Health Center (PUSH) is to provide ambulatory health care and primary prevention services of the highest quality for the University community. Central to this mission is the development and implementation of services which are sensitive and responsive to the changing medical needs of that constituency.

The evolution of services at PUSH reflects a commitment to maintaining quality of care and providing services which are affordable and cost effective. Through the treatment of illness and injury and the promotion of wellness and healthy lifestyles, the Student Health Center is an indispensable element in maintaining a physically and mentally healthy campus. By filling this role, PUSH directly supports the mission of the University and contributes to productivity, quality of life, and the retention of students through graduation.
During the past ten years, the Student Health Center has emphasized the following priorities: expanded clinical services, increased accessibility to care, the development of primary prevention initiatives, expanded eligibility for staff, well programs, and substance-abuse intervention.

In addition to having access to medical services on campus, students may have prescriptions filled or purchase other medications at the University Pharmacy, a practicum site in the School of Pharmacy. The University Pharmacy is located next to PUSH.

Clearly, the task of keeping the Purdue campus healthy is one which demands committed professionalism and the integration of innovative thinking, flexible responsivity, and strong fiscal management. Looking toward the future, further consideration must be given to the opportunities for diversifying services in a manner which allows the University to address more effectively an increasingly diverse patient population and, at the same time, provide avenues for both cost control and fiscal stability.

### 3. Career-Related Services

The Center for Career Opportunities offers career and job search resources to undergraduate and graduate students at the main campus and to students enrolled in Purdue degree programs at the regional campuses. The Center serves 3,000 to 4,000 students per academic year who have entered a resume on the Center’s Website. This interactive Virtual Career Center was developed in 1996. It is based on a student-initiated resume referral philosophy and serves students and employer needs.

One of the Center’s prime activities is an extensive on-campus interview program. In recent years, between 700 - 800 employing organizations have visited the Center annually to interview students seeking career-related work. Between 18,000 - 22,000 such interviews occur each year. In addition, hundreds of other students utilize the Center’s counseling, drop-in, and workshop services.

Some of the schools also have career centers that help connect their students with prospective employers through seminars, resume books, career fairs, and on-campus interviews. Student organizations also sponsor career-related programs and activities. Among the more notable is the Industrial Roundtable sponsored by the Engineering Student Council. Over 300 companies participate in this two-day event, which is the largest student-sponsored career fair in the nation.
D. Student Housing

1. Residence Halls

The University continues to offer high quality on-campus housing to its undergraduate, professional, and graduate students. Purdue remains the largest student housing operation in the country that houses students on a voluntary basis. Students may live where they choose during their entire tenure at Purdue.

Purdue's on-campus housing operation, known as University Residences, collectively houses about 12,000 students in its 11 traditional residence halls, 2 apartment complexes, and 2 graduate houses. Each year about 87% of all new students choose to live on campus. The reapplication rate of students who continue for another year is about 51%, one of the highest in the country.

The staff of University Residences includes nearly 600 full-time staff members, 277 residence hall counselors, and approximately 1,000 student employees. Over 20 types of room accommodations and three different meal plans are available. The average room and board rate is about $4500 per year which includes 15 meals a week. Ten and 20 meals-per-week plans also are available.

The addition of Hillenbrand Hall best illustrates the thorough approach to University Residences planning. Hillenbrand Hall was planned, developed, and built with significant assistance from students, staff, and various campus departments. The result is a magnificent $80 million student hall and a parking garage that are very popular with students. Both have attracted attention from other campus housing staffs across the country. With its semi-private rooms with shared bathrooms, individual mailboxes for students, individually controlled room heating and air conditioning, bakery, gray and mauve terrazzo floors, and its Atrium Dining Room, Hillenbrand Hall is state-of-the-art in college housing.

2. Sororities and Fraternities

About one-fifth of Purdue's undergraduate men and women belong to the 43 fraternities and 24 sororities on campus. Most of these students live in the chapter houses. Invitations to join fraternities are issued primarily during the first few weeks of each semester. Invitations to join sororities are issued at the beginning of the spring semester. All of the sororities and several of the fraternities currently are substance-free. Within the next two to three years, we expect about half of the fraternities will have substance-free environments.
3. Cooperatives

Eleven cooperative houses, five for men and six for women, provide housing and food service for students. These are residence houses owned and operated by the students themselves. All such groups must be approved by the Dean of Students. All of the houses have a University staff member who serves in an advisory capacity. Organized sports, recreational, and social programs are available to cooperative house members.

4. Off-Campus Housing

A large number of Purdue students live off campus in apartments, rooms, mobile homes, or houses they have rented in the Greater Lafayette area. Although students are expected to make their own arrangements for off-campus housing, they can get assistance from the Office of the Dean of Students (ODOS), which maintains up-to-date listings of rental units that local landlords are willing to rent to students. Roommate listings and guidelines for tenants also are available through ODOS.

5. Married Student Housing

There are 1,244 University-operated apartments within one mile of the main campus. The one and two-bedroom apartments are unfurnished (equipped with stove and refrigerator).

6. Graduate Student On-Campus Housing

Housing for approximately 750 graduate students is provided in Hawkins Graduate House and Young Graduate House.

E. Campus Life

1. Student Organizations

More than 600 recognized student organizations on campus provide opportunities for student activity and interest in almost any area from meditation to racquetball to political involvement. Participation in these organizations is encouraged as an important part of campus life. Leadership development of student organization officers is a key component of a student's education at Purdue.

During the past 10 years, the procedure for approving student organization events has been continually improved by collecting data, talking to students, and meeting with other departments on campus that assist these efforts. A significant and positive focus on student leadership development also has
emerged. Leadership classes, workshops, conferences, mentoring programs, practicum experiences, and awards afford students today a broad array of leadership development experiences. A growing leadership library and resource center within the office also enhances leadership learning and student development programming. The University reaps real dividends from this focus in the form of more competent and confident leaders in key positions within student organizations, housing units, and student government. Student participants enjoy the added attention that leadership development opportunities and experiences bring from prospective employers.

2. Recreational Sports

The Division of Recreational Sports has been an integral part of Purdue University since the Recreational Sports Center was completed in 1957. These programs and services are as unique and diverse as the building that houses many of them. At Purdue, recreational programs are a vital extension of the educational process, contributing to the physical, intellectual, emotional, and social development of students, faculty, and staff. Recreational Sports encompasses many areas: intramural sports, club sports, fitness, wellness, and informal recreation. From leadership and character development to healthy lifestyle choices and promoting lifetime sport and fitness skills, the division is committed to providing diversity in not only its programs but also in the experiences the programs provide.

A major renovation of the Recreational Sports Center is underway, and the construction of a new $14 million Aquatics Center will begin in Fall 1999.

3. Performing Arts

a. Convocations and Lectures

The Department of Convocations and Lectures fits into the heart of Purdue’s mission in a variety of ways:

- emphasizing connectedness and bridging the University and community;
- playing a key role in increasing diversity, creating a more welcoming campus, and enhancing the cultural climate; and
- supporting the University’s international focus through presentation of a broad variety of ethnic and cultural attractions.

Annually, Convocations, through its 30-40 live performances, co-sponsorship of lectures, and film series, provides audiences with opportunities to experience the finest in artistic achievement across the spectrum of the performing arts; to encounter the ideas of influential
leaders and scholars; and to see acclaimed non-commercial films from around the world.

Access to live performance is particularly important at a University where many undergraduates come from environments where the arts are not easily accessible. By making these offerings available and accompanying them with related educational activities, Convos provides a venue for Purdue students to explore new ways of thinking and of connecting their classroom experience with their future lives.

Convocations is now well-positioned to take advantage of the potencies of a new Visual and Performing Arts Center will open and is eager to assume a leading role in making the arts central to the Purdue mission.

b. Purdue Theater

An active theatre program exists at Purdue. Each academic year, four main-stage shows are presented to the campus and community. In addition, a second season of plays, usually directed by graduate students, varies the fare for Purdue theatre-goers.

Guest artists from New York and Chicago frequently participate in the program. The professional faculty, graduate students, and undergraduates direct, act in, and design the productions.

c. Purdue Musical Organizations (PMO)

Purdue Musical Organizations (PMO) is a vibrant, dynamic vocal music organization with more than 250 student performers. Composed of the Purdue Varsity Glee Club, Purdueettes, University Choir, Purdue Bell Choir, and PMO Express, the mission of PMO is to attract and retain students who will accept the challenge of a professional-level musical experience.

PMO groups perform internationally as well as in concert halls across the United States. They have been the featured entertainment at many prestigious events. The Glee Club has performed at four presidential inaugurations.

Now celebrating its 65th year, the PMO Christmas Show features all the student performers in PMO, along with PMO Kids Choir comprised of local school children. The show is seen live by nearly 36,000 people on the West Lafayette campus. Millions more experience the production through broadcast on 72 PBS stations nationwide. The PMO Christmas Show radio program is heard throughout the country and internationally.
on the Voice of America network. The PMO Christmas Show was named one of the Top 100 events in the country for 1998 by the American Bus Association.

d. Purdue University Bands

Nearly 400 students participate annually in the Purdue All-American Marching Band, one of the largest and finest university marching bands in the country. An additional 250 students participate in other bands and ensembles including concert bands, the Purdue Symphony Orchestra, jazz bands, and athletic bands.

Significant achievements during the past 10 years include:

- expansion of course offerings incorporating a Jazz Workshop, a "pops" style concert band, and a strong summer concert band and jazz program;
- receipt by the All-American Marching Band of the 1995 Sudler Trophy, a national award recognizing excellence in the marching band program over a long period of time; and
- creation of an annual Jazz Festival which offers high school and middle school jazz students a day of performance evaluation, clinics, jam sessions with master artists, and exposure to top performing groups.

VII. STRENGTHS AND FUTURE CHALLENGES

Purdue University has continually produced high quality graduates, been a leader in research, and provided outstanding service to the local community, the state, and the nation. These results can be attributed to the quality of its people, sound management practices, and the University's focus on its mission.

Over the past several decades the University's process of planning for and allocating human, fiscal and physical resources has served the University and the people it serves extremely well. The self-study did identify some human, fiscal, physical, student service, and academic support issues that the University should consider for continued success into the 21st Century.

Human Resources

- Changing population demographics, particularly an aging population and the continued growth of ethnic minorities, will have a dramatic impact on traditional residential campuses. Such shifts in population will require the need for increased services and non-traditional program delivery systems.

- Rapidly changing technology will have a continued impact on development of employee skills and expertise. Continued efforts to expand current in-house
education and training efforts will be needed to keep pace with social and educational change.

- The reward system in any personnel system drives employee performance and alters the results of human capital investment. Our reward system may have to be adjusted to keep pace with changing goals and expectations of Purdue as Indiana's land-grant university.

Fiscal Resources

- Purdue University has developed a reputation as a well-managed institution that produces maximum benefit for the available resources. The three traditional funding sources – federal and state support and student fees – are all experiencing change. Greater competition and a trend toward slowed growth in funding pools at the federal level will cause the University to seek supplemental funding sources for research. The projection of stable to no more than inflationary increases in state support will lessen the impact that state funds will have in the future. Public concern that the pricing of fees for higher education has reached the market level may affect the availability of fiscal resources in the future.

- The University will need to develop new funding sources while maintaining its competitive position in the traditional funding source areas. Only by continuing to offer high value for each dollar invested will the University be able to preserve its current high standards of performance.

Physical Resources

- During the past decade, Purdue University has made many environmental and infrastructure improvements on its well-maintained campus. To address the demand for instructional and research technology, which is growing at a rate faster than that of resource levels, will require ingenuity in identifying new sources of funding and great efficiency of operation.

- With the rapid expansion of technology, the need to provide flexible delivery of instruction, including distance learning, is increasing. The University has set into place a number of initiatives to address this need, but their escalation, too, is expected to outdistance resource availability.

Student Services and Academic Support Systems

- Major resource allocations have been made to the library system over the past decade. The continuing escalation of costs of library materials and the rapid growth and demand for electronic delivery of information and materials will continue to impact our system of planning resource allocation.

5.66
• With the projected growth of the University's ethnic minority populations, increased efforts to provide services are projected. The entire area of diversity on campus will continue to be a major thrust into the 21st century.

• Some efforts have started on campus to address the need for differential pricing for various services and programs. This trend will continue as students and other clients respond to the issues of cost versus price and value of service provided.

It is up to us to see that all these trends and challenges become opportunities for the University to improve and make more comprehensive its planning, priority setting, and resource allocation systems.
CHAPTER SIX

CRITERION THREE: ACCOMPLISHING ITS PURPOSES

"The institution is accomplishing its educational and other purposes"

Purdue University - West Lafayette is positioned among the top 50 of more than 3500 colleges and universities in the United States. In the recent rankings by U.S. News and World Report, Purdue ranked 18th among public national universities. Purdue has a large and comprehensive undergraduate program that ranks high in academic reputation among national universities, and it has an international reputation for excellence in research and graduate programs across a broad spectrum of disciplines.

Purdue's position as a student-oriented research university links the liberal arts with business, scientific, and technical interests. As Indiana's land-grant university, Purdue holds a unique place in the state and conducts a number of programs and outreach activities that are unduplicated within the state. Its faculty, students, and staff collaborate as a community of scholars in the discovery, dissemination, and application of knowledge. The University has an unwavering commitment to excellence in teaching, research, and outreach activities. Over the last ten years, the internationalization of these three core components also has become an integral part of the University mission. These commitments are supported by the attainment and deployment of resources necessary for such excellence and an environment of open inquiry and spirited dialogue where all people are respected and valued both for their commonalities and their diversity, their traditions, beliefs, and values.

The University provides its constituents with a broad spectrum of educational programs and services while, at the same time, it recognizes its responsibility to concentrate resources on those activities having the greatest impact for the public good. Programs are organized in ways that transcend traditional disciplinary boundaries and are managed to satisfy the demand for superior value at an affordable price. The University creates distinction and economy in its activities through its ongoing partnerships with students in the learning process; with individuals and institutions in the public and private sector in the pursuit and dissemination of knowledge; and with the citizenry in making its services accessible throughout the state, nation, and world.

Members of the University community have a strong sense of shared purpose and accept accountability for the larger mission and responsibilities of the institution. Faculty, staff, and students work together to create and maintain an environment that strives to promote collegiality and that respect individual differences. Members of the University are stewards of its mission and commit themselves to passing to their successors a University and a culture of teaching, research, and outreach that is of the highest quality.

6.1
I. EDUCATIONAL PROGRAMS

A. Scope of Academic Programs

Within the parameters of Purdue’s broad-based mission, the West Lafayette campus offers nearly 200 academic programs across its ten academic schools. Fourteen programs culminate in associate degrees, 81 in baccalaureate degrees, 53 in masters degrees, one in a specialist degree, and 49 in doctoral degrees. Eighty-two percent of our 36,878 students are undergraduates. Two percent are professional students, and 16% are graduate students. Our international student enrollment represents 10% of our student population (5% at the undergraduate level, 32% at the graduate/professional level). Table 6.1 details enrollment distributions by degree level, school, and gender.

B. National and International Recognition

Purdue University has an international reputation for excellence in all its schools. In particular, the Schools of Engineering, Agriculture, Consumer and Family Sciences, Liberal Arts, Management, Pharmacy, and Science have educational programs that are recognized as being among the very best in the world. The scope and quality of graduate programs has benefited from the strategic investments the University has made in support of its research mission, including interdisciplinary research. Both qualitatively and quantitatively, Purdue enjoys a high reputation for its graduate and research programs. The University ranks 17th in the nation for the production of Ph.D. degrees (National Research Council, Survey of Earned Doctorates, 1994.) Purdue is 1st in the production of chemistry doctorates, 7th in the production of engineering doctorates, and 6th in the production of math and computer science doctorates. In 1997, Purdue ranked 19th in the number of science and engineering graduate students at doctorate-granting institutions. (NSF, Graduate Students, and Postdoctorates in Science and Engineering, February 1999)

Table 6.2 presents the rankings that are available from nationally-recognized organizations. Over 55 Purdue programs are ranked in the top twenty across the country. Significantly, in the last five years, four graduate programs ranked first in the nation: Analytic Chemistry in the School of Science, Organizational Communication in the School of Liberal Arts, Marriage and Family Therapy in the School of Consumer and Family Sciences, and Agricultural Economics/Agricultural Finance in the School of Agriculture. The undergraduate programs in the Schools of Engineering, Forestry and Natural Resources, and Child Development and Family Studies also have been ranked first nationally.
<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>Gender</th>
<th>Undergraduate</th>
<th>Professional</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>F: 1,114 M: 1,396</td>
<td>2,510 8%</td>
<td>-- 48 M: 283</td>
<td>451 8%</td>
</tr>
<tr>
<td>Consumer &amp; Family Sciences</td>
<td>F: 1,275 M: 478</td>
<td>1,754 6%</td>
<td>-- 145 M: 193</td>
<td>3%</td>
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<tr>
<td>Education</td>
<td>F: 1,107 M: 236</td>
<td>1,337 4%</td>
<td>-- 351 M: 545</td>
<td>9%</td>
</tr>
<tr>
<td>Engineering</td>
<td>F: 1,190 M: 4,691</td>
<td>5,881 19%</td>
<td>-- 1,586 M: 1,871</td>
<td>31%</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>F: 141 M: 333</td>
<td>974 3%</td>
<td>-- 24 M: 24</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>F: 3,505 M: 2,278</td>
<td>5,783 19%</td>
<td>-- 427 M: 1,062</td>
<td>18%</td>
</tr>
<tr>
<td>Management</td>
<td>F: 978 M: 1,408</td>
<td>2,386 8%</td>
<td>-- 451 M: 567</td>
<td>9%</td>
</tr>
<tr>
<td>Nursing</td>
<td>F: 401 M: 19</td>
<td>420 1%</td>
<td>-- --</td>
<td>--</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>F: 157 M: 105</td>
<td>262 &lt;1%</td>
<td>447 F: 356 M: 143</td>
<td>63%</td>
</tr>
<tr>
<td>Science</td>
<td>F: 1,109 M: 1,559</td>
<td>3,068 10%</td>
<td>-- 599 M: 281</td>
<td>810 14%</td>
</tr>
<tr>
<td>Technology</td>
<td>F: 707 M: 3,521</td>
<td>4,228 14%</td>
<td>-- 91 M: 122</td>
<td>2%</td>
</tr>
<tr>
<td>Veterinary Medicine</td>
<td>F: 83 M: 5</td>
<td>88 &lt;1%</td>
<td>259 F: 79 M: 79</td>
<td>37%</td>
</tr>
<tr>
<td>Unassigned</td>
<td>F: 82 M: 46</td>
<td>-- 37</td>
<td>-- 46</td>
<td>128 2%</td>
</tr>
<tr>
<td>Underdeclared</td>
<td>F: 480 M: 508</td>
<td>988 3%</td>
<td>-- --</td>
<td>--</td>
</tr>
<tr>
<td>Non-Degree</td>
<td>F: 257 M: 223</td>
<td>480 2%</td>
<td>-- --</td>
<td>--</td>
</tr>
<tr>
<td>TOTAL</td>
<td>F: 30,159 M: 30,149</td>
<td>706 100%</td>
<td>6,013 M: 6,013</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 6.1: Undergraduate, Professional, and Graduate Student Enrollment Distributions. September 1998.
Table 6.2  
National and International Recognition – Program Rankings

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>YEAR</th>
<th>RANKING</th>
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<tbody>
<tr>
<td>Agricultural and Biological Engineering</td>
<td>1997</td>
<td>2*</td>
</tr>
<tr>
<td>Agricultural and Biological Engineering</td>
<td>1996</td>
<td>3*</td>
</tr>
<tr>
<td>Schools of Agricultural Sciences</td>
<td>1998</td>
<td>4**</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>1993</td>
<td>6**</td>
</tr>
<tr>
<td>Agricultural Economics Ph.D. Program</td>
<td>1994</td>
<td>4***</td>
</tr>
<tr>
<td>Agricultural Economics M.S. Program</td>
<td>1994</td>
<td>6*</td>
</tr>
<tr>
<td>Agricultural Economics/Agricultural Finance</td>
<td>1994</td>
<td>3***</td>
</tr>
<tr>
<td>Agricultural Economics/Agricultural Finance</td>
<td>1995</td>
<td>2***</td>
</tr>
<tr>
<td>Agricultural Economics (Grad)</td>
<td>1991</td>
<td>6***</td>
</tr>
<tr>
<td>Forestry Science</td>
<td>1998</td>
<td>5*</td>
</tr>
<tr>
<td>Forestry and Natural Resources/Wildlife</td>
<td>1998</td>
<td>4**</td>
</tr>
<tr>
<td>Forestry and Natural Resources/Forestry</td>
<td>1998</td>
<td>9**</td>
</tr>
<tr>
<td>Forestry and Natural Resources/Forestry (Grad)</td>
<td>1998</td>
<td>15**</td>
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</table>

*US News and World Report  
**Rankings of MS and Ph.D. Grad Programs in Agricultural Economics  
***American Journal of Agricultural Economics

<table>
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<tr>
<th>DEPARTMENT</th>
<th>YEAR</th>
<th>RANKING</th>
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<tbody>
<tr>
<td>Foods and Nutrition (Grad)</td>
<td>1997</td>
<td>7*</td>
</tr>
<tr>
<td>Dietetics (Undergrad)</td>
<td>1998</td>
<td>4*</td>
</tr>
<tr>
<td>School of Consumer and Family Sciences</td>
<td>1998</td>
<td>4*</td>
</tr>
<tr>
<td>Restaurant, Hotel, &amp; Inst. Mgmt. (Undergrad)</td>
<td>1998</td>
<td>7*</td>
</tr>
<tr>
<td>Nutrition (Undergrad)</td>
<td>1998</td>
<td>6*</td>
</tr>
<tr>
<td>Child Development &amp; Family Studies (Undergrad)</td>
<td>1993</td>
<td>1**</td>
</tr>
<tr>
<td>Restaurant, Hotel, &amp; Inst. Mgmt. (Undergrad)</td>
<td>1993</td>
<td>5***</td>
</tr>
<tr>
<td>Restaurant, Hotel, &amp; Inst. Mgmt. (Grad)</td>
<td>1993</td>
<td>3***</td>
</tr>
<tr>
<td>Marriage &amp; Family Therapy</td>
<td>1995</td>
<td>1****</td>
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*Hounslow  
**Family Science Review  
***Clinchell Hotel & Restaurant Administration Quarterly  
****Georgetown University
<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>YEAR</th>
<th>RANKING</th>
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<tbody>
<tr>
<td>Undergraduate Engineering</td>
<td>1997</td>
<td>1*</td>
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<tr>
<td>Graduate Engineering</td>
<td>1999/2000</td>
<td>9*</td>
</tr>
<tr>
<td>Aerospace/Aeronautical/Astronautical (Grad.)</td>
<td>1999/2000</td>
<td>6*</td>
</tr>
<tr>
<td>Electrical/Electronic/Communications (Grad.)</td>
<td>1999/2000</td>
<td>8*</td>
</tr>
<tr>
<td>Mechanical (Grad.)</td>
<td>1999/2000</td>
<td>6*</td>
</tr>
<tr>
<td>Civil (Grad.)</td>
<td>1999/2000</td>
<td>5*</td>
</tr>
<tr>
<td>Industrial/Manufacturing (Grad.)</td>
<td>1999/2000</td>
<td>2*</td>
</tr>
<tr>
<td>Nuclear (Grad.)</td>
<td>1999/2000</td>
<td>9*</td>
</tr>
<tr>
<td>Aeronautics &amp; Astronautics (Research &amp; Ph.D.)</td>
<td>1995</td>
<td>1 Quartile**</td>
</tr>
<tr>
<td>Chemical Engineering (Research &amp; Ph.D.)</td>
<td>1995</td>
<td>1 Quartile**</td>
</tr>
<tr>
<td>Civil Engineering (Research &amp; Ph.D.)</td>
<td>1995</td>
<td>1 Quartile**</td>
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<tr>
<td>Electrical and Computer Engineering (Research &amp; Ph.D.)</td>
<td>1995</td>
<td>1 Quartile**</td>
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<td>Industrial Engineering (Research &amp; Ph.D.)</td>
<td>1995</td>
<td>1 Quartile**</td>
</tr>
<tr>
<td>Materials Engineering (Research &amp; Ph.D.)</td>
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<td>2 Quartile**</td>
</tr>
<tr>
<td>Mechanical Engineering (Research &amp; Ph.D.)</td>
<td>1995</td>
<td>1 Quartile**</td>
</tr>
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*US News & World Report

**National Research Council

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>YEAR</th>
<th>RANKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audiology &amp; Speech Sciences (Grad-Speech &amp; Language Pathology)</td>
<td>1998/2000</td>
<td>5*</td>
</tr>
<tr>
<td>Audiology &amp; Speech Sciences (Grad Program)</td>
<td>1998</td>
<td>17*</td>
</tr>
<tr>
<td>Audiology &amp; Speech Sciences (Grad Program)</td>
<td>2000</td>
<td>18*</td>
</tr>
<tr>
<td>Communication/Org Com (Grad)</td>
<td>1998</td>
<td>1**</td>
</tr>
<tr>
<td>Communication/Applied Com (Grad)</td>
<td>1998</td>
<td>5**</td>
</tr>
<tr>
<td>Communication/Theory (Grad)</td>
<td>1998</td>
<td>7**</td>
</tr>
<tr>
<td>Communication/Rhetoric (Grad)</td>
<td>1998</td>
<td>16**</td>
</tr>
<tr>
<td>Psychological Sciences</td>
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<td>English</td>
<td>1998</td>
<td>65</td>
</tr>
<tr>
<td>English (Grad – Creative Writing)</td>
<td>2000</td>
<td>62*</td>
</tr>
<tr>
<td>Visual and Performing Arts (Grad – Drama)</td>
<td>2000</td>
<td>48*</td>
</tr>
<tr>
<td>Sociology and Anthropology</td>
<td>1992</td>
<td>54****</td>
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<tr>
<td>Sociology and Anthropology</td>
<td>1998</td>
<td>44****</td>
</tr>
</tbody>
</table>

*US News and World Report

**National Communication Association

***National Research Council

****Journal of Social Ethics
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<thead>
<tr>
<th>DEPARTMENT</th>
<th>YEAR</th>
<th>RANKING</th>
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* Note: University Program Ratings
** US News and World Report
*** Quorum Report

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*Business Week
**US News and World Report
***Computerworld Ranking of “Techno-MBA” Programs

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*US News and World Report

Table 6.2.
National and International Recognition – Program Rankings (con’t.)
Formal recognition of our academic excellence can be found in all schools. For example, the often-cited 1998 Gourman Report ranked one graduate program in the School of Consumer and Family Sciences among the top seven programs in the United States and four undergraduate programs in the top seven. The Gourman Report also ranked nine programs in the School of Science to be among the top ten in the nation, and the School of Agriculture ranked fourth. The most recent Gourman Report on Agricultural Economics (1993) ranks Purdue sixth nationwide.

The 1998 U.S. News and World Report ranked the Pharm.D. program in the School of Pharmacy, Nursing, and Health Sciences fifth in the nation. The Operations Management/Production Management/Manufacturing Management program in the Kranert School of Management was ranked third nationally. The 1996 U.S. News and World Report rankings of graduate programs granting Ph.D. degrees ranked Math/Statistics sixth and Analytic Chemistry first. Purdue's Agricultural and Biological Engineering program was ranked second in the nation in a report published by U.S. News and World Report. The Food Science program was ranked fifth. In the School of Science, the NRC doctoral program ratings in 1997 rate our Statistics Department tenth. In the School of Liberal Arts, the graduate program in Speech Language Pathology was ranked fifth, and the Organizational Communication, Applied Communication and Communication Theory programs in the Communication Department were ranked first, fifth, and seventh respectively by their national organizations. The Organizational Leadership and Supervision Department in the School of Technology was presented the Thomas Jefferson Award for Quality from the Kettering Foundation in 1998.

C. Curriculum Development

To maintain and improve our academic programs, we are committed to curriculum development as a vital and evolving process. Responsibility for defining the curriculum for each undergraduate and professional program is vested in the faculty of the school offering the degree. Responsibility for defining graduate curricula is shared by the Graduate Council and departmental faculties. The Graduate Council sets graduation standards and acts upon departmental recommendations for new degree programs and courses. Departmental faculties in turn design and teach the graduate curricula and work with students to develop and complete individualized plans of study.

This approach has served the University and its students well. By being able to modify curricula and requirements in both general education and the major expeditiously, Purdue faculty are able to respond quickly to new developments, evolving needs of their students, and the expectations of their students' future graduate schools and employers.

The following statement describes the baseline expectations for student learning in all curricula:

Students at Purdue are expected to acquire knowledge, develop the abilities to assess what they learn, and apply it effectively. To accomplish this, they must be able to read and think critically and
to communicate—both orally and in writing—with clarity and precision. Developing competence in quantitative and scientific reasoning is equally necessary. They also must become aware of the cultural, social, political, and economic forces and the technologies that shape our world. In their area of specialization, Purdue students at all levels are expected to achieve depth of understanding of both the essential content and principal modes of inquiry and to become familiar with the ethical issues facing their chosen fields. A Purdue education should prepare them for a lifetime of continual learning.

Within these institutional parameters, school and departmental faculties establish more definitive goals and expectations. They also may identify additional school or curriculum-specific objectives. These goals, objectives, and expectations in turn form the basis for developing programs of study and assessing student learning both in general education and the major.

Over the past ten years, numerous schools have made major revisions in their undergraduate curricula. Examples include the School of Agriculture's changes in core curriculum for their baccalaureate degree and the development of Curriculum 2000 in the School of Liberal Arts.

School of Agriculture. Approved in 1990, the new core of the School of Agriculture recognizes the need to strengthen the quantitative skills of its graduates while also broadening their educational encounters within the liberal arts, including a required exploration of global issues. The new curriculum strengthens mathematics and basic science requirements. It also nearly doubles the amount of study to be completed in the humanities and social sciences, including a requirement for coursework with a principally international focus. The impact of the latter is seen in the fact that from 1988 to 1998, the percentage of agriculture graduates who have studied abroad grew from 1% to nearly 11% and, although foreign language study is not required of any graduate, the percentage of graduates with earned foreign language credit grew from 29% to 48%. The average number of semesters of foreign language study for those graduates increased from 2.1 to 2.9.

School of Liberal Arts. The Liberal Arts Curriculum 2000 was designed to ensure that each graduate will have the knowledge, ability, and skills needed to be an effective and productive citizen in our rapidly changing world. New general education requirements foster student achievement of a thorough knowledge of their own and others' cultures, the ability to grasp and analyze problems and generate and critically evaluate solutions, and the skill to articulate and advocate such solutions effectively. The faculty approved the revised Liberal Arts core in 1992. All Liberal Arts students now take a core set of courses designed to develop competency in speaking and writing clearly and precisely, and in cultivating the facility for logical analysis, critical thinking, and quantitative reasoning. The effective communication of ideas and presentation of arguments is also
nurtured by special attention to writing skills in every field of study across the curriculum.

An exemplar of curricular revision in a professional program is found in the School of Pharmacy and Pharmaceutical Sciences. In 1992, the faculty made a commitment to implement an expanded and restructured plan for its Doctor of Pharmacy (Pharm.D.) program in conjunction with a phase-out of its baccalaureate degree program (the last B.S. Pharmacy class will be admitted in Fall 2000). The Pharm.D. program features an integrated laboratory in each semester of the first three professional years and forty-four weeks of experiential rotations during the fourth professional year. The restructured program is designed to prepare graduates for entry-level pharmacy practice in a variety of professional settings. It also equips graduates to pursue professional role development and to contribute as a practice change agent.

In pursuit of Purdue’s goal to further internationalize the University, faculty across the campus have worked diligently over the past ten years to develop curricula which have international dimensions and provide international experiences for Purdue students. The Office of International Programs has provided the leadership for developing all-University programs while the schools have created a complementary series of high quality school-based international initiatives.

In the last seven years, Global Initiative Faculty Curriculum Development Grants from the Office of International Programs have resulted in the creation of 63 new courses and the revision of 69 existing courses through the extension of an international focus or the development of new teaching and learning materials. At the same time, faculty working within the schools have both revised and created courses with increased international content.

At the University level, the Global Studies Undergraduate Program was created in 1998. This is a multidisciplinary undergraduate program available to students in all majors. There are five areas of study: Information Systems; Natural Resources, Energy and the Environment; Human Ecology; Global Political Economy; and Global Governance and Human Rights. Students are required to complete twenty-four hours of course work, achieve second-language competence, and complete a study or work-abroad experience. Students receive special recognition on their academic record as a result of successful completion of their program.

Greater opportunities also have been created for students to study, work, and participate in internships abroad. In 1990, there were 20 potential program sites primarily in Europe and North America at which 76 students studied abroad. These students were primarily from the Liberal Arts with a handful of Science, Engineering and Management students. In 1998, there were 129 program sites located on every inhabited continent with a total of 301 students and representation from each of the University’s ten schools. The School of Agriculture, for example, dramatically increased student participation in study abroad from an average of one or two students each year to 79 students in 1998-1999.
D. Assessing Student Learning

Purdue University has a long history of evaluating curricular offerings to ensure that its programs of study are appropriate and that student learning is commensurate with faculty expectations. Some of these assessment activities have centered on individual courses; others have focused on entire programs of study. All have been undertaken primarily from the perspective of quality improvement.

Until the mid 1990's, most of this activity occurred on an ad hoc basis. Following the establishment of NCA’s assessment requirement, however, assessing student learning at the West Lafayette campus has become much more comprehensive and systematic. The campus responded to this NCA requirement by creating a Task Force on Institutional Assessment that included representatives from each of the academic schools. This group was charged with developing a campus-wide plan for assessing student academic achievement, per NCA instructions, that would lead to institutional improvement. The task force generated a plan that was adopted by the campus and has been approved by NCA.

Administrative responsibility for assessing student learning lies with the Executive Vice President for Academic Affairs but is shared with an assistant executive vice president and the school deans and department heads. They are assisted by the University Assessment Council and school assessment coordinators. Responsibility for designing and improving assessment activities as well as using the information generated through them to improve teaching and learning is vested in the faculty. Thus, those responsible for maintaining and enhancing the quality of education at Purdue are also responsible for gathering information that will be useful in achieving this end.

Assessment of student learning is a four-phase initiative that is an integral part of the teaching-learning process. Assessment also has been woven into the fabric of the institution, for it is among the themes that have been incorporated into Excellence 21, the University’s continuous quality improvement initiative, and Focus on Teaching, a major campus-wide faculty development program.

The first phase focuses on defining faculty expectations for student learning, i.e., determining what students should know and be able to do as a result of their educational experiences. Following the advice of the NCA review team that evaluated the West Lafayette campus in 1989-90, the campus developed broad expectations as noted in the student learning outcomes statement on pages 6.8 – 6.9 for learning in all curricula.

These expectations encompass not only general education, as recommended by 1989-90 review team, but also the major. Within these parameters, school and departmental faculties are encouraged to establish more definitive goals and expectations. They also can identify additional school or curriculum-specific objectives. The faculty in each school/department at the West Lafayette campus has fulfilled its commitment to define its expectations for student learning in each field of study.

6.11
The second phase of the West Lafayette campus assessment model focuses on instruction and providing an environment that will produce optimal learning. Part of this is accomplished through designing a curriculum that incorporates the substance of what faculty expect students to learn. Some of the curricular changes that have occurred over the past decade at the West Lafayette campus are described in the previous section of this chapter; others are outlined later in this section. Another particularly important element in producing optimal learning is pedagogy. Teaching style can have a major impact on student learning. During the past ten years, the opportunities for faculty to learn more about pedagogical alternatives and how to incorporate technology into their teaching have mushroomed. Faculty development programs and services dedicated to these ends are described in subsequent sections of this chapter. The educational environment also has a major impact on learning. Information about the many initiatives that are occurring across campus related to instructional equipment and space as well as academic support services is included in Chapter Five.

The third phase of the West Lafayette student learning outcomes assessment program encompasses measurement activities through which faculty gain insight into the degree to which students are achieving intended learning outcomes. Commitments were made in the West Lafayette Campus Assessment Plan to use multiple measures, both quantitative and qualitative, and to seek information about student learning from multiple sources. As demonstrated in Table 6.3, faculty across the campus clearly are fulfilling their commitment to using multiple means to assess learning.
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An "X" in a given cell indicates that the assessment activity noted is being conducted in that particular school.

The fourth phase of assessment at West Lafayette focuses on establishing feedback loops through which information gathered from the various measurement activities is sent to the individuals and committees positioned to use it to improve teaching and learning. Many of the campus's assessment endeavors affirm that our students are fulfilling faculty expectations and that our academic programs are, indeed, very effective. Some, however, also yield valuable insight into needed improvements. A sampling of some of the program improvements that have been initiated as a result of information gathered through the various direct and indirect assessment measures includes the following:

6.13
• Totally revised curricula can be found in the Schools of Education, Mechanical Engineering, Liberal Arts, Agriculture, Veterinary Medicine, and Pharmacy.

• Assessment activities in the School of Science have led to a new freshman honors program, freshman career opportunities seminars, and a living/learning Women in Science program.

• Many schools and departments that previously did not have an international component in their curricula have added one during the past ten years. New global awareness courses have been developed, enrollment in foreign language courses is soaring and much more emphasis is being placed on study abroad. In the School of Agriculture, for example, about 11% of the graduating seniors now have some type of international experience. The school goal is that 20% of each graduating class will have international experience by 2003.

• Assessment activities in the Schools of Engineering and Technology uncovered a need to help students enhance their teamwork skills. Changes in curricula and pedagogy have been made in both schools to address this concern.

• The mathematics curriculum for engineering has been completely revised to provide more rigor and more thorough treatment of linear algebra and differential equations within the same number of credit hours.

• New courses have been developed across the campus to meet previously unmet learning needs. Examples include: research methods (Child Development and Family Studies), geological applications of mathematics and computers (Earth & Atmospheric Sciences), nutritional needs throughout the lifespan (Foods & Nutrition), food ingredient technology (Food Science), and leadership development (Animal Science).

• Examples of other curricular changes include requiring courses in special education and instructional technology for all majors (Education), combining several fall rotations and requiring more emergency room and ICU experience (Veterinary Technology), reorganizing and consolidating the physical chemistry requirement to allow the introduction of quantum chemistry into the sequence (Chemistry), requiring additional courses in accounting and financial management (Restaurant, Hotel, Institutional, and Tourism Management).

• Across the campus, faculty are placing much more emphasis on helping students improve their written and oral communication skills. Students are required to do more writing in courses in their major, and many of those written assignments are being critiqued and graded on the basis of both content and style. Similarly, students are being asked to make more oral presentations, and these, too, are being evaluated for effectiveness of expression as well as substantive quality.
• To help students enhance their critical thinking and problem-solving skills, faculty are creating more undergraduate research opportunities for students. In addition, many more case studies, group projects, problem-solving exercises, computer simulations, and self-directed discovery learning experiences are being incorporated into the curriculum.

• Opportunities for students to integrate theory with theory and theory with practice also are increasing across the campus. Much greater emphasis is being put on theme-based courses, integrative seminars, service learning, capstone cases, co-op experiences, internships, field experiences, and other types of practice.

Assessment of student learning at Purdue is an on-going, long term, continually evolving process. The same checks and balances used to ensure accountability for academic programs across the campus are used to ensure accountability for assessment.

E. Instructional Programs and Strategies to Create Lifelong Learners

To fulfill the West Lafayette campus faculty expectations for student learning, instructional programs at Purdue must be designed to produce graduates who can "acquire knowledge, develop their abilities to assess what they learn, and apply it effectively." To accomplish this, faculty must help students enhance their capacity "to read and think critically and to communicate - both orally and in writing - with clarity and precision." Through the curriculum, faculty also must help students increase their "competence in quantitative and scientific reasoning."

In addition, faculty must help students become "aware of the cultural, social, political, and economic forces and the technologies that shape our world." Our instructional programs obviously address disciplinary areas of specialization; however, they must go beyond essential content of a discipline and provide the students with inquiry-based learning skills that transcend disciplines and utilize multiple resources in the application of knowledge. Coupled with the aforementioned purposes, the instructional programs must address issues of ethics and diversity and prepare the student for a "lifetime of continual learning."

A principal goal of the faculty is to instill in all students the attitudes and abilities necessary for them to become lifelong learners and to be able to utilize advanced technologies as powerful tools in discovering, understanding, and applying new knowledge. Students must understand that the learning experience is a continuum that stretches from pre-college to post-baccalaureate adult education. Learning how to learn is more important than ever, for much of the specific content encountered in the classroom soon becomes outdated. In our rapidly changing environment, most individuals will climb new learning curves repeatedly through their adult lives.

To achieve these broadly-stated goals, Purdue’s educational programs are devoting special attention to:
• establishing mechanisms which enhance interdisciplinary research and learning experiences at both the graduate and undergraduate levels;
• designing the curriculum to include research intensive experiences and placing leading research faculty in lower level undergraduate courses;
• creating undergraduate research opportunities whereby students team with faculty, Ph.D. students or scientists in the non-academic sector to perform projects;
• providing students and faculty with advanced learning technologies with capabilities for multimedia formats, animation, simulation, and interactive software that render cutting-edge research methods, data files, and visual images accessible and engaging and do not limit learning to time and space constraints;
• encouraging service learning and outreach which direct students' research skills to community service agencies and the dissemination of scientific discoveries and methods to the public and private sectors with some emphasis on the K-12 system; and
• establishing mentoring programs that provide guidance, networking opportunities, curriculum experiences, and learning resources to cultivate career interests.

1. Integrating Research into the Curriculum

Faculty at Purdue are continually developing new and innovative mechanisms and programs for involving undergraduates in research. The concepts of identifying problems, establishing hypotheses (or premises), designing ways to test these hypotheses and then re-examining the issues based on results of the tests are critical to developing individuals who can think independently and solve problems effectively. This experiential, inquiry-based process of discovery is fundamental in helping students best assess complex issues that they will face in their professional and personal lives.

Purdue's faculty is committed to providing students with discovery-based learning experiences. Faculty engage students as participants in activities which pique their curiosity and inspire learning. In turn, students develop an enthusiasm and a foundation for lifelong learning based on the ability to think critically, exercise creativity, and make connections between different experiences.

Helping students learn to ask the right questions is the starting point for the development of the creative intellect. While the requisite technical skills may change, the process by which students approach problems need not. This is particularly important given that the ability to access, interpret, and synthesize information may well serve as the primary transforming factor in the advancement of knowledge. The application of discovery-based learning enhances one's understanding of issues well beyond those of a technical nature.

The responsibility for integrating research and education rests heavily with research universities such as Purdue. The importance of this role was noted by Ernest Boyer.
in *Scholarship Reconsidered*: "... inspired teaching keeps the flow of scholarship alive. ...teaching at its best means not only transmitting knowledge but transforming and extending it as well."

Instructional programs and activities that help Purdue students master discovery-based learning include capstone courses, research methods courses, close interaction with research faculty, use of appropriate technologies to assess difficult issues, and mentoring programs by faculty and graduate students. Through the integration of informational technologies into all of these educational experiences, we help students truly appreciate the role of technology in terms of its evolution, limitations, and power for addressing contemporary issues.

a. **Capstone Courses**

Capstone courses help students bring together the knowledge and problem-solving skills they have acquired during their education at Purdue. The students utilize quantitative and qualitative methods to identify problems and to propose possible solutions, often utilizing team and multidisciplinary approaches. These experiences improve their thought processes and enhance their interpersonal and communication skills.

For example, capstone requirements in the Departments of Materials Engineering and Geosciences lead students to address technical problem suggested by industry partners. Project conclusions are presented in written and oral reports to peers, faculty advisors, and company sponsors. Most Biology majors now complete their laboratory requirements by participation in three different research modules. The format of the series is patterned after the long-standing physiology course offered each summer at Woods Hole. Each module is led by teams of faculty members who bring their own research into the teaching lab. Students engage in open-ended mini-projects that address current problems using modern methods and equipment.

A number of indicators suggest that these capstone courses are very successful. They receive good student evaluations, students perceive that they provide relevant preparation for future job challenges, the projects completed for the courses have been used by the clients, and projects have resulted in publications in peer-reviewed journals. Moreover, capstone courses provide a direct means for faculty to assess student performance and to determine what modifications, if any, might be made in programs of study and/or pedagogy to enhance learning. Overall, capstone courses are part of the curriculum in almost all schools as noted in Table 6.3, p.6.13.

b. **Undergraduate Research Methods Courses**

Departments in several schools have research methods requirements for their undergraduates. These courses are designed to help students become educated...
and critical consumers of research in the public sector, to develop an appreciation of well-designed research, and to provide the foundation and motivation for carrying out original research. For example, in the School of Liberal Arts, the Department of Communication requires over 1000 undergraduate majors to take an introduction to research methods. The Department of Sociology offers three distinct research methods courses, and the Department of Political Science introduces students to the basic techniques of statistical analysis applicable to political science data. These courses are all designed to help undergraduates learn fundamental concepts such as sampling, reliability and validity of research studies. They also introduce students to the application of historical, critical, and empirical research as they work to understand and seek solutions to modern day problems.

In the School of Education, the Undergraduate Research Training (URT) program involves students in a year-long course in educational research methodology and a year-long experience in which the URT student assists a professor with a research project. This program helps the student better understand the principles behind educational practices discussed in their courses.

c. Interactions with Faculty

Another mechanism we use to foster student excitement about the process of scientific discovery and creative scholarship is the placement of faculty who are leading researchers in introductory and lower-level undergraduate courses. Here students experience the excitement for learning that is sparked by the scientist's quest to uncover the unknown. Students learn about discoveries long before they reach the textbooks, and they develop a keen understanding for how the discipline is continually changing. The example provided by these faculty as scholars stimulates the student's interest in developing critical-thinking skills and motivates them to utilize improved problem-solving skills. To encourage young faculty to share their enthusiasm for research with undergraduate students, the School of Science presents an annual award to a non-tenured faculty member who exemplifies the skills of integrating research philosophies and approaches into undergraduate courses. The first recipient of this award, Professor Bruce Mortimoto, has research funding from NSF and NIH and was recognized for how he incorporated leading-edge research and scientific methodology into his biochemistry course.

Utilizing the latest research advances in laser spectroscopy, Dr. Fred E. Lyle, a noted chemistry professor, involved undergraduate and graduate students in a research team that developed Braille code which can transcribe chemical and mathematical equations into an audiotactile form readily accessed by visually-impaired students. The VISIONS Laboratory, with the assistance of students, now produces educational material for nation-wide distribution and stimulates research on adaptive technologies which enhance the access of visually-impaired
students to mainstream courses. As a result of this contribution, which embeds advanced research and computer technologies in innovative learning tools, Dr. Lytle was named the Indiana Professor of the Year by the Carnegie Foundation for the Advancement of Teaching. He is one of four Purdue professors to win this singular annual award for teaching excellence in the last six years.

Approximately one-third of the Audiology and Speech Science faculty is involved in undergraduate research, each faculty member seeing 1 to 10 students. Ten years ago, most undergraduates doing research were doing so as paid assistants. Now many students do research for credit. In Chemistry, for example, majors take freshman and sophomore seminar courses in which undergraduate research is introduced and discussed. Faculty and staff advisors provide students with an Undergraduate Research Advisors list. In the past few years, 40-50 students have participated in these interactions each semester. The number of students opting to use undergraduate research to fulfill the advanced chemistry elective requirement for the ACS accredited degree has increased markedly over the past 10 years.

Undergraduates in Liberal Arts also have a number of opportunities to pursue research with individual faculty members in the school; most visible is the Dean’s Scholar Program for outstanding beginning students in the school. Scholars receive a $1000 merit award, one credit each semester for participation in a seminar attended only by scholars, and an opportunity to study with a faculty member in their area of interest during their first academic year. This opportunity serves to expand understanding of a specific discipline, develop academic acquaintances, and test decision-making in relationship to a personal career choice.

Through direct participation with faculty in research projects, students experience the excitement of being a part of new discoveries, and they learn a process of problem-solving that will serve them well in their professional and personal lives. In addition, most students also develop a relationship with their faculty advisor that lasts a lifetime.

d. Using New Technologies

Purdue’s well-positioned to apply modern technologies to bring students the excitement of cutting-edge research in an understandable manner and to promote self-directed learning. For example, in Agricultural Engineering, fifty undergraduate and numerous high school students have assisted faculty and graduate students in the past eight years with the production of environmental education “packages” (CD ROM, Web sites, etc.). Through this project, students experience the transforming of research data into pedagogy. These courseware are also being used internationally. An industry-supported research competition resulted in the development of “earth colors” and “edible birthday candles,” by undergraduate students from multiple disciplines who worked together to create these non-toxic, all natural materials from partially hydrogenated soybean oil.
One of these products has been purchased by a company for national marketing. Many undergraduate research projects like these result in co-authorship in scientific journals or the development of new products. They also provide students with unique feelings of accomplishment and a new appreciation of ways to use technologies to assess and solve problems.

c. Mentoring and Summer Programs

Our commitment to integrating research and education throughout Purdue extends into our many excellent mentoring programs which have been highly effective in developing the competence and interest of women and minorities in science and engineering. Over the years, Purdue has granted more engineering degrees to women than any other institution in the nation. Since 1980, the Purdue MARC/AIM (Minority Access to Research Careers/Access Internally for Minorities) summer research program has enabled over 525 students to work with faculty in our research laboratories. Over 72% of the participants have majored in the sciences or engineering, and over 270 have received or are now pursuing advanced degrees.

Since 1988, the Engineering Research Center has conducted the Summer Undergraduate Research Interns (SURIs) program partially funded by NSF. Students join faculty, graduate students, and industrial companies in projects that are already underway. Participants continue for academic credit but without pay through the following year. They are exposed to the excitement of original research driven by practical industrial needs and constraints in the context of the multidisciplinary teams. Students learn the value of establishing teams to solve problems utilizing the talents of individuals from different disciplines to solve complex, practical problems. In addition, they learn the interpersonal skills necessary to capitalize on the expertise from multiple inputs. From 1988 to 1996, over 700 undergraduate students have participated in these research teams. As a result of the new ideas and findings from these projects, over 115 courses have been created or modified since the Center’s establishment, and 35 new textbooks have been written. In addition to courseware developments, numerous projects have resulted in publications and the development of new technologies.

Based on the success of the Engineering Research Center, the same model was adopted in 1995 by the Materials Research Science and Engineering Center (MRSEC). A similar program in the School of Science, QUEST (Quality Undergraduate Education and Scientific Training), enables undergraduate students to participate in research for two consecutive summers, one at Purdue and one in a corporate laboratory. This program is funded by the NSF Research Experience for Undergraduates program, the Dreyfus Foundation, and by company sponsors.
2. Experiential Learning Environments and Opportunities

To further achieve Purdue's learning expectations, students also need opportunities to develop independent thinking, apply knowledge that they have learned in the classroom to business and industrial settings, integrate discipline-based knowledge with views and ideas of those from other backgrounds through team projects, and develop an appreciation that one's responsibility as an educated person goes beyond self and includes service to others.

Experiential learning environments and opportunities that can help students achieve these learning expectations include honors programs, collaborative learning experiences, participation in cooperative education and internship programs, service learning projects, and clinical experiences and practicums. Honors programs develop opportunities for independent thinking and problem-oriented learning. Collaborative learning experiences provide students with skills in team-building and opportunities to learn the strength of examining problems from multiple viewpoints. Through the creation of service learning opportunities and cooperative education experiences, students learn relationships among disciplines and the relevance of their educational experiences to social and technical problems in the world.

a. Honors Programs

Honors programs at Purdue University are designed to recruit, retain, and challenge our very best and brightest undergraduate students by engaging them in the learning process through opportunities for individual research and study. Requirements for an honors degree are established at the school and/or departmental level and vary widely. Overall, these programs provide motivated students of outstanding ability enriched opportunities to 1) meet and work with the faculty in special courses, 2) pursue individually designed curricula, 3) develop research projects that integrate faculty and student interests, 4) enhance and broaden classroom knowledge by promoting special honors events and activities, and 5) develop a support network among bright interested students within and across disciplines. Honors programs at Purdue further the academic and professional socialization of undergraduates by providing unique experiences that go beyond the typical classroom experience.

Over 120 Purdue students graduate each year with a special honors degree, and literally thousands of continuing students take honors classes. For example, in the School of Liberal Arts alone, approximately 30-35 students per year complete all requirements to graduate with honors while another 800 continuing students participate in at least one honors course.

The School of Consumer and Family Sciences has just enhanced its honors program, and this year 24 beginning students were registered in their new honors first-year course. The School of Science sponsors a Dean's Science Honors
seminar and also requires honors students to participate in a special honors course within their own department. In Pharmacy, Nursing, and Health Sciences, honors students in the Freshman Scholars Program attend a weekly seminar where they hear from outstanding faculty, such as Herbert Brown talking about winning the Nobel prize, and graduate students who share their research experiences.

Research is a key component of many of the honors programs. In the Schools of Chemical Engineering, Industrial Engineering, Mechanical Engineering, Consumer and Family Sciences, Science, and Agriculture, all honors students are required to complete a research project under the supervision of a faculty member. In some cases, for example the School of Agriculture, students give a public presentation of their completed work to an audience composed of peers, professors and graduate students. In the School of Liberal Arts, two departmental programs -- Political Science and Sociology/Anthropology -- require students to complete an honors thesis.

A new component of several honors programs is the establishment of mentoring groups. In the School of Science, a social, leadership, service and mentoring Scholar Group meets weekly early in the Fall, and then monthly for dinner at one of the residence halls to help build relationships among first-year and upper-class scholars. The School of Liberal Arts hosts special luncheon and evening events during which honors students have the opportunity to meet with leading scholars and interested students in their fields. Special trips are also arranged for Liberal Arts honors students to enjoy events at nearby cities and universities.

International experience is also encouraged. Students are sometimes able to obtain honors credit for courses taken abroad, and many students’ research projects are international in scope.

Scholarship opportunities are also associated with many of the honors programs. The most prestigious is the Beering Scholars and Fellows Program. This program provides students with a full-ride scholarship that continues for the baccalaureate, master’s, and doctoral degrees at Purdue and also can be used to earn a medical degree at Indiana University. All expenses are covered including tuition, fees, room and board, book expenses, and spending money. Upon arrival, each student is matched with a faculty mentor who provides specialized counseling into honors courses and individual research. To date, 30 scholars have completed the program, and 31 are currently on the campus.

Overall, honors programs at Purdue are growing and meeting the challenges presented by our most gifted and serious students.
b. Collaborative Learning

Collaborative learning is being stressed in many of Purdue's courses to enhance communication skills and interpersonal teamwork. For example, the Department of Physics has converted one of the two recitation classes per week into a cooperative learning environment where 54 students work on tutorial worksheets in groups of 3-4 at each of 14 tables. Students are aided by a teaching assistant plus 2-3 undergraduate and graduate instructors. The emphasis in the tutorials is not on solving the standard quantitative problems found in traditional textbooks, but rather on the development of important physical concepts, scientific reasoning skills, and group dynamics of reaching consensus. Numerous professors across the campus are using small group discussion “movements” within their lectures to encourage collaborative work on assignments and semester projects.

c. Co-op and Internship Programs

Co-op experiences can be found in virtually all schools on campus. These programs add considerable enrichment to the learning experience by involving students in business-industry approaches to solving problems, motivating students through opportunities to apply classroom concepts, and by challenging them to develop improved communication and teamwork skills. Purdue's largest formal cooperative-education program is found in the Schools of Engineering. It is a five-year professional development experience designed to combine practical on-the-job experiences with the classroom education of a four-year college curriculum. Students have the opportunity to integrate theory and practice, confirm career choices, investigate potential job opportunities, and become better graduates. At the same time, it allows students to earn money and help finance their education. Students are required to be in the upper half of their class and willing to alternate a minimum of four work sessions with semesters on campus. Approximately 900 Engineering students (24%) participate in the co-op program. Other schools having formal undergraduate co-op programs either across the school or within specific departments include Agriculture, Consumer and Family Sciences, Liberal Arts, and Technology.

Enrollments in many of the formal co-op programs have stabilized or are slightly reduced as a result of greater interest in more flexible extern or internship programs. All schools have responded to this interest in more opportunities for multiple short-term work experiences. For example, the School of Agriculture has combined its co-op programs and internships under the School's Professional Experience Program (PEP). Several outstanding programs include Agriculture's Japan Corporate Internship Program that places five to ten students at agribusiness and environmental organizations in Japan each summer. The Landscape Architecture Co-op Program places 95% of its students in yearlong work experiences with urban planners and other design companies. Students have
worked on the redevelopment of Canary Wharf in London, England, on housing developments in Thailand and Hong Kong, and on exhibit designs for Six Flags Theme Park in Gurnee, Illinois.

Numerous departments in the School of Technology offer co-op and intern programs. For example, Aviation Technology has approximately 50 students enrolled with such employers as Delta Airlines, Gulfstream Aerospace, Northwest Airlines, and Rolls-Royce Allison. Computer Technology and Computer Graphics students are employed in internships by such companies as Boeing, Intel, Caterpillar, Dow Corning, Kraft, Monsanto, and GTE.

The School of Mechanical Engineering has established an Office of Industrial Experience to develop industrial internship partnerships which provide every Mechanical Engineering undergraduate student with the opportunity to have a meaningful engineering work experience prior to graduation. In the School of Consumer and Family Sciences, approximately 380 students participate annually in co-op and internship opportunities. Students in the Department of Health, Kinesiology, and Leisure Studies have over 200 highly competitive and qualified health and fitness internship sites available to them. Sites are distributed over every major geographic area in the United States.

Elementary, secondary, and special education majors must participate in a school placement as part of their academic program. In recent years, these programs have been expanded to broaden the students' understanding of multicultural issues.

Internships are also common in a number of graduate and professional programs. Master's students in the School of Management have the opportunity to secure internships both nationally and internationally with companies such as United Technologies, Intel, Ford, Proctor & Gamble, IBM, Allied Signal, Ernst & Young, and General Motors. Many receive full-time job offers at the end of their internships. All Veterinary Medicine students must complete a six-week externship prior to graduation, and all Pharmacy students must participate in an experiential education placement for one semester or 44 weeks, depending on the degree pursued.

All of these of these experiential programs enrich the curriculum and enhance learning and placement opportunities for students.

d. Service Learning

Service learning is a type of experiential learning that engages students in service within the community as an integrated part of a course. In contrast to internships, clinicals, and co-op programs, service learning emphasizes the service contribution and civic responsibility of students.
Traditionally, service-learning experiences have emerged in response to a combination of community needs and programmatic initiatives within specific schools. However, to assist in developing a campuswide commitment to service learning, Purdue established in 1997 a Task Force on Citizenship Education. Several core initiatives of the task force include fostering curricular opportunities that blend traditional academic practices with community service; developing mutually beneficial partnerships with community-based agencies, area K-12 schools, and corporate and governmental entities; and providing a responsive forum for discussion by faculty, students, and the community of concerns related to citizenship education and public service.

One of Purdue's nationally recognized service-learning programs is the Engineering Projects in Community Service (EPICS) program. This program involves not only students and faculty from engineering, but also reaches out to those in other disciplines such as sociology. Undergraduate teams are matched to projects based on requests for technical assistance from community services agencies. Over many years, these EPICS project teams work closely with their partner community-service agencies to define, design build, and deploy systems the agencies need. Through this service, the EPICS students learn many valuable lessons including the role of partner, or "customer," in defining a project; the necessity of teamwork; the difficulty of managing and leading large projects; the need for skills and knowledge from many different disciplines; and the art of solving technical problems. They also learn many valuable lessons in citizenship, including the role of community service and the significant impact their skills can have on the their community. Students leave these experiences with improved communication, leadership, and teamwork skills, as well as an awareness of community needs and an understanding of professional ethics. Further information about this program is provided on pp. 6.31 – 6.32.

Another service-learning opportunity is found in the Center for Community and Environmental Design (CCED), which is administered by the Landscape Architecture and Design Program. Students develop physical landscape designs for parks and greenspace, mine reclamation areas, small town revitalization projects, and community forestry improvements. Each project involves undergraduate students working with community representatives and professional consultants.

School of Liberal Arts students in the Law and Society program have the opportunity to work with criminal justice and social work agencies in Indiana and Illinois. As part of their upper level Spanish classes, students may choose to serve as interpreters of local organizations such as the Community and Family Resource Center and the Women Infants and Children Program (WIC). Purdue’s School of Pharmacy has had an elective sequence of two service-learning courses since 1996. They provide a general care-giving service experience to first-year students and a pharmaceutical care-related experience for students in the second and third professional years.
As a result of Purdue's efforts over the past five years to encourage students to participate in service-learning activities, the Templeton Guide: Colleges that Encourage Character Development will, this fall, profile Purdue's initiatives in volunteer service.

c. Clinical Experiences and Practicums

Many departments and schools on campus rely heavily on clinical experiences to educate students. The Department of Audiology & Speech Sciences at Purdue has long been recognized as providing world-class training in clinical methods while maintaining a unique academic environment of highly active student and faculty scholars. Through its Audiology Clinic and Speech Language Clinic, it provides the opportunity for both undergraduate and graduate students to obtain practical experience in offering clinical services to individuals with communication handicaps.

In the Department of Psychological Sciences, students majoring in clinical psychology receive supervised clinical experience throughout their time in residence on campus. Students enroll in at least two practica: the Adult Clinical Practicum and Child Clinical Practicum. Teams work on anxiety disorders, depression, personality disorders, developmental disabilities, and a variety of pediatric and geriatric disorders.

In the School of Veterinary Medicine, students are required to obtain clinical experience through a six-week externship program. The majority of externship experiences are in private veterinary practices throughout the U.S., but some are with veterinarians in research environments or at wildlife rehabilitation centers or zoos. Practitioners are enthusiastic, as the program provides them a link to the School and an opportunity to receive continuing education via visiting students, as well as an opportunity to make a real contribution to the education of future veterinarians. Students gain understanding of practice economics, client relations, time management, and surgical psychomotor skills. They also observe a spectrum of primary care cases that are less common than the ones they experience in the clinics of the University veterinary teaching hospital.

3. Enhancing the Learning Environment Through the Use of Technology

Instructional technologies enhance teaching and learning in unique and innovative ways and help students develop valuable problem-solving skills. A full range of the following instructional technology applications is evident on the campus:

- use of Web pages to distribute course information such as resource materials, course syllabi, sample assignments, and exams;
- use of technology to improve core course competencies through mastery learning;
• use of computer-based laboratories to collect and analyze data from experiments;
• interaction with large data bases to solve real-world problems; and
• interaction with students beyond Purdue.

The Purdue University Computing Center (PUCC) provides extensive instructional support. Because students have access to computer resources twenty-four hours each day, faculty can generate computer-based learning modules and Web sites that enable students to receive assistance on homework assignments, simulate laboratory experiments, and work on group assignments interactively at their convenience.

With regard to the use of computer technologies in formal classroom settings, extensive networking and classroom renovations have brought instructional technologies to many of our courses over the last ten years. Chapter 5 discussed how these changes have impacted students in all schools and provide opportunities for new and unique delivery of instructional materials.

The Schools of Engineering have recently launched an ambitious program to provide state-of-the-art client/server teaching tools to its faculty, including provision of hardware and software support and extensive hands-on training. Over the relatively short period of nine months, more than 100 Internet-based courses and course modules have been developed independently by faculty and graduate students. Total student enrollment in these courses approached 10,000 during the Fall 98 and Spring 99 semesters. Plans are underway to extend this support into more extensive database-design and management activities supporting the breadth of faculty professional academic activities.

Large enrollment physics courses (PHYS 152, 1521, 220, 221, 241, 251, and 261) are using a system called Computerized Homework in Physics (CHIP) to score homework and maintain course records. PHYS 218 and 219 will be added to CHIP in Fall 1999. Previously, it had been impossible to grade all of the homework problems in these large courses, and many students tended not to do them. With CHIP, almost all students do the homework and, in fact, seem challenged to get perfect scores.

Modern instrumentation and computers are used in three large-enrollment physics laboratories (PHYS 152L, 220L, 221L, and 218L) and in freshman honors physics laboratories to acquire high quality data that leave no doubt that physics correctly describes the studied phenomena. Realtime displays of the incoming data facilitate the students' association of the action with the display.

A Web site developed by faculty in the Department of Agricultural and Biological Engineering allows undergraduate students to develop student understanding of complex natural resources/water quality systems. Students use these systems to analyze real-world case-based scenarios by creating model input files, running the models, obtaining the results, and graphically displaying the results within a Web browser.
Video use has become an integral part of many course offerings on campus. Within Consumer and Family Sciences, undergraduate students in child development and early childhood education found it difficult to apply concepts from lecture classroom to laboratory practicum. Faculty members now use computer-based video, text, and graphic materials to "bridge" student's learning between these two instructional settings. Within the multimedia instructional modules, students are able to view selected video examples designed to illustrate key developmental stages.

Through the sharing of electronic resources, faculty members are finding it easier to build upon individual courses within the curriculum. Over ten departments teach various aspects of geographic information systems (GIS) at Purdue University. The emphasis varies by department from a broad overview to highly specific applications. The GIS faculty members have combined efforts and are cooperatively developing materials for use by everyone.

Instructional technology also provides new and exciting avenues for assisting faculty in the delivery of graduate education and in helping them interact more effectively with peers and students. Across the campus, faculty members have implemented a wide range of instructional technologies to solve their individual instructional needs.

One example of the integration of instructional technology to enhance the quality of graduate instruction is Dr. Cynthia Stohl’s global communications course. Through video and Internet technologies, she was able to create a unique and dynamic course taught cooperatively with faculty at the University of Illinois and the University of Southern California. Through use of instructional technology, this course was able to (1) advance the use of instructional technology, cooperative learning, and shared instruction in communication studies by developing shared human and digital resources in the emerging area of global organizational communication; and (2) develop a shared-video and Web-based immersive distributed instructional environment.

The breadth of the curriculum is also improved by the integration of technology with instruction. Through video-conferencing and Internet technologies, students are more easily able to interact with students from different backgrounds and experiences than are available at Purdue University. The Management graduate program routinely enrolls students from all over the world and uses conferencing and Internet technologies as part of their instructional activities.

Purdue University also makes a broad spectrum of continuing education opportunities available to practicing engineers. These include credit and noncredit courses, on-campus and off-campus programs, master’s degree programs, and satellite teleconferences encompassing engineering and engineering-management disciplines. Continuing Engineering Education at Purdue broadcasts most of these programs on the closed-circuit Indians Higher Education Telecommunications System (IHETS) satellite network.

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4. Continuing Education and Distance Learning

Consistent with its heritage as a land-grant university, Purdue has a substantial outreach program of continuing education, with a growing number of its continuing education programs enhanced by distance learning and associated technologies. Beneficiaries of Purdue’s continuing education programs range from gifted youth to employed professionals to retirees. Lifelong-learning opportunities span the spectrum from personal enrichment to professional certification to graduate degrees. In addition to traditional face-to-face delivery on the campus and beyond, distance learning programs are delivered by every available technology, ranging from print to telephone, television and the Internet. Subjected to the same standards and review processes as the traditional on-campus programs from which they spring, Purdue’s distance learning programs provide remotely-accessible learning opportunities of high quality.

Purdue’s continuing education and distance learning programs advance the University’s goals of making a Purdue education accessible and affordable to all interested and qualified students and, through the application of distance learning, making higher education available off campus to both degree-seeking students and practicing professionals.

The major continuing and distance education programs at Purdue are housed within and managed by the corresponding academic units. Graduate degree programs are offered through distance learning by the Schools of Engineering, Education, Agriculture, Management and Technology. Pharmacy also has major outreach programs with substantial distance learning components.

The Center for Lifelong Learning (CLL) provides centralized support for all continuing education activities not directly managed by the schools. CLL also provides supporting services for the decentralized units. CLL has two program support units - Extended University and the Office of Distance Learning. The Conferences division, which in 1999 became administratively part of the Division of Instructional Services, is also a major support unit for lifelong-learning programs.

The programs and number of participants supported by the Extended University in 1997-98 are categorized as follows:

<table>
<thead>
<tr>
<th>Program Area</th>
<th>Number of Programs</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Classes</td>
<td>146</td>
<td>4,414</td>
</tr>
<tr>
<td>Educational Travel Programs</td>
<td>9</td>
<td>214</td>
</tr>
<tr>
<td>Financial Marketing Institute</td>
<td>11</td>
<td>572</td>
</tr>
<tr>
<td>Distance Education Services</td>
<td>108</td>
<td>7,762</td>
</tr>
<tr>
<td>Senior Programs</td>
<td>5</td>
<td>272</td>
</tr>
</tbody>
</table>

In addition to credit offerings in Special Classes, Educational Travel Programs, and Distance Education Services, there are a number of non-credit offerings provided to
sponsoring companies, senior citizens, children, and youth. Some of these programs are provided through special contracts, and many are held off the campus at a sponsoring organization, company, or agency.

Educational Travel Programs complement Purdue’s Study Abroad Program conducted by the International Programs Office, thereby enhancing the internationalization of the Purdue academic environment. Whereas Study Abroad Program participants typically are in residence at a foreign location for six months to a year, those who participate in Educational Travel Programs join in a faculty-directed course at an international location with a special cultural or technical focus for only several weeks.

The Financial Marketing Institute and the Senior Programs address special needs. The Financial Marketing Institute provides continuing education programs for professionals engaged in financial planning services, e.g., estate planning, retirement planning, and funding college education. The Senior Programs coordinates programs of the Wabash Area Lifelong Learning Association (WALLA), which has been providing learning opportunities for senior citizens since 1993. An affiliate of the Elderhostel Institute Network, WALLA is one of more than 240 Institutes for Learning in Retirement in the United States that offer stimulating learning experiences for older learners.

The Conferences division supports continuing education activities initiated by the faculty of Purdue University and Purdue-sponsored activities of other organizations. The meeting facilities at Purdue are widely recognized for their quality and for the range of meeting sizes that can be accommodated. In 1998-99, Conferences supported 750 activities involving 70,668 participants. The School of Agriculture, which sponsored 114 programs involving 10,444 participants, was the most active school, followed by the Schools of Engineering, with 53 programs (in addition to those supported by Continuing Engineering Education) and 5,254 participants.

The Office of Distance Learning began operation on April 1, 1998 with a mission to advocate and assist in the adoption of distance learning in pursuit of the University’s three-fold mission of teaching, research and service.

A major activity of the Office of Distance Learning is the organization and support of a Purdue system-wide Distance Learning Advisory Board responsible for strategic planning and dealing with policy issues related to distance learning. The Advisory Board has promulgated the NCA “Guidelines for Distance Education” throughout the institution, recommending that all existing and planned distance-learning programs be benchmarked against these guidelines.

Working with other campus units including the Center for Instructional Excellence and the Multimedia Instructional Development Center, the Office of Distance Learning provides opportunities for faculty to learn about technologies and pedagogies for distance learning. It also serves as a clearinghouse for information.

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concerning distance learning resources at Purdue and beyond and maintains a Web site for this purpose.

Continuing education and distance-learning programs contribute strongly to achieving the educational and outreach missions of Purdue University by providing and enhancing access to high-quality lifelong-learning programs for the citizens of Indiana, the nation and the world.

5. Interdisciplinary Education

In early 1996, over 40 faculty members and senior administrators convened for two days with facilitation provided by the Pew Foundation to discuss issues and mechanisms for enhancing interdisciplinary collaboration. Recommendations from these meetings were comprehensive and addressed how University structure, systems, policies, resources, and incentives can be used to foster interdisciplinary activities. A number of these items are now being implemented. Indeed, there has been a dramatic increase in the level of faculty involvement and innovation in developing cross-disciplinary learning experiences for students at both the graduate and undergraduate levels. A concerted effort by the University's administration to support faculty initiatives toward collaboration continues.

Since problems are not discipline-based, students must be able to integrate knowledge from a broad range of sources. Purdue's approach to curricula is designed to transcend disciplines (e.g., overcoming barriers that might exist among academic departments), institutional boundaries (e.g., building bridges between academic and industrial research), and national cultures (e.g., complementing work-abroad with study-abroad experiences).

Motivated by the institution's goals of enhancing the richness of education at every level, and extending the value of its research programs and practices, interdisciplinary education has become a major focus of attention across campus. Innovation in interdisciplinary education comes in many forms, including courses developed by a single faculty member to address topics that embrace adjacent disciplines designed to serve students from different academic areas; courses created by more than one faculty member who perceive a need to integrate special expertise and experiences; groupings of courses within a single existing program or school, but which restructure content consistent with changing or emerging technologies and methodologies; and new formal programs of courses developed by faculty from different academic units that leverage interdepartmental learning objectives and responsibilities.

Among the more highly visible innovative interdisciplinary programs at Purdue is one initiated recently in Engineering: EPICS - Engineering Projects in Community Service Program. Founded in the School of Electrical and Computer Engineering at Purdue in 1985 by Professors Leah Jamieson and Edward Coyle, EPICS emerged in response to two needs: (1) the need within the Engineering curriculum to provide for undergraduates a long-term, real-world define-design-build-test-support experience.
through which they develop communication skills, teamwork experience, interdisciplinary experience, leadership and project management skills, and (2) the need within the surrounding community for improved quality of service within local organizations and community agencies via access to technology and expertise that would otherwise be prohibitively expensive. Under the EPICS model, multidisciplinary student teams receive academic credit for engineering design projects that will ultimately be fielded in the community. Each EPICS team is a mix of students from several disciplines and across multiple levels. The teams work with the partner community organization to define problems faced by the organization. They then design, develop, build, test, and deploy engineering solutions. The emphasis is on providing meaningful long-term design experience for our students. Projects can last for many years, and an individual student may participate in a project for up to seven semesters. This enables problems of significant scope and impact to be explored.

Because students work on real problems, all EPICS projects require participation from multiple disciplines across Engineering as well as outside of Engineering including Computer Science, Education, Psychology, Sociology, and Visual and Performing Arts. Large-term, large-scale projects can only be completed by large teams of students, so EPICS teams may consist of 10-15 students, enabling several students from each discipline required by the project to have a meaningful role in the work, and facilitating the transition from semester-to-semester, and year-to-year. By focusing on clearly defined problems and providing clear-cut goals for students at all grade levels, EPICS provides quantifiable cross-disciplinary learning experiences for students and measurable results. The impact on the community is greater than the sum of the projects because projects promote bridge building between the University and non-University communities in a manner that would otherwise not happen.

EPICS is now in its fourth year of operation, with 250 students having been organized into 16 teams working with 16 community organizations. Some of the projects being conducted include construction of artificial wetlands to improve environmental quality, production of creative demonstrations of engineering for middle school students, designing distributed databases to assist in homeless prevention within the Lafayette community, creation of interactive Web-based systems to present historical information, design of high-tech microphones to improve hearing aids, design of interactive toys for children with disabilities, fabrication of furniture that makes classrooms more accessible for handicapped students, and construction of community information kiosks using advanced information technologies.

The EPICS program recently received the 1997 ASEE Chester F. Carlson Award for Innovation in Engineering Education, Purdue’s Class of 1922 Annual Award for Outstanding Innovation in Helping Students Learn, and the 1997 Ruth and Joel Spira Outstanding Teacher Award (awarded by Purdue’s School of Electrical and Computer Engineering). EPICS has received support from the U.S. Department of Education, the National Science Foundation, the Corporation for National Service, Altera, AMD,
Borland, Comdisco, DuPont, Harris Semiconductor, Hershey Foods, Microsoft, Texas Instruments, Thomson, Zilog, and various Purdue alumni.

Research and graduate education also have benefited from broadened disciplinary participation. Purdue supports a large number of interdisciplinary and multidisciplinary research and educational programs, with strong involvement and participation from nearly all traditional academic units (Table 6.4).

One model of improved research and scholarship resulting from cross-disciplinary involvement of faculty and students is the Purdue Environmental Sciences and Engineering Institute (ESEI), located in the Potter Engineering Center, but involving faculty and students from a wide range of environmental disciplines. ESEI is directed by Dr. Ronald Turco, Professor of Agronomy. ESEI specializes in organizing, directing, and developing cross-disciplinary and multi-institutional environmental research projects capable of leveraging the environmental sciences and engineering resources, competencies, infrastructure and educational expertise at Purdue to provide cutting-edge, cost-effective solutions to environmental problems. Because ESEI is not housed under a single school or academic department within the University, the Institute and its staff transcend boundaries that normally limit the resources available to researchers and educators who work within the confines of single disciplines. ESEI helps assemble groups of researchers and educators who work within the confines of a single discipline and brings together teams of researchers to address particular problems. Without the Institute, these multi-disciplinary relationships would be unlikely to form. Faculty members who want to develop large projects involving many different aspects of an environmental problem can receive help from ESEI in organizing and managing such projects—from proposal stage through project completion.

Within the past few months, a group of faculty members from the Schools of Agriculture, Veterinary Medicine, Consumer and Family Sciences, Pharmacy and Pharmaceutical Sciences, and Liberal Arts have banded together with the strong support of their deans and department heads to create yet another model of interdisciplinary research and graduate education: a Center for Enhancing Foods that is designed to protect health. The Center will do research and educate graduate students in the explosive new areas of designed foods and nutraceuticals, components of foods that have been shown to exert biological actions that benefit health. Such phytochemicals as tocopherols, lycopene, and carotenoids have shown evidence of lowering risk for cancer and cardiovascular disease by influencing oxidative stress, altering cell function, and modulating gene expression. It is expected that in stimulating interdisciplinary research, the Center will create new opportunities for external funding from NIH, USDA and other appropriate agencies.

Service and outreach educational activities at Purdue also benefit from the involvement of multiple disciplines. An example is the work of Purdue’s Technical Assistance Program (TAP). In operation since 1998, TAP has worked with over 2,500 Indiana companies to help support the start-up of high technology businesses.
and the growth of existing advanced manufacturing and technology companies. The services provided by TAP include conducting short exploratory research projects in support of project development, process improvement and provision of assistance in searching information databases, and providing support documentation, as well as placement and technical support for summer student interns. TAP promotes and manages an annual job fair for Indiana companies. In all of these activities, TAP actively solicits the integral participation of faculty and professionals from across campus. The economic impact of this program is described in the outreach section of this report, p. 5.77.

These are only four examples of more than 100 interdisciplinary programs on the campus. To provide support for faculty involved in these initiatives, the University Promotions Committee has requested that senior interdisciplinary project directors provide evaluation materials on faculty participating in their programs to deans and department heads so that adequate credit is given in decisions involving promotion, tenure, and annual merit pay.
Table 6.4
Centers, Laboratories, Institutes, and Other Multidisciplinary Programs Purdue University
West Lafayette Campus

- *A.H. Israil Exercise, Fitness, and Nutrition Research and Education Center
- Accelerator Mass Spectrometry Center
- Ackerman Center for Democratic Citizenship
- *Advanced Applications of Geographic Information Systems Center
- Aerospace Sciences Laboratory
- Aerospace Sciences Laboratory
- African-America Studies and Research Center
- Agronomy Research Center
- American Studies
- Animal Sciences Research and Education Center
- Applied Optics Laboratory
- Articulated Motion Laboratory
- Asian Studies
- Automatic Control
- Automotive Transportation Center
- Biological Reaction Engineering Laboratory
- Biomechanics Laboratory
- Biomedical Acoustics Laboratory
- Biomedical Engineering
- Biomedical Engineering and Controlled Release Laboratories
- Biomedical Engineering Program
- Bioseparations Laboratory
- *Biotechnology Institute
- Boeing & Intel Design/Build/Test Laboratory
- Boeing Compressible-Flow Laboratory
- Boiling & Two-Phase Flow Laboratory (BTPFL)
- Business & Industrial Development Center
- Catalysis and Surface Chemistry Laboratory
- Center for Advanced Applications in Geographic Information Systems (CAAGIS)
- Center for Advanced Technology Education
- Center for Advancement Manufacturing Pharmacy
- Center for Agricultural Business (CAB)
- Center for Agricultural Policy and Technology Assessment
- Center for Applied Ethology and Human/Animal Interaction
- Center for Applied Mathematics
- *Center for Biomedical Applications for Accelerator Mass Spectrometry
- Center for Community and Environmental Design

6.35
Table 6.4
Centers, Laboratories, Institutes, and Other Multidisciplinary Programs
Purdue University
West Lafayette Campus (Continued)

- *Center for Computational Image Analysis and Data Visualization
  - CRISTAL: Core Laboratory for Image Analysis and Multidimensional Applications
  - SHASTRA Collaborative Modeling and Visualization Project
- Center For Customer Driven Quality
- *Center for Education & Research in Information Assurance & Security (CERIAS)
- Center for Environmental and Regulatory Information Systems (CERIS)
- Center For Families
- Center for Food Animal Productivity and Well-Being
- Center for Human Animal Bond
- Center for Informational and Numerical Data Analysis & Synthesis (CINDAS)
- Center for International Business Education & Research (CIBER)
- Center for Leadership Studies
- Center for Management of Manufacturing Enterprise
- Center for NewCrops & Plant Products (NewCROP)
- Center for Paralysis Research
- Center for Pharmaceutical Processing Research
- Center for Plant Environmental Stress Physiology
- Center for Rural Development
- *Center for Satellite Engineering
- Center for Statistical Decision Sciences
- Center for Tax Policy Studies
- Center for Technology Transfer & Pollution Prevention Projects
- Center for Urban and Industrial Pest Management
- *Center of Excellence in Materials Processing and Tribology
- Centers for Excellence
- Chemical Physics Program
- Classical Studies
- Climate Modeling Laboratory and IBM Center for Environmental Research
- Cluster Materials Laboratory
- Cluster-Based Materials Laboratory
- Coating Applications Research Laboratory (CARL)
- Coating Research Center
- Communications and Signal Processing
- Communications Research Laboratory
- Comparative Literature
- Compliant Mechanisms Laboratory
- Composites and Polymer Processing Laboratory (CPPL)
- Computational Facilities (MSEE)
- *Computational Finance Program

6.36
Table 6.4
Centers, Laboratories, Institutes, and Other Multidisciplinary Programs
Purdue University
West Lafayette Campus (Continued)

- *Computational Research Institute
- *Computational Science and Engineering Interdisciplinary Program
- Computer Aided Design and Graphics Laboratory (CADLAB)
- Computer Engineering
- Computer Integrated Food Manufacturing Center (CIFMC)
- Computer Integrated Process Operations Consortium
- Computer Vision and Image Processing Laboratory
- Consortium of Environmental Science Programs in Indiana
- Core Laboratory for Image Analysis and Multidimensional Applications (CRISTAL)
- Credit Research Center
- Crop Diagnostics Training and Research Center
- *Department of Biomedical Engineering
- Dependable Computing Laboratory
- Digital Signal Processing (DSP) Laboratory
- Distributed Multimedia Systems Laboratory (DMLab)
- Dynamic Inelasticity Laboratory
- Electrohydraulic Control Research Center (EH CENTER)
- Electronic Conduction in Molecular Nanostructures
- Electronic Imaging System Laboratory (EISL)
- Engine Controls Laboratory
- Engineering Research Center for Collaborative Manufacturing (CCM)
- Environmental Conscious Manufacturing Technology
- Environmental Science and Engineering Institute
- Epitaxy Laboratory
- *Executive MBA in Food and Agriculture Business
- Film Studies
- Flame Diagnostics Laboratory
- Flight Dynamics and Control Laboratory
- Flight Simulation Laboratory
- Fluid Mechanics Laboratory
- Fracture & Fatigue Lab
- Gas Turbine Combustion Laboratory
- Gifted Education Resource Center (GERI)
- Graduate Interdisciplinary Prog., in Computational Science & Engineering
- Hardwood Tree Improvement and Regeneration Center (HTIRC)
- Heat Transfer Laboratory
- Highway Expansion and Research Project for Indiana Counties and Cities
- Human Factors
- *Illinois-Indiana Sea Grant Program

6.37
Table 6.4
Centers, Laboratories, Institutes, and Other Multidisciplinary Programs
Purdue University
West Lafayette Campus  (Continued)

- Indiana Pine Natural Resources Field Station
- Indiana Clean Manufacturing Technology and Safe Materials Institute
- Indiana Reading Recovery Program
- Indiana Water Resources Research Center (WRRC)
- Institute for Interdisciplinary Engineering Studies (IIES)
- Insurance Marketing Institute
- Intelligent and Adaptive Management of Multi-Class Networks
- Interactive System Identification and Control Laboratory (ISICL)
- *Interdepartmental Gerontology Program
- Interdepartmental Nutrition Program
- Interdisciplinary Graduate Program in Food Science
- Interdisciplinary Program in Virus Research
- *Interdisciplinary Programs in Neuroscience
- Interfacial Engineering Laboratory
- Interfacial Engineering Laboratory
- *Italian Studies Program
- Jewish Studies Program
- Joint Transportation Research Program
- Laboratory for Applications of Remote Sensing (LARS)
- Laboratory for Intelligent Process Systems (LIPS)
- Laboratory of Renewable Resources Engineering (LORRE)
- Laser-Assisted Micro Fabrication Laboratory
- Life Sciences and Biotechnology Institute
- Lightweight Damage-Tolerant Armor
- Linguistics
- Low-Power VLSI Research Laboratory
- Machine Learning Lab
- Management Information Research Center
- Manufacturable Power Switching Devices
- Manufacturing Laboratory
- Manufacturing Process Control Laboratory
- *Markey Center for Structural Biology
- Marriage and Family Therapy Center (MFT)
- Materials Processing & Tribology Research Group
- Materials Research Science and Engineering Center (MRSEC)
- Materials Testing Lab
- Maurice J. Zucrow Laboratories (formerly named - Thermal Sciences and Propulsion Center)
- McDonnell Douglas Composite Materials Laboratory (CML)
- Mechanical Testing Facility (MSEE)
Table 6.4  
Centers, Laboratories, Institutes, and Other Multidisciplinary Programs  
Purdue University  
West Lafayette Campus  
(Continued)  

- Medieval Studies  
- Microelectronic Materials Laboratory  
- Microstructural Analysis Facility (MSEE)  
- Midwest Superconductivity Consortium (MISCON)  
- Multidisciplinary University Research Initiative (MURI)  
- Multimedia-Based Institute  
- Multispectral Image Processing Laboratory  
- National Soil Erosion Research Laboratory (NSERL)  
- Natural Resources and Environmental Science Program  
- North Central Superpave Center  
- NSF Center for Advanced Cement-Based Materials  
- Optoelectronic Center  
- PamMount Group  
- Philosophy and Literature  
- Photon Migration Laboratory  
- Photonics and Nonlinear Optics Laboratory  
- Processing Facility (MSEE)  
- Program on Therapeutic and Diagnostic Devices  
- Purdue Achievement Center  
- Purdue Actuarial Science Program  
- *Purdue Cancer Center  
- Purdue Comparative Oncology Program  
- Purdue Counseling & Guidance Center  
- Purdue Genetics Program  
- Purdue Genomics Program  
- Purdue Laboratory for Applied Industrial Control (PLAIC)  
- Purdue Multimedia Testbed  
- Purdue Neuroscience Program  
- Purdue Rare Isotope Measurement Laboratory  
- Purdue Rare Isotope Measurement Laboratory (PRIME)  
- *Purdue Technical Assistance Program  
- Purdue Tourism & Hospitality Research Center  
- Purdue University Biochemistry & Molecular Biology Program (BMB)  
- *Purdue University Cytometry Laboratories  
- *Purdue University Materials Consortium (MatCon)  
- *Purdue University Neurosciences (PUN) Program  
- Purdue University Plant Biology Program
Table 6.4
Centers, Laboratories, Institutes, and Other Multidisciplinary Programs
Purdue University
West Lafayette Campus (Continued)

- Purdue Vision Research Center
- Purdue Weather Center
- *Purdue's NASA Specialized Center of Research and Training on Controlled Ecological Life Support Systems (CELSS)
- Rapid Affordable Generation Terrain and Detached Urban Feature Data
- Ray W. Herrick Laboratories
- Reaction Engineering and Catalysis
- Reinhard Schumann, Jr. Laboratory (MSEE)
- Religious Studies
- Retail Institute (RI)
- Rocket Propulsion Laboratory
- Safe, Quiet, and Durable Highways Institute (SQDHI)
- School Mathematics and Science Center
- Science and Culture
- Semiconductor Processing Facility
- Separation Research Laboratory
- Social Research Institute
- Software Engineering Research Center (SERC)
- Space Systems Control Lab
- Space Systems Control Laboratory
- Spry Diagnostics Laboratory
- Stae Utility Forecasting Group
- Statistical Consulting Service
- Structural Dynamics Laboratory
- Synchrotron X-ray Scattering Consortium (MATRIX)
- Systemwide Purdue Network/Computer for Collaborative Education and Research
- Technical Assistance Program
- Technology Resources Center
- *Telecommunication and Networking Programs
- The Joint Transportation Research Program
- Thermodynamics Research Laboratories
- Thermophysical Properties Research Laboratory
- Tourism & Hospitality Research Center
- Transportation Center
- Tribology Laboratory
- Turbomachinery Laboratory
- Turbulent Combustion Laboratory
- Turbulent Flow Physics Laboratory
- Turfgrass Research and Diagnostic Center

6.40
Table 6.4
Centers, Laboratories, Institutes, and Other Multidisciplinary Programs
Purdue University
West Lafayette Campus (Continued)

- Turner Laboratory for Electroceramics (MSEE)
- University Research Initiative Computational Combinators
- URI (Materials Degradation and Fatigue in Aerospace Structures)
- URI (Rotorcraft Engine Unsteady Dynamics)
- Whistler Center for Carbohydrate Research
- Women's Studies
- X-ray Facility (MSEE)

NOTE: Programs with asterisks have been supported under Purdue’s Academic Reinvestment Program and are a direct response to the concerns documented in a 1994 Survey on Interdisciplinary Activity sponsored by the EVPAA.
F. Support for Faculty in Their Instructional Mission

1. Creating a Community of Teacher-Scholars

a. Introduction

In December 1992, President Beering appointed a committee of faculty, student and administrative representatives to address undergraduate education at Purdue University. This far-ranging and visionary committee set up a comprehensive framework that has culminated in several successful initiatives designed to support faculty and students in their instructional mission. The report identified ten essential components for creating a supportive community of teacher-scholars: 1) a vision that values undergraduate education; 2) a rich environment for education; 3) an academic community that models common purposes; 4) a student-oriented approach to learning; 5) an educational process that fosters active learning; 6) a multi-talented faculty committed to excellence and serving as mentors; 7) a support and reward structure that reflects the valuing of undergraduate teaching activities; 8) a faculty development system that fosters creativity, innovation, and effectiveness in teaching; 9) facilities and state-of-the-art technologies that enhance instruction; and 10) an effective and well-prepared corps of graduate teaching assistants. Over the past nine years, beginning with the formation of the Committee for the Education of Teaching Assistants (CETA) through the 1997 creation of the Teaching Academy, to the newly established Center for Instructional Excellence, these ten components have been realized and enacted in multiple ways. Besides creating a strong and vibrant infrastructure, the teaching/learning enterprise has become an integral part of faculty discussions, training, and evaluation. Currently, six faculty members have received distinguished professorships based on their scholarship of teaching, and more of these will be awarded. Annually, five faculty receive University Outstanding Teaching Awards, and this past spring 225 current and past outstanding Purdue teachers were recognized with the dedication of a plaque entitled the Book of Great Teachers, which is displayed in the Purdue Memorial Union. In addition, a number of programs and recognition activities have been designed to include graduate students in an effort to reemphasize the importance of teaching within the University.

b. Committee for the Education of Teaching Assistants (CETA)

From the very beginning, this committee comprised of faculty, administrators, and graduate students recognized that its mission "to enhance the excellence of education at Purdue University by providing opportunities for graduate students to experience and understand all aspects of instruction in higher education" and its charge, "to serve as a stimulus for the development of teaching support activities in all departments utilizing teaching assistants," needed to involve faculty as well as students. Thus, several initiatives were begun that broadened the committee's constituency. Besides becoming the driving force in identifying the needs of
graduate teaching assistants and rewarding their achievements, the committee has established several highly successful on-going programs which include: a) offering hands-on workshops for faculty and graduate students, b) presenting outside and internal speakers who address significant faculty and teaching assistant concerns, and c) designing activities for the development and recognition of teaching excellence by graduate students throughout the University.

_workshops for faculty and graduate students:_ CETA surveys of faculty, graduate students, and undergraduates indicated that several types of initiatives would be needed if the University were to facilitate and enhance instructional excellence. In response to the content needs identified, CETA has developed a series of workshops. Over 600 faculty and graduate participants attended the initial workshop conducted by Dr. Ernest Boyer in which excellence in teaching was redefined. Subsequent workshops have addressed teaching evaluation including the development of teaching portfolios; an orientation program for incoming GTA’s; a special GTA workshop with Purdue’s Distinguished Professors; workshops on interpersonal skills in the classroom, using problem-solving skills in the classroom, and classroom climate issues including gender equity and cultural awareness. These workshops are continually evaluated and revised.

Two types of lecture series were begun by CETA and are now under the direction of the Teaching Academy. Focus on Teaching began in 1993 with a keynote address by the late Ernest Boyer of the Carnegie Foundation for the Advancement of Teaching. Originally sponsored by the Office of the Executive Vice President for Academic Affairs and CETA, these series bring together outstanding scholars—teachers from across the United States with the goal of stimulating creative thinking and doing in terms of the instructional goals of Purdue University. The audiences for these presentations are graduate students, faculty and administrators and range from approximately 100-600 people. Since 1993, ten outside speakers have made presentations. They include distinguished professors such as Dr. Lee Shulman, outstanding administrators such as Dr. David Scott, and presidents of educational foundations such as Dr. Patricia Graham.

Conversations about Teaching is a speaker series designed to celebrate and introduce Purdue professors who have been recognized for teaching excellence to the larger University community. During these conversations, faculty share their experiences and insights and offer creative approaches to the challenges of teaching. Since 1994, this series has featured 23 faculty from 20 departments. Audiences typically range from 30-100 faculty and graduate students. Many topics have been addressed including how to handle large lecture classes, the use of new instructional technologies in the classroom, how to use case studies to enhance student learning, and ways to integrate undergraduate research projects into a course. These conversations have served to bring together interested faculty and graduate students from across the curriculum to share common interests, concerns, and solutions.
Graduate Student Recognition. In addition to providing support programs for graduate teaching assistants, CETA sponsors an annual recognition banquet for graduate teaching assistants from across the campus. A former Purdue graduate teaching assistant who has become a faculty member is invited back to make a keynote address, and all honorees are individually recognized. This past year, 58 teaching assistants were honored.

c. The Teaching Academy

The successes of CETA brought a renewed commitment to the establishment of a University-wide Teaching Academy that would play a strong leadership role in enhancing undergraduate, graduate, and outreach instruction. The Teaching Academy is designed to a) promote appreciation of the complex and dynamic nature of teaching and learning; b) establish programs that nurture the integration of the scholarship of teaching with the scholarship of discovery; c) help the campus define exemplary instruction and create an environment that enables each teacher and learner to reach his/her maximum potential; d) facilitate acquisition of knowledge, skills, and techniques basic to effective learning and teaching; e) develop networks for all faculty and instructional staff desiring opportunities to interact about the scholarship and experience of teaching and learning; and f) develop programmatic initiatives that bring together faculty, administrative/professional staff, and students to foster a sense of shared responsibility in learning.

Fellows of the Teaching Academy are comprised of University-wide teaching award winners as well as five faculty nominated annually by their deans and chosen by the Teaching Academy Executive Council. Each year, five associate fellows who represent the University’s best graduate teaching assistants are inducted as well.

The Academy meets annually to address significant instructional issues facing the campus. During the year, the Executive Council meets regularly to work on a variety of projects. This past year, a sub-committee of the Teaching Academy has developed a new mentoring system which will begin this fall. Other activities of the Teaching Academy include the maintenance of the Teaching Academy home page - a very useful pedagogical resource, the support and development of faculty workshops, and sponsorship of the Focus on Teaching and Conversations about Teaching lecture series. The Executive Council is also working closely with the administration of the newly established Center for Instructional Excellence, and Executive Council members have played a significant role in the University Senate’s mandate for University-wide formative and summative teaching evaluations.
d. Teaching for Tomorrow Program

Purdue is committed to recognizing and fostering the very best teaching possible. Therefore, in 1997 the Classes of 1944 and 1945 endowed a program to provide junior faculty with an opportunity to be part of a University-wide networking group that includes senior faculty who are committed to teaching excellence at the University.

Two of the University’s best teachers serve as resource persons to eight assistant or associate professors selected for the program. This program matches one senior resource faculty member with no more than four assistant and associate professors from across academic units. Structured programs address such matters as adjusting teaching modes to class size, student readiness and learning styles, subject matter, cultural diversity, course objectives, overall goals of the course, and experiential and student-centered learning. Resource faculty work one-on-one with the assistant and associate professors in developing and reviewing teaching techniques applicable to facilitating learning in their courses and fostering teaching interest and innovation in their home departments. Faculty selected visit each others’ classes and discuss the pedagogy used. For participation in the program, the resource faculty and the assistant and associate professors are provided professional development funds to be used for any purpose that enhances their skills as teacher-scholars.

The intended outcomes of this networking program are: Purdue students will gain improved learning environments; faculty will enhance their teaching through the use of a broader repertoire that matches learner needs; participants will develop a network of faculty committed to quality instruction; participants will form a strong nucleus for enhancing undergraduate teaching at Purdue; academic departments will receive increased input on their teaching programs.

To date, 30 faculty from eight of the ten academic schools have been part of this exciting enrichment program.

e. Center for Instructional Excellence

The Center for Instructional Excellence (CIE) is a new campus initiative created as part of a restructuring of what was the Center for Instructional Services and other campus support organizations. Housed in the Office of Instructional Excellence and Lifelong Learning, CIE serves the Purdue University community to enhance teaching and learning.

The creation of CIE made an important statement at Purdue University. It reaffirmed that teaching is central to the mission of University by raising its visibility and emphasizing the value that is placed on teaching excellence. CIE serves as a catalyst for promoting, developing, and implementing continuous
improvement in teaching and learning. Its mission is to promote teaching excellence and to provide the support necessary to make a difference.

CIE actively forges partnerships and alliances with campus groups devoted to instructional support and teacher enhancement. Examples include the Multimedia Instructional Development Center (MIDC), the Center for Lifelong Learning (CLL), the Office of Distance Learning (ODL), and the Ad Hoc Task Force on Citizenship Education. By building bridges to these other groups, CIE builds on the strengths of existing programs without duplicating efforts. Working closely with the Teaching Academy and CETA, CIE is an organization that serves faculty and staff as directed by the faculty.

CIE accomplishes its mission by providing services related to faculty and teaching assistant development, teaching evaluation, and dissemination of information about teaching and learning. These are described in more detail below.

Faculty and Teaching Assistant Development: CIE provides support for faculty and teaching assistant development through College Teaching Workshops, a new teaching assistant orientation program (in cooperation with CETA), and Classroom Climate Workshops intended to sensitize faculty and teaching assistants to issues related to gender equity and cultural awareness in the classroom. Over the past two years, attendance at these workshops has exceeded 3,000 and includes beginning and experienced professors of all ranks as well as teaching assistants.

In addition to these workshops, CIE offers individual workshops on a variety of other topics (e.g., designing visuals for teaching, how to succeed in college) to departments or other campus organizations on request. CIE also supports faculty and teaching assistant development by providing direct consultation on issues related to teaching and learning.

Evaluation Services: In addition to supporting faculty and teaching assistant development, CIE assists with the evaluation of the teaching process and learning outcomes through Small Group Instructional Diagnosis (SGIDs), support of efforts by academic units to develop local systems of teaching evaluation, and consultation. The Small Group Instructional Diagnosis (SGID) is a structured technique for gathering open-ended feedback about a course and instructor from a class. CIE staff conduct SGIDs, at the request of instructors to provide the instructors with formative evaluation information. Over the past two years, nearly 350 SGIDs have been conducted for faculty and teaching assistants on the campus. Following a SGID, a CIE staff member consults with the instructor and, if needed, provides assistance to make improvements. CIE also consults with faculty and teaching assistants, as requested, on other issues related to teaching evaluation or the evaluation of student performance. In April of 1998, the University Senate approved a document (97-9 revised) that provides a conceptual
overview of teaching evaluation on the campus. This initiative will be discussed below.

**Information Dissemination:** In addition to its development and evaluation functions, CIE serves as a central source of information about teaching and learning. To disseminate information about teaching on campus and to stimulate dialog about teaching within the Purdue community, CIE sponsors a Teachers on Teaching seminar series, a teaching listserv for the campus TEACH-L, and a Web site.

2. Creating an Innovative Teaching Environment

a. Support Structure

The Report on Undergraduate Education completed in 1993 has served as a template for establishing programs and organizational structures that enhance the teaching and learning environment at Purdue. From the President through the executive vice presidents and the deans has come a strong commitment to establishing support structures for teaching. The Center for Instructional Excellence, the Multimedia Instructional Development Center, support for the Teaching Academy and CETA, reorganization of distance learning and continuing education, faculty and student recruitment and retention programs, learning outcomes assessment, and the newly established all-campus teaching evaluation policy attest to the numerous support programs and administrative structures that have been established to support the educational mission of the institution.

b. Special Support Funding

Major funding for innovative instructional programs has been provided. Through the Academic Reinvestment Program, over $1.2 million has been provided to enrich teaching and learning on the campus. In the past three years alone, over $3.5 million has been allocated to the schools to ensure that courses are available to students so that delays in graduation are kept to a minimum. One area that has received special attention is that of instructional technology support. Following is a discussion of how instructional technology support specifically has impacted the University.

c. Instructional Technology Support

**Multimedia Instructional Development Center.** In July 1997, the Multimedia Instructional Development Center (MIDC) was created to support and empower Purdue faculty in the use of multimedia to enhance instruction. MIDC provides assistance in the integration of multimedia with the educational mission of the University. MIDC supports this mission by providing seminars, information resources, and technical expertise to the University community. In addition, MIDC houses an instructional development center with a large variety of multimedia development equipment and software. Purdue University faculty
members and instructors utilize these resources to create images, develop Web sites, record CD-ROM's and digitize video. More importantly, the MIDC staff is available to provide consultation and assistance to faculty and to present seminars to over 5000 people annually.

During the two years of operation, the MIDC staff has grown from one full-time director to a full-time staff of seven including people who provide expertise in Web development, graphics, digital video and distance learning. To date, the Center has offered over 150 workshops.

The MIDC grants initiative was launched in 1996 to encourage the use of multimedia technology resources within the University. The goal of the program is to identify, select and help implement projects that increase instructional effectiveness through the use of multimedia technology. Through these grants, MIDC seeks to cultivate instructional excellence through experimentation with new ideas, teaching methods and technologies. Grants are awarded on the basis of sound instructional design, integration of active learning, creative use of technology, and evidence for evaluating the educational effectiveness. Since the initial cycle in 1996, MIDC has awarded nearly $600,000 to 40 teams of faculty members.

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<th>Project Year</th>
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<th>Proposals Funded</th>
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<td>27</td>
<td>$500,000</td>
<td>15</td>
<td>$225,000</td>
</tr>
</tbody>
</table>

CIC Learning-Technology Grants. The Committee for Institutional Cooperation's (CIC) Learning Technology Initiative (LTI) supports the cooperative development and use of advanced instructional technologies to realize both academic and economic benefits through consortia mechanisms for sharing resources and expertise. The CIC institutions seek collaboratively through the LTI program to acquire, develop, and implement instructional resources grounded in the innovative use of new technologies and to develop faculty expertise in the application of these resources to their courses. A panel of learning technology liaisons appointed by the provosts directs the LTI.

The LTI Seed Grant Program is designed to provide startup funding for learning technology projects supporting instruction at the CIC universities, with particular focus on credit instruction leading to a degree. The Seed Grant Program focuses on expanding access to low-demand courses and resources for high-enrollment courses through shared human and digital resources and new models and methodologies. Since its inception in December 1996, ten groups of Purdue University faculty members have been funded. Projects range from developing a Web-based course focusing on Women Artists of the American West to developing instructional materials for complex scientific instruments.
Teaching, Learning and Technology Showcase. The annual Teaching, Learning, and Technology (TLT) Showcase is held during the spring semester at the West Lafayette campus. The TLT Showcase is designed to build connections and collaboration between faculty members adopting various aspects of instructional technology. During this two day event, educators, staff, and administrators come together to share ideas, projects, and discussion. The first Teaching, Learning, and Technology Showcase was held in March 1998 and had nearly 800 participants. The 1999 TLT Showcase had nearly 1000 participants.

3. Assessing the Quality of Instruction

In April 1998, the University Senate approved a document that provides a conceptual overview of teaching evaluation on the campus. That document calls for each department/school to establish criteria for effective teaching and to use regular teaching evaluations as one tool to enhance instructional quality and foster faculty development. In response to the Senate document, the Center for Instructional Excellence is assisting academic units in establishing local evaluation systems that will involve multiple sources of data, rely on quantifiable teaching and course evaluation items (both common items for use across units and specific items for the needs of particular units), and be appropriately used for formative and summative evaluation purposes. Prior to 1998, there were no formal University requirements for teaching evaluation. This is not to say, however, that teaching evaluation was not done; rather, policies for teaching evaluation were controlled at the school and departmental level, and only about one-half of the courses taught were evaluated each semester.

The overall goal of the teaching evaluation initiative is to improve teaching at Purdue. The Teaching Evaluation Committee defined five critical issues to be addressed by a teaching evaluation system. These include: 1) both teaching process and learning outcomes are important and should be evaluated; 2) instructors’ sensitivity to individual differences and learning styles should be evaluated; 3) multiple methods of evaluation should be used; 4) confidentiality of student evaluators should be protected; and 5) an evaluation system should provide the assurance that evaluation results will be properly interpreted and used.

Overall, the committee has recommended a University-wide approach which provides: a) general guidelines to be developed and implemented at the local (departmental) level; b) the principle of universality, that is, every course and every instructor will be evaluated except for cases in which confidentiality of the students cannot be assured; c) a requirement for some quantifiable and common evaluation items; d) the need for multiple sources of evaluation; e) innovative evaluation techniques for non-classroom types of teaching e.g. clinical instruction; f) appropriate opportunities for both formative and summative evaluations; g) proper comparison of results; and h) built-in mechanisms for improvement.

Between 1998 and 2000 the Departments of Earth and Atmospheric Sciences, Psychological Sciences, Pharmacy Practice, Medicinal Chemistry and Molecular
Pharmacology, and Horticulture and Landscape Architecture are working out prototype models to be shared with other departments once their pilot studies are completed.

One unique feature of the Earth and Atmospheric Sciences (EAS) and Pharmacy Practice (PHPR) pilot programs is a peer-evaluation system. In EAS, for example, the department will appoint a Committee of Six, a faculty committee that will carry out peer evaluation according to a set schedule of classes. The committee will both evaluate written materials (syllabi, examinations, etc.) and make classroom observations. The PHPR system will involve both peer and self-evaluations. A particular challenge in the latter department is how clinical teaching will be evaluated.

In the Department of Psychological Sciences (PSYC), a committee has developed its own student "cafeteria" questionnaire, which is now in use. The department also offers students in each class the opportunity to make nominations for faculty teaching awards. The department states that another goal is to develop additional sources of information on teaching effectiveness, including peer evaluation and self-evaluation. The department also wishes to develop acknowledgment and reward systems for outstanding teaching, and sees as a future development, the development of a formal process for the use of teaching evaluations in personnel decisions.

In Horticulture and Landscape Architecture (HLA), a departmental committee first decided on the various components of teaching and developed a weighting system. Next, the departmental committee decided who is best qualified to evaluate each area - students, TAs, peers, and self. The committee assigned a weight for each source and the relative competency of each source to make a judgment about each of the teaching components. The overall teaching evaluation results from a combination of the source weights with the weights of each instructional component.

The HLA system for peer evaluation is unique. The HLA committee proposed, and the department adopted, the idea of a teaching retreat following the end of classes. At this retreat, a selected number of faculty would be asked to bring their handouts and examinations and make a short formal presentation about their course to the faculty. The faculty would then provide informal and formal feedback which would constitute the peer evaluation.

Procedures for self-evaluation and evaluation by the TAs in a course are also prescribed. For example, each professor must answer reflectively several questions about his or her course immediately following the conclusion of the course and file this with the annual report.

II. RESEARCH AND SCHOLARSHIP

An essential complement to the instructional program of a world-class institution of higher education is a diverse and vibrant program of research and scholarship. It is by participating in the discovery, creation and synthesis of new knowledge that faculty generate and sustain
an environment that is both stimulating and challenging to its student body. Only through the practice of scholarship under the guidance and tutelage of a creative and productive mentor can a post-baccalaureate student develop the skill and gain the experience necessary to excel in a career of research and scholarship. The creative environment resulting from this activity also has a profound effect on undergraduate education. As noted earlier in this chapter, many undergraduates at the West Lafayette campus are actively engaged in the University’s research programs, and all students gain from participating in a community in which knowledge and works of beauty are created and appreciated each and every day. The many ways in which Purdue integrates research into the undergraduate curriculum and the numerous benefits students derive as a result are chronicled earlier in this chapter on pp. 6.16–6.20.

Purdue provides a supportive and nurturing environment for research characterized by pervasive collegiality, numerous state-of-the-art facilities, and open exchange of ideas. As a result, the University has a long and recognized tradition of diverse, creative and productive research and scholarship. Material in Chapter 5, pp. 5.10–5.12, provides an overview of the West Lafayette campus-sponsored program activity over the past decade. Through complementary excellence in individual, discipline-based projects and team-focused, cross-disciplinary programs; through a balance between fundamental inquiry and focused problem-solving; and through a blend of classical scholarship and high technological invention, Purdue provides an environment that nurtures and supports faculty growth and student development.

The sections that follow focus on the rationale and organization of research and scholarship at Purdue and include a few examples that demonstrate the importance and excitement of the thousands of on-going projects at the West Lafayette campus. Funding trends and faculty development opportunities are discussed. Also included is a summary of Purdue’s accomplishments in translating the products of research into concrete benefits for society through the commercialization of products and services and the generation of new businesses in the Purdue Research Park. In addition, creating an environment that will further enhance research and scholarship at Purdue is discussed.

A. Rationale and Organization of Research and Scholarship at Purdue

Excellence and integrity in research and scholarship are among the core values of Purdue University. Research and scholarship at Purdue have their roots in a series of traditions stretching from the medieval community of scholars pursuing knowledge for its own sake to the land-grant mission of providing both general education and practical skills to the general public. These traditions now also encompass the modern, technology-intensive enterprise of developing and applying new ideas and tools for the age of information technology.

As experienced by the other major U.S. research-intensive universities, a period of momentous change and dramatic growth occurred when Purdue’s research enterprise was initiated during and after the Second World War. Purdue and other centers of technology were awakened from the relative tranquility of classical scholarship and attention to the practical needs of Indiana’s agricultural and manufacturing economy by the call of

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national and international necessity. Using the newly available resources of federal sponsorship for research, Purdue built discipline-based programs and infrastructure to sustain and empower an active and creative faculty. From 1940 through the 1980s, this growing infrastructure and expanding faculty contributed substantially to the national and state priorities of securing national defense, ensuring the health of the population, and contributing to economic growth.

Today we work under the umbrella of the federal government’s Interconnected Strategic Goals:

- long-term economic growth that creates jobs and protects the environment;
- a government that is more productive and more responsive to the needs of its citizens; and
- world leadership in basic sciences, mathematics, and engineering.

In response to these evolving priorities, the focus of Purdue’s research and scholarship during the decade of the 1990’s and into the next century is shifting from primary reliance on traditional academic disciplines to a mix of disciplinary and interdisciplinary programs. To accommodate this shift, Purdue has developed an environment for interdisciplinary research through progressively eliminating barriers that inhibit faculty collaboration across departmental and school boundaries. As a result, Purdue is home to more than 100 recognized multidisciplinary or interdisciplinary centers, laboratories, institutes, and programs that conduct research and educate graduate students. These formally recognized centers and programs range from groups of faculty collaborating within individual departments, to centers involving faculty from several departments within a school, to broad programs that involve faculty from several schools as well as other universities and private sector companies. In addition to formally recognized multidisciplinary and interdisciplinary programs, informal collaborative projects between faculty colleagues representing diverse academic disciplines can be found in essentially every academic unit.

Many of Purdue’s more recent sponsored research projects have focused on four national priorities: health and prosperity, national security, protection of the environment, and improved quality of life. A considerable portion of these initiatives have been interdisciplinary or multidisciplinary in nature. A sampling of a few of Purdue’s research endeavors focusing on each of these areas includes the following:

1. Health and Prosperity

Health requires the understanding, prevention and treatment of disease and the assurance of an adequate, safe, and nutritious food supply. Prosperity requires technological innovation. Three excellent examples of research endeavors addressing the themes of health and prosperity are the broad programs of the Purdue Cancer Center, long term studies of the Calcium Metabolism in Adolescents project, and the work of the Dauch Center for the Management of Manufacturing Enterprises.

6.52
a. Purdue Cancer Center

The Purdue Cancer Center, established in December 1976, is a basic cancer research center that has been funded by the National Cancer Institute since April, 1978. Purdue University is home to a rich and highly diverse research community with nationally recognized strengths in engineering, chemistry and biological sciences. The Center's mission is to focus a part of this community on cancer research and to provide the infrastructure and catalysis to make the total research effort greater than the sum of the individual research programs. To accomplish this mission, the Center provides a forum through its program areas to bring together cancer research faculty from various disciplines and departments to collaborate on the cancer problem. The Center was founded on the basis of integrating chemical and biological approaches to cancer research. This remains a cornerstone of its mission today.

The current research efforts of the Center are organized into three programs: Experimental Therapeutics and Diagnostics, Cell Growth and Differentiation, and Structural Biology. All areas are supported by individual and group research grants. To facilitate these programs, the Cancer Center provides shared resources through the Cancer Center Support Grant that include analytical cytochemistry, DNA analysis, drug development, macromolecular crystallography, mass spectrometry, nuclear magnetic resonance, and transgenic mouse facilities. In addition, the Cancer Center Support Grant provides funds to recruit faculty to enhance the cancer research focus of the program areas. Through a partnership with the Walther Cancer Institute, which provides $2.45 million in new resources, the Cancer Center will bring seven new investigators to Purdue whose research interests are focused on cancer.

Many notable achievements have come from the Purdue Cancer Center. Examples include the work of Professor Philip L. Fuchs and Philip S. Low (Chemistry), and Mark A. Green (Medicinal Chemistry and Molecular Pharmacology) who collaborated on a project that exploits the overexpression of folate receptors in cancer cells. They have designed an imaging agent that shows enhanced uptake in folate receptor-positive tumors. This agent is now in Phase I/II clinical trials to assess improved detection of human cancers. The approach is also being applied to the selective delivery of anticancer drugs to tumors.

Professors Cynthia V. Stauffacher (Biological Sciences) and Robert L. Van Etten (Chemistry) have achieved a major tour de force in solving the three-dimensional structure of an important protein, tyrosine phosphatase. This structure is now being used to design new anticancer drugs that function as inhibitors of this enzyme in cancer cells.

Professor Robert L. Gehlen's laboratory (Medicinal Chemistry and Molecular Pharmacology) has made important progress in understanding the protein tyrosine
kinases that are important in the regulation of cancer cell proliferation. Geahlen is now working with Professors Richard F. Borch and Mark S. Cushman (Medicinal Chemistry and Molecular Pharmacology) to design selective inhibitors of these enzymes that will be effective as novel anticancer agents.

b. **Calcium Metabolism in Adolescents**

Investigators in the Department of Foods and Nutrition, led by Professor Connie Weaver, have been conducting summer research camps (Camp Calcium) for adolescent girls since 1990 to study calcium needs for optimal bone health and to reduce risk of osteoporosis. Through these studies, the researchers from five disciplines and three universities working on this project have found that bone growth ceases in adults by their mid-twenties. Therefore, life-style choices to build bone must occur during adolescence. After that, the goal must be to reduce bone loss. The new calcium requirements released in 1997 for adolescent girls in North America were based on the findings of this study.

c. **Dauch Center for the Management of Manufacturing Enterprises**

The Dauch Center for the Management of Manufacturing Enterprises, formed in 1988, is a unique partnership involving Purdue’s Krannert School of Management, the Schools of Engineering, the School of Technology, and key industrial manufacturing partners.

The Center’s mission is to promote, support, and enhance faculty and student study of manufacturing through educational, research, and networking programs. Its guiding principles in these efforts include the crossing of intellectual boundaries, establishing proactive linkages between research and curriculum development, and partnering with industry.

Companies can benefit from interaction with the Center in a number of ways including customized executive education programs, student internships, faculty interaction and research, access to manufacturing-knowledgeable graduates at both the masters and undergraduate levels, quality improvement tools, and short-term student projects.

In recognition of its high-quality pioneering work, Purdue’s Dauch Center has received the prestigious LEAD Award (Leadership and Excellence in the Application and Development of Integrate Manufacturing), given on the basis of an international competition by the Computer and Automated Systems Association of the Society of Manufacturing Engineers.

2. **Security**

Our national security has long been based on technological superiority, scientific and engineering innovation, and a strategic commitment to both breadth and excellence in
basic research. An outstanding example of Purdue research focused on national security is found in the work of the Center for Education and Research in Information Assurance and Security (CERIAS).

Established in 1999, CERIAS is led by Professor Eugene Spafford (Computer Science), who serves as director. Recently, he was awarded a $4.9 million grant from the Lilly Endowment to support this center.

The mission of CERIAS is to establish an ongoing center of excellence promoting and enabling the interaction and collaboration of key members of academia, government, and industry. By promoting and supporting programs of research, education, and community service, synergy provides world-class leadership in multidisciplinary approaches to information assurance and security.

To accomplish this mission, CERIAS will build a well-supported community of scholars actively involved in evolving and offering academic degree program(s) in information assurance and security; solving fundamental questions of science, engineering and management as they relate to information security and assurance; transferring their expertise and technology to organizations with real-world needs; assuming leadership roles in appropriate community and government organizations; and providing activities to enhance the public’s understanding and acceptance of information protection.

CERIAS will cooperate with the Network Operations Center built in Indianapolis for Abilene, a national wide-area network that will be one of the next generations of high-performance Internet backbones. The network is operated by a consortium of more than 120 universities, including Purdue, and is administered by Indiana University. A key element in the award from the Lilly Endowment is the expectation that CERIAS, in collaboration with the IU administered network, will spur economic development in Indiana, and specifically in the Purdue Research Park, by serving as a magnet for firms seeking access to this new area of technology.

In 1999, in recognition of the expertise represented by CERIAS, Purdue University became one of the first universities in the nation to be designated as a Center of Academic Excellence in Information Assurance Education by the National Security Agency.

3. Environmental Responsibility

Environmental responsibility requires much better understanding of the complex interrelationships among components of the biosphere and among human activities and the world around us. The programs of the Environmental Sciences and Engineering Institute were highlighted on p 633. Three additional examples of Purdue research focused on environmental issues are provided by the program of the Center for Plant Environmental Stress Physiology, Professor Gregory Martin’s
research in managing plant disease through plant genetic engineering and the work to develop new technology to eliminate pollution.

a. Center for Plant Environmental Stress Physiology

Environmental factors such as drought, heat, cold, salinity, heavy-metal and mechanical stresses, and nutrient deficiencies and excesses result in massive annual global crop yield losses. Research focused on understanding plant environmental stress tolerance mechanisms has the potential to benefit greatly world agriculture. These mechanisms are complex, and their elucidation will require a long-term, multidisciplinary research effort.

With funds from the McKnight Foundation, Center faculty focused on drought tolerance in plants that led to the identification of critical genetic processes necessary for plant survival and the development of a method for the genetic transformation of sorghum. This research has led, in part, to the development of eight outstanding striga resistant sorghum lines. These varieties were distributed for wide cultivation in 12 African countries and have been particularly successful in Ethiopia and Sudan where they have been grown in thousands of hectares. Purdue scientists have been instrumental in the development and release of commercial sorghum hybrids in Sudan and Niger that have had significant impact by increasing productivity of sorghum for poor subsistence farmers. Recently, faculty from the Center, along with collaborators from the University of Arizona and Oklahoma State University, have secured an $8 million grant from the National Science Foundation to identify the genes that play a critical role in survival of drought stress in drought-tolerant species. The Center also has recently received an award from the USDA-CSREES Food and Agricultural Sciences National Needs Graduate Fellowship Grant Program to support fellowships for outstanding graduate students.

b. Identification and Cloning of the First Disease Resistance Gene in Plants

Purdue is internationally recognized as a focal point of strength in the plant sciences. One reason for this recognition is the contributions of Professor Gregory Martin (Agronomy), the first person to discover, clone and transfer a disease resistant gene to a susceptible plant. This environmentally friendly approach has broad implications for improving pest resistance of many crops and delivering pesticide-free food to the public in great abundance. Professor Martin’s achievements not only were reported in Science, but they were featured on the cover. He also received Purdue’s 1997 McCoy Award for research in recognition of his accomplishments.

c. Pollution Control

The Indiana Clean Manufacturing Technology and Safe Materials Institute (CMTI) worked with GE Plastics and Hyperion Catalysis International to investigate the availability of suitable conductive-plastics technology that another
of CMTI’s collaborators, United Technologies Automotive, could use to improve its electrostatic paint application process. Carbon “fibrils” were introduced into the plastic resins. The result was a better product with VOC emission reductions of over 80 tons per year and cost savings of over $500,000 per year for just one site.

In another project, Professors of Mechanical Engineering Paul F. Sojka, Michael W. Plesniak, and Jayavard P. Gore have developed an effervescent atomizer for consumer product applications that can help reduce pollutant emissions in two ways. First, water can be substituted for currently employed solvents that are volatile organic compounds (VOCs) while providing an improvement in spray performance. Secondly, the propellant consumption is so low that air can be substituted for current hydrocarbon propellants. Hence VOC and hydrocarbon emissions can, in principle, be completely eliminated for this large class of consumer products.

4. Quality of Life

Improved quality of life involves a myriad of multi-faceted variables. Three excellent examples of how Purdue research contributes to enhancing the quality of life are found in Professor Nikolaos A. Peppas’ work with insulin delivery, Professor Marifran Mattson’s work with the aviation industry, and Professor Terry Powsley’s work with weight control.

a. Insulin Delivery

A significant problem of current medical interest is the treatment of diabetes using regimens and devices that respond to the patient’s needs and allow insulin delivery at prescribed intervals and at appropriate rates. Recent research in the laboratory of Professor Nikolaos Peppas (Chemical Engineering) has concentrated on the development of insulin delivery devices based on intelligent hydrogels. The ability of such hydrogels to respond to changes of the surrounding environment has been exploited to create devices with improved capabilities because they match the sophistication of nature in targeting and self-regulation. The design of self-regulating insulin delivery systems is based on the identification of disease-specific stimuli that could switch the delivery process on and off. Specifically, hydrogel devices considered for insulin delivery would be triggered through innate responses of the gel to the glucose concentration.

b. Risk Communication

Professor Marifran Mattson (Communication) participates in an ongoing research partnership between the Departments of Communication and Aviation Technology, the aviation industry, the Federal Aviation Administration (FAA), and the National Transportation Safety Board (NTSB). Mattson and her students have studied a variety of issues including non-flight related accidents resulting in injuries and damage, divided loyalties during the aircraft maintenance inspection process, interaction between pilots and mechanics about maintenance discrepancy
reports, occupational safety for flight attendants, and developing safety audits. The results of this research have been presented at national and international conferences in both disciplines. The work of Professor Mattson and her colleagues has recently been honored with a 1998 Society of Automotive Engineers Outstanding Paper Award.

c. Weight Control

Professor Terry Powley (Psychological Sciences) was one of the originators of set theory for weight control. Over the past ten years, he has mapped the innervation pattern of the vagus nerve afferents in the stomach. This work has produced a new conceptualization of the control of feeding. Previously, it was thought that sensory receptors in the stomach were not very rich and did not provide a good signal for feeding regulation. Professor Powley overturned that idea. As one of his reviewers stated, "Professor Powley is doing for the vagus nerve what Sherrington did for the spinal cord."

B. International Research

In addition to conducting sponsored research that will further national priorities, Purdue faculty also are involved in numerous international research projects. Purdue’s Global Faculty Initiative Grant Program for Collaborative Research Projects has provided $175,000 in $2500 seed grants. The faculty has demonstrated extraordinary ingenuity and scholarly ability in both squeezing out every potential benefit from the $2500 and in turning those dollars into much larger grants. As reported directly by the grant recipients, the current total return on the original $175,000 is, as of today, over $4,000,000. Grants have been received not only from NSF and NIH but also from UNESCO, CNRS of France, NATO, AID, USDA, DOE, the European Community as well as U. S. and international industrial sponsors.

The University through the Office of International Programs also has facilitated many international research endeavors by identifying and fostering strategic initiatives which bring together faculty from across a number of schools in specific targeted locations. Examples of these programs include the following:

- ITESM. A set of collaborative efforts with the Monterrey Institute of Technology, the finest technical school in Mexico, has been established. Supported by a small seed grant from the Agency for International Development, seven separate collaborative research proposals across six schools are being developed.
• **Central America.** Professor Robert J. O’Neill (Entomology) is coordinating the work of three schools (Agriculture, Veterinary Medicine and Education) with Escuela Agrícola Panamericana (ESAP) in Zamorano, Honduras. This collaboration involves research, study abroad and externships as well as the development of a bilingual primary school. Leadership for the latter initiative is being provided by Professor Sandra Abell (Education).

• **Middle East.** Professor Abdelfattah Y. Nour, Director of International Programs in Veterinary Medicine, is leading a multi-school effort at the Jordan University of Science and Technology, the Ain Shams University in Egypt, and the American University in Beirut. UNESCO also is participating. Projects involving more than two dozen of our faculty thus far range from the utilization of wild Egyptian plants to the problems of dry land agriculture and distance education.

• **China.** Building upon the existing Asian Studies program in the School of Liberal Arts, the University has established the Purdue-Tsinghua Program of Chinese History and Society. This will be a cooperative research and educational program focused on the Chinese understanding their own history and research on that understanding by American scholars.

• **Hong Kong.** Purdue has become the only North American member of the International Strategic Technology Alliance coordinated by the Hong Kong Polytechnic University and composed of an additional fourteen Chinese universities and the University of Warwick in the United Kingdom. The alliance seeks to provide opportunities for technology transfer initiatives.

The University continues to play a leading role in three Collaborative Research Support Programs (CRSPs) around the world. Four Purdue faculty are involved in the International Sorghum and Millet Collaborative Research Support Program which has received $11,259,060 (1979 to 1999) from the United States Agency for International Development (USAID) and will continue until at least 2003. Five Purdue faculty participate in the Bean-Cowpea Collaborative Research Support Program which has been granted $3,367,889 (1987 to 1999) by the United States Agency for International Development (USAID). The Integrated Pest Management Collaborative Research Support Program, which has had $574,267 in funding (1993-1999 and will continue to 2003) from the United States Agency for International Development, involves four Purdue faculty members.

Two large-scale international research collaborations stand out for their creative new model of collaboration for research in development. The Global Trade Analysis Project (GTAP), which is coordinated by the Center for Global Trade Analysis in the Department of Agricultural Economics, provides data, models, and software for multi-region, applied general equilibrium analysis of global economic issues. Involving people from more than 40 countries, GTAP is truly a global project, and it is well placed to contribute to public debate on issues of global trade analysis.
Stimulated in part by the model of operation adopted by GTAP, the Purdue State Utility Forecasting Group has adopted its forecasting model to help the twelve-nation Southern Africa Power Pool (SAPP) simulate its own scenarios for electricity trade among members. Purdue not only provides technical expertise, but Purdue faculty also help the engineers in the 12 utilities negotiate with each other to reach agreement on the most beneficial combinations and sequencing of changes.

C. Funding Trends for Research

A summary of Purdue’s sponsored program activity, awards, and sponsors is provided in Chapter Five, pp. 5.10 – 5.12. That report describes ten years of gradually increasing sponsored program awards and expenditures dominated by funds from federal agencies. In 1997-98, the last year for which complete data are available, 55% of Purdue’s awards came from the U.S. government, and 59% of Purdue’s research expenditures involved federal funds.

When FY 1997 federally financed research expenditures in key scientific disciplines are analyzed, Purdue’s excellence, as documented in Table 6.5, is apparent.

Table 6.5
Purdue Rankings Nationally and in the Big Ten in Terms of Federally Funded Research Expenditures
FY 1997

<table>
<thead>
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<th>Field of Study</th>
<th>Purdue Ranking</th>
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<tr>
<td></td>
<td>Nationally</td>
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<td>Agricultural Sciences</td>
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<td>2</td>
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<tr>
<td>Mathematics and Statistics</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>All Engineering Disciplines</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Aerospace Engineering</td>
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<td>4</td>
</tr>
<tr>
<td>Civil Engineering</td>
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<tr>
<td>Chemical Engineering</td>
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</tr>
<tr>
<td>Materials Engineering</td>
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<tr>
<td>Mechanical Engineering</td>
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<tr>
<td>Pharmacy</td>
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Further detail showing the ten-year trends in awards from the five major federal sponsors (DHHS, NSF, DOE, DOD, USDA) and from industry, foundations, societies and institutes (shown in aggregate) is provided in Figure 6.1. These data document a pattern of generally stable funding from the major federal sponsors complemented by faster growing research support from private sector sources over the last five years.

6.60
Figure 6.1

TEN YEAR HISTORICAL REVIEW OF SPONSORED PROGRAM ACTIVITY
For Industry and Selected Federal Agencies
Fiscal Years 1989-98

AWARDS
- DHHS
- NSF
- DOE
- INDUSTRY
- USDA
- DOD

This study covers all activity for the period July 1, 1989, through June 30, 1998. Award amounts include all awards, for which no proposals were submitted.
Somewhat troubling is the ten-year trend of stable support for research from the Department of Health and Human Services, which includes the National Institutes of Health, during a period when the agency's extramural grant funds have grown substantially. Clearly, Purdue's share of NIH funding has failed to keep pace with the growth in NIH's extramural research budget. In response to this trend, Purdue's life-sciences research community and University research administrators have engaged in more than a year of analysis and strategic planning focused on increasing our competitiveness for the increasing availability of funding for biomedical research. Among the initiatives resulting from this year of study are the creation of a new Life Sciences and Biotechnology Institute and a national search for an Institute director. A further response has been the addition of a new, full time Research Director specializing in life sciences in the PRF Sponsored Program Development group. This new resource will be available to assist the life sciences/biomedical faculty in assembling multidisciplinary project teams and preparing more competitive research and training grant applications.

The growth is private sector support for research and scholarship over the past five years is the result of an increasingly aggressive program of pursuing corporate support for both individual research projects and broader institutional initiatives. The Office of Industry Research and Technology Programs also has been aggressive in establishing strategic partnerships with key corporate sponsors. One example is Purdue's relationship with Caterpillar, which includes a resident Caterpillar visiting scientist and a broad interface of company and University scientists engaged in collaborative research and graduate education. As the private sector continues to outsource strategic research and as competition for federal research dollars among universities continues to grow, broad strategic relationships between academia and industry will continue to grow more attractive.

Of increasing significance in the area of federally financed research support is the trend away from individual investigator projects toward larger, multidisciplinary and interdisciplinary programs. A related trend in federal support for graduate education is a movement away from providing support for graduate students through traditional discipline-based, individual investigator awards toward focused, coordinated graduate student curricula funded through larger programmatic training grants. These trends in funding are clear reflections of new models for research and education favored by federal sponsors. Given the level of interdisciplinary organization and activity in the Purdue community, it would appear that Purdue would be well placed to compete for funds and students in this new world of larger science and coordinated graduate education. Yet, to date, the University has been slow to capitalize on its apparent advantage. Critical in the next several years will be Purdue's ability to recognize the factors that have contributed to sustaining its tradition of individual, discipline-based research grants and one-on-one graduate education, and to move to a more competitive position in the new world of larger collaborative programs.
D. Non-Externally Funded Research

It is clear from the foregoing that, measured by the twin standards of competitiveness in pursuit of research funding and the high quality of its research product, Purdue has established itself as a major research institution. However, many additional outstanding scholarly and research endeavors do not receive external funding. Most of these projects are conducted by faculty in the humanities, the social sciences and in areas in education where very little outside support is available. Some of these projects are partially supported internally through resources made available by the Purdue Research Foundation, the University's Academic Reinvestment Program, school deans, and academic department heads. Others receive modest support in the form of travel and other small grants from private foundations. Most research efforts in these areas, unfortunately, must be funded almost entirely by the faculty engaged in the projects. While it is true, that unlike work in the scientific and technical disciplines, most of the research conducted by faculty in these areas does not require a good deal of expensive laboratory equipment, there are significant costs associated with it: travel to archives, libraries, and other places; housing collections of literature and research materials; support of graduate students; a variety of supplies and expenses; payment to research subjects; and other similar costs. Nonetheless, it is expected that the quality of the non-externally funded research produced by Purdue faculty will meet the standard established by that supported by external resources. And it does. A few illustrations of this kind of scholarship are the following:

Professor Jan Cover, Department of Philosophy and University Faculty Scholar. Professor Cover works in the history of early modern philosophy (17th and 18th century) and in analytic metaphysics and philosophy of science. He concentrates on the work of the German rationalist philosopher and mathematician G. W. Leibniz, perhaps best known for his famous controversy with the Newtonians (on the calculus and theories of space and time). Professor Cover has influenced Leibniz studies in two important ways: 1) bringing the resources of contemporary work in logic and philosophy of science to reconstruct a new account of Leibniz's theory of time and a controversial proposal about Leibniz's view of the logic of possibility and necessity; and 2) uncovering the extent to which Leibniz's philosophical agenda was as much an extension of earlier medieval thought as it was a response to the later "new" philosophy of Descartes. Cover's work shows how fresh light can be cast on figures of the 17th century by wedding the rigor of analysis with a historically sensitive approach to texts.

Professor Charles Ingrao, Department of History. Professor Ingrao has established himself as one of the nation's premier scholars in the history of the Habsburgs and the Austro-Hungarian Empire and in the contemporary remains of that empire: the Balkans and the nations that formerly constituted Yugoslavia. It came as no surprise that Professor Ingrao was invited to appear on the Lehrer PBS evening news on August 19, 1999 to analyze the situation in Kosovo. While most of Professor Ingrao's efforts are scholarly treatments of his subject — he has produced two scholarly books and many book chapters and research articles in learned journals — he also is a skilled interpreter of
current issues and events for the informed layperson. Because of the quality of his scholarship, he is often invited to write newspaper accounts of the politics of the former Yugoslavia. Provision of this informed commentary to the general public is in the best tradition of land-grant university service beyond the scholarly and research community.

Professor Ann Astell, Department of English and University Faculty Scholar. Professor Astell is a distinguished scholar of the medieval period. Her most recent book, Political Allegory in Late-Medieval Literature, is the fourth book by Professor Astell to be published by the prestigious Cornell University Press in the span of less than ten years. She has also edited two collections of essays, written four book chapters and published over a dozen articles in such premier scholarly journals as Studies in Philology, English Literary History, and the Journal of English and Germanic Philology. Through these widely acclaimed writings and numerous presentations made at national and international conferences and congresses, Professor Astell has made enormous contributions to the establishment of Purdue as an important center of Medieval Studies.

Professor Louis René Beres, Department of Political Science. Professor Beres, after an outstanding career studying and writing about a variety of global political issues, has in more recent years turned his attention to analyzing aspects of world politics in forums available to the informed general public, specifically such publications as The New York Times, The Christian Science Monitor, The Chicago Tribune, and The Washington Post.

In his columns in these important newspapers, he has dealt with such issues as arms control and nuclear war, terrorism, genocide, human rights and other aspects of global politics. Professor Beres has published a total of eight books, and is now working on a ninth, a collection of his most important newspaper columns entitled Reflections on America and the World in an Age of Atrocity.

Another kind of largely unfunded research is carried on by faculty members in the School of Education, working collaboratively with public school personnel in the performance of so-called “action research,” aimed at answering questions and solving problems at the level of local schools, particular classrooms and even individual students. This highly focused research, while exceedingly important in improving educational practice in the community, is rarely funded externally. Rather, it is funded out of the commitment of the individual researcher and the resources available in the University: faculty time, research assistants, supplies and expenses. Much of this action research conducted in the public schools is highly relevant to the education of teachers-to-be and is regularly used by faculty members in the University’s classrooms.

As the University moves its research agenda forward, it must accelerate its efforts to encourage federal agencies, foundations, and corporate sponsors to provide more funding for research and scholarship in the humanities and social sciences. While not all disciplines can claim the revolutionary advances that many of the sciences have attained, we have achieved a better understanding today than ever before of humankind’s experiences and its myriad expressions of beauty, culture, and ethics. Only through understanding the past can contemporary society embrace and practice the concepts of justice, equality, and democracy; only through the arts can objects of everlasting beauty

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be created; only through the study of the human condition can the aspirations of people from throughout the world be appreciated and fulfilled; and only through attention to activities of dissemination can our knowledge be archived and passed from generation to generation.

Similarly, the University needs to escalate its efforts to help government agencies and other external sponsors understand the importance of educational research. If the United States is to remain a global power and if we, indeed, are interested in improving the quality of life across this nation and abroad, both public policymakers and educators need to understand how to enhance student learning and attainment. These are the products of scholarship in the field of education. They are also necessary conditions for advancing civilization.

E. Programs to Support Faculty Scholarship

In addition to the professional development programs and opportunities for faculty described in Chapter 5, pp. 5.22–5.23 (sabbaticals, study in a second discipline, academic reinvestment, and the University Faculty Scholars Program), Purdue University and the Purdue Research Foundation (PRF) provide other significant resources and programs to support and build faculty capacity for research and scholarship.

- **Start-up Funding**: One of Purdue’s most effective recruiting strategies the past decade has been to offer new faculty research start-up support. Since 1993, the University has provided $14.8 million to 109 new faculty members to help accelerate their research endeavors. The results have been gratifying. Not only has this funding made Purdue more competitive in the recruiting marketplace, but on the average, these 109 faculty have brought in $5.30 in sponsored research awards for every $1.00 the University provided in start-up funds. The ratio of research funding attracted by the 37 faculty hired and funded in FY93–FY95 to University start-up funding is an even more impressive 11.8 to 1.

- **PRF provides funds to faculty to match federally sponsored program funds for purchasing equipment for research. During this past year, $351,291 was awarded by PRF in matching grants for this purpose. In addition, there are $198,727 in pending commitments for equipment proposal to sponsors.**

- **Annual competitive grants are awarded by PRF that provide two months of summer salary for academic year faculty. During the past year, $250,000 was allocated to 50 faculty through the program.**

- **Annual PRF grants are awarded competitively to support travel to international scholarly/scientific meetings for faculty who have been asked to play active roles in these meetings. During the past year, 143 faculty received $151,762 from PRF for international travel.**
• PRF funds administered through the University Graduate School provide fellowships and research assistantships to faculty for their graduate students. Last year, $605,000 was allocated to 148 faculty for graduate student support.

• One-year PRF research grants, renewable for a second year, are awarded competitively to faculty to support a Graduate Research Assistant pursuing a Ph.D. and to provide funds for supplies and expenses. Last year, $2,951,498 was awarded to 250 faculty for these purposes.

• Annual PRF grants, awarded upon recommendation of the deans, provide two months of summer salary for a graduate research assistantship for Ph.D. students who were .5 FTE graduate teaching assistants during both of the previous fall and spring semesters. Through this program, $260,000 was awarded to 150 graduate students.

• PRF Special Incentive Research Grants (SIRG) are awarded annually to convenors of interdisciplinary programs to support graduate research assistantships for entering Ph.D. students. Acceptance of a SIRG award involves a commitment by the interdisciplinary program to seek external support aggressively (training grants, etc.) for their graduate students. This past year, PRF awarded $284,632 to support 28 graduate students.

• Special workshops organized by Sponsored Program Services feature presentations on grantsmanship by outside consultants. Some highlight new interdisciplinary research opportunities such as biomedical imaging and nanotechnology.

• The Office of Research and Graduate Studies (ORGS) sponsors on-campus seminars in which representatives from federal agencies and prospective corporate sponsors inform Purdue faculty about potential research opportunities. ORGS also serves as a central contact helping faculty and potential corporate partners interested in collaborative research to locate each other. In addition, ORGS hosts the Connect Indiana Web site that provides a comprehensive overview of the University’s research expertise, programs, and technology for the private sector.

• Academic schools and departments also sponsor and support a myriad of professional development opportunities for their faculty including support services for preparing proposals, travel funds, and seed money to initiate new projects.

F. Commercialization of Research Activities

1. Technology Transfer

Responsibility for management and commercialization (licensing) of intellectual property generated through Purdue research is assigned to the Purdue Research Foundation’s Office of Technology Commercialization (OTC). It is the responsibility of Purdue faculty, staff and students to disclose to OTC all inventions and

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copyrighted materials generated either in the course of their University employment or through the use of University resources.

While the vast majority of the intellectual property generated from Purdue research and scholarly activity is appropriately delivered to the scholarly community and the public through peer-reviewed publications, a significant portion of the results from research can have the greatest public impact if it is translated into commercial products and services. However, because University research frequently is very fundamental, substantial further investment in applied research, product development and production, and marketing are needed to bring products and services to the marketplace. To entice the private sector to invest substantial additional resources in the development of University technology, it is generally necessary to provide the potential developer a unique advantage relative to competitors. This advantage is derived from protection of the University intellectual property through patents, copyrights, and trademarks, which only then be licensed to the developer either exclusively or non-exclusively in return for further investment and a consideration in any profits generated.

Table 6.6 provides metrics for the productivity of the commercialization activities of OTC. In 1998, OTC received 105 disclosures from Purdue faculty, staff, and students; filed 22 U.S. patent applications and 34 U.S. provisional patent applications; had 25 new U.S. patents issued; executed 28 licenses and options to license; and received $1.71 million in gross royalty income from previously licensed technology.

As shown in Tables 6.7 and 6.8, the primary sources of invention disclosures in 1998 were faculty from the Schools of Engineering and the School of Science. These same two schools and the School of Pharmacy and Pharmacal Sciences were the primary source of Purdue technology protected by U.S. patents issued in 1998. Faculty from the Schools of Engineering, Science, and Agriculture were the primary sources of technology licensed during 1998, while faculty from the Schools of Agriculture, Engineering, and Pharmacy were the primary sources of technology-generating royalty in 1998.
### Table 6.6
Technology Commercialization Activities

**Invention and Copyright Activity at Purdue University**

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<tr>
<th>Description</th>
<th>84-86</th>
<th>87-89</th>
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<td>107</td>
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<table>
<thead>
<tr>
<th>Description</th>
<th>84-86</th>
<th>87-89</th>
<th>90-92</th>
<th>93-95</th>
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<th>98</th>
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* Provisional patent applications available after 7/1/95.
** Numbers include books and journal registered in name of PRF.
*** Purdue University Press will submit their own registrations beginning in 1998.

### Financial Information

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<tr>
<th>Financial Information</th>
<th>84-86</th>
<th>87-89</th>
<th>90-92</th>
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**Millions of Dollars**

6.68
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<tr>
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1 Disclosure and Patent Counts & Financial Sums based on School of Lead Inventor/Creator

* Numbers include books and journal registered in name of PRF

** Purdue University Press did not disclose due to pending agreement with PRF

6.69
Table 6.8
Net Income to the Purdue Research Foundation as a Result of Invention & Copyright Activity by School at Purdue University for Calendar Year 1998

Financial Information

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<th>Gross Royalty Income Received</th>
<th>3rd Party Disbursements</th>
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<td><strong>$337,789.73</strong></td>
<td><strong>$1,376,179.50</strong></td>
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1 Disclosure and Patent Counts & Financial Sums based on School of Lead Inventor/Creator
2 Gross Revenues Derived from 100 Licensees
* Revenues in Other are payable to Purdue Libraries for Special Collections Materials
2. Purdue Research Park

A critical partner with the Office of Technology Commercialization in efforts to commercialize technology derived from Purdue research is the Purdue Research Park. Founded in the 1960s, Purdue's rapidly growing Research Park is home to 81 companies employing 2,500 people.

A key component in the Research Park's efforts to commercialize Purdue technology is the Business and Technology Center (BTC), a 28,000 square-foot business incubator facility established in 1993, which currently houses 29 high-technology start-up companies. As a result of the success of the BTC, PRF began construction of two additional facilities in 1998 to house new businesses. One is the Purdue Technology Center (PTC), which was completed in May 1999 and provides 60,000 square-feet of new business incubator space. Only slightly behind the PTC is the Purdue Innovation Center, a 48,000 square-foot multi-tenant building which will serve as a graduation facility for businesses that have outgrown their space in the BTC, but are not ready to invest in a building of their own. Space in the Innovation Center was fully leased when ground was broken for the new Center.

Also located in the Research Park and available as resources to assist start-up companies there as well as in the Greater Lafayette area are the Business and Industrial Development Center and the Purdue Gateways Program.

a. The Business and Industrial Development Center

The Business and Industrial Development Center (BICD), a point of entry to many resources available at Purdue, is a satellite center for the Indiana Small Business Development Center. Led by Director LeRoy F. Silva, Ball Brothers Professor of Engineering, the BICD serves as a resource for counseling concerning locating sources of financing for business expansion, R&D funding, and business start-ups; preparing business plans; marketing; preparing proposals to federal SBIR and STTR programs; and general business.

b. The Purdue Gateways Program

This program was established by the Purdue Research Foundation in October 1998 and is led by Director Sam Florence. Purdue Gateways was formed to help forming/growing businesses link with bigger markets. The program is open to Purdue researchers and others forming early-stage technology-related companies who are interested in locating in the Purdue Research Park and/or wishing to be connected with the Purdue Incubation Program. The Purdue Gateways Program utilizes a unique methodology to identify, evaluate, and assist commercial business opportunities that typically are absent, yet critically important to the commercial development process. These features include strategically selecting a mentor representing special technical and/or market knowledge and access;
placing the product and/or service into an initial trial-sell in the market place; developing early-stage gap financing resources in order to attract the angel investor to the business deal; and assisting with the formation of a management team when appropriate.

Among the many commercial success stories in the Purdue Research Park are BioAnalytical Systems and SSCI, Inc.

- BioAnalytical Systems (BAS) was started in the 1980s by Professor Peter T. Kissinger (Chemistry). BAS’s first products were scientific instruments used to analyze diverse chemicals found in small quantities in the brain. From small beginnings in his garage, Professor Kissinger moved the company to limited space in the Research Park and more recently moved again within the Park into a large newly-constructed facility. Over the past five years, BAS has regularly provided its services and/or products to all of the top 25 pharmaceutical companies in the world. The company issued its initial public offering of stock in 1997. In February 1998, Purdue and BAS solidified their ongoing relationship by signing a master sponsored research agreement. The agreement strengthens the existing synergy between Purdue and BAS and addresses joint research, education, training and future expansion of the partnership.

- SSCI, Inc., organized by Professor Stephen R. Byrn (Industrial and Physical Pharmacy) and Sarah Byrn, began operation in March 1991. Its initial focus was on conducting short courses to educate scientists at major pharmaceutical firms about the importance of solid-state chemistry and its impact upon the development and production methods of pharmaceuticals. Specializing in solid-state chemistry for the pharmaceuticals industry, SSCI is doing, or has done, significant research for virtually every major pharmaceutical house in the industry. In the most recent three years, sales have increased at 70%, 84% and 100+, respectively. The firm had 3.5 FTE employees in 1993 and today it employs 5 Ph.D.-level scientists and 14 lab scientists and administrators. SSCI was recently honored as an “Indiana Growth 100 Company” by the Center for Entrepreneurship and Innovation in the Kelley School of Business at Indiana University.

Purdue’s administration believes strongly that, when conducted within the framework of the University’s policy and procedures regarding objectivity in research and disclosure and management of potential conflicts of interest, entrepreneurial activity by faculty is fully aligned with the University’s teaching, research, and service mission and can have strong positive impact on faculty retention, teaching quality, and research vigor.

G. Creating An Environment That Will Further Enhance Research and Scholarship at Purdue

As the University seeks to create the environment for Purdue’s research and scholarship in the future, it is critical that we focus on those elements that will most impact the success of our faculty and students. Professor Irwin Feller of Pennsylvania State University has
suggested a list of tangible and intangible factors that must be present: flexible administrative practices, good support staff, an active capital development office, discretionary resources, high caliber students, access to administrators, mentoring for junior colleagues, an intellectual climate, collaborative colleagues, and team support. Purdue concurs with Feller, and thus the University has made every effort to put these factors in place.

To Feller’s list of requirements Purdue has added recruiting and retaining outstanding faculty. By making it known throughout our campus community that these colleagues are valued, their efforts are recognized and reinforced. After all is said and done, Purdue believes that its greatest asset is its human resources. We know that our research enterprise will rise or fall on the collective shoulders of the faculty. We are convinced that our faculty of the future will have to be visible leaders of unquestioned integrity, of high intellectual quality and creativity, and flexible and agile in adjusting to changing priorities. They must be able to recognize significant research issues while at the same time remain cognizant of the importance of teaching and learning. Purdue faculty in the twenty-first century will need to be entrepreneurial in spirit, persistent in seeking support and students, and stable over the long haul. To be successful, they also must be able to work collaboratively and be willing to serve as mentors for their colleagues and students.

In addition to recruiting and retaining faculty with the aforementioned characteristics, Teich and Gramp remind us that the University must next make some critical strategic and tactical choices. The former include matching expectations to resources, choosing areas of emphasis, and choosing a time (when) and a time-frame (length of sustained time) to initiate a research project. The set of tactical choices include the following:

- marshalling resources, some of which are based on enrollment, indirect cost recovery, collaboration with corporate partners, other private support;
- focusing resources on selected targets;
- building research teams;
- choosing the most effective structure (departments, centers, institutes, etc.);
- providing mentoring; and
- cultivating public support.

Not only are some of the current challenges, priorities, and objectives very similar to those of the 1940’s, but some of the pivotal questions we now must address also are similar to those of 50 years ago. In a recent Purdue University survey about key issues of concern to our research community, the consensus concerning the questions that need to be addressed as we determine how best to enhance our research competitiveness were:

- What can we do to sustain and enhance our competitiveness for federally-sponsored R&D funding?
- What are our areas of comparative advantage and strength, and how can we increase our competitiveness?
- With whom can we partner to complement our strengths and increase our competitiveness?
• What is the strategic balance between traditional academic disciplines and novel interdisciplinary initiatives?
• In what other ways can we move to increase our competitiveness? For example, how can we facilitate participation in sponsored programs?
• What investments must we make in people, resources, and infrastructure to support our strategy?
• Are there administrative or organizational changes we should consider to implement this strategy?
• What immediate steps should we take? How do we best guide a discussion to assist us in developing specific goals, plans, and timelines?

Purdue’s ability to draw on all available human resources to address these issues and generate creative answers to these questions will determine, in large measure, the vitality and productivity of the research and scholarship of its faculty and students over the next ten years.

III. OUTREACH AND SERVICE TO THE STATE, NATION, AND THE WORLD

A. Introduction

Purdue University provides education to the undergraduate, professional and graduate students in residence on its campus, but this is only one aspect of the educational delivery. Purdue has also established a network of outreach to the state of Indiana, to the United States, and to the world. The outreach mechanisms are as diverse as the University is diverse in its areas of expertise. First, all faculty perform service to their professional organizations and to the University. Outreach beyond this, fundamental to the land-grant mission of the University, is a distinctive focus of our institution. All schools at Purdue University are involved in outreach. This section describes the breadth and the depth of that outreach effort. The following sections detail several exemplary programs and discuss the impact of selected programs.

Purdue University is the land-grant university of Indiana and therefore has the Cooperative Extension Service. With administration located in the School of Agriculture, Cooperative Extension faculty and staff are located in departments throughout the Schools of Agriculture, Consumer and Family Sciences and Veterinary Medicine. County offices are staffed with educators to provide instructional programming in each of the 92 counties in the state.

Businesses and industries look to the resources of Purdue University for technical expertise and new technologies. Purdue provides outreach to Indiana businesses as well as to businesses across the country and internationally. An extensive network of resources to assist business and industry is available from specialized offices. The Office of Technology Commercialization, Office of Industrial Relations, the Technical Assistance Program, Technical Information Service, Center for Agricultural Business, and the Center for International Business Education and Research all address specific business and industrial outreach areas.
Continuing education for professionals is an important outreach function of Purdue University. To myriad groups of professionals, from veterinarians to pharmacists, from dietitians to engineers, from school teachers to business executives, Purdue University provides non-credit educational programming aimed at keeping professionals current in their ever-changing fields. Working closely with professional organizations, this continuing education outreach provides professional development and continuing education hours to practicing professionals.

Purdue University also extends outreach to K-12 schools. Through programs for K-12 students and their teachers, the University provides a variety of experiences and continuing education throughout the state impacting all disciplinary areas and reaching a large proportion of the citizens of Indiana.

Finally, Purdue University provides many programs and services to the general public in Indiana and nationwide. Programs for clients as diverse as new fathers, pet owners, and community volunteers indicate the commitment Purdue University has to improving the lives of citizens in our state and elsewhere. Support for development of the technical content of outreach and for the delivery of that content are readily available and highly developed.

B. Types of Outreach Programs

Outreach is an important initiative in each of the academic schools at Purdue. Enumerating the number of outreach projects is challenging. For example, an outreach activity can mean a presentation to an interest group, a program impacting 10,000 individual students per year, or a distance learning project impacting an unknown audience. Outreach means many different things. We estimate that over 2,000 outreach projects are sponsored by various faculty and staff each year at Purdue University.

There are at least seven major categories of audiences reached by outreach programming:

- the general public in non-formal educational settings;
- students in formal educational settings;
- practicing professionals/providers;
- government agencies;
- business and industry;
- not-for-profit organizations; and
- international audiences and organizations.

The primary audiences for the majority of Purdue’s outreach programs include the general public in non-formal educational settings, practicing professional/providers, and students in formal educational settings. For most schools at Purdue University, the audiences served by outreach are most typically located in Tippecanoe County, in the state of Indiana or the midwest region.
Each school of the University uses its outreach programs to address important societal, environmental, educational and economic issues. In the School of Agriculture, programs range from state-regulated pesticide application training to timely Cooperative Extension Service programs addressing falling farm prices and potential financial crisis for many in the farm sector. Programs of the School of Consumer and Family Sciences address the health and financial well-being of families with programs focusing on positive pregnancy outcome through good nutrition (Have a Healthy Baby) and budgeting and financial planning for lower-income families (Making Your Money Work). From both the Schools of Engineering and Technology, Purdue University makes available the most current technological and engineering innovation to industry, whether startup or established. The Technical Assistance Program (TAP) helps Indiana business and industry implement new technologies to benefit the state economically. The School of Technology provides specific industries and associations with continuing education through projects, for example, coordinated with Cummins Engine and the Plumbing Heating Cooling Contractors Association.

The Schools of Liberal Arts and Education and the Libraries provide exemplary outreach especially to the local community. Liberal Arts provides a broad range of services from clinical psychology through the Psychology Treatment and Research Center (treatment of adults and children with anxiety, depression, attention deficit/hyperactivity disorder, conduct problems, etc.) to providing theatre matinees for local high school students by the Department of Visual and Performing Arts. The Libraries provide workshops on Internet searching for K-12 teachers and media specialists. Education supports the Reading Readiness Program to numerous schools across the state.

The School of Management, like the School of Agriculture, provides economic forecasts through Economic Outlook conferences and special publications like Food System 21: Gearing up for the New Millennium. The School of Pharmacy provides extensive pharmacy practice continuing education as well as drug and alcohol education programs geared to high school students.

The School of Science focuses much of its outreach effort on the K-12 teacher and student. The "Physics on the Road" program takes physics from Purdue University across the state to high school classrooms. With the Purdue Scientific Instrument Project, instrumentation not readily available in most high school classrooms, is provided on loan.

The School of Veterinary Medicine has continuing education opportunities for the veterinary professional. It also has unique public outreach programs addressing older pet owners who are concerned about what will ultimately happen to their pets and the grieving pet owner who has lost a pet.

Extending the University to the world at large is also an important outreach mission. For example, the Poland Extension Development Project involved more than 50 faculty members from across the Schools of Agriculture, Veterinary Medicine, and Engineering. It was funded ($836,000) by the Andrew W. Mellon Foundation and has run from 1994 to the present. The Poland project was designed to collaborate with three agricultural
universities in Poland (Warsaw, Poznan, and Krakow) in developing and sustaining their extension and outreach missions, something not typical in the higher education systems in that part of the world. Over the four-year duration of the project, exchange visits of senior faculty, administrators, and government officials occurred. The purpose of these visits was to examine the U.S. extension and continuing education system, to discern what aspects of the U.S. system could be transferred to Poland, and to explore avenues for building a continuing education/outreach program into the ongoing mission of the Polish universities. In addition to the exchange visits and consultations that occurred as part of these visits, small applied research activities and training programs in a variety of disciplinary areas were also conducted.

The largest single outreach international program in recent years has been the Malaysia Polytechnic Development Program. Jointly managed by the School of Technology and International Programs, this five-year project has been funded by the World Bank through the Malaysian Ministry of Education at a cost of $20.7 million. Over 100 faculty from Purdue and its partners in the Midwest Universities Consortium for International Activities (MUCIA) and other U.S. and U.K. universities have spent periods of six months to two years in Batu Pahat, Malaysia for the purpose of curriculum development and faculty training. The program's unqualified success is seen in the transition of the Polytechnic in Batu Pahat to full university status this past year, many years ahead of the ministry's original schedule. At home, faculty from the Schools of Technology, Engineering, Consumer and Family Sciences, Education, and Liberal Arts have brought valuable international experiences back to their classrooms.

C. Impact of Selected Programs

The diversity of outreach programs is wide ranging, but the impact of the majority of the programs falls within four major categories: economic, social, environmental, and educational. To best illustrate the impact of outreach programs in these categories, the following representative projects are summarized:

1. Economic Impact

*Technical Assistance Program* (Schools of Engineering, Technology, Management, and Pharmacy)

**Issue.** Many studies have documented the relatively small number of high-paying high-technology jobs in Indiana. Our state ranks last in the nation in the percent of the work force employed in high-technology jobs, and our average wages are below the national average. As a result, Indiana residents have a lower standard of living, and a majority of college graduates in high-technology fields must seek employment out-of-state.

**What We Have Done.** TAP addresses this issue by supporting the start-up of high-technology businesses and supporting the growth of existing advanced manufacturing and high-technology companies.
Services include:

- Technical Assistance: Short projects on product development, process improvement, environmental, and management issues.
- Technical Information: Information searched and document delivery.
- Summer Interns: Placement and technical support for summer interns.
- High-Tech Job Fair for Indiana Companies: In cooperation with five schools, TAP promotes and manages this annual event.

*Impact.* TAP was established in 1986. Since that time, the program has worked with over 2,500 Indiana companies on 3,200 projects. Economic impact figures for the time period 1986 through 1998 (as reported by companies that have been served) include:

- Capital Investment $42,164,000
- Cost Savings $16,605,770
- Increased Sales $146,313,460
- Jobs added or saved 3,558

*Funding Sources.* Current fiscal year funding is $1,081,000 from the state of Indiana and $350,000 from fees for services.

*Cooperators.* TAP employs 39 full and part-time faculty, graduate students, and staff from three Purdue campuses (West Lafayette, Indianapolis, and Calumet).

2. Social Impact

*Safe Food for the Hungry* (School of Consumer and Family Sciences – Department of Foods and Nutrition)

*Issue.* An estimated 25 million Americans rely on community-based feeding programs to supply part of their nutritional needs. Indiana, the 14th worst state in the country for food insecurity, has close to a million people who are hungry or at risk for hunger. Nationally, one in five children go to bed hungry. These individuals and families often rely on the food provided by local food pantries, soup kitchens, shelters, and other programs to meet their basic food needs. These programs need education, training, and technical support to help them provide safe, nutritious food for their clientele, many of whom fall into the high-risk categories for food-borne illness and nutritional deficiencies.

*What We Have Done.* Purdue University developed Safe Food for the Hungry, a series of four video-conference workshops to provide education, training, and technical support to emergency feeding programs within Indiana and throughout North America. Each video-conference consisted of a live satellite broadcast, a
curriculum guide for local wrap-around activities, reference materials, and posters. Curricular and reference materials for the last three video conferences were made available on the World Wide Web.

**Impact.** A total of 913 Hoosiers representing 275 different Indiana community-based feeding organizations received food safety and nutrition training through the four Safe Food for the Hungry video-conference workshops. Collectively, the organizations receiving training handle more than 22.6 million pounds of food per year and serve more than 241,588 meals each month. The education, technical support, and training provided by Safe Food for the Hungry is improving the safety and quality of this food. Additionally, the Safe Food for the Hungry programs were downlinked at 283 sites in 46 states and Canada, thus providing education, training, and technical support to emergency feeding programs across North America. The Safe Food for the Hungry video-conferences and materials have received recognition and honors from a number of sources. In 1996, Safe Food for the Hungry received the prestigious USDA Group Award for Excellence and the PUCESA Team Award.

**Funding Sources.** USDA-CSREES Food Safety and Quality Initiative and Community Food and Nutrition Block Grant administered by the Indiana Family and Social Services Administration, Division of Family and Children

**Cooperators.** University of Florida, University of Oregon, Washington State University

3. Educational Impact

**Purdue Scientific Instrument Project (School of Science – Department of Chemistry)**

**Issue.** High school science laboratories are typically 50 years or so out-of-date and badly underfunded, particularly with respect to instrument technologies. High school science teachers often lack knowledge to use instrumentation. The gap is vast between high school science classes and the practice of science as it is performed in industry today. The average Indiana citizen has little understanding of the level of technology required in the world today. The issue at stake is for Indiana students to develop an understanding of the need and use of technology in a modern society.

**What We Have Done.** The Purdue Scientific Instrument Project delivers classroom sets of scientific instruments to the high school science departments in a seventeen-county area surrounding West Lafayette. This project modernizes the high school laboratory by providing an opportunity for students to perform science with instruments used in research laboratories today. In addition, teachers in the project attend five weeks of summer staff development in order to learn how to use the instruments in the classroom. The inventory of instruments, all in matched sets, is valued in excess of $300,000. These instruments include visible, ultraviolet and infrared spectrometers; gas and liquid chromatographs; pH meters; nuclear scalers; conductivity probes; gel electrophoresis;
apparatuses; thermal cyclers; microcentrifuges; water analysis kits; computer-interfaced probeware; balances; and microscopes.

**Impact.** Since 1992, the project has provided multiple pieces of equipment to over 65,000 students. Evaluation has shown that the project strongly impacts the way teachers teach. The success of this project has led to an initiative by the Indiana Department of Education to establish eight sites throughout Indiana, each with the capability of providing staff development for teachers and delivery of instruments to their students. This is a cost-effective way of improving high school science laboratories.

**Funding Sources.** Eli Lilly & Company Foundation provided $160,000 in seed money. The project was then funded by the National Science Foundation for $1.5 million. Beckman Instruments contributed in excess of $100,000 in equipment donations. Other donors include Bioanalytical Systems, Inc.; Camille and Henry Dreyfus Foundation, Inc.; Dwight D. Eisenhower Mathematics and Science Education Grant; Ford Motor Company; Indiana Section, American Chemical Society; Milton-Roy; Mobil Oil Company; Modern Biology Inc.; Nicholas H. Noyes, Jr., Memorial Foundation; Ohaus Corporation; Public Service Indiana Foundation; Purdue Section, American Chemical Society; Spectronic Instruments, Inc.; and the Woodrow Wilson National Fellowship Foundation.

**Audience/Counties/Region impacted.** 45 high schools in 17 counties in west central Indiana (18 percent of state)

4. Environmental Impact

**Teaching the Public about Pesticides (School of Agriculture)**

**Issue.** Purdue Pesticide Programs expend tremendous financial and human resources toward educating the public about pesticides.

**What We Have Done.** Purdue Pesticide Programs offer many forums in which the public is provided access to pesticide information and education. These include the following: a quarterly newsletter, the *Label*; a twenty-three volume Cooperative Extension Service publication series dealing with pesticide issues; regulatory compliance by businesses; use of pesticides by homeowners; commercial and private applicator pesticide certification training; educational programs for continuing education hours; a program Website; and Extension programs offered to the public.

**Impact.** This best measure of impact is from the audiences who have provided unsolicited written comments. These comments clearly show that the educational effort expended to educate the public about pesticides is having a positive impact.
D. Distance Learning Outreach to the State and Nation

Outreach by means of technology-enhanced distance learning has been a practice of Purdue University since the early 20th century when electrical engineering courses were broadcast by radio. Today distance learning is a strategic priority.

In the 1990s, Purdue has strongly supported and provided leadership for the Indiana Partnership for Statewide Education, a collaborative effort of Indiana’s postsecondary institutions to enhance access to lifelong learning programs through distance learning. Another collaborative distance learning effort involving Purdue is the Common Market of Courses and Institutes of the CIC (the Big Ten schools plus the University of Chicago).

By the beginning of this decade, Purdue had well-established distance learning programs in agriculture, audiology and speech sciences, engineering, management, and pharmacy. In 1997, the Executive Vice President for Academic Affairs recognized the important role of distance learning in the future of higher education and established the Office of Distance Learning. This Office, together with its associated system-wide Distance Learning Advisory Board, has as its mission the promotion of distance learning as a strategic thrust of the institution.

New distance learning programs and facilities are finding strong support from the administration and faculty of the University. In addition to satellite television, technologies employed by distance learning programs include audio and video-conferencing, videotape, CD-ROM, and, of course, the Internet. New distance learning programs that have appeared or will appear in this decade are in the areas of agribusiness, biomedical engineering, education, technology, and veterinary medicine.

E. Purdue Radio Services

WBAA-AM and FM radio stations are a non-profit educational broadcast service, helping to fulfill the University’s outreach mission to the state of Indiana by acquiring, producing, and disseminating radio programming that is educational in the best and broadest sense of the word. By being broadly accessible throughout this region, the stations create a significant link between Purdue University and the daily lives of thousands of Indiana citizens.

WBAA-AM is a news and information service characterized by in-depth treatment of significant events, an international perspective on world affairs, and a sharing of ideas and opinions among listeners and experts on a wide variety of topics. Its daytime broadcast radius is approximately 70 miles, making it accessible to over half the population of the state. WBAA-FM is primarily a classical music and fine arts service. Its broadcast radius is approximately 30 miles, including all of Tippecanoe County and most of the adjacent counties, making it accessible to over 150,000 people.
The stations support Purdue's objective for teaching and outreach by

- providing a professional, hands-on learning laboratory for students involved with the broadcast arts curriculum and/or generally interested in broadcasting;
- disseminating University news and information to the community. This information includes public service announcements about Purdue events and regularly scheduled interview and call-in programs with Purdue experts discussing and sharing their areas of expertise;
- presenting nationally, internationally, and locally produced programs that inform and further the discussion of public policy by exploring, investigating, analyzing, and interpreting issues and ideas; and
- enhancing public appreciation and enjoyment of the arts and humanities by conveying the most important aspects of our society's diverse culture in its past and present expressions.

F. Conclusion

The NCA goal statement related to outreach states that "...the institution is accomplishing its educational and other purposes...[via]... evidence of effective delivery of educational and other services to its community." Purdue University faculty and staff are involved in many high-quality outreach and continuing education efforts that have social, economic, environmental, and educational impact on the citizens of Indiana and nationwide. Schools at Purdue assess their current outreach efforts in an ongoing manner as a way to ensure high-quality future activities. Specifically, several schools engage in annual strategic planning to assess and refine current efforts and to identify new projects or areas of need. Other schools conduct needs assessments with their clients or constituents to help them identify, define, and prioritize outreach and continuing education efforts.

Recently, schools were asked to identify several goals to guide future outreach planning efforts. Goals identified include: (a) developing continuing education and professional development programs for various stakeholders and graduates from programs using new delivery technologies; (b) developing partnerships with groups outside the University to address specific needs identified by constituents; and (c) continuing to provide and improve upon current outreach efforts to the community, business and industry groups, and the K-12 schools. A goal that was identified that also appears to be key to the success of future efforts is securing internal and external funding and a resource base for outreach activities.

IV. CHALLENGES AND OPPORTUNITIES FOR IMPROVEMENT IN A CHANGING ACADEMIC ENVIRONMENT

A. Introduction

Several challenges face Purdue University. The continuing growth and increasing diversity of our student body, the changing relations among government, business, and
educational institutions, the globalization of economic and social life, and the growing dependence upon new technologies demand that we continually assess and adapt our educational, service, and research structures and activities to new conditions. Over the last ten years, we have worked to develop many strengths that will enable us to continue to address these challenges successfully. We have an outstanding, creative, and committed faculty and staff who enable us to identify critical issues and then develop and carry out new and innovative initiatives. We recognize that our greatest resources are the bright and energetic men and women who work and study at Purdue. Our decentralized structure provides the ability to address identified challenges and needs in a timely, flexible, and appropriate manner. This responsiveness is unusual within large academic institutions. Curricula can change rapidly, resources can be rapidly reallocated at the school and departmental levels, and unique problems and solutions can be addressed in particularized ways that are consistent with the culture, norms, and goals of a specific school. By utilizing and integrating multiple resources, Purdue has established complementary social, fiscal, and technological mechanisms to help facilitate and effect needed change. The many changes over the past ten years related to curriculum development, learning environments, enhancements of faculty support, increased interdisciplinary programs, modifications in the reward structure, and steps to increase the national and international reputation of our many programs attest to the responsiveness of Purdue's organizational structure in meeting the needs of its many missions.

However, these very strengths (large numbers of talented people, decentralization, and multiple, facilitative mechanisms of support) create coordination and communication challenges that may not arise in smaller and/or more centralized systems. For example, there are many exciting programs that can serve as models of educational, research, and outreach excellence. However, finding effective and efficient ways of sharing these with all faculty is a daunting challenge. For most faculty, just-in-time support is the optimum. Having the resources (both financial and intellectual) and support personnel available to address these needs requires a special balance between University support programs and programs available at the school or department level. Communicating all the activities of an organization as large as Purdue is not easy. Developing mechanisms for making each faculty member aware of how the many models of excellence and support activities can impact their programs and result in improved quality and productivity must continually be pursued.

B. Challenges Facing the Educational Mission

As our academic units strive to revise curricula to meet the needs of our students, several communication and coordination challenges arise. We must make sure that the appropriate courses are available at appropriate times to meet Purdue's increased student needs within departments, across schools and among interdisciplinary curricula. To be responsive to the course needs of other schools, each school must be aware of future internal and external needs for their courses, have appropriate resources to meet these needs, and develop the commitment of the faculty to provide these courses. Specifically related to curriculum, strides have been made through the Course Availability Committee to improve communication between schools and departments regarding general education
course needs and course needs focusing on the major. Recently, the Course Availability Committee has taken on the responsibility of improving the linkage between schools related to curricular changes across the University as well as coordinating the needs of students for courses from across all departments in the University.

Although student learning outcomes assessment continues to gain momentum across the campus, keeping faculty engaged in assessment activities might be another of the challenges to the University. However, Purdue faculty have a long history of continually improving teaching and learning, and they are discovering the value of the information yielded by assessment in helping them achieve this end. The enthusiasm generated from discovering that assessment "works" is not only helping sustain but also is giving further impetus to this initiative. Incorporating learning outcomes assessment into the mainstream of the University has also proven to be a beneficial strategy, for Purdue faculty in larger numbers are realizing that assessment is part of, not apart from, good teaching. In addition, the actions taken by numerous professional program accrediting agencies to embrace student learning outcomes assessment clearly are reinforcing what the University has been and continues to promote and expect for all fields of study.

Much progress has also been made with regard to distance learning and the use of instructional technologies on campus. The new Center for Lifelong Learning, the Center for Instructional Excellence, and the Multimedia Instructional Development Center have greatly enhanced the opportunities for faculty to develop the skills necessary to take advantage of these technologies in building student-centered learning environments. However, as the early adopters take advantage of these new technologies, it remains a challenge to integrate these models of excellence into the fabric of the University. The Teaching Academy is helping with this effort through its Focus on Teaching initiatives of workshops, seminars, and a website. However, communicating the accomplishments of our faculty to those that need these skills in a timely and opportune manner remains a challenge.

With regard to fostering faculty interest in distance learning, additional efforts must be made to include these types of courses in all departmental teaching evaluation systems. Without adequate recognition and reward on an annual basis for these activities, many faculty will not make it a priority. In addition, with limited resources, care must be taken to direct distance learning at markets that are most economically efficient and in line with the overall mission of the University.

The new all-campus teaching evaluation initiative is well underway with several pilot projects being reported this fall. However, to make this successful, each department needs to embrace this initiative and make it part of a regular annual evaluation of all faculty from the rank of assistant professor to professor. Senate support for implementation of this evaluation system is helping it become institutionalized.

With record enrollment at Purdue this fall, care must be taken to manage enrollment so that academic quality is maintained and improved as space needs become critical and demand for courses, academic advising, and support services increase.
C. Challenges Facing the Outreach Mission

To enhance Purdue’s outreach activities, several goals for future directions have been identified. First, it would be useful to seek an operational, yet flexible, definition of "outreach" that all schools could use to organize and guide efforts. For example, when schools talk about outreach, they may be referring to one-time activities, programs with multiple activities or presentation sessions, or on-going projects with numerous programs and activities. In addition, several schools denote outreach efforts as programs that are conducted off campus with particular audiences. In reality, many outreach activities occur on campus as a way to reach out to, or meet the needs of, the community. There may be various levels of outreach within schools and across the University that would be useful to document if a better working definition of outreach was established.

Second, schools at Purdue would benefit from the creation of a structure for recording, storing, and retrieving a yearly and ongoing record of the outreach efforts for individual faculty members, for the department, and for the school. A common data collection system or template used across schools would allow common information to be stored in a large scale database. This would promote greater communication within and across schools and the possibility of joint, more richly developed outreach projects with less duplication of effort. This system also would allow more effective ways of communicating with our constituents.

Third, to promote communication pertaining to outreach efforts across schools and to seek ways for the University as a whole to focus on several large-scale outreach initiatives, it may be useful to consider the formation of a central office with these responsibilities. In a recent NASULGC document, the Kellogg Commission on the Future of State and Land-grant Universities cites a "growing public frustration with what is seen to be the unresponsiveness of American colleges and universities." The Commission noted that despite the resources and talents available on many university campuses, institutions are not always organized as well as they could be to address local problems and opportunities. As a consequence, the Commission suggests that universities reconceptualize traditional definitions of outreach and service and define it as "engagement." An engaged institution is defined as one that is responsive, respectful of its partners' (e.g., constituent's) needs, accessible, and relatively neutral, while successfully integrating service into research and teaching, and finding sufficient resources for the effort. Engagement initiatives, supported with human and other resources from within and outside universities as appropriate, would address problems and issues having significance to citizens in a given state and potentially the nation.

Recently, Purdue has focused on organizing and expanding efforts across the University that impact economic development in the state, nation, and world. This effort, the Economic Development Initiative is headed by a Special Assistant to the President for Economic Development and coordinated by an Economic Development Council. The purpose of this effort is to refocus the institution's efforts on economic development, provide a planning strategy for the future, bring about integration and coordination of programs and activities, and recommend policies. Such an effort should position Purdue University to continue its leadership role in outreach well into the 21st Century.
D. Challenges Facing the Research Mission

While much about the academic environment remains the same, several significant forces have emerged in the past ten years that have reshaped the landscape for research at major, research-intensive universities. Remaining high on a scale of impact are challenges related to resource availability and the increasingly competitive environment for both externally-sponsored support of research and scholarship and for hiring and retaining the most creative and productive faculty leaders. Added to the list, however, are: 1) continually increasing expectations for public accountability; 2) evolution in public and sponsor expectations of graduate study and research; and 3) changes in the model of academic research from individual investigator-initiated projects to larger, multidisciplinary centers, and a shift away from investigator-initiated basic research toward more targeted problem-solving requests for proposals that can provide appropriate outreach activities.

1. Resource Availability and Competition

Among the principal prerequisites for the maintenance of a robust academic research enterprise are the ability to attract and retain the most creative faculty and the capacity to provide these faculty with an environment that enables their productivity. Critical to sustaining these capacities are appropriate and sufficient resources to provide 1) competitive starting salaries and start-up resources for acquisition of equipment as well as provisions for staff support to allow new faculty members to become competitive for external sponsorship of their research as soon as possible; 2) sufficient space and modern facilities with infrastructure appropriate to support increasingly specialized research technology; 3) access to major, campus-wide, multi-user facilities, instrumentation and information technology resources; and 4) adequate flexible institutional resources to demonstrate institutional commitment to sponsors through pledges of cost-sharing for major projects and equipment requests.

In a recent campus survey, at least nine of Purdue’s ten academic schools identified providing an adequate start-up package for new faculty as a critical challenge. Several schools cited the need for packages in excess of $500,000 (excluding salary) for individual key faculty positions. A number of the schools provided examples of their failure to hire new faculty each year because the competition offered a stronger package.

Continual careful evaluation is required to determine how limited University resources can best be utilized to improve the availability of adequate research space and specialized facilities. Fortunately, the University has been able to continuously upgrade campus buildings and facilities and to add new space; however, demand always exceeds capacity.

Particularly important has been the University’s ability over the last several years to increase annually the resources available for commitment in research proposals to external sponsors to share the costs of major equipment, graduate student salaries and
stipends, and administrative support for the increasing number of multidisciplinary projects.

Over the last ten years, the size of institutions of higher education has grown, and this growth has lead to more individual faculty seeking research support. In addition, the number of academic institutions performing research has also increased. In some institutions, increases in the number of independent researchers have occurred not only by increase in the number of tenured faculty, but also by an increase in the number of non-tenure track research faculty who must acquire funds for their own salaries through sponsored projects. Together these factors have increased substantially the number of competing applications for available federal research resources. As a result of this increase, Purdue faculty must now write and submit more individual proposals to maintain the same level of support, and program growth is more difficult. In response to this challenge, in 1995, the Office of the Vice President for Research and Dean of the Graduate School initiated a review of the organization and resources available to assist faculty in finding opportunities for sponsored research and in administering sponsored projects. This review led to substantial recorganization and programmatic initiatives. In 1999, the staffs of the new PRF Division of Sponsored Program Development and the PRF/Purdue University Sponsored Program Services cluster offer not only a new face, but many new services to assist faculty researchers in obtaining and administering their projects. Again, a series of focused projects coordinated within the framework of the Purdue Excellence 21 initiative were critical in this transition.

A constant challenge in the allocation of limited resources is the need to weigh the claims of competing groups. During the 1998-99 academic year, the Executive Vice President for Academic Affairs charged the Vice President for Research to lead a campus-wide review of the research enterprise to identify critical issues, assess campus programmatic strengths, and identify strategic priorities to guide resource allocation over the next several years. To accomplish this review, five committees charged with reviewing specific aspects of the research enterprise have been appointed. These cross-disciplinary committees are chaired by faculty; include representation from all ten academic schools ranging from junior, mid-career, and senior faculty to deans; and will report their analysis and recommendations to the University during the 1999-2000 fall semester.

2. Public Accountability

As a recipient of public funds from both the state of Indiana and the federal government, Purdue accepts responsibility to maintain the integrity of its fiscal and programmatic stewardship of these funds and to document its compliance with state and federal standards. While the University recognizes and supports fully the importance of this stewardship and documentation, the effort and resources required to be a good steward continue to grow. In relation to the research enterprise over the last ten years, public expectations for process and documentation have grown substantially in relation to cost accounting for sponsored projects, assuring the
welfare of human and animal research subjects, promoting research integrity, documenting the commercialization of products and services from federally-funded research, and other obligations. The recent statute requiring revision to OMB Circular A-110 to require public access to data from federally-funded research via federal Freedom of Information Act procedures is a recent example of a new manifestation of the public’s desire for increased information and accountability regarding publicly-funded research.

3. Expectations of Graduate Study and Research

Over the past ten years, the public’s expectations of graduate study and research have evolved substantially. This evolution has included an increased focus on the length of time required to satisfy graduate degree requirements, including research requirements; the relevance of the graduate curriculum and research experience to the student’s longer term career objectives and expectations; and the integration of graduate instruction and research in advanced degree programs. Each of these issues has been acknowledged as critical by the Purdue community and has led to concerted efforts to ensure that Purdue’s programs continue to evolve with, and often anticipate and lead the evolution of, public expectations.

Indeed, a number of the projects conducted as components of Purdue’s Excellence 21 continuous quality improvement initiative have also focused these issues. For example, in 1999 Purdue was awarded a National Science Foundation Integrative Graduate Education and Research Training (IGERT) award for its Program on Therapeutic and Diagnostic Devices which addresses these issues. For example, one Excellence 21 project focused on “Time to the Ph.D. Degree in the Sciences at Purdue.” The final report, submitted by the project team during the 1998 spring semester, documents the dimensions of the time to Ph.D. degree concern in the School of Science, identifies six factors that impact the time to the Ph.D. degree at Purdue, and advances a series of recommendations to address these factors. The critical factors influencing time to Ph.D. were 1) poor direction and communication between the student and major professor and/or the graduate advisory committee; 2) the job market; 3) teaching workloads; 4) the pressure of qualifying exams and required course work; 5) the complexity of research (i.e. new techniques, the increase of cross-disciplinary research, increasing laboratory responsibilities); and 6) the increase in non-traditional students and students with partners (i.e. spouses, children) who are also pursuing educational objectives. A recommendation that would establish a maximum time to the Ph.D. in the School of Science (7 years from entry into the graduate program, i.e. 14 semesters plus the intervening summers – plus one additional summer to finish, if necessary, with accommodation for extenuating circumstances) will be presented to the Science Faculty Council for discussion and approval in the fall 1999.
4. Change in the Model of Academic Research

Traditionally, academic research has been conducted by individual scholars or small groups of collaborators pursuing specialized, discipline-focused, basic research objectives. Consistent with this model, federal agencies sponsoring basic research awarded grant funds based upon discipline-based, peer review of investigator-initiated, largely single-investigator projects. However, over the past ten years, public expectations for relevance and responsiveness to shorter-term needs in the output from federally-sponsored research have grown. In response, while not eliminating the individual investigator-initiated grant award, federal agencies sponsoring research have allocated an increasing proportion of new funds to larger, interdisciplinary program projects addressing more complex, shorter-term, and clearly defined public problems. To enable our investigators to compete successfully for these awards, Purdue has been challenged to evolve the culture of the research enterprise. Elements of this evolution include modifying the criteria for selection of new faculty to include experience and accomplishment in interdisciplinary, team research and team teaching addressing more complex problems; organizing workshops on complex research topics requiring interdisciplinary solutions to encourage the interaction of previously discipline-focused researchers; establishing an increasing number of interdisciplinary centers and institutes that cross not only department but also school boundaries; investing increasing levels of institutional resources in such interdisciplinary programs; and evolving the mechanisms for recognition of faculty accomplishment so that success in interdisciplinary programs is recognized and rewarded at least equally with individual accomplishment. An ongoing challenge requiring special attention in the future is the identification of mechanisms to develop and empower faculty leaders who are willing to sacrifice some individual recognition in exchange for shared recognition of interdisciplinary team accomplishment. In addition, efforts must be taken to insure that bridge funding is available for faculty and staff who are between grants.
CHAPTER SEVEN

CRITERION FOUR: THE PLANNING PROCESS

"The institution can continue to accomplish its purposes and strengthen its educational effectiveness."

For many years, Purdue University has pursued a two-pronged approach to the critically important function of planning. One prong consists of the planning role and activities occurring within the various departments, schools and divisions of the University. The other consists of the overall University planning done by a variety of ad hoc task forces and committees with membership representing all relevant units of the institution.

Over time, Purdue has made the deliberate decision to operate as a relatively decentralized institution. The belief underlying this decision is that those closest to the issues, problems and opportunities being considered are generally in the strongest position to make wise and prudent choices. On the other hand, some plans and decisions affecting the entire institution must be made by centrally-appointed faculty and administrative bodies. The individual reports, recommendations, decisions and plans formulated by such committees and task forces on issues applicable to all units of the University, in combination with the actions of a variety of schools and departments, may be compared to individual tiles that, assembled and viewed in their totality, form a mosaic that depicts comprehensively the character and overall thrust of University planning.

By design, however, the bulk of planning decisions is made by the functional units of the University. Such plans and decisions are made in concert with the mission statement of the University and in pursuit of its articulated campus priorities. Integration of the various units and their plans occurs as a result of regularly planned interactions among the unit leaders, the President and the two executive vice-presidents of the University and the University Senate and its various committees, so that University priorities can be readily identified and vigorously pursued. Whenever issues that cross unit boundaries are identified, the committees and task forces referred to above are quickly mobilized by the central administration, the University Senate, or the administration and the Senate acting together in a consultative relationship. This system is designed to yield proactive results as well as responses to the varied issues and challenges that present themselves.

This decentralized approach to planning is core to what is unique about Purdue. It has served the institution well for over 100 years, and we believe it will continue to do so well into the future. The advantages of decentralized planning to the institution are several. First, it allows for great flexibility; academic units as different as the School of Liberal Arts and School of Veterinary Medicine are able to develop plans uniquely suited to their needs and the needs of their students while still fitting under the greater rubric of the overall University. Second, this approach encourages "grass-roots" involvement and ownership of the planning process. Since much significant planning is done at the local level, faculty, staff, students,
alumni and other constituent groups have the opportunity and the motivation to become active participants in the process. Those individuals directly involved in generating plans quite naturally have greater reason to wish to participate in their implementation. In addition, because of its inclusiveness, this system tends to produce novel solutions to perceived problems. It also helps keep the University at the cutting edge of innovation in a time of rapid and sometimes radical change. Finally, the emphasis on local planning allows the University to identify needs and concerns more quickly and to deal with them more expeditiously.

Our approach is not, however, without its disadvantages. For example, it is often difficult to design, develop and implement interdisciplinary programs, and it takes special efforts to see that they are carefully and creatively cultivated to ensure that there is needed support and buy-in from various constituents. Coordination across functional boundaries of plans designed and developed at the unit level likewise requires highly effective communication. It is in dealing with such issues that centrally applied mechanisms of communication and cooperation are called into play. Clearly, in this complex decentralized system, communication from top to bottom, from bottom to top and across functional boundaries is of paramount importance, and it is an area in which we constantly see room for improvement. We have observed, however, that effective, productive and fruitful communication can also be elusive in far more highly centralized institutions than ours.

In the paragraphs which follow, we will provide greater detail regarding the planning processes within our schools, the designing of interdisciplinary programs, and planning for infrastructure needs within the University. In addition, we will discuss at some length the ways in which plans are reviewed, assessed, modified and implemented. We will rely heavily on the use of case studies as examples of the overall planning process at Purdue, for we believe that these examples will clearly illustrate that Purdue has a clear vision for the future and is fully prepared to manage its resources appropriately to meet its challenges. Through these examples, we also will demonstrate that Purdue will be able to continue to accomplish its purposes and strengthen its educational effectiveness.

I. PLANNING ACROSS THE UNIVERSITY

At Purdue University, there are well-established and detailed University-level planning processes in every academic, financial, and physical planning area. Plans cover all of the major activities on the Purdue campus including budgets, facilities, student services, the libraries and the development of technology.

A typical model of University-level planning includes administrative, faculty and student involvement. The process by which these plans are developed is a combination of “bottom-up” concern about an important issue and “top-down” leadership and oversight in the development of the plan. For example, in the important area of technology, plans have recently been developed by two major committees appointed by the Executive Vice President for Academic Affairs (EVPA). The first of these committees focused their efforts on computer systems while the subsequent committee focused on information technology. The impetus for the appointment of these committees was proactive central administrative
anticipation of faculty and student concerns about progress in these critically important areas. The committees were composed of faculty, students and administrators from a broad cross-section of the University. Their complementary planning documents were presented to the EVPAA who, after review and consultation with central administration and an interactive dialogue with the committees, adopted these plans and is working to implement the recommendations. These documents form the blue-print for academic directions and resource allocation.

A strong feed-back loop exists to report progress toward a series of overall planning objectives, both through the Senate and through the deans and department heads to the faculty and students. Senate meetings typically include a report by the President, EVPAA and/or Executive Vice President and Treasurer (EVPT) to outline progress toward key planning goals. There are also more formal annual reports to the Senate and its committees and the monthly meetings with the Senate Advisory Committee where a full discussion of the budget occurs. Further, input from the University-wide Administrative and Professional Staff Advisory Committee (APSAC) and Clerical and Service Staff Advisory Committee (CSSAC) flows to the Senate Advisory Committee where it is discussed with central administration.

The President along with the EVPAA and the EVPT meets biannually with the deans to assess progress toward school goals and to discuss progress toward University planning goals. The EVPAA also meets monthly with the deans, focusing strategies to meet University-wide initiatives that are derived from the planning documents and the biennial request. The EVPT has similar, but less frequent meetings. Further, each school undergoes a presidential academic review once every five years and submits an annual report of accomplishments and goals.

Ongoing long-term planning is integrated into biennial budget planning and capital requests, and is thus reflected in legislative requests and resource allocation. Thus, the biennial request supports the University’s overarching academic plan. Institutional budget planning is currently moving toward longer cycles to facilitate better planning, although the legislature will continue to allocate resources on a biennial basis.

In 1993, President Steven C. Beering asked the West Lafayette campus “to undergo a self-evaluation process in order to help set the University’s course for the twenty-first century”. Three committees were appointed to study “Future Directions of the University”, “Undergraduate Education”, and “Faculty Productivity”. These broad-based committees undertook significant planning activities and reports were submitted. Executive Vice President Ringel coordinated with the University Senate the response to these documents and prepared an executive summary of the findings of these committees for the Senate.

Each of the committees offered suggestions on ways that Purdue could best serve its many publics in the next century, and provided the basis for many of the academic initiatives and innovations of the past six years, as described throughout this self-study report.
The recommendations of these committees have served as the basis for subsequent planning activities and improvement efforts. However, Purdue does not have a separate document that integrates the "chapters" of the plan over the long-term. This is a topic under discussion on the Purdue campus and could be an area for future planning efforts. It is clear, however, that these and other planning recommendations have an ongoing interactive relationship with the goals of the University specified in the discussion of Criterion I in Chapter Four of this self-study. In many cases, it is the shared goals of the University that drive the planning process at the levels of the department, the school and the entire University.

At the same time, the ongoing planning activities, innovations and commitments at every level of the University, fueled by a variety of external social, economic, political and technological changes, inevitably result in modifications of and additions to the list of University goals. For example, 15 or 20 years ago, two very prominent contemporary goals of the University - further internationalization of the University and escalation of acquisition and deployment of new and emerging technologies - would probably have been far less central and commanding than they are today. It is certainly true that goals drive planning at Purdue, but it is also true that the activities of planning committees as they confront the everyday realities of academic life effectively create, modify and amplify the University's goals.

II. PLANNING FOR ACADEMIC UNITS

A. The Planning Process

Planning is a continuous and ongoing process in Purdue's schools. A summary list of current planning documents, as well as a brief review of how these documents were developed and are being used, has been provided by each academic unit. The major original documents will be available to the site-visit team at the time of the review.

Since the time of the last North Central accreditation, each of the schools has undertaken one or more major planning initiatives. Given the breadth of the University, these initiatives have taken on various forms and have been tailored to meet the needs of the individual units. In some cases, such as the School of Consumer and Family Sciences, the School of Pharmacy, and the School of Science, a single overarching strategic plan serves as the principal planning tool for the school. In other instances, such as the School of Education, the schoolwide strategic plan is bolstered by other major planning documents which have been developed by the faculty as a whole. Strategic plans for the School of Veterinary Medicine and the School of Technology, two schools with major outreach components, are quite complex and include a series of formalized individual programmatic, departmental and administrative unit plans as well as a unifying school mission and goals statement. The planning process in the School of Management, which has no departments, has been focused on the school's academic programs. In the case of the School of Liberal Arts, one of our largest and most diverse schools, there is no single strategic plan. Instead, individual planning documents have been developed for the Dean's office, the Students Services area, the Development Office, the Information
Technology Office, the eleven academic departments, and the interdisciplinary programs area.

Although the plans of the schools are quite diverse, the ways in which the plans were generated are similar. The Schools of Science, Pharmacy, Consumer and Family Sciences, and Technology all initiated their strategic planning processes with a retreat (or retreats) of school administrators and faculty. These retreats led to the formulation of draft documents which were then widely distributed for review, comment, and modification by a wide range of constituents and stakeholders such as faculty, students, academic advisors, and various school external advisory councils. For example, the initial draft for the School of Science strategic plan was discussed in departmental meetings, at School of Science faculty meetings, at the Science Forum (presidents of School of Science organizations), with the Dean’s Advisory Council, with the Science Student Council, and with the school’s Faculty Council. Review and feedback for the strategic plan in the School of Consumer and Family Sciences were provided by the school’s entire faculty and professional staff, student organizations (e.g., CFS Student Council), alumni, and the school’s six advisory boards (Campaign Steering Committee, Center for Families Advisory Board, Foods and Nutrition Corporate Affiliates, Financial Planning Advisory Board, RHIT Advisory Board, and the Avery Advisory Board). In the School of Pharmacy, the initial discussion draft from the Executive Committee was further refined and modified by four faculty task forces and then reviewed and modified again in departmental and schoolwide faculty meetings. Such extensive review processes ultimately led to the production of the initial finished planning documents in these various schools.

The planning processes in Veterinary Medicine and Liberal Arts were similar but were characterized by more initial grass-roots involvement. In Veterinary Medicine, the initial draft of the basic schoolwide strategic plan was formulated by a task force comprised of faculty, staff, students, alumni, and representatives of various stakeholder groups. Departments and operational units were asked to form their own working groups to develop their portions of the finished product. As each piece of the overall plan was initially formulated, it was widely reviewed and modified by the entire faculty and staff of each unit until the entire working plan was assembled.

In Liberal Arts, the planning process consisted of the completion of a series of self-studies of every academic and major administrative unit in the school. Unit heads were encouraged to seek broad-based input from faculty and staff in the completion of these self-studies, which served as the basis for schoolwide planning. The self-studies included an analysis of strengths and weaknesses, future goals and directions, resources needed to accomplish such goals, and alternative plans if resources were not available.

All of the schools regard their planning documents as works in progress rather than as finished plans to be pursued at all costs. Consequently, there is constant dialog with various constituent and associated groups. There are ample opportunities for communication and feedback regarding modifications in plans as they develop. Such opportunities arise in departmental meetings; schoolwide faculty meetings; executive
committee meetings of deans, directors, and department heads; meetings of school administrators with student groups; and in meetings of the school administrators and faculty with various external advisory boards. By all these means, faculty and staff are kept well informed of the strategic initiatives underway within their respective academic units.

The great challenge in Purdue’s decentralized decision-making structure is to assure that, while decisions are being made at the grass-roots level, all units and individuals affected by these decisions are kept fully informed of actions contemplated and taken. The greatest responsibility for this ongoing sharing of information across unit boundaries falls to the offices of the President, the Executive Vice President for Academic Affairs and the deans. In addition, key members of the faculty must participate actively in the networks organized for dissemination of this sort of information. Throughout the system there must be open and continuous communication among departments, schools, student services, faculty members, students and administrators, and between the academic units and the fiscal and physical domains responsible for providing the infrastructure required for significant academic change. Despite its apparent complexity, this style of organization works at Purdue.

Academic units are under obligation to share their plans and initiatives in timely fashion with the EVPAA who, in turn, is responsible for constantly communicating this information to the full spectrum of academic administrators by means of scheduled deans’ breakfasts, and through regular meetings with vice presidents, deans and department heads. In addition to encouraging the sharing of this information across school boundaries and levels of administration, these meetings also permit free discussion of evolving University needs, priorities, and plans as a backdrop to the design and modification of department and school academic plans. While this integration of planning at several different levels may not always be visible to the casual observer, it does take place, and what is more, must take place if the University is to maintain the high quality of its academic performance. The openness of this communication network easily reveals such inappropriate designs as forcing a monolithic common curriculum across schools or mandating a single approach to resolving a complex issue. This does not mean, however, the campus community does not share common objectives and dreams, or that we don’t strive to use our resources for the greatest benefit to most of our citizens. To the contrary, we believe that we achieve the greatest good by allowing individual academic units to chart their own unique paths, but insisting that they stay within the confines of responsible management and academic and fiscal accountability, and that their plans continue to fulfill our mission and pursue our shared institutional goals.

The academic deans and department heads bear the responsibility of keeping their faculty and staff members and students informed of school and University planning, especially as specific plans may be relevant to their areas of activity. At this level there may, of course, be failures of communication. Even when academic leaders properly transmit information about University planning and school-University relationships, such information may simply be disregarded by faculty or staff whose focus of concern is
limited to occurrences at the school or departmental level. But this problem is not unique to institutions like Purdue, it is an issue with all other styles of university governance.

Despite these occasional failures, intensifying the effort to communicate fully and clearly at all levels is a very high priority in Purdue’s entire planning process. The University proposes to have all sectors of the institution continue to work together to monitor and to improve the communication necessary to maintain the high quality of our academic programs.

B. Implementation of Academic Unit Planning

As the previous section has demonstrated, academic planning at Purdue is a continuous process driven fundamentally by the various departmental and school faculties. The curricular and instructional innovations prompted by the faculty’s understanding of changing student needs and of disciplinary developments are typically reviewed in draft form by representatives of the various constituencies of the academic units: students, academic counselors and advisors, faculty counterparts in other institutions, and school advisory councils. Following approval and acceptance of academic plans by appropriate and designated bodies—departmental faculties, school senates, and the like—the process turns to academic administrators for implementation. Because of the decentralized nature of Purdue, each administrator has considerable control of unit resources; as a result, unit heads can respond proactively and effectively to planning priorities.

A perspective on how academic planning is implemented in the Purdue system may be gained by considering the budgeting process at the school level. The state of Indiana operates with a biennial budget; minor adjustments are made in the off year. In the spring of each year, the University receives its budget allocations from the state and the schools in turn receive the control figures for their budgets from the central University. For the most part, state allocations for academic programs are passed on to the schools for their direct use.

The deans, therefore, are given considerable latitude in the way that flexible resources within the school are managed. For example, all salary dollars for unfilled positions are retained in the base budget of the school rather than being returned to central University funds. Deans have the authority to close vacant faculty and staff positions or open new ones as priorities shift and funds can be made available. Similarly, each school has the authority to manage salary savings from grants. Dollars raised through development efforts at the school level (and in many cases at the department or center level) are also managed locally.

In most schools, decisions as to how such flexible school dollars are to be used in any given year are made by the dean following extensive consultation with his/her administrative staff of associate deans, department heads, and directors. Deans can choose to return these dollars to the various departments for specific uses or can invest them in new or ongoing schoolwide initiatives (e.g., upgrading computer capabilities, developing distance learning programs, jump-starting faculty research initiatives,
enabling faculty recruitment and retention, etc. Similarly, department heads and directors have the same autonomy to make decisions about their own unit budgets. In effect, these annual budgeting decisions become the driving force behind the implementation of academic unit planning. Because the budgeting process is done annually, it serves as a catalyst both for ongoing review of long-term plans, priorities and accomplishments as well as being an important mechanism for identifying and addressing short-term needs, priorities and crises.

While the schools have considerable autonomy in managing their own resources, the central administration is also actively involved in the decision-making and therefore implementation process. As the budget plans for each school are finalized in the late spring, the deans and chairs of certain University Senate committees meet with the executive vice-presidents and the President to review and seek approval for their proposed allocations for the coming year. As a result of these meetings, modifications of school budgets and therefore plans and priorities may be implemented. Follow-up meetings are held in the late fall (mid-year management reviews) so that progress in addressing priorities and plans can be discussed before entering the new budget process the following spring.

The University administration also supports the implementation of individual academic unit plans by helping the schools, departments, and centers leverage their resources with central dollars. During the budgeting process, the University may provide a given school with additional resources for equipment, renovation, faculty start-up, etc., in order to ensure that a particular important priority or plan can be accomplished. Throughout the year, the President makes additional dollars available for instructional equipment and computing equipment whenever possible. Furthermore, the University facilitates the implementation of interdisciplinary academic plans across units by direct investment of central dollars as well as by encouraging the deans of the participating schools to invest a portion of their own discretionary dollars in such programs. For example, when the establishment of a University-wide Environmental and Engineering Sciences Center was deemed important, the Schools of Engineering, Agriculture, Pharmacy, Science, and Veterinary Medicine each contributed dollars to launch the initiative. These dollars were supplemented by a significant central investment as well.

Purdue’s predominantly decentralized approach to school and departmental resource management, when combined with the aforementioned central University oversight and support, has proven to be a highly effective means of moving forward existing academic priorities and identifying and responding to emerging challenges in the rapidly changing environment of higher education today. As can be seen in the summaries provided by our various schools, many of the goals identified in their strategic plans have been or are being accomplished and many new programs are being implemented. For example, the strategic planning process in the School of Pharmacy (ongoing since 1988) has led to major curricular modifications including initial expansion of the Pharm. D. program and ultimate replacement of the B.S. Pharmacy degree with the Pharm. D. degree for entry into pharmacy practice. Other achievements of the School of Pharmacy’s planning process include establishment of school advisory councils, development of curricular-
based certificate programs for pharmacist practitioners, reorganization of the school from four to three departments, and improvement of minority recruitment through formation of an affirmative action committee, expanded off-campus recruitment efforts, and the development of an external minority advisory council. The School of Technology was so successful in implementing its six-year strategic plan of 1991 that a new plan had to be developed by 1995! The strategic planning process in the School of Consumer and Family Sciences was only initiated in the fall of 1996; yet, the process has already led to a number of significant actions. Among these are the hiring of a marketing/publications specialist to increase visibility of CFS programs, the hiring of a minority recruitment director, expansion of the school's Undergraduate Honors Program, and school sponsorship of a summer faculty support program which provides new faculty with summer salary in order that they might have time and support to write research proposals. Such examples clearly illustrate the ability and commitment of the various Purdue schools to allocate their resources in ways which will support and implement their plans for the future.

C. Review and Assessment of Plans and Progress

Review and assessment of plans and of progress toward achieving planning goals is a continuous activity at Purdue University. At the end of each academic year, departments are required to forward to their respective deans' offices activity reports that describe the instructional, research, service, and administrative accomplishments of each unit. These reports are collated by the schools and transmitted to the President of the University. In addition, the President and other University administrators review each school every five years. These reviews consider not just the performance of the dean, but the department structure, the goals, the governance, and the committee structure of the schools. Most importantly, since such features as governance and committee structure are significant only insofar as they affect the educational performance of the schools, these reviews concentrate on the character of the schools' academic programs, their management of curriculum development, and their outcomes in terms of student learning and performance. At the school level, similar regular reviews of departments and programs are undertaken by extramural teams of reviewers who report their recommendations to relevant deans. Many academic units also make use of advisory boards composed of distinguished leaders in the field to evaluate their programs. Unit plans offer an important benchmark in each of these review processes for evaluating how the unit's plan strengthens its educational effectiveness.

While these reviews focus on particular elements of a complex academic landscape, it is important to note that, where appropriate, individual plans are reviewed and assessed in light of University-wide self-evaluations such as the 1994 reports on "Challenges of the 21st Century" and "Undergraduate Education at Purdue University" commissioned by the President. Review and assessment at several levels insure coherent planning and evaluation across campus, departmental, and programmatic boundaries and guarantee that these plans are consistent with and are designed to meet University goals.
Assessment of planning at Purdue University has also profited from a partnership with the Motorola Corporation. During the 1992-93 academic year, the University participated in the Motorola TQM University Challenge.

Examples drawn from across campus illustrate the variety of ongoing assessment and review procedures and Purdue's commitment to implement changes these procedures mandate.

- The Graduate School administration meets often with its constituent groups to assess its progress toward achieving its goals and objectives.
- The School of Science's 1994 strategic plan is assessed periodically by deans and heads. It is currently in the process of complete review and revision.
- Similarly, the faculty and administration of the School of Education are reviewing the progress achieved toward the goals identified in its 1995 strategic plan, the organizational framework within which this progress is being made, and the implementation strategies being employed by the school's faculty and administration.
- In the School of Pharmacy and Pharmacal Sciences, review and revisions of the strategic plan have involved input from the school's Executive Committee, the faculty, and outside constituents. The school has three advisory councils: industrial, professional, and minority. The plan as a whole, as well as its specific components, are the focus of presentations and discussions when these councils meet at their two annual gatherings. Advisory council meetings, along with annual strategic planning sessions and school retreats, have resulted in three complete revisions of the school's initial plan adopted in 1988.
- The School of Liberal Arts reviews each academic department every 5-10 years. Other strategic plans are reviewed and/or re-developed on an as-needed basis. The dean's office undergoes an annual mid-year management review, which provides an opportunity to regularly assess and report on certain operations and activities in the school. Department plans typically are shared with and reviewed by the dean. In addition, certain largely professional programs in the school are subject to external accreditation review on a regular basis.
- The School of Management also makes use of constituent groups to review the school and its academic programs and centers. Students, faculty, peer accreditation boards, and external advisory groups are tapped on an on-going basis to insure that the school's plan remains a living document in a constant state of growth and development. During the last three years, the school's PhD program was reviewed twice; its Executive Masters Program, three times; its MS program, twice; and its undergraduate program, once. The school as a whole has engaged in a review process in each of the last three years.
• The School of Technology’s strategic plan has been revised three times in the 1990s (1991, 1996, and 1998). School plans are reviewed each summer during the Dean’s Advisory Council retreat. The dean also holds each department head or director accountable for progress on the portions of the plan for which they are responsible. Many of the departments in the school have internal committees that review progress annually. Five of the school’s eight departments have external accrediting bodies that also review plans and planning procedures. Most departments as well as the school itself have active industrial advisory boards that contribute to plans and gauge planning progress.

• The School of Veterinary Medicine will undertake a thorough assessment and revision of its current 1989-2001 plans within the next 18 to 24 months. The school periodically reviews its strategic plans in preparation for program reviews by professional accrediting agencies. The last major accreditation review of the school by the AVMA occurred in 1997 when the school received full accreditation for seven years (the maximum time allowed). Internal updating also occurs at executive group meetings and faculty retreats.

In addition to reviewing school and departmental progress and participating in strategic planning, faculty also continually assess learning to determine the degree to which their students are achieving the intended outcomes. The information gathered through these assessment activities is then used to improve teaching and learning. A sampling of some of the learning outcomes assessment activity that is occurring across the campus includes the following:

The School of Technology created an assessment council comprised of a faculty representative from each of the school’s eight departments to prepare a school assessment plan. The council then asked each department to prepare a foundation platform on which the classroom and programmatic assessment process and ensuing improvements could be based. Each department prepared a “minimum assessment model” which was a dynamic document made up of the following eight components: 1) a brief description of the department and its programs, 2) the department mission statement, 3) the learning outcomes for all programs and options in that department, 4) the current plans of study for all programs in the department, 5) documentation of the methods and techniques used to assess degree or program learning outcomes, 6) course descriptions and learning outcomes for all courses that make up the programs of study, 7) documentation of the methods and techniques used to assess course learning outcomes, and 8) an annual update of the overall effort and results of the department’s use of assessment to enable ongoing and consistent continuous quality improvement.

All departments in the School of Technology have these models in place and are using them effectively. A few departments have completed up to three semesters of documented results. Choice of methods of documenting and cataloging the results are the prerogative of the department.
The Department of Computer, for example, has adopted a unique system of logging results. They have created internal directories on the school intranet for each course. All instructors log onto these “course improvement logs” at the end of each semester. They chronicle improvement projects undertaken during the semester on the basis of past assessment results. They also briefly outline plans for future improvement projects based on assessments made during the just-completed semester. Due to the size of the department, many courses are taught by several professors during the same semester as well as by additional instructors at locations in the school’s statewide technology outreach system. This log is a valuable resource for the sharing of results and ideas.

Other departments, such as Mechanical Engineering Technology (MET), use less formal methods. MET uses a CQI report form, which is collected in a three-ring binder in the department office. Innovative improvement project forms are often placed on the CQI bulletin board in the department office.

These departmental learning outcomes assessments have resulted in a large number of improvements, which vary considerably in scope and size. They range from adding a short “hands-on” class demonstration using coins to improve student success in reading a micrometer in a freshman materials laboratory to a departmental change in the software product in a foundation course to improve graduate success in managing applications and technology with high-level software tools.

Overall, the School of Technology Assessment Council has been effective in carrying out its charge. It has functioned as a valuable resource to inform the faculty of emerging issues in assessment and to provide access to techniques and practices. The council has also organized an “Assessment Tools Forum” where several school faculty presented assessment techniques which have proven to be successful in their classroom or for program assessment.

Further evidence that learning outcomes assessment is becoming part of the campus culture can be found in the School of Pharmacy where defining learning expectations became the impetus for changing the teaching, learning, and assessment features of the school’s professional degree (Pharm.D.) program. The faculty has developed a set of general foundational outcome abilities which they have complemented with professional goals that represent the interrelated competencies they expect all graduates to master. In revising their Pharm. D. program, the faculty also prepared and adopted a set of key principles defining the foundational elements for an ability-based, student performance assessment-guided curriculum. Course instructors are now charged by the school’s Curriculum Committee with specifying in their syllabi the outcome abilities addressed in their courses, the learning activities designed to achieve these abilities, and the assessment mechanisms employed to determine student progress in the development of these abilities. Through analyzing the information gathered from instructor, peer, and student self-assessment, Pharmacy faculty have found that active learning exercises do, indeed, increase student learning. They have also discovered a need for greater integration of learning across all areas of instruction. In response, they have created innovative, integrated laboratory courses which consist of weekly three-hour modules of active, integrative learning activities that are planned jointly by the faculty who teach the
required didactic courses that semester. Students participate in these integrated laboratory courses each semester throughout their first three years in the Pharm.D. program.

Pharmacy faculty see how valuable the information gathered through their various assessment endeavors has been in enhancing student learning. As a result, student learning outcomes assessment has become firmly embedded in their instructional activities.

The Department of Child Development and Family Studies developed its Curriculum Assessment Program (CAP) to embed evaluation of the effectiveness of its undergraduate curriculum and assessment of student learning in the regular activities of the department. CAP was designed to evaluate four curricular goals: to insure that CDFS courses provide the knowledge and skills planned for each element of the curriculum; to provide program graduates with the knowledge and skills faculty believe are important for them to have; to meet the expectations of supervisors in agencies and institutions that hire program graduates; to meet the expectations of undergraduates enrolled in its curriculum.

The department relies on a variety of measures to chart progress toward these outcomes. These include the Curriculum Evaluation Survey of each CDFS course; the Undergraduate Comprehensive Exam of basic competencies and of internship and student teaching performances and writing skills; the Professional Skills Survey prepared by external supervisors of CDFS interns and student teachers; the Senior Survey and Alumni Survey. Information gathered from these activities led to the restructuring of undergraduate options to provide students with a broader range of skills to meet changing demands in the field of education, health and human services. Existing practice courses were revised and new ones were created. Curriculum requirements were changed. Some courses were resequenced to give course components a more logical order in the presentation of specific knowledge and skills. Course enrollments and student credit hours have increased only slightly. The CAP is an ongoing assessment process that results in constructive change and strengthening of the department's curriculum.

As befits a decentralized university, the assessment process across the campus varies from one academic unit to another. Nevertheless, assessment in all sectors is continuous, involves a variety of institutional constituencies, and provides meaningful and useful information to the planning and curricular revision processes. Changes in strategic plans and curriculum in many units reflect commitment to the results of review and assessment. The effectiveness of these on-going processes clearly demonstrates that the West Lafayette campus can continue to accomplish its purposes and strengthen its educational effectiveness.

D. Case Studies

The preceding paragraphs provide a general overview of the academic planning process in Purdue's various schools. A fuller understanding of how a given school identifies and
prioritizes its goals and objectives, allocates resources to implement programs and bring about needed change, and interfaces with University-wide initiatives is best provided through a more in-depth consideration of the school’s development over time. Such a detailed consideration of each of our schools is impractical. Accordingly, we have chosen to close our section on academic unit planning with a more detailed ten-year review of the strategic planning and implementation process in just two of our schools, Veterinary Medicine and Management. These two schools are quite different in their organization, mission, and approach to planning; yet, both have been highly successful in implementing ambitious academic agendas. They are, therefore, good examples of how the decentralized planning process at Purdue successfully accommodates the needs of its highly varied schools and at the same time supports the overall mission and academic priorities of the University.

1. Veterinary Medicine

The strategic planning process in the School of Veterinary Medicine (SVM) was begun in 1988, shortly after Hugh B. Lewis was named dean. As stated previously, a task force which included faculty, students, alumni, and representatives of various stakeholders was organized to look at all aspects of SVM activities. Early in the process, the task force worked with the new dean to develop a mission statement and a statement of operating philosophy. Both of these documents were discussed widely, and, after modification, were approved by the faculty as official faculty documents. Today these documents still serve to guide all planning activities.

Simply stated, the mission of the School of Veterinary Medicine was defined as educating all members of the veterinary team: general veterinary practitioners, veterinary specialists, veterinary academicians, veterinary research scientists, and veterinary technicians. In accomplishing this mission, the school established the goal of being recognized by the public and its colleagues as the premier veterinary school in the world by the year 2001. As articulated in the school’s operating philosophy, this meant operating at the highest level of creativity, innovation, and achievement in all of its activities: education, investigation/scholarship, and outreach. Once these goals and principles were developed, each academic department, operational unit, and administrative office was charged with developing a strategic plan that would help the school reach its objectives.

The planning process identified a number of major areas that needed attention. The DVM curriculum was in need of major revision if Purdue graduates were to be prepared to enter the rapidly-evolving veterinary job market of the new millennium and beyond. The veterinary technology program needed both to increase the number of its graduates in order to help meet a rapidly growing state, national, and even international demand and to create a baccalaureate degree program in veterinary technology that would complement the existing associate degree program.

Many problems existed. Overall research productivity clearly needed improvement. Furthermore, research activity in the school was relatively unfocused; few if any
areas of research excellence could be identified. Nor was research activity in the
school well integrated with the overall life-science research enterprise of the
University as a whole. In addition, animal housing facilities were outdated and
unable to support expansion of research programs.

The school’s hospital (outreach) activities were also in need of improvement.
Hospital facilities, particularly those of the Small Animal Hospital, were small, out-
dated, and poorly equipped. The clinical faculty was too small to accomplish its
teaching and service missions; the school needed to increase the number of clinical
specialties represented by its faculty dramatically. Furthermore, hospital operations
needed to become more fiscally responsible.

The planning process also identified a series of strategies and action steps that would
enable the school to address these major issues. Faculty task forces were constituted
to evaluate and improve the professional curriculum. This led to the development of
an all new curriculum that has been implemented in phases. The new curriculum
includes clinical tracking in the fourth year (to enable students to focus on that
portion of the profession they intend to enter upon graduation), problem-based
learning courses in the first and second year (designed to help students learn to be
better problem-solvers and to better access the growing volume of biomedical
information), and a core/elective curriculum in the third year (to interface with
clinical tracking). The last phase of the new curriculum is being implemented this
year. Early assessment tools (surveys, interviews, board examination scores, etc.)
indicate that all phases of the new curriculum will be a success. The development of
the new curriculum has been funded by internal reallocations at both the departmental
and school levels.

Changes in the veterinary technology programs have also been implemented. To
meet the demand for additional veterinary technicians, the school is developing a
distance education associate degree program. This initiative has been funded by the
University’s central administration through an Academic Reinvestment proposal and
through monies made available by the dean. The school has also launched a new
baccalaureate degree program in veterinary technology that has been supported with
start-up funding by the University.

In the research arena, the dean established the Office of Research Programs
Development, headed by an associate dean for research (a new position in the SVM),
to give focus and direction to the school’s research activities. Acting with the advice
of a faculty Research Advisory Board, the associate dean has identified a number of
areas of existing or emerging research emphasis within the school. Some of these
have been targeted not only because of their importance to the SVM but also because
of their strategic relationship to existing or developing University research programs
(e.g., cancer biology, biomedical engineering, aging research, etc.). For their part, the
dean and department heads have committed to recruiting outstanding faculty into
these targeted areas whenever possible. This commitment has included the allocation
of significant dollars for faculty start-up when necessary.
The Office for Research Programs Development has also implemented a competitive grants program for the distribution of internal research dollars generated through endowments, gifts, and designated state dollars (e.g., Indiana Dog Tax proceeds). The internal grants program is designed to provide 1) seed money funding for projects which the Research Advisory Board believes are likely to be successful in the competitive extramural arena, and, 2) monies for the purchase of shared equipment which will increase the overall competitiveness of the school’s research faculty. The associate dean has also sponsored a number of faculty development activities including several grant-writing seminars.

These efforts have yielded dramatic results. In the late 1980’s, the school generated approximately $200,000 to $300,000 per year in new extramural support; today, the school generates nearly $5,000,000 in grants and contracts. Nearly 65% of the entire faculty have their own extramurally funded research programs. School faculty now are active participants in many campus-wide interdisciplinary programs such as the Purdue Cancer Center, the Purdue Nutrition Program, the new biomedical engineering graduate program, the biochemistry and molecular biology graduate program, and the Purdue Center for Human-Animal Bond, etc.

Hospital issues called for major reorganization. Accordingly, Dean Lewis separated the service function of the clinical faculty from their academic responsibilities by creating the Veterinary Teaching Hospital (VTH) with its own director (new position), and by merging the Departments of Small Animal Clinics and Large Animal Clinics into the single Department of Veterinary Clinical Sciences (VCS).

A major thrust of the VTH strategic plan was to identify means of maintaining an excellent teaching environment in the hospital while at the same time making the hospital more fiscally responsible. A computerized hospital information system was implemented to provide better tracking of bills. Better methods of cost accounting were implemented. A system of teaching incentives was developed so that faculty in the various clinical disciplines could generate teaching materials yet stay within realistic budgetary boundaries. The net effect of these and other efforts is that the VTH now has a positive fund balance which is being used to build hospital infrastructure and staff, maintain hospital equipment, purchase new equipment, finance ongoing renovations and repairs, and support the development of new hospital programs.

Both the VTH plan and the VCS plan identified the need to increase clinical faculty numbers and the number of clinical disciplines available in the hospital. This has been accomplished primarily through reallocations at the school level and among the departments and by reinvestment of hospital profits and salary savings generated through clinical grants and contracts. Since the strategic planning process was completed, the school has developed both small animal and large animal community practices and created new faculty and staff positions in animal behavior, anesthesiology, diagnostic imaging, oncology, internal medicine, and production medicine.
A recurrent theme in the strategic plans of all units was the need for new facilities. When the SVM strategic plan was completed, Purdue had the oldest physical plant of any veterinary school in North America. Accordingly, the school presented a summary of its facility needs to the central administration that in turn identified an addition to Lynn Hall as its highest capital priority for its state budgetary request for the 1991-1993 biennium. A facilities planning committee comprised of SVM faculty and staff, representatives of the University facilities planning and space management groups, and an architect was organized to develop a case statement for the new addition. A new $30,000,000 addition was ultimately funded by the state and was completed in 1995. This new addition has effectively doubled the size of the SVM.

The new addition successfully addressed SVM space needs, but it did not address all of the equipment needs and the need for renovation in the original SVM complex. Since the completion of the addition, the school and the University administration have cooperated to address these issues. Each year the central administration has leveraged dollars allocated by the school for renovation and equipment upgrades. Altogether, nearly $3,000,000 has been made available for new hospital equipment, and $500,000 has been made available for laboratory renovation in this shared way.

Clearly, the SVM has made much progress toward the goals articulated in its strategic plan of 1988. This progress is an excellent example of how the Purdue system of shared responsibility for academic planning and implementation works effectively to bring about needed growth and development within academic units. In the process of improving its own programs, and with the real and unwavering support of the central University administration, the SVM has also been strengthened and become a more integral part of the University as a whole.

2. Management

Strategic planning has been a part of the School of Management’s culture for over 40 years. Since the school’s inception, strategic management has been a core discipline in the school, and a strategic planning process has been part of every dean’s tenure at the Krannert School.

In the language of management, a strategic decision involves decisions about an organization’s scale of activities (how large they are), scope of activities (how many activities they engage in), competitive advantage (what they do that is particularly distinctive), organizational structure, and acquisition of resources.

The School of Management is unusual among Purdue schools since it has 10 departments. This makes the school’s approach somewhat different when it considers strategic questions. Unlike other schools, Krannert considers issues of constituent needs, resources, and curriculum characteristics along the programmatic dimensions of undergraduate, professional masters, executive masters, and doctoral programs/research. This “product line” view of the school is constantly assimilated.
by the entire faculty since, lacking departments, all major decisions of scale or scope of activities require school-wide input and vote.

Under just-retired Dean Dennis Weidenar’s planning has been a continuous process. The school has held two school-wide retreats since our last North Central reaccreditation review in 1990 to discuss the school’s competitive advantage vis-à-vis all schools of management, our structure, and the fit between resources and the school’s scale and scope of activities. In turn, each of the major program dimensions has been reviewed at least twice since the last North Central review to analyze and make recommendations concerning that particular program’s needs, opportunities and challenges. In all cases the review process, both school and programmatic, included a broad base of stakeholder feedback: recruiters, students, faculty, alumni, central administration, business leaders and peer institutions.

Through the school-wide retreats of 1991 and 1994 and a focused retreat with the Dean’s Advisory Council in 1997, the school gained a firm understanding of its distinctive competence and competitive advantage. Kranert is distinctive in several ways: it takes an analytical approach to management education and research; it focuses on technology as an engine for strategic change; it cultivates ability to marry science and technical understanding with managerial principles; it takes an enterprise-wide view of business organizations; and it emphasizes an understanding of the importance of human resources and leadership in management along with the understanding that we now exist in a global economy.

The retreats also allowed the school to consider the scale and scope of its activities and engage in an ongoing dialogue with the central administration concerning new program opportunities and corresponding resource needs.

The test of a planning process is in its ability to recognize needs and opportunities and allow an organization to respond effectively. The following are just a few of the numerous examples where the school’s planning process, in concert with central administrative guidance and support, has led to strategic initiatives that have fostered the school’s strong position among business schools and in service of its constituents.

• Through discussions with colleagues in the Agricultural Economics and Food Science areas, it became clear that an important opportunity existed to serve the food science industry with a specialized MBA degree program. Further, given the nature of this industry, this opportunity permitted the school to take advantage of the power of emerging distance learning technologies. This idea was presented to the central administration and enthusiastically funded through reinvestment monies. After two years of development, the first class of this program will matriculate in 1999.

• In the late 1980’s and early 90’s, the school experienced a significant undergraduate enrollment decline. This experience mirrored a national trend as matriculating students responded to the layoffs that ran rampant in corporate
America. So severe was the decline that the central administration expressed concern about the lack of balance between resource allocation and the scale of these activities. A focus on its constituent needs and competitive advantage allowed the school to respond positively in several ways. First, it became clear that the marketplace was seeking technically-oriented students with management training. This prompted the school to begin to offer a management minor to students from the Schools of Engineering and Science. Second, it was clear that management majors with technical skills still faced a promising job market, so the school invested significantly in undergraduate program marketing and placement to make its programs better understood and appreciated. Finally, funds were allocated to insure that the school recruited bright students who could perform well in its demanding curriculum. The results of these initiatives have been remarkable. Since 1992, the school’s total number of majors has grown 22% and its number of freshmen has grown 40%. Over this same period, the number of students taking management minors has grown to 100. All this while, the national trend in undergraduate management education has remained depressed.

- An offshoot of the school’s efforts with the undergraduate program was a realization that far more University science and engineering doctorate holders now pursue careers in corporations rather than academia and that they have the same need as technical undergraduates to better understand the work of business and management. Out of this realization sprang the Kraner Advance Management Program or "AMP". First taught in 1998 and funded by the NSF and Sloan Foundation, the program provides doctoral candidates with a summer intensive three-week general management course. Early reviews suggest this program will become a national model.

- The reviews of the school’s masters program suggested the scale of its programs was insufficient to satisfy the needs of recruiters and to provide sufficient offerings of electives. Further, the scale of resources devoted to the programs was not sufficient to remain competitive with other leading schools. In 1994, therefore, the school reached agreement with the central administration to both increase enrollment and to increase the per student tuition revenue of these programs. Since 1994, enrollments have increased some 18% while the tuition charge has increased 50% for in-state students and 23% for out-of-state students. In 1998, the student quality numbers as measured by undergraduate grades and GMAT test scores reached an all-time high, and there has been no degradation of the school’s percentage of in-state students.

- The growth in scale and scope of the school’s degree programs, along with new pedagogical needs in management education, has pressed the school to seek a new facility. Preliminary discussion concerning the new facility began in 1994, and the school entered into the University’s new building development process. Academic and architectural program statements were developed in 1996 and 1997, and the school received approval to embark upon a capital campaign in
1998. The new facility should be available in fall of 2002 and provide for the needs of the school well into the future.

These examples provide significant evidence that the planning process at Purdue and in the School of Management is both vibrant and productive. The process fosters new investment, interdisciplinary activities, and a focus on the unique competitive advantages of Purdue and the School of Management.

E. Student Participation in the Planning Process

To amplify the section on student governance in Chapter 4 (Criterion One: Mission and Goals) and to demonstrate the student role in planning and other decision-making activities, Table 7.1 shows the student membership on a variety of University committees. While it is inappropriate for students to have membership on certain committees – Collective Bargaining, for example, or Faculty Compensation and Benefits – there is significant student representation on all appropriate committees. There is even greater student presence on the large number of committees operating at the level of Purdue’s twelve schools and more than seventy academic departments and interdisciplinary programs: curriculum committees, educational policy committees, graduate committees, affirmative action committees and the like.

But more membership on these committees is not sufficient. It should be demonstrable that student members play active and constructive roles as committee members. In order to reveal student perceptions about their roles as committee members, we asked a small random selection of student committee members to assess and evaluate their experiences on a variety of committees. While only a relatively small number of students responded to our survey, those who did were unanimous in their positive assessment of the work of the committees on which they served and of their ability to participate in and contribute to the work of the committees.

In addition to identifying the committees on which they served, the students were asked to describe the workings of the committees, to evaluate the effectiveness of the committees in achieving their goals, to describe the role(s) of student members of the committees and to judge the effectiveness of student committee members as agents for planning and change. Typical comments follow:

Comments from a departmental graduate committee member... “We meet each week to discuss graduate curricula, student recruiting offers, awards, etc. The committee has been very effective in moving the new Ph.D. course to a finished proposal presented to the overall faculty. Other business has been handled efficiently as well. The two student representatives have had a very active role in the committee. In fact, the final course proposal is essentially the one we developed. We are always listened to and our opinions are actively sought out.”

Comments from a school curriculum committee member... “All curriculum changes within the school were brought before the committee. Committee seems to be very
effective. Had a busy year because new handbook was being published. Not too many personal agendas were evident. I was only student rep on the committee, so I often questioned how much 'say' I actually had. My opinion was always listened to and I really did not disagree on any of the proposed documents. In any case, I was only one vote as compared to five faculty votes."

Comments from a school affirmative action committee member... "The committee is designed to bring any problems and issues about injustice and discrimination that arise to the attention of the Dean of Students. We serve in an advisory capacity to the dean. The goals of the committee are always definite, but ways of achieving them are not. It will take time, effort and hard work to make our goals happen. As the only undergraduate student on the committee, I offer my thoughts and views from an undergraduate perspective on ways of improving diversity at Purdue and within the school. I work with the committee to make the important facts about diversity known to the student population within the school."

Comments from a school advisory board member... "Was unaware of any expectations at first, but overall committee seems to run quite smoothly. For a student perspective, I was an active participant. I also believe I was fairly listened to while providing a source of change through our student survey."

Despite the exceedingly small size of the sample and the substantial number of non-respondents, we heard only positive comments from students about their committee experiences. We are pleased that the students value these experiences, believe they were listened to and taken seriously by their faculty colleagues, and think their contributions made a difference in committee deliberations.
Table 7.1

Student Presence on University Committees

<table>
<thead>
<tr>
<th>Committee</th>
<th>Number of Faculty</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Univ. Senate Advisory Committee</td>
<td>20</td>
<td>0</td>
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<tr>
<td>Univ. Senate Steering Committee</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Univ. Senate Nominating Committee</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Univ. Senate Educational Policy Committee</td>
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<td>2</td>
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<tr>
<td>Academic Organization</td>
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<td>0</td>
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<tr>
<td>Academic Progress and Records</td>
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<td>2</td>
</tr>
<tr>
<td>International Educational Programs</td>
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<td>1</td>
</tr>
<tr>
<td>Scholastic Detiruencies and Readmission</td>
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<td>0</td>
</tr>
<tr>
<td>Superior Students</td>
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<td>3</td>
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<td>Collective Bargaining</td>
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<tr>
<td>Documents and Records</td>
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<tr>
<td>Faculty Compensation and Benefits</td>
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<td>0</td>
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<td>Grade Appeals</td>
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<td>6</td>
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<td>University Senate Student Affairs Committee</td>
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<td>Athletic Affairs</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Student Financial Aid</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>University Senate Resources Policy Committee</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Architectural and Landscape Design &amp; Planning</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Literary Committee</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Parking and Traffic</td>
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<td>2</td>
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<tr>
<td>Academic Computing Policy Committee</td>
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<td>1</td>
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<tr>
<td>Staff Appeal Board for Traffic Regulations</td>
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<td>0</td>
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<td>Visual Arts</td>
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<td>Teacher Education Council</td>
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<td>Military Programs</td>
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<td>Orientation of New Students</td>
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<tr>
<td>Convocations</td>
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</tr>
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III. PLANNING FOR INFRASTRUCTURE

The major support areas that make up the University infrastructure report to the Executive Vice President for Academic Affairs or the Executive Vice President and Treasurer and have been outlined earlier in Chapter 4 of this report. The planning process in these areas is very similar to that of the academic areas in that it takes place at the department level. The executive vice presidents establish the overall unit goals and objectives and then review the progress being made to achieve these objectives. All areas submit annual reports to their
respective executive vice presidents is which they list major accomplishments for the year, ongoing concerns or issues, and goals for the upcoming year.

The areas may also develop strategic plans for either an entire unit or for an individual department or a single major issue. For example, Physical Facilities has an organizational strategic plan, a campus physical master plan, a ten-year capital plan that is submitted to the state legislature each biennium as a part of the University’s budget request, a 25-year utility master plan, a repair and renovation master plan including individual plans for many of the older buildings on campus, a classroom renovation master plan, a laboratory renovation master plan, etc.

Housing and Food Services has developed various plans that address specific areas of concern or opportunity such as marketing, board dining options, cash operations, food service operations, access card system, and strategic plans for the Hall of Music and the Purdue Memorial Union.

In many cases, the executive vice presidents jointly appoint committees or task forces to work on issues that cross over organizational boundaries or have a wide-spread impact on the University.

This planning process allows the infrastructure areas to respond quickly to critical issues in each of their areas at the same time that the executive vice presidents, working with the President, can jointly establish the overall direction and goals for the University. This is best illustrated through examples of how this process works.

A. Office of Distance Learning

The Purdue University system consists of the West Lafayette campus, regional campuses in the northern half of Indiana and the Statewide Technology Program offered at various host sites around the state. Host sites are university and college campuses other than Purdue as well as other locations where Purdue courses are offered. Taking Purdue degree and continuing education programs to where the people needing them are located was initiated by the University’s central administration with input and support from those academic units offering programs at sites other than the main campus. At first, these programs "at a distance" were available only at regional campuses of Purdue, primarily in conventional classroom settings. Later, selected courses were offered at host sites and through Indiana Higher Education Television Service (IHETS). Today, new technology has increased the availability of Purdue courses to even wider audiences. A move away from agricultural and heavy industry as the main sources of employment in Indiana and a growing need for skilled, professional workers are major stimuli for providing increased access to educational programs to Indiana citizens.

In April 1997, the Office of Distance Learning (ODL) was established by the Executive Vice President for Academic Affairs (EVPAAS). Its mission is to "create an enhanced environment at Purdue conducive to the adoption of distance learning by the academic units on all Purdue campuses" and to "promote the innovative and productive
use of distance learning by identifying needs which could be addressed by distance learning. The director of the ODL, who reports to the EVPAA, looks to a system-wide Distance Learning Advisory Board (DLAB) for assistance in strategic planning at the institutional level. The DLAB consists of over 30 members representing Purdue's regional campuses, academic units at West Lafayette, agricultural communication services, libraries, continuing education and others.

The initial activity of the ODL was to survey the policy environment for distance learning at Purdue and make recommendations to the EVPAA. This report was submitted in July 1998, and actions to implement its recommendations are under way. Additionally, earlier last year, the Distance Learning Advisory Board promulgated across the University the North Central Association "Guidelines for Distance Education."

As information technology improves and becomes more widely available, the demand for distance learning can only increase. Purdue is poised to respond to this demand through the ODL.

B. Adaptive Programs

Adaptive Programs (AP) is a service offered through the Office of the Dean of Students (ODOS) to facilitate the educational programs of students challenged by physical, learning, or psychological disabilities. After the students self-identify, the professionals in AP direct and assist them in obtaining the considerations required in order for them to succeed in their academic work. Currently, approximately 600 students receive services, counseling or assistance from AP. Staff members in AP provide information and coordinate services to students with physical disabilities, learning disabilities, attention deficit disorders, and hearing and vision impairments. Adaptive Programs also provide student/faculty liaison when instructional modification, assessment and support are needed. For example, if a student with a disability requires additional time for taking tests and examinations, AP staff will determine this need and convey it to faculty members teaching the impacted student.

In 1996, staff members of the ODOS interested in working with students with special needs met and prepared a strategic plan with the assistance of a consultant from a different department within Purdue University. Staff members identified current strengths, weaknesses, opportunities and threats. Implementation of that 1996 plan has resulted in AP consolidating its services in its own office space.

Accomplishments since 1996 include the formation of an Advisory Council on Disability Issues (ACDI) whose members represent each of Purdue's academic units, students, academic advisors, the ODOS, and selected staff of AP. Staff members from AP participate regularly in the College Teaching Workshops, a program sponsored by the Center for Instructional Development that is designed to help faculty improve their classroom effectiveness. A publication entitled "Removing Barriers, Faculty Guidelines for Teaching Students with Disabilities" is updated as necessary and distributed. The most recent edition came out in January 1999.
Adaptive Programs implements many services for eligible students throughout the University. By centralizing the planning and implementation of these special programs, AP supports the education of many students in a wide variety of major areas of study across the University. One example of cooperative efforts between AP and other University units is the Engineering Projects in Community Service (EPICS) program in which students in the Schools of Engineering identify problems in the community that may be solved by applying engineering knowledge and techniques. Another example is the Adaptive Learning Programs (ALPs) lab dedicated to making available assisted computer technology. Although administratively responsible to the Purdue University Computing Center (PUCC), ALPs works closely with AP in providing services and support to students by making assisted computer technology available.

C. Management Information

Management Information (formerly Administrative Data Process Center) has undergone a complete change in its organizational structure as a result of extensive planning for administrative computing that was done during this decade.

The planning effort began in 1990 when the Executive Vice President and Treasurer appointed a strategic planning committee comprised of the Vice President for Business Services, the Vice President for Student Services, the Vice President for Physical Facilities, the Vice President for Development, the Vice President for Housing and Food Services, the Vice Chancellor of the Calumet Campus, the Comptroller, the Director of the Purdue University Computing Center, the Director of the Administrative Data Processing Center, and the Director of the Center for Instructional Services. This committee was asked to develop a vision and a plan for the delivery of technology support to administrative activities at Purdue. The firm of Ernst and Young was engaged to assist in the planning effort. The plan was completed in three phases from 1991-1993. Phase I established administrative goals, strategies and information technology principles to guide the vision for administrative computing. Phase II defined a more detailed view of the applications, data, operating environment and management approaches needed to achieve our goal. Finally, Phase III identified a set of projects that would start to close the gap between our vision and our current state.

In 1995, each major University unit was asked to develop a strategic plan with action items for both a six - twelve month and one - two year time frame. The Vice President for Business Services and the three directors in Management Information worked with a facilitator from Personnel Services to review progress on the 1993 plan items and develop the Management Information Strategic Plan released in June 1995.

In 1997, each administrative unit represented on the Administrative Computing Steering Committee was asked to develop a computing plan for its area. These plans were also used to coordinate computing activities among administrative areas and with Management Information.
In 1998, the Administrative Computing Task Force was formed to review and update the strategic plan for administrative computing and to begin the effort of coordinating it with the academic computing and academic information plans developed in 1996 and 1997.

The strategic vision for administrative computing continues to be implemented through a series of individual projects. Plans for the individual projects include activities for all areas involved to insure integration across the units involved. Resource needs are identified as part of project planning. The source of funding for the resources identified for the project is addressed as part of the project approval process.

Numerous projects have been undertaken in the five years since the completion of the Administrative Computing Master Plan. Several of the more significant accomplishments are:

- implementation of a data warehouse for financial, employee and student data;
- creation of departmental computing organizations in six VP areas;
- completion of new systems for an integrated undergraduate application, electronic funds transfer, and undergraduate student recruitment;
- creation of distributed support organizations (zones) to provide LAN support; and
- selection of a relational database management system.

Annually, accomplishments and plans for the next year are outlined in the report of the Executive Director for Management Information to the Executive Vice President and Treasurer. An Administrative Computing Steering Committee was established to provide oversight and general guidance for administrative computing activities. Activities and progress are reviewed with the group quarterly.

D. Campus Telecommunications System

The installation of the new campus telecommunication system was the largest and most complex construction project ever undertaken in the Purdue system. It involved not only replacing the voice telephone switch, but also rewiring the entire campus for voice and data communications. Every space in every building on campus had to be rewired, and a new fiber optic backbone system was installed to interconnect all of the buildings. Everyone on campus was affected by this project, and it required the involvement of hundreds of staff from every area in the University. The planning for this project was equally complex.

In the late 1980’s, the Telephone Department in Physical Facilities began the process of planning for the replacement of the University’s telephone voice switch. A Campus Communication Committee, called by both of the executive vice presidents, had been meeting for several years to discuss common communications issues on campus. This committee included representatives from academic units that had their own computer networks: the Computing Center, Physical Facilities, Telephone Department, Business Office, Center for Instructional Services and Administrative Data Processing Center. Because of these ongoing discussions, the Telephone Department was well aware of the
 campus need for a unified data network system. It was clear that the replacement of the telephone voice system would present an opportunity and impose the necessity for collaboration to achieve this goal.

A Telecommunications System Committee was appointed in 1989 to develop the plan for the replacement of the system. Chaired by the Manager of Telephone Services, the committee included representatives from the Purdue University Computing Center, Residence Halls, and Facilities Planning. Consultations with other key staff were initiated early in the process to assure adequate input was received from areas with significant interest in telecommunications issues. A consulting firm was retained to assist the committee in developing the plan. Interviews were conducted with all deans and vice presidents, or their representatives, to allow for their input and comments and to gather information for use in establishing the scope of the project.

Early in the committee's deliberations, it became apparent that other telecommunications issues needed to be addressed as a part of the project. In particular, problems associated with wiring for computers were identified as major issues by every staff member interviewed in planning for the project. Therefore, the committee decided to study and evaluate alternatives that would address these needs as well.

Throughout the planning process, the committee's deliberations and activities were centered on the following critical tasks:

- assessing current and near-term (10 years) telephone system technology;
- documenting and evaluating the existing telephone system infrastructure;
- determining the relationship of the telephone system replacement project to other telecommunications (data and video) needs and the extent to which these needs could be met as part of the project; and
- determining the level of telecommunications services to be provided to University residences and the extent to which these services should be integrated with campus telecommunications services.

In February 1993, the Telecommunications Task Force was created by adding members from other areas of the University to the existing Telecommunications System Committee. This group was formed to receive more input from other areas of campus and to provide regular dissemination of the committee's activities to the campus schools and departments. In addition to the original four areas represented, the following units were represented: the Purdue Memorial Union Hotel, Center for Instructional Services, Administrative Data Processing Center, Space Management and Academic Scheduling, Investment Office, Intercollegiate Athletics, Purchasing, Business Office, and the Schools of Engineering, Agriculture, Technology, Science, and Consumer and Family Sciences. The task force helped prepare the request for proposals and reviewed the proposals from the vendors to make a recommendation to the Board of Trustees for their approval.

With all this preliminary work completed, the actual construction of the system could be
started. This did not, however, end the planning work that had to be accomplished if the University was going to achieve its major goal of having a campus-wide data network.

Over the years, various computer networks had evolved around campus. Units that had the need and the capabilities, such as the Schools of Engineering and the School of Agriculture, developed and operated their own independent networks. In order for these departments to agree to switch over to a new campus data network, a management structure had to be developed that would insure that their concerns would be addressed. After much discussion among the executive vice presidents, the academic deans, the Director of the Computing Center and others, consensus was reached on a management structure.

The overall policy for the campus data network is the joint responsibility of the Executive Vice President for Academic Affairs and the Executive Vice President and Treasurer. The Director of the Computing Center reports to both. A Purdue Data Network Policy Committee was appointed to advise the executive vice presidents on campus-wide data network policy issues and to review annually the operation of the data network. The committee consists of 15 members, the 10 academic deans, the Dean of Libraries, the Vice President for Business Services, the Vice President for Physical Facilities, the Executive Director of Management Information, and the Director of the Computing Center. This structure provided for efficient management of the data network and a smooth transition to the new system while insuring that the users of the system would have their input concerning its operation and future direction.

IV. PROVIDING RESOURCES TO IMPLEMENT PLANS

Regardless of whether they are the products of a centralized or decentralized process, a short-term or a long-term vision, or an authoritarian or a participatory decision-making model, academic plans will remain no more than plans if adequate financial resources are not provided for their implementation. Section I of Chapter 5 of this report summarizes Purdue’s current financial situation with the alarming statistic that the state’s share of the state-student partnership in financing the institution’s programs has fallen from 72% to 55% over the past 17 years, and concludes with the melancholy observation that “excellent planning and stewardship have served us well, but ... cannot totally compensate for the lack of adequate levels of state support.”

Despite the great pride we take in providing an exceptional higher education value at relatively low cost to both the state and our students, we find that we are in increasingly keen competition with universities that have greater resources with which to attract faculty, provide and equip facilities, and offer students attractive financial aid packages. While we understand that this situation is not easily reversible, we have been planning and implementing actions on several different fronts to increase the level of resources available to the University. The major resources of revenue whose possibilities we have been exploring are student fees, state appropriations, voluntary support and sponsored programs of research.
• Student fees have increased on a percentage basis at levels that significantly exceed state support. As a result, students have been asked to finance an increasing share of their education. Non-resident fees have increased at a higher rate than resident fees. A technology fee has been introduced, and a differential fee has also been introduced to help support the high cost of providing an engineering education. These efforts have been phased in after considerable review with deans and the Board of Trustees and discussion with student leaders. Higher than average increases in fees may be required in the future to address our pressing funding needs.

• Improvement in state funding for operations is central to maintenance of Purdue's overall level of resources. Operating appropriations from the state have increased by less than 2% a year from 1991-92 to 1998-99. During the recent legislative session, University officials met regularly with key decision-makers to discuss our declining competitive situation, current funding levels, the need for a greater investment in technology and Purdue's actual and potential role as a catalyst for state economic development.

• Meetings have been and continue to be held with key legislators, government agencies, and organizations such as the Indiana Manufacturers Association, Indiana Chamber of Commerce and Indiana Farm Bureau as well as such grassroots organizations as the Purdue Legislative Awareness Network (PLAN) and the Council for Agricultural Research, Extension, and Teaching (CARET). Information has been provided to these groups through co-hosting forums, bringing industry and government representatives to campus, and publishing and distributing a variety of explanatory materials. That these efforts are helping to improve funding levels is evidenced by the increase—admittedly modest—in our recent 1999-2001 biennial appropriation.

• Voluntary support of the University has also been emphasized. Until a few years ago, Purdue did not focus on bricks and mortar in development campaigns. However, recent success in identifying support for a new golf course and aquatic center has illustrated the potential of these efforts. Currently, campaigns are underway to provide significant funding for an expansion of the Kranert School of Management, new engineering facilities and a new Visual and Performing Arts Center. Some of these would not have been possible or would have been delayed into the distant future without private support. The emphasis on fund raising activity can be seen from the growth of annual support in fiscal year 1994 of approximately $33 million to $80 million in 1998. The University has stated a goal of increasing annual giving to $99 million by year-end 1999. As a consequence of these intensified fund raising efforts, Purdue is now one of the small group of universities with endowments in excess of $1 billion.

• Greater emphasis is also being placed on interdisciplinary research efforts and strategic investment in the enhancement of research infrastructure that would lead to a more competitive position in competing for future research contracts and grants. In addition, we have used our reinvestment program plus leveraging of local dollars to stimulate more successful competition for federal and industrial funds. Examples include the NSF Science and Technology program, emphasis on an engineering research center and the development of the Center for Education and Research in Information Assurance and
Security (CERIAS). To assist in cost sharing requirements and to leverage existing funds, the University has made available funds for equipment matching and sponsored program support.

V. CHALLENGES

Throughout this chapter, we have emphasized the relatively decentralized structure of Purdue University and have pointed out how this structure distributes decision-making power and authority widely among the various academic and non-academic units of the University. We have made the case that this planning and decision-making model best serves the interests of all of the stakeholders of the institution: its students, faculty and administration as well as the far-flung recipients of its outreach efforts.

On the other hand, we have not failed to make clear the risks to an institution of pursuing this model in the absence of effective machinery of communication and coordination. Our self-study has disclosed the presence at Purdue of well-developed and sometimes even redundant communication channels to assure the inclusion in the planning process of all interested parties. Our challenge, in the face of even more complex programs of research and instruction and proliferating mechanisms for reaching distant audiences, is to maintain and improve our information and decision-sharing techniques and to enhance the inclusiveness of our broadly-based and decentralized planning structure.
CHAPTER EIGHT

CRITERION FIVE:
INSTITUTIONAL INTEGRITY

"The institution demonstrates integrity in its practices and relationships."

Purdue University has a long-standing and consistent commitment to institutional integrity. In the past decade, the University has significantly strengthened its policies, self-assessment procedures, and resources for ensuring integrity in all of its practices and relationships. These efforts affect all aspects and levels of University functioning, including trustee, faculty, and staff conduct; equity of treatment of faculty, staff, and students; dispute resolution systems; intercollegiate athletics and auxiliary enterprises; communications with and commitments to prospective students; contractual arrangements; and integrity in a range of research activities.

The following definition of institutional integrity, adapted from the NCA Handbook of Accreditation, guided the examination of institutional integrity at Purdue: "The institution adheres both to the civil laws and to the code of ethics commonly accepted by the academic community. Ethical values are found in policies and practices in such matters as academic honesty, nondiscrimination, affirmative action, harassment, professional ethics and conduct, fair grievance processes, contractual arrangements, full disclosure in the institution's dealing with its members and public, and conduct that is without conflict of interest at board, administrative, and faculty levels."

I. EXPECTATION AND MONITORING OF CONDUCT

A. Trustees, Faculty, and Staff

The Trustees of Purdue University and their operation of the University are generally governed by Indiana Code Title 20, Article 12. Some chapters in Article 12 relate only to Purdue University while others cover programs and activities at all Indiana institutions of higher education. In accordance with the Indiana Code and in addition to the expectations set forth in Indiana Code for the Trustees of Purdue University, the Bylaws of the Trustees of Purdue University establish expectations for the Trustees, faculty, and staff under the following Articles:

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<td>Article I:</td>
<td>Seal</td>
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<td>Article II:</td>
<td>Meetings of the Board</td>
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<td>Article III:</td>
<td>Procedure at Meetings</td>
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<td>Article IV:</td>
<td>Officers</td>
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<td>Article V:</td>
<td>Committees</td>
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<td>Article VI:</td>
<td>Officers and Faculty of the University</td>
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<td>Article VII:</td>
<td>Contracts and Other Written Instruments</td>
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Article VIII: Degrees
Article IX: Buildings
Article X: Amendments

Meetings of the Board are open to the public, and copies of minutes may be obtained from the Secretary of the Trustees of Purdue University. The secretary has custody of the corporate records, including the Bylaws of the Trustees of Purdue University.

University policies and procedures are communicated to faculty and staff via Executive Memoranda, Vice President and Treasurer Memoranda, the Academic Procedure Manual, and the Business Procedure Manual. In addition to printed media, many of these materials are now available on the Purdue World Wide Web site. Executive Memoranda and Vice President and Treasurer Memoranda provide comprehensive policy guidance. Manuals, including the Academic Procedure Manual and Business Procedure Manual, provide implementation guidance and procedures for the policy documents. The Academic Procedure Manual is a compilation of policies, regulations, and procedures that affect the University academic community. It includes results of actions by the Board of Trustees, results of actions by the governing bodies of the University faculties, and Executive Memoranda issued by the University President. The Business Procedure Manual is a compilation of policies, regulations, and procedures that affect the total University community. It includes policies approved by the Board of Trustees and officers of the University as well as procedures developed by various areas reporting to the Executive Vice President and Treasurer.

The Faculty and Staff Handbook is published to give current, new, and prospective faculty and staff members a convenient guide to useful information about the University and its policies, the use of various facilities and services, staff duties, and responsibilities as residents of Indiana. Documents are reviewed and modified as a result of action by federal and/or state governments, the Trustees of Purdue University, and the administration of Purdue University.

B. Students

Purdue University has adopted a code of student conduct necessary to preserve the University’s lawful missions, educational atmosphere, and discipline on campus. The code of conduct is promulgated in University Regulations, a reference handbook for students, staff, and faculty. The code contains guarantees for the basic elements of due process and fair play by identifying behavioral proscriptions that incorporate sufficient specificity for a common understanding of unacceptable behaviors. The procedural requirements adhere to principles of due process required by the United States Constitution as interpreted by the United States Supreme Court and guard against arbitrary and capricious actions by the University.

Various campus agencies and individuals such as Purdue Police, staff in the Office of the Dean of Students, residence hall counselors, and other University officials are available to receive reports of behavioral violations and to offer support and counseling as needed,
while respecting and protecting the privacy rights of students mandated by law and dictated by professional ethics.

Periodic review of the code of conduct is made to assess processes and expectations against professional standards. Input is sought through a survey given to participants in the adjudication process. The student conduct system is currently under review with consideration being given to achieving a broader base of participation, particularly by students, in the decision-making stage of the campus judicial system. After a thorough review, the code of conduct may be subject to redesign to be more responsive to changing behavioral issues.

C. Internal Audit

The internal audit function at Purdue is an example of the University’s commitment to self-monitoring. In accordance with Article IV, Section 6 of the Bylaws of the Trustees of Purdue University, the Treasurer of the Corporation maintains an internal audit office independent of any other office of the Corporation or of the University. Article V, Section 3 of the Trustees bylaws, states that the Audit and Insurance Committee maintains oversight of the internal audit function and receives and takes appropriate action upon the various reports made to it by the Treasurer, the Director of Audits, or by any other person.

The scope of internal auditing encompasses the examination and evaluation of the adequacy and effectiveness of the organization's system of internal control and the quality of performance in carrying out assigned responsibilities. The scope of internal auditing includes:

- reviewing the reliability and integrity of financial and operating information and the means used to identify, measure, classify, and report such information;
- reviewing the systems established to ensure compliance with those policies, plans, procedures, laws, and regulations that could have a significant impact on operations and reports, and determining whether the organization is in compliance;
- reviewing the means of safeguarding assets and, as appropriate, verifying existence of such assets;
- appraising the economy and efficiency with which resources are employed; and
- reviewing operations or programs to ascertain whether results are consistent with established objectives and goals and whether the operations or programs are being carried out as planned.

The Director of Audits is responsible for coordinating all internal and external auditing functions. External audits include annual financial audits and compliance audits conducted by outside agencies. These include but are not limited to:

- University Financial Statement Audit: Audited in accordance with generally accepted auditing standards and government auditing standards;
• Federal Awards Audit: Audited in accordance with OMB Circular A-133; and
• National Collegiate Athletic Association (NCAA) Financial Statement Audit: Audited in accordance with NCAA financial guidelines.

On an annual basis, the Director of Audits requests audit suggestions from management. Information is evaluated, ad an audit plan is developed. Several factors are considered in developing the plan, including risk assessment, changes in procedures or staff, or system modifications. University staff are also encouraged to submit requests throughout the year. The audit plan is submitted to the Audit and Insurance Committee for approval.

An audit report is drafted after completion of the fieldwork. Information is reviewed with management to ensure the accuracy of the audit tests. If the report contains requests for action, a formal response is required. Requests for action may include, but are not limited to, control enhancements, compliance modifications, and operational efficiencies. Management develops an action plan or response to the requests for action. This approach is the audit process allows for an interactive management approach to enhancing the control environment, thus ensuring compliance with policies and procedures.

During the first or second quarter of the calendar year, the Director of Audits provides a written report to the Board of Trustees. This report is organized by the following major categories of audits: annual audits; financial, operational, and compliance audits; information systems audits; and audits in process at year-end. The director provides highlights of the audits for the Audit and Insurance Committee, noting the scope of the audit, audit methodology, and overall opinions or conclusions. In addition, departmental action plans may be discussed.

Tests performed during the audit process indicate whether the system is functioning as intended, in accordance with policies and procedures, or whether modifications or changes are necessary. A recap of audits completed or in process on December 31, 1998 is shown below:

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<tr>
<th>Audit Category</th>
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<tr>
<td>Annual Audits</td>
<td>30</td>
</tr>
<tr>
<td>Financial, Operational, and Compliance Audits</td>
<td>30</td>
</tr>
<tr>
<td>Information Systems Audits</td>
<td>5</td>
</tr>
<tr>
<td>Audits in Process as of December 31, 1998</td>
<td>19</td>
</tr>
</tbody>
</table>

The director also highlights major process changes that are occurring at the University and highlights the involvement of the Internal Audit Office in these changes. Process or system reviews of this nature are not shown in the Internal Audit Office report.
II. EQUITY OF TREATMENT

A. Faculty and Staff

Equity in compensation is addressed at both the unit level and by central administration. Centrally, the Executive Vice President for Academic Affairs conducts an annual Faculty Salary Equity Study to ensure that differences in faculty salaries within each department either fall within certain statistical parameters or are explained by special circumstances. Data are also routinely collected at the department and school levels to track the compensation rates and professional progress of women and minorities. In addition to these efforts by the schools and the Executive Vice President, the Affirmative Action Office and Women’s Resource Office provide ongoing statistical support and data analysis of workforce demographics and trends. To make all of these data analyses more meaningful, Personnel Services is currently revising the human resource information systems and has proposed a comprehensive job classification study. These improved systems would ensure fair job classifications and sufficient data for valid comparisons of job classifications and compensation levels among staff.

Purdue University takes great care in faithfully carrying out procedures regarding promotion and tenure set forth by its faculty through the Faculty Affairs Committee and the University Senate. The University policy on promotion and tenure outlines in detail how a faculty member can successfully move from the rank of instructor through assistant professor, associate professor, and finally to full professor. More recently, promotion of clinical/professional faculty has also been outlined and documented. Included in the document are statements of who sits on the three major committees – primary, school, and University – to judge the worthiness of promotion of the candidate in question. The overall intent is to ensure an equitable and impartial review of a candidate’s accomplishments through a peer review process that allows for important contributions from the candidate.

Examination of the details of the promotion and tenure system at Purdue will reveal a process that is faculty-dominated throughout, from recommendations stemming from departmental primary committees to final decisions made by the University committee. While the Board of Trustees has the power and the responsibility to take final action on promotion decisions, it is unheard of for the Board to reject or reverse a recommendation emerging from our three-tied system.

In addition to the University promotion policy, schools may have additional policies which further detail for its faculty how the promotion system works in their particular units. The School of Liberal Arts, for instance, allows candidates to construct major portions of the document to be used for review, and they have the right to review the completed document with the exception of the confidential parts consisting of letters from the outside evaluators, the vote of the primary committee, and the department head's comments.
Department heads meet regularly with untenured assistant professors in order to inform them fully of what is expected to achieve promotion to the rank of associate professor with tenure. Great care is taken to assure retention of our outstanding faculty. Particular attention is paid to women and minority faculty in order to help them maximize their chances for promotion. Every effort is made for the evaluation to be both rigorous and completely impartial. Faculty retention, promotion, and tenure are carefully tracked, and exit interviews typically are conducted with any faculty who leave before achieving the rank of associate professor.

In order to refine and expand current efforts to ensure an equitable learning and working environment, Purdue's President has appointed and charged a number of task forces to explore the special needs and concerns of various groups. The Task Force on Women's Issues prepared a report addressing gender issues among University students, faculty, and staff ("The Status of Women at Purdue", 1997). Similarly, reports have been prepared on issues of race and ethnicity ("Barriers to Bridges: The Purdue University Plan for Enhancing Diversity", 1997), non-mandatory retirement ("The Impact of Purdue University on the Elimination of Mandatory Retirement for Tenured Faculty", 1992), and non-family issues ("Work & Family Issues Task Force: Report to the President", 1995).

The Office of Human Relations, including the Women's Resource Office, the Affirmative Action Office, the Diversity Resource Office, and the Spousal Relocation Program, provide leadership to ensure that the reports are fully utilized as a useful tool for positive change.

B. Students

Within the contexts of reasonable and fair play, the University makes a concerted effort to guarantee the rights of students embedded in the United States Constitution and legislative mandates. Students do not shed their citizenship rights when they enter Purdue University. To the contrary, assuming they conduct themselves as responsible citizens, they are accorded all rights reflected in the following University policies and procedures which adhere to all relevant legal mandates as well as the spirit and intent of their provisions:

- Bill of Student Rights;
- complaints under the Bill of Student Rights;
- rights and privacy concerning student educational records;
- antiharassment policy and interim procedures;
- nondiscrimination policy statement; and
- rights of students with disabilities.

Dispute resolution systems have been adopted to address complaints and grievances when students believe their rights have been denied or abused (see Section III, pp. 8.7 - 8.8 of this chapter).

The University gives special attention to compliance requirements. Most notable are efforts to make education accessible to students with disabilities through the work of
Adaptive Programs staff who arrange for and monitor classroom accommodations for students. In addition to concentrated efforts to make facilities accessible to persons with disabilities, Tactile Access to Education for Visually Impaired Students (TAEVIS) through braille transcriptions allows blind students to study subjects which were previously viewed as too difficult or considered impossible for visually impaired students. As a result, blind students at Purdue have succeeded in advanced courses in such subjects as biology, chemistry, physics, and calculus.

With the publication of "Removing Barriers" issued by the Office of the Dean of Students, faculty have been informed about their obligations under ADA. Further, each instructor who has a student with a disability enrolled in the instructor's course receives a letter from Adaptive Programs if accommodations are sought and required.

III. DISPUTE-RESOLUTION SYSTEMS

A. Faculty and Staff

Equity in employment requires that any and all parties who feel they have been treated unfairly by colleagues or supervisors be given access to fair and effective grievance procedures. Numerous dispute-resolution processes and procedures that are available to faculty and staff at Purdue. By offering complainants a range of alternatives, the University strives to balance the needs for flexibility of process and predictability of outcomes. The Office of the Executive Vice President for Academic Affairs oversees the University academic grievance system. The Office of the Vice President for Business Services oversees policies and procedures for the resolution of complaints and grievance by staff. These offices in collaboration with the Office of the Vice President for Human Relations monitor dispute-resolution systems that are used on campus to ensure that legal requirements, including the protection of the due process rights of complainants and respondents, are being met.

Procedures to deal with a variety of complaints are available to all academic personnel, including faculty members, tenured and non-tenured, part-time or full-time, and graduate assistants in their roles as academic employees (Executive Memorandum No. C-79 Revised). Administrative and professional staff members who have problems related to their employment are encouraged to discuss such matters with their supervisors. If informal discussion does not resolve the issue to the employee's satisfaction, the employee may file a complaint under the grievance procedures for Administrative and Professional Staff (Executive Memorandum B-37). Clerical and service staff members are encouraged to discuss problems in their employment with their supervisors. If informal discussion does not resolve the issue to the employee's satisfaction, the employee may file a complaint under the grievance procedures for Clerical and Service Staff (Business Manager and Assistant Treasurer's Memorandum 137).

Harassment complaints for students, faculty, and staff are addressed under Purdue's General Antiharassment Policy, (Executive Memorandum No. C-33). This policy addresses harassment in all forms, covering that directed at individuals with legally
protected status for reasons of race, gender, religion, color, age, national origin, ancestry, or disability, as well as those who are harassed for other reasons, such as sexual orientation. There are well-defined and widely-publicized formal and informal procedures and processes in place as set forth in Interim Procedures for Handling Complaints of Harassment. Standardized reporting forms are used to track incidents of alleged harassment.

B. Students

The University promulgates through widely-distributed publications a number of channels for students to follow in seeking to resolve disputes involving such issues as

- exam scheduling conflicts;
- appeals of student residency classifications;
- harassment;
- complaints under the Bill of Student Rights;
- appeals of disciplinary decisions;
- grade appeals;
- student review of education records;
- complaints regarding matters covered by Section 504 of the Rehabilitation Act and by the Americans with Disabilities Act;
- appeals of departmental graduate examination committee decisions;
- appeals of graduate school approved examination committee decisions; and
- appeals of parking and traffic citations.

Although there are wide variations in the processes for dispute-resolution systems, they all strive for basic fairness and for impartiality, confidentiality, privacy, preservation of dignity of disputing parties, promptness of resolution, and effective and equitable treatment. Whenever possible, and with the goal of equitable treatment as a primary focus, provision is made for informal resolution of disputes. However, when appropriate and desirable, formal processes are available and dictate impartial and fair investigation and adjudication.

IV. EFFORTS TO ENHANCE DIVERSITY

Purdue University is committed to maintaining an inclusive community that recognizes and values the inherent worth and dignity of every person and fosters tolerance, sensitivity, understanding, and mutual respect among its members. In pursuit of its goal of academic excellence, Purdue believes that diversity among its faculty and staff strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Over the years, programs and activities to support equity and diversity have been developed in the central administrative offices, academic schools, student affairs, graduate school, residence halls, and the Black Cultural Center. The Office of Human Relations was created in 1991 to provide leadership in these campus-wide efforts to provide an inclusive and supportive environment for all students, faculty, and staff. Administrative units reporting to
the Vice President for Human Relations provide educational programming and individual consultations. They also are advocates for the development and implementation of campus policies and practices that address the special concerns of underrepresented or marginalized groups. The following examples illustrate Purdue’s accomplishments and commitment:

- Purdue-West Lafayette, has the highest African-American and Asian-American graduation rates for undergraduates among Indiana’s public postsecondary institutions;
- Purdue attracts high quality minority students. A longitudinal retention study (1987-88 to 1994-95) revealed that in the entering cohort, 79% of Asian-Americans and 72% of African-Americans were from the upper third of their high school class;
- The School of Liberal Arts Curriculum 2000 has adopted a required core of courses in diversity for all its undergraduates;
- The University has built a new Black Cultural Center; and
- The University’s antiharassment policy, which makes it clear that Purdue does not tolerate harassment or discrimination of any member of its community, is known throughout the campus and well used.

Purdue demonstrates an ongoing commitment to equal opportunity by continuously monitoring policies and practices for recruitment, selection, and hiring of faculty and staff to ensure that they are effective and equitable. The Affirmative Action Office, Personnel Services, and all academic schools work in concert to advertise position openings and to conduct search and screening processes in the most inclusive ways possible. To recruit targets of opportunity (e.g., minorities and women), both the Minority Bridge and Dual-Career Bridge programs, funded through the Executive Vice President for Academic Affairs, have helped attract thirty-two faculty since their inception. These programs and other recruitment efforts have been effective in hiring minority men and women, as reported in Chapter Five of this report.

In addition to ensuring equitable hiring and retention practices, Purdue also commits significant resources to enhancing the campus climate for members of underrepresented groups. The Women’s Resource Office, the Diversity Resource Office, the Affirmative Action Office, the Black Cultural Center, and many academic departments strive to provide a supportive environment through special programming and support services. Individual consultations, special events and programs, newsletters, directories, and special-interest web sites are made available to all students, faculty, and staff. For example, the Diversity Resource Office maintains WebMECA, a recently introduced electronic resource, providing extensive information on racial and ethnic affairs. The Affirmative Action Office provides numerous informational publications such as “Removing Barriers for Faculty and Staff” that address the special needs of employees with disabilities. A new assistant director in the Affirmative Action Office is responsible for services to faculty and staff with disabilities. The Women’s Resource Office provides a regularly updated Women’s Resource Office Directory, a bimonthly newsletter, and a variety of informational pamphlets to educate the campus community about resources available to support women students, faculty, and staff.
In addition, substantive coursework in undergraduate and graduate classes, professional development and training sessions, and a variety of written materials are provided to sensitize our students and staff to race, ethnicity, sexual orientation, and gender issues. Topics covered include harassment, discrimination, communication, conflict resolution, and sexual assault prevention.

Further examples of educational initiatives include: (1) three-day workshops for faculty and staff on gender, racial, and cultural sensitivity (sponsored by the Schools of Engineering and the Executive Vice President for Academic Affairs); (2) Classroom Climate Workshops on Race and Gender for faculty and teaching assistants (sponsored by the academic schools, the Executive Vice President for Academic Affairs, and the Office of Human Relations); (3) campus-wide efforts of the "Diversitie," a group of specially-trained faculty, staff, and students who volunteer their time to facilitate workshops on diversity and the negative effects of stereotyping; and (4) the Women’s Resource Office annual speaker series exploring gender-based and gender-sensitive issues for students, faculty, and staff.

Helping members of underrepresented classes feel they are part of a supportive community is a key element in providing a comfortable campus environment. A variety of special events for students, faculty, staff, and community members help build such a sense of community. Programming offered by the Black Cultural Center and the Office of Human Relations, including Women in Touch, Take Our Daughters (and Sons) to Work Day, National Girls and Women in Sports Day, and Campus and Community Roundtables are examples of these programming initiatives. Faculty, staff, students, and community members can come together at these events to explore areas of common interest or concern and to be supported as they face personal and professional challenges. Mentoring opportunities, such as the programs offered by the Women in Engineering program and Women in Science program, also provide invaluable support and outreach for both students and faculty.

In addition to personal support and community building, institutional responses to campus climate issues are addressed by a variety of special campus-wide committees, such as the INCSAP Campus Sexual Assault Prevention initiatives, the NCAA Subcommittee on Equity, Purdue Child-Care Committee, Alternative Worksites Task Force, Council on the Status of Women, and Partners in Prevention (sexual assault prevention). Many of these committees improve retention by helping students, faculty, and staff feel they are supported by fair, responsive, and effective University policies and procedures.

V. INTERCOLLEGiate ATHLETICS AND STUDENT-ATHLETES

In 1895, Purdue’s President James Smart recognized the importance of bringing athletics under institutional control and within the scope of the educational mission of the institution. In the same year, he gathered like-minded presidents from several major institutions in the Midwest at a meeting in Chicago, Illinois, where the Big Ten Conference was born. From that time forward, Intercollegiate Athletics at Purdue has been under the shared control of the Board of Trustees, the President, the faculty representative(s), the athletic director, and appropriate internal offices such as business, registrar, financial aid and admissions. The University Senate created the Athletic Affairs Committee in 1966. The Department of
Intercollegiate Athletics agrees with and adheres to the NCAA Principles of Institutional Control.

The relationship of the Department of Intercollegiate Athletics to the faculty, Athletic Affairs Committee, President, and Board of Trustees is indicated below:

```
Board of Trustees
| President
---|---
| Faculty Athletics Representatives
| Athletic Affairs Committee
---|---
| Athletic Director
---|---
| Sr. Adm. Staff
| Head Coaches
| Captains' Table
| Work Teams
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The Athletic Affairs Committee consists of 18 members plus the compliance officer. Nine members are faculty, two are students, three are alumni or community representatives, and four are intercollegiate athletic administrators. In addition to vesting oversight of Intercollegiate Athletics in the Athletic Affairs Committee, Purdue is also a member of the Big Ten Conference and the National Collegiate Athletic Association. Intercollegiate Athletics, therefore, operate under University, conference, and NCAA rules.

The Athletic Affairs Committee acts in an advisory capacity to the athletic director, the faculty athletic representatives, and the President. It approves athletic schedules, establishes academic rules for student-athletes, acts on waivers of established rules, monitors missed class days for student-athletes, and recommends and approves study plans for waivers of established rules. The committee meets with the President at least once each year, receives reports from various constituents, discusses and makes recommendations concerning NCAA and Big Ten legislation, meets with coaches to discuss academic expectations, reports yearly to the University Senate, and develops and recommends rules/policies as needed. Members serve on ad hoc committees as requested by the President or athletic director and serve on search committees. The faculty athletic representatives meet as needed with the President and the athletic director and his/her staff. They approve athletic documents for the Big Ten and NCAA, write waiver petitions, and participate in any rules violation fact-finding and resolution.

Purdue recently prepared a self-study report for NCAA certification. Members of the Athletic Affairs Committee prominently served on the self-study subcommittees and chaired several of them. The report has been submitted, the certification team has conducted its site visit, and the University’s Intercollegiate Athletic program has been certified.

8.11
The Department of Intercollegiate Athletics has developed a mission statement and set for itself both athletic and academic goals for student-athletes. These goals are reviewed with staff and student-athletes on a yearly basis. Progress toward academic and athletic goals is being made each year. The athletic program has moved up in the Sears Cup evaluation, and the graduation rate for student-athletes continues to approach that of the student body. It is expected that it will meet and then pass that of the student body in the near future. The student-athlete GPA has already met the student body GPA and has surpassed it for one semester. The development of strong academic support programs has been an important component in student-athlete success. Coaches know that they will be rewarded for progress toward both academic and athletic goals. Equity in salary has been and continues to be reviewed. All these factors led to the improvements seen.

One of the goals of the Department of Intercollegiate Athletics is to meet the spirit and intent of Title IX. The Big Ten set a goal of 60% men to 40% women, which has been met by most Big Ten institutions. Purdue has been adding women's sports and controlling squad sizes in a judicious manner to meet this goal. With the addition of women's soccer, we are very close to meeting the percentage of men to women on our campus without cutting men's athletic opportunities. It is then our objective to add both women's and men's sports so as to maintain agreement with the undergraduate campus ratio — currently 58% male and 42% female. Other equity areas for improvement were outlined in the NCAA self-study and are being addressed. These include better visualization of men and women student-athletes in public areas and continued monitoring of availability of equitable medical and training services.

Another goal of the Department of Intercollegiate Athletics is to diversify its staff at all levels. While this is being accomplished throughout the department, it still needs continual effort. In response to the recommendation of the NCAA accreditation team, a more detailed equity plan has been prepared.

The Department of Intercollegiate Athletics has developed or made available a number of publications for internal use as well as a wealth of publications for external use and for recruiting. Internal publications of note include the Student Athlete Handbook, The Compliance Handbook for Coaches, Athletics Policies and Procedures Manual, Big Ten Conference Handbook, and the NCAA Manual. Most of the internally-produced publications of this nature are used for recruiting student-athletes. These include media guides for various sports and game or match programs. In addition, the Office of Admissions and the schools produce some external publications used for recruiting of prospective students. All of these publications represent the institution fairly and honestly.

VI. COMMUNICATIONS WITH AND COMMITMENTS TO PROSPECTIVE STUDENTS

Purdue University seeks to attract and enroll qualified students. The practices it employs to provide educational opportunities for students are guided by the Statement of Principles of Good Practices prepared by the National Association for College Admission Counseling. This document promulgates ethical principles and practices to which the Office of Admissions adheres tenaciously. Because of the high quality of Purdue’s programs, there is
to need to make exaggerated claims in advertisements, and there is every reason to avoid fraudulent inducements and deceptive practices in its recruitment efforts.

All of Purdue practices are guided by the Statement of Nondiscrimination, which dictates that admission of applicants will be directly related to academic performance, ability, and motivation. The University applies uniform admission standards by program of study without regard to an applicant's nonacademic interests.

Publications used in the course of admission efforts are scrutinized for accuracy to avoid any misrepresentations.

VII. CONTRACTUAL ARRANGEMENTS AND OTHER BUSINESS RELATIONS WITH VENDORS

The Bylaws of the Trustees of Purdue University, Article VII, define instruments or contracts requiring specific approval and authorization of the Board. Executive Memorandum No. C-10 delegates contract administration to the Executive Vice President and Treasurer. The University Contracting Group, established within the last few years, provides oversight and management of Purdue University contracting and subcontracting activities. This group consists of a team of professionals that provides a platform for consistent contracting practices throughout the University. They have hands-on responsibility for the timely and efficient negotiating and processing of certain contracts and provide guidance, expertise, and advice to University staff delegated contracting authority through the Vice President and Treasurer Memorandum A-19.

The Purchasing Department is responsible for assisting individuals and departments in making the best product selection in terms of quality and price. Purchases must adhere to the University's policies and procedures, as well as those required by state and federal governments. Policies and procedures are outlined in the Purchasing Policies and Procedures Manual, the Business Procedure Manual, and A Guide to Purchasing Services. Purdue University requires adherence to the principles and standards promulgated by the National Association of Educational Buyers (NAEB).

As a public institution receiving both state and federal funding, Purdue University is obligated to maintain a competitive procurement environment. Situations involving single source transactions or accepting other than the lowest bid must be explained in a way that will withstand the scrutiny of audit. Explanations must accompany the procurement requisition.

Potential conflicts of interest are defined in Executive Memorandum No. C-1 and C-39. Final approval of all potential conflicts of interest, in accordance with Indiana Code, must be evaluated by the Board of Trustees. If the Board of Trustees finds that a situation involves a conflict of interest which in its opinion would be unlawful, detrimental to, or not in the best interests of the University, the officer or employee involved will be required to discontinue or divest himself/herself of the outside interest creating the conflict.

8.13
Employment contracts are completed upon acceptance of a position at Purdue University. Each member of the faculty and the administrative and professional staffs is required to sign an agreement of appointment governing the terms and conditions of employment. Details about employment and termination are in Executive Memoranda B-50 (faculty) and B-55 (administrative/professional staff).

VIII. UNIVERSITY ROLE IN AUXILIARY ENTERPRISES

At Purdue University, auxiliary enterprises are established in funds 200 through 250, along with service departments and some other recharge centers. All University departments, whether auxiliary or otherwise, must comply with relevant Executive Memoranda, the Business Procedure Manual, the Cash Handling Manual, and all other University policies and procedures. The Business Procedure Manual is published to aid Purdue University staff in complying with various business-related University policies and procedures. Although, it is primarily a "how-to" document, many policy statements have been included. In addition, certain auxiliary enterprises such as Intercollegiate Athletics are subject to additional external regulation including, but not limited to, the requirements of the National Collegiate Athletic Association.

The University complies with the American Institute of Certified Public Accountants (AICPA) audit guide, "Audits of Colleges and Universities." This industry audit guide presents recommendations of the AICPA Committee on College and University Accounting and Auditing on the application of generally accepted auditing standards to audits of financial statements of colleges and universities. This guide also presents the committee's recommendations on and descriptions of financial accounting and reporting principles and practices for colleges and universities. The Indiana State Board of Accounts, the University's independent auditor, audits the University annually for compliance with these standards.

IX. RELATIONS WITH INDIVIDUAL AND CORPORATE DONORS, ALUMNI, LEGISLATORS, AND OTHER GROUPS SERVED BY THE UNIVERSITY

Purdue has many vehicles for communicating both process and policy issues to its constituencies so that the institution's relationships with donors, alumni, legislators, and other groups are maintained with the highest integrity.

The University Development Office (UDO), under the Vice President for Development, acts as the central clearinghouse for Purdue's main and regional campuses for policy development and gift processing and recording functions related to private donations. Other functions of this office relate to planned and leadership gift solicitation, corporate and foundation relations, and event planning and management. This office coordinates the development function at Purdue and provides resources and information relevant to private fundraising to the entire University community. In addition, each school, regional campus, and many academic departments and non-academic units employ their own development staffs to focus on alumni affairs and private philanthropy for their respective area.
The University Development Office maintains a policy manual that outlines the standard processes for handling donations, processing gifts, and defining stewardship expectations. Additional UDO publications targeted to external constituencies both clarify those policies and establish appropriate expectations for donors and potential donors. Examples include the Endowment Report, the President's Council brochure, the President's Council Report, and the planned giving brochure. Reports, guidelines, and publications produced in the various units around campus complement and reinforce the general policies. Solicitation reply cards and other written material provide appropriate instructions for donors about the mechanics of making a gift.

Stewardship of gifts is one of Purdue University's highest priorities, and each gift is recorded into one of over 8000 special gift accounts which are overseen by both the Office of Sponsored Program Services and the gift processing area of UDO. Purdue's internal audit function also ensures that gifts are used according to the terms established at the time the gift is made. To help donors understand where their gift is to be used, the applicable gift account is recorded on the gift receipt sent to the donor. Another check and balance involves the business administrators (BA) and school development officers (SDO) in the individual units. The BAs oversee the general ledger information, and the SDOs oversee the integrated gift chart of accounts, a virtual system that ties the general ledger system to the gifts received and pledged.

Proposals, publications, and other material sent to internal and external constituencies must go through a complicated approval process, starting in the unit of origin. School and unit staff ensure that material is approved by the dean or director of that area. Additionally, internal and external publications are often produced jointly with the central Office of Publications (OOP), which reports to the Vice President for University Relations. Most grant proposals are processed through the Office of Sponsored Program Development. Having both central and unit-based involvement in the creation and processing of these documents ensures that the information provided is accurate and credible.

Reaching Purdue's multiple constituencies is an important function that is handled by all areas of the University. The University Relations area oversees the production of a number of communication vehicles targeted to those constituencies, including Inside Purdue for Purdue faculty and staff and Perspective for alumni and friends. It also distributes weekly news releases and maintains the Purdue site on the World Wide Web. Fundraising campaign brochures are produced jointly by OOP and UDO. The University Relations office has also created guidelines for Purdue staff when interfacing with the media, and in conjunction with the Executive Vice President and Treasurer's Office, produces an annual financial report. A Presidential VIP letter is mailed directly to over 800 people monthly.

In addition to newsletters, research and annual reports, and other publications produced by the schools and units, the Purdue Alumni Association distributes The Alumnus Magazine to its nearly 60,000 members, and the John Purdue Club distributes Gold and Black Illustrated to its 7200 members. The Office of State Relations produces Impact, which is targeted at state legislators.
X. RELATIONS WITH OTHER INSTITUTIONS OF HIGHER EDUCATION

As one of the nation’s leading research institutions, Purdue is among the sixty-two invited members of the prestigious Association of American Universities. Purdue University is fully accredited by the appropriate regional and professional accrediting agencies. As an active participant in the higher education community, Purdue belongs to all appropriate national associations, in which many of its administrators and faculty members play leadership roles. President Steven C. Besing is a past president of the Association of American Universities.

Purdue is also a member of the Committee on Institutional Cooperation (CIC) – the academic association composed of the Big Ten institutions and the University of Chicago. The programs and activities of the CIC extend to all aspects of University activity except intercollegiate athletics. Three founding principles have guided the CIC’s policies and governance: that no single institution can or should attempt to be all things to all people, that inter-institutional cooperation permits educational experimentation and progress on a scale beyond the capability of any single institution acting alone, and that voluntary cooperation fosters effective, concerted action while preserving institutional autonomy and diversity. Institutional CIC representatives meet three times during the year to establish CIC guidelines and procedures, discuss proposed initiatives, evaluate existing programs, and address collective concerns and policy issues. The CIC also sponsors meetings of chancellors, deans, graduate advisors, language coordinators, and other peer groups where information can be shared and common concerns discussed.

In addition to information sharing, the CIC fosters model programs that can be applied and adapted to the needs and circumstances of individual universities. For example, the Alliances for Expanded Study in Overseas Program was established in 1997 by the study-abroad directors as a mechanism by which CIC students can have preferred access to selected study-abroad programs offered by CIC universities. This program is especially helpful in sustaining high-quality but low-demand programs while broadening the range of study-abroad opportunities for students. Another example is the Center for Library Initiatives, established in 1994 to accelerate the CIC libraries’ progress in making the full information resources of the CIC available to all CIC members. A related development is the Information Technology Directorate, established in 1997 to focus an cooperative work in learning technology, high performance computing, administrative information systems, networking, academic computing, and supporting technologies such as videoconferencing, computer security, and virtual reality machines. It should be noted that the CIC established a Summer Research Opportunities Program to interest minority undergraduate students and prepare them for graduate school in 1986, and the Women in Science and Engineering initiative in 1992.

XI. INTEGRITY IN RESEARCH

Integrity in research is an essential component of Purdue University’s intellectual and social structure, and rigorous adherence to its spirit and principles are expected of all faculty, staff, and student scholars. These principles include commitment to truth, objectivity, fairness, honesty, and free inquiry.
Executive Memorandum C:22 establishes Purdue University's policy on integrity in research, provides guidance on the appropriate response to concerns of potential research misconduct, explains the principles guiding response to incidents of alleged research misconduct, and sets forth procedures to be followed in any instance of alleged misconduct.

Following the standard of federal policy, Purdue defines "research misconduct" as fabrication, falsification, plagiarism, or other practices that seriously deviate from those that are commonly accepted within the scientific and academic community for proposing, conducting, or reporting research.

One of the greatest challenges in promoting and ensuring integrity in research is to create and sustain a campus environment in which topics in research ethics are discussed freely and openly in the classroom and laboratory and are frequently the subject of dialogue between faculty mentors and their students, staff, and postdoctorals. Also critical is an environment in which all members of the campus community are aware of University policy and procedures for dealing with concerns and allegations of misconduct. All faculty, staff, and students must feel confident that their concerns will be dealt with professionally and promptly, and that their rights and reputation will be protected as long as they express concerns in good faith. Thus, one of the most important aspects of preserving integrity in research is communication and training of the members of the campus community.

Because of the critical importance of integrity to the campus research enterprise, Purdue's policy on integrity in research is described in the University's Faculty and Staff Handbook, and in presentations on research integrity are made by the Research Integrity Coordinator each academic year during orientation for new faculty and graduate students. As required by conditions of the grant award, courses focused on research ethics are included as components of the curriculum for all graduate students supported by NIH training grants. Numerous other courses or classes on topics in research ethics are included in the curricula of the various undergraduate and graduate degree programs. During 1997-98, the Executive Vice President for Academic Affairs (EVPA) provided financial support for a year-long series of colloquia on the responsible conduct of research sponsored by the Administrative Professional Staff Advisory Committee (APSAC).

The Academic Reinvestment Program of the EVPAA provided support to the Purdue University Biotechnology Institute to sponsor the first session of a summer Bioethics Institute for Purdue faculty. This institute provided an intense, week-long immersion in the principles and instruction of bioethics for a group of faculty teaching courses in the life sciences. In return for participation in the institute, each faculty member committed to integrate topics/assignments related to bioethics in existing undergraduate and graduate courses. Six months following the institute, the participating faculty re-assembled to share their experiences. A number of bioethics case studies developed by participating faculty were published for broader impact. In recognition of the originality and quality of the Bioethics Institute's curriculum, the NSF funded a grant to continue the institute for an additional two years.
A. Human and Animal Research Subjects

1. Human Research Subjects

Purdue University has a long-standing commitment to protection of the safety, welfare, and rights of human research subjects. University policies and procedures to assure this protection and compliance with relevant federal regulations concerning the use of human research subjects are described in Executive Memorandum B-45 and Multiple Project Assurance No. M-1162.

Prior to initiating the use of human subjects in research, Purdue faculty are required to: (1) prepare a written summary of the protocol for the proposed research; and (2) submit the protocol for review and approval by the Purdue University Committee on the Use of Human Research Subjects. The written protocol must provide sufficient detail to allow the committee to: (1) evaluate risks to the subject; (2) understand how subjects will be recruited; (3) evaluate potential benefits of the research; and (4) evaluate how informed consent will be obtained. The requirement for preparation and review of a protocol holds regardless of whether or not the proposed research is exempt from federal regulation; only the human subjects committee can declare a protocol to be exempt from regulation. Similarly, if the investigator wishes to revise significantly an approved protocol, a written description of the proposed amendment to the protocol must be submitted and approved prior to the implementation of the amendment.

Approval of a protocol for utilization of human subjects is granted for a period of 365 days. Each approved protocol must be reviewed and re-approved at least annually.

Prior to submission of any research proposal to a sponsor, the principal investigator is required to disclose the proposed involvement of human research subjects to Sponsored Program Services. If the proposed project is awarded by the sponsor, the principal investigator will not be granted access to sponsor funds without confirmation of human subjects protocol approval from the Office of Research Administration.

We believe that the University is in full compliance with all relevant federal regulations; that the safety, welfare, and rights of human research subjects are all protected; and that all systems necessary to support sustained compliance are in place.

2. Vertebrate Animal Subjects

Purdue University is committed to maintaining the highest standards of care and welfare for all vertebrate animal subjects used for research purposes.
Use of vertebrate animal subjects for research, teaching and testing by Purdue faculty, staff, and students is guided by the principles and procedures described in Executive Memorandum B-1 and C-21 and Animal Welfare Assurance No. A3231-01.

Prior to initiating any use of vertebrate animal subjects, Purdue faculty wishing to utilize vertebrate animal subjects for research, teaching, or testing activities must (1) participate in a mandatory training session delivered annually by the Purdue Animal Care Use Committee (PACUC); (2) prepare a written description of the protocol for the proposed activity; and (3) submit the protocol for review and approval by PACUC. Similarly, if the faculty member wishes to amend significantly an approved protocol, the proposed written amendment must be reviewed and approved by PACUC prior to initiating the change. Animal use under approved protocols is reviewed annually by PACUC, and the full content of every approved protocol is reviewed triennially.

Prior to submission of any proposal for sponsored research to a sponsor, the principal investigator is required to disclose the proposed involvement of vertebrate animal subjects to Sponsored Program Services. If the proposed project is awarded by the sponsor, the principal investigator will not be granted access to sponsor funds without confirmation of vertebrate animal protocol approval from PACUC.

The quality of animal care and husbandry is assured by

- centralized training and review of qualifications provided by PACUC and Laboratory Animal Program (LAP);
- periodic, unscheduled visits to the facilities by the staff of the LAP;
- formal, unannounced, semi-annual inspections of the facilities by PACUC; and
- periodic, unannounced inspections of the facilities by the U.S. Department of Agriculture/Animal and Plant Health Inspection Service.

The School of Pharmacy and Pharmaceutical Sciences’s vertebrate animal facility is accredited by the Association for Assessment and Accreditation of Laboratory Animal Care, International.

After a March 1998 citation by USDA/APHIS for violation of federal regulations regarding animal welfare, a serious programmatic self-study was undertaken by the University, resulting in revisions in policy and practice.

On February 2, 1999, NIH/Office for Protection from Research Risks (OPRR) notified Purdue that, in acknowledgement of prompt attention and accomplishments in addressing concerns raised about the animal care and use program, OPRR “finds no cause for further action” in the matter.

As a result of the efforts of the PACUC, LAP staff, and Purdue’s faculty, staff, and students, and the recent comprehensive programmatic review and revisions to PACUC policy and procedure, we believe that the University is in full compliance
with federal regulations, that the health and welfare of vertebrate animal subjects are protected, and that systems to support sustained compliance are in place.

B. Administration of Grants and Contracts from External Sponsors

Federal guidelines and regulations governing Purdue University's costing, cost-accounting, and administration of grants, contracts, and other forms of external support for sponsored projects are described in Office of Management and Budget (OMB) Circulars A-21, A-110, and A-133.

As a recipient and sub-recipient of federal funds, Purdue is subject to the audit requirements contained in the Single Audit Act and OMB Circular A-133. The Indiana State Board of Accounts conducts the annual audit of federal awards at Purdue University. For each annual audit,

- an unqualified report was issued on the University's financial statements;
- there were no instances of non-compliance which were individually or cumulatively material to the financial statements;
- an unqualified report was issued on compliance for major programs;
- Purdue University qualified as a low risk auditee; and
- corrective action for any reported audit findings has been taken.

In May 1996, Purdue University submitted its costing policies disclosure to the Division of Cost Allocation, Department of Health and Human Services. In March 1998, Purdue was notified that our disclosure "adequately discloses the cost-accounting practices required to be disclosed by CASB's rules, regulations, and standards, and that those practices are compliant with applicable Government cost accounting regulations."

C. Faculty Businesses and Management of Conflict of Interest

Purdue's policy on outside activities performed by faculty and staff is described in Executive Memorandum B-10. The University's policy on conflicts of interest and commitment is described in Executive Memorandum C-39. Guidance for faculty and staff on procedures to establish a business are provided in the document titled "Faculty-owned and Operated Businesses: Policies, Guidelines, and Procedures" issued in December 1995 by President Beering.

The 1995 document asserts that, if conducted within the framework of University policy, entrepreneurial activities by faculty and staff can be fully aligned with Purdue's instructional, research, and service missions and may be positive influences on students, scholarship, research, and outreach.

Faculty and staff must obtain annual prior approval from the President of the University to engage in outside activities. In addition, all contracts with third parties that involve assignment of rights in intellectual property must be reviewed for potential conflict with
University policy and approved before execution of the contract by the University employee.

If, in the course of the outside activity, certain financial relationships between the University employee, the third party, and/or the University would exist, the employee is required to submit a more complete disclosure of these financial relationships. In addition, if, in the course of the outside activity, a business in which a University employee has a financial interest would enter into a contractual relationship with the University, an additional disclosure (Form C-1) is required by Indiana State Code. If the faculty or staff member, or a business in which they or their family have a significant interest, wishes to license intellectual property owned by the University, or if a faculty member wishes to receive sponsored project support from a sponsor in which the faculty member or their family has a significant financial interest, a full financial disclosure is also required.

Executive Memorandum C-39 provides definitions of conflict of commitment and conflict of interest and provides guidance for the classification of potential forms of conflict of interest. This classification scheme assists University employees and administrative reviewers of requests to engage in outside activity in categorizing risks and concerns associated with various kinds of outside activity and levels of financial interest. Category I activities, such as accepting honoraria for commissioned papers and occasional lectures, are routinely allowable without approval. Category II activities, such as assuming a connection with a professional association, educational institution, or foundation as a trustee, officer, or public representative, are ordinarily allowable following disclosure and approval. Category III activities, such as participating in research on a University technology that is assigned or contractually obligated to a business in which the faculty or staff member may be allowable only after disclosure, review, approval, and oversight. Primary responsibility for review and resolution of potential conflicts of commitment associated with outside activities rests with the department head and dean. However, all requests to engage in Category II and III activities are reviewed by the Assistant Vice President for Research. The goal of this review and oversight is to ensure the integrity and objectivity of the University's instructional and research enterprise. Whenever necessary, situations requiring interpretation of existing policy or development of new policy are reviewed with the Committee on the Management of Outside Activities to achieve resolution.

The University's principal tool for management of potential conflicts of interest is a memorandum of understanding (MOU) between the faculty or staff member and the University. This MOU outlines specific roles, responsibilities, and reporting requirements of the faculty or staff member and individuals charged with oversight of specific aspects of their research or scholarly activity or their interaction with students and other trainees.

To ensure the integrity of the conflict of interest oversight process, the permission to engage in outside activity, Form C-1, and outcome and effectiveness of the oversight for each MOU is reviewed annually and revised or reapproved as appropriate.
D. Management of Intellectual Property

Purdue's policy on intellectual property and the distribution of net proceeds of revenue derived from inventions and copyrightable materials is described in Executive Memorandum B-10.

The Principle of University Ownership states that the University shall own all domestic and foreign rights in and to any and all inventions and materials made or developed by University personnel, either in the course of employment by the University or through the use of facilities or funds provided by or through the University.

Faculty members shall own all rights to materials prepared at their initiative for classroom, educational, or professional purposes, including all royalties from publication or distribution of such materials. As an example of such rights, the policy states that rights to textbooks or laboratory manuals developed on a faculty member’s own time without the use of University facilities or funds would be owned by the author.

Further, the policy states that, even in the case of educational materials developed in the course of University employment, which the University would own, the professional interest of the faculty member and the reputation of the University require that there be adequate mutual control over their use.

To enable the University to evaluate its potential ownership interest in intellectual property developed by University personnel, the policy requires that all intellectual property that may belong to the University be promptly disclosed in writing through the appropriate department head and dean to the Committee on Patents and Copyrights. This body, which is appointed by the President and chaired by the Vice President for Research, determines when the rights in and to intellectual property belong to the University under the policy, whether University personnel shall be entitled to share in the net proceeds of such intellectual property, and what the respective equities of the University and the University personnel shall be.

It is the policy of Purdue University to encourage and recognize the creative efforts of University personnel and to share the financial awards of such efforts on an equitable basis. Thus, as a general principle, the Committee on Patents and Copyrights awards a two-thirds interest in the net proceeds derived from inventions and copyrightable materials to the University and a one-third interest to the University personnel who created the intellectual property. Further, it is the University's practice to distribute the University's two-thirds interest one-half to the administrative unit(s) of the inventor/creators and one-half to the Trask Fund. The Trask Fund, managed by the Purdue Research Foundation, provides grants to faculty to support late-stage applied research and development to increase the commercial value of technology previously disclosed to the University.
The past decade has witnessed a rapid expansion in the application of information technology and new digital media to the research, instructional, and service missions of the University. In recent years, this diverse collection of copyrighted, scholarly creations in digital format has constituted one of the fastest growing components of the University’s intellectual property portfolio. However, this virtual explosion in digital intellectual property has provided a substantial challenge to the University’s position on ownership of intellectual property.

In the summer of 1998, President Bering appointed a task force composed of a mix of faculty and administrators to review the University’s policy on intellectual property in the light of challenges provided by the new digital media. In the late spring of 1999, this task force recommended substantial revision to the language of the Executive Memorandum B-10 to interpret the University’s long-standing policy in the context of newer digital media and to more explicitly address other forms of intellectual property which have become prominent components of the University’s intellectual property portfolio (such as trademarks and non-patented biological materials). In April 1999, the draft revised policy was presented to the University Senate for comment. It is anticipated that following a period of review and comment by the University community during the fall semester, the President will act on the proposed draft revision.

E. Management of rDNA and Other Potentially Biohazardous Substances

Ensuring that everyone is well protected from any danger that could result from the use of hazardous materials in research projects also is a matter of integrity for Purdue. Responsibility for management of recombinant DNA (rDNA) and other potentially biohazardous materials is shared by Purdue’s Vice President for Research and Vice President for Physical Facilities. Review and approval of all research involving rDNA is the responsibility of the Institutional Biosafety Committee, which reports administratively to the Vice President for Research. Management of the Purdue Biosafety Program is the responsibility of the Director of Radiological and Environmental Management (REM), who reports to the Vice President for Physical Facilities.

1. Institutional Biosafety Committee

All research involving rDNA must be performed in compliance with the NIH Guidelines for Research Involving Recombinant DNA Molecules. Accordingly, the University has established an Institutional Biosafety Committee (IBC) and requires that, prior to initiating research involving rDNA molecules, investigators submit a description of the proposed research to the IBC for review, classification, and approval, if approval is necessary.

2. Purdue Biosafety Program

It is the policy of Purdue University to take every reasonable precaution to provide a work environment that is free from recognized hazards for its employees in
accordance with the General Duty Clause of the Indiana Occupational Safety and Health Law (IC 22-8-11.1 Section 2). To implement this policy, REM has established the Purdue Biosafety Program, which is described in the Purdue University Biological Safety Manual. The manual also provides information on work practices, procedures, and policies necessary to ensure the health and safety of individuals exposed to biohazardous agents in the workplace.

Among the services provided by REM in support of campus biosafety at no charge to the investigator are training, biomaterial pickup and disposal, and certification and testing of biological safety cabinets.

F. General Campus Safety and Environmental Management

The Department of Radiological and Environmental Management (REM) serves the University community in the areas of radiation safety, hazardous materials management, industrial and life safety, chemical and laboratory safety, and hazard evaluation. Working as a resource to faculty and staff safety committees, REM is responsible for monitoring compliance with various state, federal, and University regulations involving protection of individuals and property.

For compliance with general industry and construction regulations, the REM industrial hygiene and safety coordination sections provide support in the recognition, evaluation, and control of chemical, biological, physical, and ergonomic hazards in the work environment. REM oversees the hazardous communication (Right-to-Know), asbestos-management, lockout/tagout, and confined-space and laboratory-safety programs. The department provides technical assistance in evaluating exiting and fire safety requirements, heat stress, respiratory protection needs, laboratory safety, ergonomics, hazardous-materials exposure assessment, and indoor-quality problems.

To ensure proper management of surplus and waste chemicals and to comply with environmental regulations, REM provides a hazardous-materials removal service through its hazardous materials management section. In addition, the department provides advice on waste minimization, waste processing, and leak and spill control.

The REM environmental health section provides training on blood-borne pathogens and biohazards and monitors drinking water and food safety as well as other environmental concerns.

For compliance with the Construction Multi-Employer Standards, the construction health & safety section provides support to contractors and University employees. This section also coordinates asbestos/lead sampling and the abatement of these materials.

8.24
G. Management of Radioactive Material and Radiation-Producing Devices

Purdue University's use of radioactive materials and radiation-producing devices in research and instruction is subject to the terms of the University's license from the Nuclear Regulatory Commission. The University's policy and procedures for review and approval of the use of radioactive materials and radiation-producing devices are described in Executive Memorandum B-14.

Before radioisotopes can be purchased for use by any Purdue investigator, the investigator must have a current authorization from the Radiological Control Committee for the use of the specific radioisotope and must have access to space specifically approved for the use of the isotope by the committee. To ensure this strict control of the purchase of radioisotopes, all orders for purchase of radioisotopes are placed by staff of Radiological and Environmental Management (REM), and all incoming shipments of radioisotopes are received and dispensed to investigators by REM.

To further insure the safe use of radioisotopes in Purdue facilities, REM offers training in radioisotope use, requires certification of the qualifications of all individual radioisotope users (faculty, staff, and students), performs periodic spot checks of radioactive contamination in laboratories where radioisotope use is authorized, calibrates survey instruments, monitors personnel dosimetry, and provides pickup and disposal of radioisotope waste. All of these services are provided at no cost to the investigator.

During 1997, in recognition of the increased use of lasers at Purdue University and the resulting potential for laser safety concerns, the Radiological Control Committee recommended the formation of an independent Laser Safety Committee, which was subsequently appointed by the President. The charge to the Laser Safety Committee was to develop guidelines and procedures for the safe use of class 3B and 4 lasers at Purdue University, and this charge has recently been completed.

XII. STRENGTHS AND AREAS FOR IMPROVEMENT

We believe that in every area of Purdue University's operations, our institution has adhered to the highest principles of academic and business integrity, and the University has instituted policies and practices designed to promote the most ethical possible behavior on the part of its faculty, staff, and student body. But in a rapidly changing world, new challenges continually present themselves and demand of the University constant awareness and vigilance to assure maintenance of the rigorous standards that we have established. One or two illustrations should suffice to characterize these challenges.

- The dramatic changes that have taken place in the area of electronic dissemination of information have raised a multitude of questions concerning ownership and fair use of intellectual materials. Purdue is in the process of studying and revising its Executive Memorandum covering patents, copyrights, and related matters in order to assure access of its scholars, teachers, and students to needed information, but at the same time respect
and honor the ownership rights of the producers of such material, avoid faculty conflict of interest, prevent exploitation of graduate students and otherwise police and maintain the integrity of its information systems. The speed with which information technology is changing demands continual monitoring of this difficult area and ongoing awareness of emerging and evolving case law in order that all producers, distributors, and users of such materials be treated with fairness and integrity.

- The reduction in the proportion of its budget supplied by the state has forced an increased reliance on the part of the University on private sources of revenue to support its operations. This means greater efforts at fund-raising among its alumni and friends, more involvement of faculty and staff at every level in the University's development efforts, and increased reliance on federal and corporate contracts and grants to support research and instructional efforts. In all fund-raising activities, it is necessary to maintain the highest standards of personal and professional conduct regarding commitments made in the name of the University and in assuring that outside agencies not be placed in positions of undue influence over academic activities.

- Finally, despite all efforts at recruitment, retention, and inclusion of underrepresented groups in its faculty, staff, and student body, much remains to be done. It is not unusual for members of these groups to express feelings of being isolated, of being unwelcome, of being "strangers in a strange land." It is essential for the University and for the members of all its constituencies, as well as for members of these groups, that these feelings be dispelled and abolished. It is not enough that the University assures itself that all possible steps are being taken to guarantee that all members of its family feel themselves full and equal members of the community. It is essential that minority and underrepresented group members share this perception. Therefore, our challenge is to continue and to expand our efforts in this area and demonstrate an ever-higher standard of integrity in our commitment to true inclusiveness.
CHAPTER NINE

GENERAL INSTITUTIONAL REQUIREMENTS

Mission

1. It has a mission statement, formally adopted by the governing board and made public, declaring that it is an institution of higher education.

The University’s mission statement has been approved by the Trustees and affirms that “Purdue University is Indiana’s land-grant university”. Statements concerning Purdue’s mission appear in numerous University publications and are submitted periodically to the Indiana Commission for Higher Education.

2. It is a degree-granting institution.

Purdue awarded its first bachelor’s degree in 1875 and its first Ph.D. in 1897. Currently, the West Lafayette campus awards degrees at the associate, baccalaureate, masters, specialist, and doctoral levels.

Authorization

3. It has legal authorization to grant its degrees, and it meets all the legal requirements to operate as an institution of higher education wherever it conducts its activities.

Purdue University was established by the State of Indiana in 1865 (Indiana Code 25-12-35). Its degree granting authority is accorded by the state and acknowledged by the Indiana Commission for Higher Education, which has final authority for approving all new degree programs offered by public colleges and universities in Indiana. Purdue meets all of the legal requirements to operate as an institution of higher education everywhere it offers courses and degree programs within as well as outside Indiana.

4. It has legal documents to confirm its status: not-for-profit, for-profit, or public.

The Trustees of Purdue University qualifies as a tax-exempt organization under section 115 of the Internal Revenue Code. It also qualifies as a 501 (c) (3) tax-exempt organization as certified by the Internal Revenue Service in December 1935. (Indiana Code 20-12-35-2)

Governance

5. It has a governing board that possesses and exercises necessary legal power to establish and review basic policies that govern the institution.

9.1
The Trustees of Purdue University is a body corporate created by the General Assembly of Indiana in 1865 under the name “The Trustees of Purdue University.” Its powers and duties, which include establishing and reviewing basic policies governing the institution, are statutorily defined (Indiana Code 20-12-1-2).

6. Its governing board includes public members and is sufficiently autonomous from the administration and ownership to assure the integrity of the institution. Purdue’s governing board is completely autonomous from the University administration, for all ten members, including the three who are selected by the Purdue University Alumni Association and the one who must be a full-time Purdue student, are appointed by the governor (Indiana Code 20-12-37). The current members of the Board of Trustees are as follows:

*** Michael J. Binck  
Barbara H. Edmondson  
John A. Edwardson  
Lewis W. Essex  
*** John D. Hardin, Jr.  
* J. Timothy McGintley  
D. William Moreau, Jr.  
Mammon M. Powers, Jr.  
**** Amanda S. Teder  
** W. Wayne Townsend

* Chair of the Board  
** Vice Chair of the Board  
*** Alumni Trustee  
**** Student Trustee

Hinedale, Illinois  
Clayton, Indiana  
Wilmette, Illinois  
Columbus, Indiana  
Danville, Indiana  
Indianapolis, Indiana  
Indianapolis, Indiana  
Valparaiso, Indiana  
West Lafayette, Indiana  
Hartford City, Indiana

7. It has an executive officer designated by the governing board to provide administrative leadership for the institution.

The President of Purdue University, the institution's chief executive officer, is appointed by the Board of Trustees. Steven C. Beering has held this position since 1983. Authority to manage, direct, and conduct the affairs of the University subject to the control of the Board is granted to the President through the Bylaws of the Trustees of Purdue University. (Article VI. Section 1.)

8. Its governing board authorizes the institution’s affiliation with the Commission.

Purdue University has been accredited by the North Central Association since 1913. The Trustees regularly affirm Purdue’s relationship with NCA through the payment of annual dues and participation in the reaccreditation process.
Faculty

9. It employs a faculty that has earned from accredited institutions the degrees appropriate to the level of instruction offered by the institutions.

West Lafayette faculty exceed the North Central Association threshold for meeting this requirement, for over 85% have earned doctoral degrees from appropriately accredited universities.

10. A sufficient number of the faculty are full-time employees of the institution.

Ninety-six percent (96%) of the West Lafayette faculty hold full-time appointments at Purdue.

11. Its faculty has a significant role in developing and evaluating all of the institution's educational programs.

Purdue faculty develop and are involved in the approval of all of the University's courses and curricula. They also continually review and evaluate the appropriateness and effectiveness of all on-campus as well as off-campus programs of study. Through clearly defined governance structures and review processes, faculty and administrators working together have oversight responsibility for all of Purdue's educational offerings.

Educational Program

12. It confers degrees.

Purdue confers degrees at the conclusion of the fall and spring semesters each year as well as at the end of the summer session. In 1997-98, 7723 associate, baccalaureate, masters, specialist and doctoral degrees were awarded by the West Lafayette campus.

13. It has degree programs in operation, with students enrolled in them.

During the 1998 fall semester, 38,757 on-campus and off-campus students were enrolled in nearly 200 Purdue - West Lafayette campus degree programs.

14. Its degree programs are compatible with the institution's mission and are based on recognized fields of study at the higher educational level.

The Purdue University mission statement includes the following: "Purdue offers the only public university programs in Indiana in agriculture, engineering, pharmacy, and veterinary medicine. It also offers programs in the liberal arts; physical, life, computer, and mathematical sciences; consumer and family sciences; education; management; nursing; health sciences; and technology." All of the University's degree programs are within these parameters, and all are in fields of study that are appropriate for a major land-grant university to offer.
15. Its degrees are appropriately named, following practices common to institutions of higher education in terms of both length and content of the programs.

All of Purdue’s degree designators and degree programs conform to nationally accepted standards.

16. Its undergraduate degree programs include a coherent general education requirement consistent with the institution’s mission and designed to ensure breadth of knowledge and to promote intellectual inquiry.

Baseline expectations for student learning in general education as well as the major are described in the West Lafayette campus “Student Learning Outcomes Statement.” Each undergraduate degree program, therefore, includes an appropriate general education core. The specific courses or clusters of courses comprising this core are determined by school faculty and are listed in each school’s catalog.

17. It has admission policies and practices that are consistent with the institution’s mission and appropriate to its educational programs.

Admissions policies and practices for West Lafayette campus undergraduate, graduate, and professional programs are appropriately selective, consistent with the University’s mission, and clearly described in several widely distributed University publications.

18. It provides its students access to those learning resources and support services for its degree programs.

The West Lafayette campus provides its undergraduate, graduate, and professional students a vast array of learning resources and support services to help them succeed in the degree programs in which they enroll. Further information about these resources and services is included in Chapter Five.

Finances

19. It has an external financial audit by a certified public accountant or a public audit agency at least every two years.

The State of Indiana Board of Accounts conducts a yearly financial audit and certifies the University’s annual financial reports.

20. Its financial documents demonstrate the appropriate allocation and use of resources to support its educational programs.

The University’s financial documents demonstrate that the resource allocation at Purdue reflects institutional needs and priorities.
21. Its financial practices, records, and reports demonstrate fiscal viability.

Purdue University's financial records and reports are in conformance with the Generally Accepted Accounting Practices and Requirements of the Governmental Accounting Standards Board. The annual Financial Report is audited by the State Board of Accounts.

The University's fiscal viability is supported by its long-term credit rating of Aa2 (Moody's) and AA (Standard and Poor's) of the University's student fee bonds. The University also maintains a short-term credit rating of Aa/VfIG1 (Moody's) and AA/A1+ (Standard and Poor's).

Public Information

22. Its catalog or other official documents include its mission statement along with accurate descriptions of its educational programs and degree requirements; its academic calendars; its learning resources; its admission policies and practices; its academic and non-academic policies and procedures directly affecting students; its charges and refund policies, and the academic credentials of its faculty and administrators.

Information about each of these items can be found in at least one of the following University publications: school catalogues, "University Regulations", "Faculty and Staff Handbook" and Office of Admissions and Graduate School publications.

23. It accurately discloses its standing with accrediting bodies with which it is affiliated.

Information about school and program accreditation is included in school catalogs and "Purdue University: Facts at Your Fingertips." Accredited schools/programs at the West Lafayette campus include the following: Accreditation Board for Engineering and Technology, Inc. (Aeronautics and Astronautics, Agricultural Engineering, Chemical Engineering, Civil Engineering, Computer and Electrical Engineering, Computer Integrated Manufacturing Technology, Construction Engineering, Electrical Engineering, Electrical Engineering Technology, Industrial Engineering, Materials Engineering, Mechanical Engineering, Mechanical Engineering Technology, Nuclear Engineering, Surveying Engineering) • Accreditation Commission for Programs of Hospitality Administration (Restaurant, Hotel, Institutional, and Tourism Management) • American Animal Hospital Association (Veterinary Medicine) • American Assembly of Collegiate Schools of Business (Kaner Graduate School of Management and School of Management) • American Association of Marriage and Family Therapy (Marriage and Family Therapy) • American Association of Veterinary Laboratory Diagnosticians (Animal Disease Diagnostic Laboratory) • American Chemical Society (Chemistry) • American College of Veterinary Surgeons (Residency Program in Surgery — School of Veterinary Medicine) • American Council for Construction Education (Building Construction and Contracting) • American Council on Pharmaceutical Education (Pharmacy and Pharmaceutical Sciences) • American Dietetic Association (Coordinated Dietetic Program) • American Psychological Association (Clinical Psychology) •
American Society of Landscape Architects (Landscape Architecture) • American Speech-Language and Hearing Association (Audiology and Speech Sciences) • American Veterinary Medical Association (Doctor of Veterinary Medicine and Veterinary Technology) • Council for Accreditation of Counseling and Related Educational Programs (Counselor Education) • Federal Aviation Administration (Aviation Technology) • Foundation for Interior Design Research (Interior Design) • Indiana Department of Education (Teacher Education) • Institute of Food Technologists (Food Science) • Joint Commission on Accreditation of Health Care Organizations (Purdue University Student Health Center) • National Association of Schools of Theater (Theatre) • National Athletic Trainers Association (Athletic Training) • National Council for the Accreditation of Teacher Education (Teacher Education) • National League for Nursing (Nursing) • Society of American Foresters (Forestry and Natural Resources)

24. It makes available upon request information that accurately describes its financial condition.

Purdue University publishes its Financial Report annually, and it is a matter of public record. The report is available to the public upon request through the Office of the Vice President for Business Services and Assistant Treasurer.
CHAPTER TEN

FACING THE FUTURE

The members of the faculty, staff and student body who have been involved in the conduct of this self-study find themselves, at this juncture, many months older and a good deal wearier than we were when we began the effort. But we think we are also wiser than we were when we started, about Purdue University in particular and higher education in general. The tasks of conducting the study and constructing its report have forced all of us to look far beyond the boundaries of our own academic disciplines and administrative units, and to see ourselves and our colleagues as parts of a huge, complex and highly interactive organization with a great range of goals and functions.

We trust we have effectively made the case in this report that, while Purdue has many constituencies and publics pursuing a rich variety of ends, all of them are bound together by a vision of this institution that is deeply grounded in its historical mission and unified by a shared set of aspirations for the future. The people of Purdue follow many professional callings and practice many skills, arts and crafts in order that their University may fulfill its basic obligations: to discover and create new knowledge; to disseminate this knowledge through every possible traditional and innovative channel; to preserve this knowledge and make it widely and readily accessible; and to apply it in ways that will benefit all society, global as well as local. In doing all these things, it is the University’s goal to provide instruction that will make its students life-long learners and accomplished practitioners of a multitude of professions and to instill in them attitudes that will help them be more effective citizens of their communities and their world.

Although our vision of the future inevitably involves novelties of concept and technique undreamed of just a few decades ago, little, if anything, that we do is truly discontinuous with the past. Since we are part of a coherent and steadily evolving institution, we understand that we can learn much about our future by examining where we have been and what we have done. And that is part of the point of this self-study exercise. As we stand Janus-like at this fulcrum-point of two millennia, the self-study can help us understand how the past will help shape the future and permit us to set the most lofty possible goals for ourselves and our successors.

In research: A look at the past decade discloses the ever-increasing complexity of the problems being studied and the growing sophistication of the tools and the methods being employed. In many of these programs of research, we clearly see the need for contributions from representatives of a variety of disciplines. Purdue expects to meet this challenge by trying to remove any remaining administrative and financial barriers that have heretofore tended to frustrate and inhibit some of our interdisciplinary efforts.

In instruction: The vast array of new information and communication technologies of the past twenty or more years has prompted the application in the classroom of scores of novel instructional methods making use of these technologies. Our twin challenges for the future are first, to be responsive to the expressed needs of our faculty and students by providing the
technological tools that will enhance their efforts in teaching and learning, and second, to guard against the development of a fascination with these tools so great that the mere delight in their use eclipses what is far more fundamental to the process of education: a commitment to deal with and explore the great ideas that underlie our and other cultures and civilizations.

In diversification and democratization: We have made great strides in the past ten years in diversifying the gender, racial and national composition of our University community. At the same time, we have modified the decision-making processes at all levels of the institution to insure their inclusiveness and democratic character. In the future, our tasks will be 1) to make diversity so inherent and natural a part of Purdue University that formal and institutionalized methods to assure it will seem superfluous; and 2) to continue the democratization of the campus so that no member of the Purdue family will ever have reason to feel disfranchised or disempowered.

In globalization: The internationalization of our campus has been one of the great success stories of the nineties. But many additional forms of internationalization await our attention. Just as the papal New Year’s blessings are directed Urbi et Orbi — to the city of Rome and to the world — Purdue’s outreach in the future should increasingly be directed to the world as well as to our local communities.

In physical facilities: The past ten years have witnessed the construction of critically needed new academic and support buildings that have greatly increased our ability to fulfill our mission and pursue our goals. At the same time, the dramatic changes in the landscape of the University have set a new tone for all who work or visit here: a tone that is warm, welcoming and conducive to the most effective and enriching academic and social interactions. But the task is not done. Some academic sectors of the University are still relatively ill-housed, and fulfillment of the campus master plan will continue to require great attention in the face of the pressures of population and increasing vehicular traffic.

In services for students: This report details the array of innovative services that has been introduced to enrich student life and to help students deal with the full range of problems — academic, personal and social — that inevitably occur to a population poised on the knife-edge between adolescence and adulthood. Our challenge is to deepen our understanding of these problems and elaborate our response to them in order to insure present and future success for as many of our students as possible.

In integrity: The requirement of integrity — personal and institutional — underlies all the aspirations indicated above. Supported by true integrity of commitment, no task will be impossible. Without it, all our actions will be for naught.

With this view of the future, we present our self-study for your consideration.
CHAPTER ELEVEN

REQUEST FOR CONTINUING ACCREDITATION

With submission of this institutional self-study, Purdue University formally requests continuing accreditation by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools. Included in the self-study report is our response to the issues raised by members of the 1990 Site Review Team, a fully executed set of General Institutional Requirements, and chapters that address and document our fulfillment of the five principal criteria of the Commission. It is our belief that this report demonstrates our having met all requirements for continuing accreditation.

The self-study represents well over a year's concentrated effort by no fewer than 60 members of our faculty, staff and student body, with additional participation by dozens of other members of the Purdue community who provided both data and perspectives on the many issues the self-study considers. While all who contributed to the research, study, analysis and composition that went into the creation of this document quite naturally have strong loyalty and commitment to Purdue University and its mission and goals, we believe that the document is a fair, honest and objective treatment of the many issues of concern to the University and the Commission.

Despite our full awareness that challenges will always continue to present themselves to an organization as large and complex as ours, and that our work of building and improving will never be done, it is clearly the consensus of all who worked on the self-study that the past ten years have been a time of extraordinary change and achievement. Although some changes have been thrust upon us from without by inexorable societal forces, as they have upon all major educational institutions, many of the improvements in all aspects of Purdue's operations have been the result of proactive planning and implementation by its faculty and administrative leadership working in a cooperative and mutually supportive and reinforcing relationship. We hope that the substance of the self-study reflects this shared commitment to excellence, as well as our dedication to our students, our state and the nation that we serve.
### North Central Association of Colleges and Schools
#### Commission on Institutions of Higher Education
30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2850
(800) 821-7440; (312) 263-0456; Fax: (312) 263-7462

Basic Institutional Data Form A

**PART 1 - FULL-TIME ENROLLMENT (HEADCOUNT)**

Opening Fall Enrollment for Current Academic Year and Previous Two Years

Name of institution/campus reported: Purdue University - West Lafayette

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<th>One Year Prior</th>
<th>Current Year</th>
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</tbody>
</table>

Prepare separate reports for each campus. Please add attachments and additional sheets wherever necessary.

Edition 7, December 1996
# North Central Association of Colleges and Schools
## Commission on Institutions of Higher Education

30 North Lafayette Street, Suite 2100, Chicago, IL 60602-2504  
(800) 621-7440; (312) 263-0656; Fax: (312) 633-7482

## Basic Institutional Data Form A

### PART 2 – PART-TIME ENROLLMENT (HEADCOUNT)

Opening Fall Headcount for Current Academic Year and Previous Two Years

Name of institution/campus reported: Purdue University - West Lafayette

<table>
<thead>
<tr>
<th></th>
<th>Two Years Prior</th>
<th>One Year Prior</th>
<th>Current Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Resident</td>
<td>Extension</td>
<td>Resident</td>
</tr>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree oriented</td>
<td>205</td>
<td>206</td>
<td>164</td>
</tr>
<tr>
<td>(Definition 1, A &amp; B)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupationally</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>oriented</td>
<td>(Definition 1, C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undeclared</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>(Definition 1-0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree oriented</td>
<td>381</td>
<td>36</td>
<td>403</td>
</tr>
<tr>
<td>(Definition 1, A &amp; B)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupationally</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>oriented</td>
<td>(Definition 1, C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undeclared</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>(Definition 1-0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td>463</td>
<td>386</td>
<td>498</td>
</tr>
<tr>
<td>Senior</td>
<td>484</td>
<td>596</td>
<td>596</td>
</tr>
<tr>
<td>Undeclared – temporary</td>
<td>1022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL UNDERGRADUATE</td>
<td>2,166</td>
<td>2,042</td>
<td>2,064</td>
</tr>
<tr>
<td>GRADUATE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master’s</td>
<td>1,042</td>
<td>984</td>
<td>1,017</td>
</tr>
<tr>
<td>Specialist</td>
<td>11</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Doctoral</td>
<td>499</td>
<td>564</td>
<td>513</td>
</tr>
<tr>
<td>TOTAL GRADUATE</td>
<td>2,032</td>
<td>2,085</td>
<td>2,010</td>
</tr>
<tr>
<td>PROFESSIONAL (by degree)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DVM</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Pharm. D.</td>
<td>19</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>TOTAL PROFESSIONAL</td>
<td>11</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>TOTAL ALL LEVELS</td>
<td>4,199</td>
<td>4,138</td>
<td>4,090</td>
</tr>
<tr>
<td>Technology, Statewide &amp; Ext</td>
<td>1,461</td>
<td>1,469</td>
<td>1,499</td>
</tr>
<tr>
<td>TOTAL ALL LEVELS</td>
<td>5,660</td>
<td>5,547</td>
<td>5,589</td>
</tr>
</tbody>
</table>

Prepare separate reports for each campus. Please add attachments and additional notes where necessary.
### North Central Association of Colleges and Schools
Commission on Institutions of Higher Education
30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2708
(800) 821-7460; (312) 263-9456; Fax (312) 263-7442

**Basic Institutional Data Form A**

**PART 3 - FULL-TIME EQUIVALENT ENROLLMENT**

Opening Fall FTE Enrollment for Current Year and Previous Two Years

**Name of institution/campus reported:** Purdue University - West Lafayette

**FORMULA USED BY INSTITUTION TO COMPUTE FTE:** calculated by dividing total credit hours by 15 for undergraduate and professional students and by 12 for graduate students

<table>
<thead>
<tr>
<th></th>
<th>Two Years Prior</th>
<th>One Year Prior</th>
<th>Current Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDERGRADUATE</td>
<td>27,916</td>
<td>28,607</td>
<td>29,671</td>
</tr>
<tr>
<td>GRADUATE</td>
<td>4,756</td>
<td>4,604</td>
<td>4,695</td>
</tr>
<tr>
<td>PROFESSIONAL</td>
<td>509</td>
<td>683</td>
<td>785</td>
</tr>
<tr>
<td>UNCLASSIFIED</td>
<td>367</td>
<td>362</td>
<td>335</td>
</tr>
<tr>
<td>TOTAL OTHER</td>
<td>33,546</td>
<td>34,255</td>
<td>35,486</td>
</tr>
<tr>
<td>Technology</td>
<td>760</td>
<td>758</td>
<td>847</td>
</tr>
<tr>
<td>Statewide Ext.</td>
<td>34,308</td>
<td>35,012</td>
<td>36,333</td>
</tr>
</tbody>
</table>

**Basic Institutional Data Form A**

**PART 4 - OTHER SIGNIFICANT INSTITUTIONAL ENROLLMENTS**
(b.g., non-credit, summer session, other)

**Most Recent Sessions and Previous Two Years**

**Identify types of enrollment reported:** Unduplicated Summer Headcount for West Lafayette, Technology

<table>
<thead>
<tr>
<th></th>
<th>Two Years Prior</th>
<th>One Year Prior</th>
<th>Current Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL UNDERGRADUATE</td>
<td>6,580</td>
<td>6,897</td>
<td>7,233</td>
</tr>
<tr>
<td>TOTAL GRADUATE</td>
<td>4,451</td>
<td>4,283</td>
<td>4,073</td>
</tr>
<tr>
<td>TOTAL PROFESSIONAL</td>
<td>100</td>
<td>116</td>
<td>171</td>
</tr>
<tr>
<td>TOTAL NON-CREDIT CONTINUING EDUCATION ENROLLMENTS (headcount)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL NON-CREDIT REMEDIAL AND DEVELOPMENTAL ENROLLMENTS (FTE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL OTHER</td>
<td>11,131</td>
<td>11,296</td>
<td>11,477</td>
</tr>
</tbody>
</table>

Prepare separate report by each session. Please add additional rows and submit all pages whenever necessary.
North Central Association of Colleges and Schools
Commission on Institutions of Higher Education
30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2554
(312) 624-7490; (312) 263-0456; Fax: (312) 263-7492

Basic Institutional Data Form B

PART 1 - STUDENT ADMISSIONS

Opening Fall Enrollment for Current Academic Year and Previous Two Years

<table>
<thead>
<tr>
<th>Institution of campus reported:</th>
<th>Purdue University - West Lafayette</th>
</tr>
</thead>
<tbody>
<tr>
<td>If applicable: Open Admissions Institution</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Two Years Prior</th>
<th>One Year Prior</th>
<th>Current Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of applicants with complete credentials admission to the freshman class</td>
<td>16,008</td>
<td>17,069</td>
<td>19,087</td>
</tr>
<tr>
<td>Number of applicants accepted</td>
<td>15,191</td>
<td>15,394</td>
<td>15,975</td>
</tr>
<tr>
<td>Number of freshmen applicants actually enrolled</td>
<td>6,478</td>
<td>6,544 B</td>
<td>6,728 B</td>
</tr>
</tbody>
</table>

| Number of applicants with complete credentials admission with advanced standing (transfer) | 2,420 | 2,338 | 2,417 |
| Number of advanced-standing undergraduate licent holders accepted | 1,952 | 1,956 | 2,036 |
| Number of advanced-standing undergraduate licent holders actually enrolled | 1,141 | 1,112 | 1,171 |

| Number of applicants with complete credentials admission to master's programs | 4,753 | 4,729 | 4,869 |
| Number of applicants accepted for master's programs | 2,018 | 1,986 | 2,135 |
| Number of applicants actually enrolled in master's programs | 836 | 829 | 902 |

| Number of applicants with complete credentials admission to specialist programs | 6 | 3 | 3 |
| Number of applicants accepted for specialist programs | 6 | 3 | 1 |
| Number of applicants actually enrolled in specialist programs | 2 | 2 | 1 |

Separate reports for each campus. Please submit additional sheets wherever necessary.
### North Central Association of Colleges and Schools
#### Commission on Institutions of Higher Education

N. North LaSalle Street, Suite 2400, Chicago, IL 60602-2304
800) 621-7440; (312) 263-0456; Fax: (312) 263-7462

**Basic Institutional Data Form B - Part 1 Continued**

Name of institution/campus reported: Purdue University - West Lafayette

<table>
<thead>
<tr>
<th>DOCTORAL</th>
<th>Two Years Prior</th>
<th>One Year Prior</th>
<th>Current Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of applicants with complete credentials for admission to doctoral programs</td>
<td>4458</td>
<td>4513</td>
<td>4557</td>
</tr>
<tr>
<td>Number of applicants accepted for doctoral programs</td>
<td>1160</td>
<td>1131</td>
<td>1316</td>
</tr>
<tr>
<td>Number of applicants actually enrolled in doctoral programs</td>
<td>438</td>
<td>373</td>
<td>453</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROFESSIONAL</th>
<th>Report by degree</th>
<th>Two Years Prior</th>
<th>One Year Prior</th>
<th>Current Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of applicants with complete credentials for admission to professional programs</td>
<td>Pharmacy - Pharm.D.</td>
<td>329</td>
<td>386</td>
<td>284</td>
</tr>
<tr>
<td></td>
<td>Veterinary Medicine - B.V.M.</td>
<td>955</td>
<td>951</td>
<td>894</td>
</tr>
<tr>
<td></td>
<td>Pharmacy - Pharm.D.</td>
<td>109</td>
<td>134</td>
<td>157</td>
</tr>
<tr>
<td></td>
<td>Veterinary Medicine - D.V.M.</td>
<td>117</td>
<td>113</td>
<td>118</td>
</tr>
<tr>
<td>Number of applicants actually enrolled in professional programs</td>
<td>Pharmacy - Pharm.D.</td>
<td>168</td>
<td>190</td>
<td>151</td>
</tr>
<tr>
<td></td>
<td>Veterinary Medicine - D.V.M.</td>
<td>64</td>
<td>68</td>
<td>68</td>
</tr>
</tbody>
</table>

Prepare separate reports for each campus. Please add attachments and additional sheets whenever necessary.
North Central Association of Colleges and Schools
Commission on Institutions of Higher Education
30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2504
(312) 263-7446; (312) 263-0156; Fax (312) 263-7442

Basic Institutional Data Form B

PART 2 - ABILITY MEASURES OF FRESHMEN

me of institution/campus reported: Purdue University - West Lafayette

tify quarter/semester reported: Fall 1998

c if appropriate: No score used or routinely collected

<table>
<thead>
<tr>
<th>Class ranking of entering freshmen</th>
<th>25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>rent in top 10% of high school class</td>
<td>25%</td>
</tr>
<tr>
<td>rent in top 25% of high school class</td>
<td>57%</td>
</tr>
<tr>
<td>rent in top 50% of high school class</td>
<td>90%</td>
</tr>
<tr>
<td>cent in top 75% of high school class</td>
<td>100%</td>
</tr>
</tbody>
</table>

SAT scores for entering freshmen

<table>
<thead>
<tr>
<th>SS average SAT score</th>
<th>Verbal</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>rent scoring above 500</td>
<td>540</td>
<td>568</td>
</tr>
<tr>
<td>rent scoring above 600</td>
<td>65%</td>
<td>75%</td>
</tr>
<tr>
<td>cent scoring above 700</td>
<td>2%</td>
<td>3%</td>
</tr>
</tbody>
</table>

C. Mean ACT scores for entering freshmen

| Composite | 25 |
| Mathematics | 25 |
| English | 23 |
| Natural Sciences | 24 |
| Social Studies | 24 |

D. Other tests used for admission or placement

<table>
<thead>
<tr>
<th>Test name</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean or composite</td>
<td>N/A</td>
</tr>
<tr>
<td>Range</td>
<td>N.A</td>
</tr>
</tbody>
</table>

Basic Institutional Data Form B

PART 3 - ABILITY MEASURES OF ENTERING GRADUATE STUDENTS

(Report for last full academic year)

- Graduate Record Examination 1.
  (for total Graduate School excluding professional schools)
  Range
  | 2330 | High |
  | 870  | Low |

- Miller Analogies Test
  (for total Graduate School excluding professional schools)
  Range
  | High | Low |

- On a separate sheet, indicate other test data used for admission to professional programs.

1 separate report for each campus. Please add
inserts and additional sheets where necessary.
## PART 4 - UNDERGRADUATE STUDENT FINANCIAL AID

**Report for last full fiscal year**

**Name of institution/campus reported:** Purdue University - West Lafayette

<table>
<thead>
<tr>
<th>SOURCE OF FUNDING</th>
<th>TOTAL $ AMOUNT</th>
<th>NO. OF STUDENTS AIDED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FEDERAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grants and Scholarships</td>
<td>9,489,025</td>
<td>8,923</td>
</tr>
<tr>
<td>Loans</td>
<td>67,618,753</td>
<td>25,252</td>
</tr>
<tr>
<td>Employment</td>
<td>1,469,366</td>
<td>1,470</td>
</tr>
<tr>
<td><strong>STATE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grants and Scholarships</td>
<td>7,059,514</td>
<td>4,851</td>
</tr>
<tr>
<td>Loans</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>INSTITUTIONAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grants and Scholarships</td>
<td>9,898,172</td>
<td>7,349</td>
</tr>
<tr>
<td>Loans</td>
<td>1,872,975</td>
<td>1,673</td>
</tr>
<tr>
<td>Employment</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>FROM OTHER SOURCES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grants and Scholarships</td>
<td>4,871,855</td>
<td>4,980</td>
</tr>
<tr>
<td>Loans</td>
<td>3,050,360</td>
<td>847</td>
</tr>
</tbody>
</table>

Unduplicated number of undergraduate students aided: 17,137

Number of students receiving institutional athletic assistance: 319

Percentage of institutional aid for athletic assistance: 2%
### North Central Association of Colleges and Schools
Commission on Institutions of Higher Education
30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2004
(800) 621-7440; (312) 263-0456; Fax: (312) 263-7462

Basic Institutional Data Form C

**PART 1 - FULL-TIME INSTRUCTIONAL STAFF AND FACULTY INFORMATION**

<table>
<thead>
<tr>
<th>Distribution by Sex</th>
<th>Distribution by Race</th>
<th>Distribution by Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Instructor</td>
<td>699</td>
<td>68</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>409</td>
<td>146</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>250</td>
<td>149</td>
</tr>
<tr>
<td>Faculty</td>
<td>34</td>
<td>41</td>
</tr>
<tr>
<td>Ching Assistants &amp; it teaching personnel</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>Search Staff &amp; Search Assistants</td>
<td>781</td>
<td>474</td>
</tr>
<tr>
<td>Designated rank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Instructional staff for current academic term</td>
<td>88</td>
<td>49</td>
</tr>
<tr>
<td>Total Instructional staff in previous academic year, but not employed for current academic year</td>
<td>114</td>
<td>63</td>
</tr>
</tbody>
</table>

(The above table represents the full-time instructional staff and faculty information for Purdue University - West Lafayette. The data includes the distribution by sex, race, and age range.)
North Central Association of Colleges and Schools
Commission on Institutions of Higher Education
30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2564
(800) 621-7440; (312) 263-0456; Fax: (312) 263-7462

Basic Institutional Data Form

PART 1 continued - FULL-TIME INSTRUCTIONAL STAFF AND FACULTY INFORMATION

Name of institution/campus reported: Purdue University - West Lafayette
Specify quarter/semester reported: Semester - Fall 1998 (Based on September Payroll)

Include only personnel with professional status who are primarily assigned to resident instruction and departmental or organized research. Exclude all nonprofessional personnel whose primary function is not resident instruction, departmental research or organized research.

<table>
<thead>
<tr>
<th>Highest Degree Earned</th>
<th>Associate</th>
<th>Bachelor's</th>
<th>Master's</th>
<th>Specialist</th>
<th>Doctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>1</td>
<td>30</td>
<td>13</td>
<td>10</td>
<td>714</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>2</td>
<td>96</td>
<td>13</td>
<td>444</td>
<td></td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>8</td>
<td>93</td>
<td>9</td>
<td>289</td>
<td></td>
</tr>
<tr>
<td>Instructor</td>
<td>1</td>
<td>16</td>
<td>3</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistants &amp; other teaching pers</td>
<td>11</td>
<td>15</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Research staff &amp; Research Assistants</td>
<td>104</td>
<td>58</td>
<td>331</td>
<td>34</td>
<td>334</td>
</tr>
</tbody>
</table>

Undesignated rank

Number of instructional staff added for current academic year: 2
Number of instructional staff employed in previous academic year, but not reemployed for current academic year: 3

PART 2 - SALARIES OF FULL-TIME INSTRUCTIONAL STAFF AND FACULTY

Academic Year Basis

<table>
<thead>
<tr>
<th></th>
<th>MEAN</th>
<th>RANGE</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>53,380.17</td>
<td>182,200.00</td>
<td>31,352.00</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>56,830.60</td>
<td>124,147.00</td>
<td>29,600.00</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>48,677.78</td>
<td>90,000.00</td>
<td>20,200.00</td>
</tr>
<tr>
<td>Instructor</td>
<td>27,261.31</td>
<td>76,500.00</td>
<td>16,040.00</td>
</tr>
<tr>
<td>Teaching Assistants &amp; other teaching pers</td>
<td>22,012.90</td>
<td>31,000.00</td>
<td>13,300.00**</td>
</tr>
<tr>
<td>Research staff &amp; Research Assistants</td>
<td>31,219.10</td>
<td>95,172.00</td>
<td>13,263.00</td>
</tr>
</tbody>
</table>

* Includes Visiting Faculty
** Includes Graduate Research Staff

Prepares separate reports for each campus. Please add attachments and additional sheets wherever necessary.

Edition 7: December 1996
### Basic Institutional Data Form C

#### PART 3 - PART-TIME INSTRUCTIONAL STAFF AND FACULTY INFORMATION

- **Institution/campus reported:** Purdue University - West Lafayette
- **Term reported:** Semester - Fall 1998

In only full-time personnel with professional status who are primarily assigned to resident instruction and departmental or organized research. In all nonprofessional personnel and those professional personnel whose primary function is not resident instruction, departmental research or service research.

<table>
<thead>
<tr>
<th>Distribution by Sex</th>
<th>Distribution by Race</th>
<th>Distribution by Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
<td>White</td>
</tr>
<tr>
<td>ssor</td>
<td>34</td>
<td>1</td>
</tr>
<tr>
<td>date Professor</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>tant Professor</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>tor</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>ling Assistants &amp; teaching personnel</td>
<td>1,237</td>
<td>864</td>
</tr>
<tr>
<td>outh staff &amp; outh Assistant</td>
<td>1,658</td>
<td>531</td>
</tr>
<tr>
<td>signated rank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>er of instructional staff I for current academic</td>
<td>535</td>
<td>379</td>
</tr>
<tr>
<td>er of instructional staff yed in previous mic year, but not stayed for current mic year</td>
<td>442</td>
<td>292</td>
</tr>
</tbody>
</table>

*Separate reports for each campus. Please add ema and additional sheets wherever necessary.*
North Central Association of Colleges and Schools
Commission on Institutions of Higher Education
30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2504
(800) 621-7440; (312) 263-0456; Fac (312) 263-7482

Basic Institutional Data Form C

PART 3 continued – PART-TIME INSTRUCTIONAL STAFF AND FACULTY INFORMATION

Name of Institution/campus reported: Purdue University – West Lafayette

Specify quarter/semester reported: Semester – Fall 1998 (Based on September Payroll)

Include only personnel with professional status who are primarily assigned to resident instruction and departmental or organized research. Exclude all nonprofessional personnel and those professional personnel whose primary function is not resident instruction, departmental research or organized research.

<table>
<thead>
<tr>
<th>Diploma, Certificate, or None</th>
<th>Associate</th>
<th>Bachelor's</th>
<th>Master's</th>
<th>Specialist</th>
<th>Doctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td>Associate Professor</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>3</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Teaching Assist. &amp; other teaching pers.</td>
<td>5</td>
<td>1,325</td>
<td>715</td>
<td>20</td>
<td>32</td>
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<tr>
<td>Research staff &amp; Research Assist.</td>
<td>88</td>
<td>5</td>
<td>792</td>
<td>652</td>
<td>7</td>
</tr>
<tr>
<td>Undesignated rank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of instructional staff employed for current academic year</td>
<td>74</td>
<td>3</td>
<td>563</td>
<td>247</td>
<td>9</td>
</tr>
<tr>
<td>Number of instructional staff employed in previous academic year, but not reemployed for current academic year</td>
<td>40</td>
<td>2</td>
<td>425</td>
<td>231</td>
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PART 4 - SALARIES OF PART-TIME INSTRUCTIONAL STAFF AND FACULTY

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<tr>
<th></th>
<th>MEAN</th>
<th>RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Professor</td>
<td>76,373.80</td>
<td>129,096.00</td>
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<tr>
<td>Assoc. Professor</td>
<td>48,606.72</td>
<td>60,000.00</td>
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<tr>
<td>Asst. Professor</td>
<td>38,160.14</td>
<td>46,000.00</td>
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<tr>
<td>Instructor</td>
<td>25,997.67</td>
<td>46,333.00</td>
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<tr>
<td>Teaching Assist. &amp; other teaching pers.</td>
<td>22,945.48</td>
<td>43,200.00</td>
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<tr>
<td>Research staff and Research Assist.</td>
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<td>68,720.00</td>
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<tr>
<td>Undesignated rank</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepares separate reports for each campus. Please add attachments and additional sheets wherever necessary.
North Central Association of Colleges and Schools  
Commission on Institutions of Higher Education  
30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2504  
(312) 263-7440; (312) 263-4056; Fax: (312) 263-7442  

Basic Institutional Resource Center  
Report for current year and previous two years  
* Estimate if necessary (identify estimates)  

of institution/site reported:  
Purdue University - West Lafayette  

Work here if you have specialized libraries not included in this data. If you do, please identify these specialized libraries or collections on a separate page.  

<table>
<thead>
<tr>
<th>SE AND SERVICE</th>
<th>Two Years Prior</th>
<th>One Year Prior</th>
<th>Current Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>use of the collection (number of books or other media circulated annually)</td>
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<td>478,945</td>
<td>469,981</td>
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<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>total circulation to faculty</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>total circulation to community users</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>total circulation to faculty (circulation to faculty divided by number of FTE faculty)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>total circulation to community users (circulation to community users divided by number of FTE faculty)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>total circulation to students (circulation to students divided by number of FTE faculty)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>total circulation to faculty (circulation to faculty divided by number of FTE faculty)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>total circulation to community users (circulation to community users divided by number of FTE faculty)</td>
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</tr>
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<td>N/A</td>
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<tr>
<td>total circulation to community users (circulation to community users divided by number of FTE faculty)</td>
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<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>total circulation to students (circulation to students divided by number of FTE faculty)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>total circulation to faculty (circulation to faculty divided by number of FTE faculty)</td>
<td>N/A</td>
<td>N/A</td>
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</tr>
<tr>
<td>total circulation to community users (circulation to community users divided by number of FTE faculty)</td>
<td>N/A</td>
<td>N/A</td>
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</tr>
<tr>
<td>total circulation to faculty (circulation to faculty divided by number of FTE faculty)</td>
<td>N/A</td>
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<td>total circulation to community users (circulation to community users divided by number of FTE faculty)</td>
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<tr>
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<tr>
<td>B. COLLECTIONS (Continued)</td>
<td>Two Years Prior</td>
<td>One Year Prior</td>
<td>Current Year</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
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<td>9,735</td>
<td>10,066</td>
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<tr>
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<td>483,184</td>
<td>483,986</td>
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<tr>
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<td>2,138</td>
<td>3,350</td>
</tr>
<tr>
<td>Number of subscriptions/purchased electronic on-line databases</td>
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<td>20</td>
<td>53</td>
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<tr>
<td>Number of CD-ROM databases available for searches by students</td>
<td>357</td>
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<td>1,055</td>
</tr>
<tr>
<td>Number of subscriptions to scholarly journals (Included in &quot;print serials/periodicals&quot; above)</td>
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<tr>
<td>C. STAFF (1 FTE Staff=35-40 hours per week)</td>
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</tr>
<tr>
<td>Number of FTE professional staff</td>
<td>65</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>Number of FTE non-professional staff</td>
<td>145</td>
<td>147</td>
<td>149</td>
</tr>
<tr>
<td>Number of FTE student staff</td>
<td>57</td>
<td>53</td>
<td>32</td>
</tr>
<tr>
<td>Number of other FTE staff (please explain on back)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>D. FACILITIES</td>
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</tr>
<tr>
<td>Seating ratio (number of seats divided by student headcount enrollment)</td>
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<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Number of publicly accessible computers</td>
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<td>64</td>
<td>172</td>
</tr>
<tr>
<td>Estimated linear shelfing space remaining for expansion</td>
<td>52,151</td>
<td>46,528</td>
<td>46,795</td>
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<tr>
<td>Estimated linear feet of materials stored off-site</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E. EXPENDITURES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For staff (exclude fringe benefits)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total professional staff salaries</td>
<td>$2,496,788</td>
<td>$2,466,045</td>
<td>$2,516,968</td>
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<tr>
<td>Total non-professional staff salaries</td>
<td>$2,383,897</td>
<td>$2,576,311</td>
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<tr>
<td>Total student staff salaries</td>
<td>$ 571,632</td>
<td>$ 563,825</td>
<td>$ 594,910</td>
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<td>For collection</td>
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<td></td>
</tr>
<tr>
<td>Books /other printed materials</td>
<td>$ 956,311</td>
<td>$ 902,497</td>
<td>$ 821,688</td>
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<td>Print serials/periodicals</td>
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<td>$4,250,986</td>
<td>$3,814,162</td>
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<tr>
<td>Microforms</td>
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<td>N/A</td>
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<tr>
<td>Non-print materials (e.g., films, tapes, CDs)</td>
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<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Government documents not reported elsewhere</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Computer software</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
North Central Association of Colleges and Schools  
Commission on Institutions of Higher Education  
20 North LaSalle Street, Suite 2400, Chicago, IL 60602-2594  
(800) 821-7444; (312) 263-0456; Fax: (312) 263-7462

Basic Institutional Data Form D

LIBRARY / LEARNING RESOURCE CENTER (continued)

Name of institution/campus reported:  Purdue University - West Lafayette

<table>
<thead>
<tr>
<th>E. EXPENDITURES (Continued)</th>
<th>Two Years Prior</th>
<th>One Year Prior</th>
<th>Current Year</th>
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<tbody>
<tr>
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<td>Interlibrary loan</td>
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</tr>
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<td>On-line database searches</td>
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</tr>
<tr>
<td>Network membership</td>
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<td>Binding, preservation, and restoration</td>
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<td>$127,618</td>
<td>$131,758</td>
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<tr>
<td>Other equipment and furniture purchase/replacement</td>
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<td>Other operating expenses (excluding capital outlay)</td>
<td>$1,497,611</td>
<td>$1,512,837</td>
<td>$2,768,182</td>
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X. OTHER

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<td>Does the library attempt to measure/record patron visits to the library?</td>
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<td>Does the library attempt to measure/record reference questions answered?</td>
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<td>Does the library attempt to measure/record user satisfaction?</td>
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<tr>
<td>Does the library attempt to measure/record in-library use of other resources?</td>
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Agreements and policies:

| Are there formal, written agreements to share library resources with other institutions? | X   |
| Are there formal, written consortial agreements for statewide or regional use of library materials? | X   |
| Are there formal, written agreements allowing the institution's students to use other institutions' libraries? | X   |
Basic Institutional Data Form E
INSTITUTIONAL COMPUTING RESOURCES
Report for Current Academic Year

Name of the institution/campus reported: Purdue University/West Lafayette

WorldWideWeb (WWW) URL address: www.purdue.edu

A. ORGANIZATION, PLANNING, and POLICIES
(Please attach an organizational chart. Include names)

Designated administrator(s) for institutional computing? X
Designated administrator(s) for Administrative computing? X
Designated administrator(s) for Academic computing? X
Centralized computing services? X
Formal, written, and approved technology plan? X
Technology plan linked to institutional mission and purposes? X
Computing resources included in institutional strategic plan? X
Policies on the purchase, replacement, and repair of hardware? X
Policies on the purchase and updating of software? X
Institutional computing responsible/ethical use policy? X
Institutional policies that include institutional computer issues? X
Institutional policies that include administrative computing issues? X
Institutional policies that include academic computing issues? X

B. FACILITIES

Institutional network backbone? X
Computer labs networked? X
Classrooms functionally networked? X
Multi-media computers in labs? X
Administrative offices networked? X
Academic offices networked? X
Residence halls networked? X

Number of non-networked computer labs 0
Number of networked labs 218
Total number of stations 4,329

Type of access?

- Wired through network
- Wired ports
- Personal computers
- Internet
- Remote dial-up access
- Slippery connection to WWW

Prepare separate reports for each campus. Please add attachments and additional sheets wherever necessary.
North Central Association of Colleges and Schools
Commission on Institutions of Higher Education
30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2504
(800) 621-7440; (312) 263-9450; Fax: (312) 263-7462

Basic Institutional Data Form E - Continued

FUNCTIONS: ADMINISTRATIVE (Place checks where appropriate)

<table>
<thead>
<tr>
<th>College Activity Calendar</th>
<th>Students</th>
<th>Faculty</th>
<th>Staff</th>
<th>Administrators</th>
<th>Public</th>
<th>Direct Access</th>
<th>Via</th>
<th>Remote Access</th>
<th>Modem</th>
<th>WWW</th>
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<tr>
<td>X</td>
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</table>

| College Catalog           |         |         |      |               |        |              |     |               |       |      |
| Class Schedule            |         |         |      |               |        |              |     |               |       |      |
| Financial Aid             |         |         |      |               |        |              |     |               |       |      |
| On-line registration      |         |         |      |               |        |              |     |               |       |      |
| Student Academic Record   |         |         |      |               |        |              |     |               |       |      |

E-mail: Intra-institution? X Yes ___ No Inter-institution? X Yes ___ No

FUNCTIONS: ACADEMIC

Computers in all full-time faculty offices?
Computers in full-time faculty offices networked?
All part-time faculty have access to computers?
All divisional / departmental offices networked?
All students required to have computers?
Internet access available from all faculty offices?
Library access available from all faculty offices?
If YES, is access available to the institution's library(ies)?
the state-wide or region-wide library system?
other libraries?
Library access available from all classrooms?
Computers integrated into instruction?
Off-campus access?
- If YES, is off-campus access available by the institutional network? (available Fall 1999)
the academic network? (available Fall 1999)
the Internet?
If NO, plans to provide off-campus access within three years?
Courses on Internet?
Interactive courses in real-time (i.e., 2-way video and voice)?

E-mail:
Intra-institution? X Yes ___ No Inter-institution? X Yes ___ No
North Central Association of Colleges and Schools
Commission on Institutions of Higher Education
50 North LaSalle Street, Suite 2400, Chicago, IL 60602-2904
(800) 821-7440; (312) 263-9450; Fax: (312) 263-7462

Basic Institutional Data Form E - Continued

E. SUPPORT and TRAINING

Number of FTE technical staff? 458
Number of FTE training staff? 50
Number of programers: 266
Integrated with Human Resources unit (Y/N) --
Name and Title of the designated educational specialist? ---

See attachment for distribution of professional staff

F. FINANCES/BUDGET for COMPUTING (Current Fiscal Year) 1997-98 estimate for the camp

Total Annual Academic Outlay, Operating Funds: $27 million
Total Annual Administrative Outlay, Operating Funds: --
Capital funds available: Academic
Capital funds available: Administrative
Amount of grants/restricted purpose funds available: $16 million
Technology fee assessed? (Y/N) yes
If YES, amount per academic year? $13 million

G. EVALUATION

Formal system of evaluation by students of academic computing? YES NO
Formal system of evaluation by students of administrative computing? X
Formal system of evaluation by faculty of academic computing? X
Formal system of evaluation by faculty of administrative computing? X
Systems of evaluation linked to plan to evaluate overall institutional effectiveness? X
Results of evaluation linked to institutional planning and budgeting processes? X

Prepare separate reports for each campus. Please add annexures and additional sheets wherever necessary.
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<th>Count</th>
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The attached organizational charts reflect institutional computing responsibilities for the Purdue University libraries, administrative and academic computing.
North Central Association of Colleges and Schools  
Commission on Institutions of Higher Education  
30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2304  
(800) 621-7440; (312) 263-0450; Fax: (312) 265-7462  

Basic Institutional Data Form F  
CERTIFICATE, DIPLOMA AND DEGREE PROGRAMS  
Previous Three Years

Name of institution/campus reported:  Purdue University--West Lafayette Campus

Certificates, diplomas and degrees offered by the institution; curricula or areas of concentration leading to each certificate, diploma and/or degree; number of students graduates in the past three years. Include all fields or subjects in which a curriculum is offered. If degree programs were not in effect during one or more of the years, please so indicate. The report form may be copied if additional space is needed.

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* Data obtained from the Student Decision Support System. There may be slight differences from the official Degrees Conferred Report.
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* Data obtained from the Student Decision Support System. There may be slight differences from the official Degrees Conferred Report.
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- CIVIL ENGINEERING: 68, 50, 62
- CURRICULUM & INSTRUCTION: 40, 51, 50
- EDUCATIONAL STUDIES: 62, 60, 53
- ELECTRICAL ENGINEERING: 127, 95, 95
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* Data obtained from the Student Decision Support System. There may be slight differences from the official Degrees Conferred Report.
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* Data obtained from the Student Decision Support System. There may be slight differences from the official Degrees Conferred Report.*
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* Data obtained from the Student Decision Support System. There may be slight differences from the official Degrees Conferred Report.*
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*Data obtained from the Student Decision Support System. There may be slight differences from the official Degrees Conferred Report.*
Name of institution/campus reported: Purdue University / West Lafayette, IN

Intercollegiate athletic programs (as opposed to intramural and/or physical education programs) involve: a) formal agreements (association, league) to compete with other institutions; b) student athletes identified as members of a particular team; and c) professional staff.

Provide the name(s) of the intercollegiate athletic associations in which the institution holds membership and the level of membership: NCAA Division I - Big Ten Conference

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<th>Sport</th>
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<th>Women</th>
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<th>Women</th>
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Proprietary reports for each campus. Please add attachments and additional sheets whenever necessary.