

## **Turning Challenges into Opportunities:**

### **The IU College of Arts and Sciences Strategic Plan for 2009-2014**

**T**he College of Arts and Sciences at Indiana University Bloomington is the University's largest, most diverse school, and it contains many of the University's most accomplished scholar-teachers. A number of its departments and programs rank among the nation's best in terms of research, artistic achievement, and reputation. For the academic year 2008-09, it enrolled 18,000 students, which included 9,600 undergraduate majors and more than 2,800 graduate students.

The College, like all academic institutions, faces significant challenges in the next five years, not the least of which is responding to an economic environment of enormous uncertainty. Meeting these challenges and transforming them into opportunities demand careful planning. Moreover, because plans such as this one are both proactive and responsive to constantly changing conditions, they require continuous reflection; ongoing dialogue with faculty, staff, students, and alumni; and analysis of the financial and human capacities necessary to achieve our shared goals. This plan, then, constitutes a map of a much longer path of self-reflection and sustained discussion.

#### **The Process**

**D**uring the summer of 2008, the College appointed both an Associate Dean for and a Director of Strategic Planning. College staff met over the summer reviewing a variety of relevant materials, later sharing these ideas with faculty, department chairs, program directors, and alumni groups. In early September 2008, the College convened seven committees comprising sixty people including faculty members, staff members, librarians, and students. The seven committees were: The Arts and Humanities, The Physical and Life Sciences, The Social Sciences, Graduate Education, Undergraduate Education, International Programs and Research Activities, and Engagement: Government, Industry, Community, Alumni. These committees met throughout the fall semester, gathering local, regional, and national data, and debating the most significant issues relevant to their charges. At the end of the semester, each committee filed a report that both summarized its analysis and offered recommendations on a wide range of topics.

The Strategic Plan is a synthesis of these committees' findings, and during the spring semester, 2009, it was released to the faculty and staff, who offered commentary on the draft and made suggestions for revision. The result of this process follows, prefaced by a summary of the most immediate priorities suggested by this year-long deliberation.

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## **Summary:**

### **Priorities for FYs 2009-10 and 2010-2011**

- **Strengthen areas of research excellence in both traditional disciplines and in innovative interdisciplinary fields**
- **Enhance undergraduate education, in part by increasing research opportunities for students, improving advising, implementing and refining the Themester initiative, and enriching the international education all students receive**
- **Increase the diversity of faculty, graduate and undergraduate students; and support the professional development and mentoring of College faculty and students**
- **Raise graduate student fellowships and Associate Instructor stipends to more competitive levels**
- **Facilitate departments' efforts to reach out to the community, alumni, and industry.**

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## **Core Goals**

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### **Support the Work of Our Outstanding Faculty**

To compete with the world's best institutions, the College must attract outstanding faculty and support this faculty's work not only as teachers in the classroom, but also as leading scientists, scholars, and artists. The College seeks to hire faculty who also serve as models of engaged citizens of the community, state, nation and world.

### **Integrate Education and Research**

The central difference between faculty at a research institution and those in many four-year colleges is the ability of the former to bring to the classroom the knowledge they create as scholars and researchers. As one of 96 institutions in America classified by the Carnegie Foundation as featuring "very high research activity," Indiana University provides a number of settings outside the classroom—laboratories, archives, libraries, institutes—where student learning and research complement each other. The benefits of interactions in such venues are reciprocal, as both students and faculty grow intellectually from them. The continuing integration of education and research is a core goal of both the College's mission and this plan.

### **Advance the Frontiers of Knowledge**

To succeed in the coming years, the College must build on its historic strengths as it also recognizes emergent areas of knowledge, particularly those which cross the boundaries of traditional academic disciplines. In this regard, establishing academic priorities involves an assessment of present knowledge and a prediction of where research in the sciences, social sciences, and humanities is likely to head in the future.

### **Provide Leadership and Service Beyond the Sample Gates**

To an unprecedented extent, colleges and universities must be engaged with the needs and responsive to the opportunities that reside outside the boundaries of the campus. In some cases, this means the deepening of College involvement with global and international initiatives. In others, it means both a renewed engagement in service vital to the public good, and the cultivation of entrepreneurial strategies to supplement present resources in pursuit of the College's greater good and that of its faculty, staff, and students.

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## **Underlying Values**

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*Four predominant values inform the Strategic Plan.*

### **Intellectual Leadership**

Academic excellence is the product of many factors: outstanding students, first-class research and artistic facilities, advanced technology and the talented staff that implements technical advances, internationally renowned libraries and archives, and much more. Liberal education and the advancement of knowledge in the twenty-first century, however, crucially require faculty leadership to advance broader notions of mathematical, scientific, and technological literacy; cultural and global literacy, and civic engagement.

### **Diversity**

One element central to academic excellence is diversity--diversity of ideas, of cultures, of faculty, and of students. A greater diversity of faculty and students enriches the academic experiences of all students, as it also contributes both to a more comprehensive approach to problem-solving and to a more informed democracy.

### **Interdisciplinarity and Multidisciplinarity**

The College has long valued the research and teaching of departments organized around traditional academic disciplines. It will continue to do so. At the same time, new areas of knowledge emerge, and the solutions to complex contemporary problems often require the expertise of specialists from various intellectual traditions. For this reason, the College will continue to encourage collaborative research projects, to facilitate team teaching across units, to support more multidisciplinary centers and institutes, and to seek other initiatives that combine talented students and faculty from a number of academic fields.

### **Internationalization**

The College's tradition of language instruction, engagement with world cultures, and expertise in international political, economic, and social affairs has been central to its distinguished history. But in a manner more urgent than in past years, the College and its faculty recognize the needs of twenty-first century students to be trained more meaningfully about the world in which they live and the global economy in which they will compete.

## **A New Century of Distinguished Research and Teaching: Twenty-First Century Challenges and Opportunities**

**T**he foremost goals of the College of Arts and Sciences are to support cutting edge research, scholarship, and creative activities; to provide students with a broad-based liberal education, and to serve the state, the nation, and the world. And in the present historical moment, one of economic uncertainty and seemingly constant change, achieving these goals requires careful planning and keen foresight. This Plan attempts to identify present challenges to our shared mission and to describe opportunities that will better enable us to achieve them.

The College's priorities originate in one basic fact: Indiana University is one of only sixty-two member institutions in North America in the Association of American Universities, membership in which is determined by the "breadth and quality" of a university's research and graduate education. Elected to membership in the association in 1909, Indiana University and the College of Arts and Sciences strive to combine leading research with its missions of teaching and service. The innovative work of College scientists, social scientists, humanists, and artists defines not only who we are, but the kind of education we provide graduate and undergraduate students in classrooms, laboratories, and studios. This twenty-first century education cultivates students' abilities to think critically, to apply flexible approaches to contemporary problems, and to communicate effectively to an increasingly diverse and international audience. What better way for our students to acquire these skills than by learning from some of the keenest and most creative minds in higher education? Indeed, this melding of learning and leading research distinguishes universities like Indiana from the over 3,200 institutions of higher education in the country, providing students in the College with a unique learning environment.

In 2009, then, one hundred years after being recognized as one of America's preeminent research institutions, we embark upon a new century of accomplishment.

The stakes of higher education--and of the basic research universities conduct--have never been higher. As IU alumnus Richard Atkinson, former Director of the National Science Foundation and President Emeritus of the University of California, has emphasized, "research and graduate training will play an increasingly important part in ensuring the economic growth on which our standard of living depends." Support of America's research enterprise is thus vital to our national interest, and universities like Indiana conduct the basic research upon which the nation's economy depends. Atkinson observes, for example, that some 73% of the papers cited by U.S. patents are based on publicly supported research, authored principally by academic scientists and social scientists. The myriad successes of academic researchers motivate one of Atkinson's boldest assertions: "I do not believe it is an understatement to say that when the history of the last half of the twentieth century is written, the vital role research universities have played in the American economy will be regarded as one of our greatest achievements."

**M**uch of this research responds to the country's most daunting challenges. The current "green revolution," for example, which combines studies of the environment and climate change, of sustainability and clean energy production, and of the human and social consequences of energy policy, requires the expertise of scientists and scholars from numerous disciplines. Their successes lead directly to the production of a new "green collar" workforce that the country—and world—needs. In the College, advances in genomics, proteomics, nanoscience, neuro- and cognitive sciences, ecology, biodiversity and sustainability, and astrobiology similarly prepare students for the challenges that lie ahead. The construction of new multi-disciplinary science buildings in the College reflects this changing environment for research, as does the University's construction of a business "incubator" to facilitate the relationship between scientific breakthroughs and industry. Absent an engineering, medical, or agricultural school in Bloomington, the College leads the way in supporting these initiatives. This imposes a huge responsibility, but also provides a unique opportunity.

Thriving research in the sciences and social sciences also tends to be driven by societal demands which, in turn, often require interdepartmental collaboration across academic boundaries. The current national crisis of obesity provides one example. In 2008, studies estimated that obesity added \$45 billion to the cost of healthcare in the United States. Across the College, work is being done on this national—and global--epidemic. Faculty in such disciplines as economics, political science, sociology, psychological and brain sciences, and many more are addressing this issue in their research, representing in the process the deeper connections being forged between the social and life sciences. More broadly, the complex relationships between the environment, social networks, and human well-being are being studied by specialists from a wide variety of academic disciplines. For example, scholars from such disciplines as Biology, Geography, Geology, Anthropology, Political Science, and others are launching an ambitious initiative to study the earth's forests and such issues as deforestation, food and biofuel production, emergent infectious diseases, and biodiversity conservation. College researchers, in short, are responding to the urgency of contemporary crises in innovative ways.

Social scientists and humanists are similarly responding to the rapidly changing global culture in which we live. The economic, cultural, and psychological effects of visual technologies and the media--of film, television, and the internet—constitute one exciting example. College faculty are studying virtual worlds, online spaces where millions of computer users interact. Such spaces serve also as training grounds for students of new media production. Still other researchers examine the dynamic interactions among media structures, content, and human cognition, developing models for understanding media psychology and media processing. In addition, scores of scholars in a number of departments study international filmic and televisual cultures, contributing to our greater knowledge of Asia, Europe, and Africa. And this knowledge relies upon our historical understanding of such cultures: of their language, literature, fine art, theatre, philosophy, economy, politics, religion, and much more. Scholarship in the College thus advances basic knowledge of a wide array of subjects, a fact which parallels one of

former IU Presidents Herman Wells' most deeply-held convictions: that scientists and scholars must be afforded the time and freedom "to let the mind go where it will, to invent, to examine the world."

This ethos of discovery informs the notion of a "liberal education," the broadly based educational experience the College offers its students. And, like advances in research, definitions of this kind of education have evolved dramatically. In *The Idea of the University* (1852, not surprisingly given his audience, John Henry Cardinal Newman narrowly conceived of education as serving no end but its own now. In *The University of Utopia* (1953), former president of the University of Chicago Robert Maynard Hutchins contended that "The object of the educational system . . . is not to produce hands for industry or to teach the young how to make a living. It is to produce responsible citizens." Former Indiana University president Thomas Ehrlich echoes this thesis when observing, "Educational attainment is a powerful predictor of civic engagement." Writing in 2006, Derek Bok, president emeritus and research professor at Harvard, imagined a broadly-based education in which delicacy of taste gives way to empowerment; intellectual equanimity, to independence and, ultimately, professional flexibility. In particular, for Bok "preparing students for productive, satisfying jobs" is among higher education's most serious responsibilities.

In its broadest definition, then, liberal education is not synonymous with the term "liberal arts"; rather, it asserts the inherent value of a wide study of the natural and mathematical sciences, social sciences, and the arts and humanities. In a twenty-first century economy in which college graduates may change professions, not merely jobs, a half-dozen or more times, such an education is hardly a musty relic from a bygone era; it is essential in affording students occasions to develop their critical thinking and communications skills, to enhance their facilities with scientific methods, and to improve their problem-solving and leadership abilities. In sum, higher education must prepare students for active participation in an increasingly diverse democracy and world. This education constitutes an end in itself, as Cardinal Newman insisted, but it is also a means to a fuller, more meaningful engagement with a world that even a man of his prescience could not have imagined.

At a moment when General Education requirements are being implemented at the campus level, it seems appropriate for the College to review the training its students receive. This might begin with their preparation to enter a global economy. Given the collapse of the Communist bloc, the emergence of China, India, Russia, and Brazil as world economic powers, and the acceleration of both globalization and internet connectivity, a modest education in international languages and cultures will no longer prepare students for the twenty-first century. The College's distinguished history of language training and wide expertise in the arts and humanities position it well positioned to remedy this deficit. To take one example, the annual Summer Workshop in Slavic, East European, and Central Asian languages, now in its fifty-ninth year of operation, has taught three generations of language educators, government officials, businessmen, and many more. The College's strengths in international and area studies, in the

research agendas of many social scientists and humanists, and in many projects in the arts can deepen students' knowledge of both the history of the world in which they live and the ways in which the present emerges from this history.

If a twenty-first century education is more international, it is also inherently more interdisciplinary and multidisciplinary, motivating faculty and students to conceive of issues in ways not delimited by a single disciplinary perspective. As a result, while disciplinary knowledge and instruction remain central to the College's mission, the intellectual habits a twenty-first century education nurtures are refined by intellectual innovation and a stronger multi-disciplinary perspective. These values, for example, are promoted in the College's "Themester" initiative in undergraduate education beginning in fall, 2009. The topics selected for this annual program, much like that of this year's "Evolution, Diversity and Change," will be supported by academic courses, guest lectures and workshops, performances and artistic exhibits. The result will be an opportunity for undergraduates to approach an issue of contemporary relevance from a variety of perspectives, leading in the best cases to a reflective, critical understanding of the topic. For Themester aims not to communicate a single ideology or theory, but to present a spectrum of disciplinary perspectives and representations of an issue from which students will explore connections and gain a more nuanced understanding.

All of this suggests the vital, more immediate connection of the College to the community and state in which we live: to the daily lives of students and citizens alike. During the next five years, the College will seek an even deeper, more meaningful relationship with our friends, supporters, and partners outside the university. Yet the challenges in doing so and in maintaining academic excellence are many. As a January, 2009 article in *The Chronicle of Higher Education* predicted, in response to the present economic crisis many states have sharply reduced appropriations to higher education, which in turn has led to practices that are impossible to ignore. The article concludes with the admonition that we should not "waste time" looking backward and "pining for how things used to be," but rather "embrace the current budget challenges as an opportunity to begin . . . to do the things we should have been doing all along."

What are these things? What *should* we have been doing all along? At base, colleges must prepare students for an increasingly global economy, support the innovative research so crucial to this goal, and—to an unprecedented extent—ask faculty to become more engaged with the economics of education. The College must build upon its unique strengths as a premier research and teaching institution at the same time that it operates with greater efficiency.

The challenges that lie ahead are enormous, but so, too, are the opportunities. Perhaps more than ever before, both require all of us to reflect upon the values we hold dear and the changes, or perhaps sacrifices, required to preserve and advance them.

## **CORE GOAL 1:**

### **SUPPORT THE WORK OF OUR OUTSTANDING FACULTY**

In *The Uses of the University* (1963), Clark Kerr observed that “new knowledge is the most important factor in economic and social growth. . . . The university’s invisible product, knowledge, may be the most powerful single element in our culture. . . .” As a College dedicated to the innovative integration of research and learning, the production of knowledge is crucial to the liberal education of our students. And new discoveries, new knowledge, and new artistic creation begin with College faculty. Recruiting talented faculty and supporting their research and creative activities are essential to all of the College’s missions.

Facilitating the faculty’s research and professional accomplishments requires varied, flexible strategies. In some disciplines, research of the first order can be conducted only with the support of external grants; for this reason, researchers working in these areas need the assistance of both their departments and the College in applying for and managing grants. In other disciplines—many in the humanities, for example—sufficient time to pursue major research projects is often more crucial for success than substantial funding. The College, working in tandem with departments and programs, is dedicated to recruiting outstanding faculty and encouraging their various efforts in research, teaching, and service.

#### **Objective 1.1 Recruitment and retention of a world-class faculty**

The College of Arts and Sciences is home to distinguished scholars, artists, and scientists, many of whom work within well-defined disciplines and departments. At the same time, to cultivate new areas of strength and greater diversity--and to engender a new commitment to innovative teaching and service--it must consider more creative and proactive methods of recruitment. Doing so will catalyze new research projects and collaborative enterprises, enable the College to assemble and retain a critical mass of faculty committed to areas of knowledge that single disciplines might not address, and encourage team-teaching across units. Hiring decisions should also emphasize greater diversity, attracting more faculty members from historically under-represented groups, including more women faculty in disciplines in which women are underrepresented.

#### ***Strategies***

- The College will strive to make all faculty salaries competitive by continuing such practices as market adjustments, merit-based salary increments, and significant increases in salary as a result of tenure and promotion.
- The College will build upon present strengths and encourage cooperation through the appointment of more faculty to interdisciplinary programs, institutes, and centers. Departments will be required to identify priorities in both disciplinary and

interdisciplinary research, assessing the significance of these areas and outlining plans for inter-departmental cooperation.

- The College will charge the College Policy Committee with developing strategies to respond to the wave of retirements that is likely to occur over the next five years.
- The College will employ recruiting strategies such as cluster hiring, target-of-opportunity hiring, and other methods to increase the number of faculty and staff who enhance research excellence and add diversity to our campus.
- The College will create a standing Committee on Diversity to recommend additional strategies for supporting a diverse faculty.
- To renew and revitalize the College's faculty while containing costs, the majority of hiring authorizations will be limited to the rank of assistant professor.
- To enable the appointment and retention of senior faculty, the College's Office of Advancement and the IU Foundation will work closely with department chairs to seek the funding necessary to establish endowed chairs and professorships.

### **Objective 1.2 Research productivity, scholarly and artistic accomplishment**

Innovative, distinguished research requires significant investments of both time and dollars; thus, strategies to enable faculty productivity and distinction must be flexible enough to provide both. The outstanding research, scholarship, and artistic achievements of our faculty improve the quality of life for residents of our state and nation. They also enhance the reputation of our institution, leading not only to the recruitment of the nation's top graduate and undergraduate students, but also to the increasing numbers of partnerships the College forms with private and public collaborators. This intellectual and artistic work is central to our mission.

#### ***Strategies***

- The College will increase administrative and financial support for faculty research, in part by funding research centers committed to innovative interdisciplinary work.
- The College will continue to invest in the physical and intellectual infrastructure necessary to enable exemplary research and scholarship.
- In collaboration with the Office of the Vice Provost for Research (OVPR), the College will continue to provide assistance to faculty applying for grants, and the Associate Dean for Research, as well as the Office of Advancement, will mentor faculty seeking external funding.

- Departments must share the responsibility of supporting faculty research and professional travel. For this reason, each department should discuss and implement a formal policy outlining its support of faculty professional activity.
- The College will create new professional development programs for staff and will seek ways to enhance existing programs.

### **Objective 1.3 Professional development of all faculty**

Professional development might be defined in several ways and varies depending upon a faculty member's experience and level of seniority. Crucial to the success of College efforts to retain promising teacher-scholars, for example, is the effective mentoring of junior faculty to ensure that they successfully navigate such challenges as tenure, promotion, and external grant application. The College and individual departments must forge new alliances to assure the continuing development of all faculty members.

#### *Strategies*

- Departments will develop and implement plans for the professional development of all assistant and associate professors.
- The College will assist senior faculty preparing to assume new administrative and other professional responsibilities.
- The College will review the evaluation process for non-tenure eligible faculty and work with departments to ensure that these faculty members are afforded opportunities to develop further their teaching and professional strengths.
- Departments will reevaluate the criteria by which faculty merit is assessed, with the intention of recognizing a broader spectrum of important collective work undertaken by faculty in such areas as curricular development, outreach and engagement, service learning, service to regional and national professional organizations, and so on.
- In addition to workshops at the campus level that support new department and program administrators, the College will work with department chairs and program directors to assure their familiarity with the best practices for preparing tenure and promotion dossiers and performing other administrative tasks.

## **CORE GOAL 2:**

### **INTEGRATE EDUCATION AND RESEARCH**

Student learning and faculty research complement each other in the College of Arts and Sciences. Many graduate students work alongside their faculty mentors in laboratories, conducting research vital to the disciplines in which they specialize. These advanced students, in turn, introduce undergraduate majors to research protocols and laboratory techniques. Other students serve as associate editors of scholarly journals or as the authors of departmental newsletters, collaborating with faculty and refining their editorial skills in the process. All of these activities are indispensable to the operations of the College and academic units, and also help students acquire the practical skills they will need after graduation.

Graduate students benefit directly from the integration of teaching and research, and the College's record of placing its graduate students in faculty positions at America's best academic institutions reflects the importance of this relationship. But our responsibility to integrate research and teaching also includes the training of undergraduates; for this reason, the College sponsors numerous programs dedicated to introducing students to the methods and aims of research. The National Institutes of Health- Initiative for Maximizing Student Diversity (NIH-IMSD in Scientific Research Scholars Program, for example, provides a unique opportunity for undergraduates from traditionally underrepresented populations to engage in research in an array of scientific disciplines, learning the field and laboratory techniques necessary for conducting their own investigative projects. The Science, Technology, and Research Scholars Program (STARS) and the Integrated Freshman Learning Experience program encourage students to begin supervised research in the sciences from their first semester on campus. Learning, in short, takes place not only in the classroom, but also through the activities occurring in studios and rehearsal spaces, laboratories and field stations, editorial offices and archives.

Learning in the twenty-first century, moreover, is far more international than ever before, and for this reason globalization and international issues are discussed in classrooms across the College: from those in economics, geography, sociology, and history to those in literature, art history, film, drama and performance, philosophy and folklore. All of these strengths contribute to our reputation as an institution of the first rank and to the quality education our students receive. As in the case of research, therefore, international education must increasingly become part of twenty-first century training. For this reason, the College has made significant investments in language learning and research in language pedagogy across many different languages and cultures and has also invested in the international collaborations of researchers in a wide variety of disciplines.

All of these synergistic endeavors, however—the integration of research and learning, the enrichment of international education--rely upon the enrollment of talented graduate students for whom all major research universities compete precisely because of their centrality to the research

and teaching missions of the institution. Once they are enrolled, these students then become fully professionalized not only as scholars and researchers, but also as teachers.

### **Objective 2.1 Competitive stipends for graduate fellows and associate instructors**

Although the College often succeeds in enrolling the most promising graduate students, at other times departments fail to attract the best and the brightest not because of the academic quality of their graduate programs, but because the stipends attached to Fellowships and Assistantships are not competitive. Throughout the College--from the sciences to the arts, from the social sciences to the humanities—support for graduate students has been identified as the faculty’s highest priority. Research in laboratories across the College, theatrical productions and artistic exhibitions, the publication of scholarly journals and newsletters, the teaching of freshmen—all of these activities crucially involve the talents and ingenuity of graduate students. Indeed, many of the objectives outlined here depend upon our ability to achieve this objective.

#### *Strategies*

- During the next two years, the College will renew its efforts to make graduate student compensation packages more competitive by contributing an additional \$1 million to help achieve this objective.
- Departments will conduct a self-study to determine the optimal size of their graduate programs, with the possibility of supporting a smaller population more effectively. We have an obligation to limit our admissions if the job market cannot accommodate the number of Ph.D. candidates we are training.
- Departments should make every effort to apply for training grants from national agencies and foundations, develop additional editorial and research assistantships, and explore other means of supporting graduate student research and travel.

### **Objective 2.2 Effective training of graduate students as professionals**

Graduate students are assigned many responsibilities integral to the success of the College and their respective departments and programs. At the same time, the College and its departments are responsible to ensure these students acquire skills they will need to enter an increasingly competitive job market. This responsibility begins with graduate students’ first appearances as an instructor in the classroom, lecture hall, or laboratory, and concludes, in many cases, well after their graduation in terms of ongoing mentoring, research collaboration, and professional networking. The professionalization of graduate students thus embraces a wide range of activities: the improved training of Associate Instructors, wider opportunities for graduate students to refine their pedagogical practices, and improved support for graduate students completing degrees and seeking employment inside or outside the academy.

### *Strategies*

- The College will collaborate with the Office of the Vice Provost for Undergraduate Education in collecting information on departmental programs that prepare graduate students for classroom teaching, in identifying and disseminating good practices throughout the College, and in encouraging departments to adopt effective training practices for graduate student instructors.
- Departments should create additional opportunities for graduate students to work with undergraduates, including the mentoring of new majors and tutoring undergraduates in research programs.
- The Arts and Sciences Career Services will expand its career advising service for graduate students seeking non-academic positions; however, departments should supplement this service by providing students with assistance in seeking non-academic employment and continue in their efforts to counsel students seeking academic employment.

### **Objective 2.3 Diversity of graduate and undergraduate students**

As a College Report concluded in the fall of 2008 and despite efforts to ameliorate the situation, many graduate programs enroll fewer students from underrepresented groups and, in some areas, fewer women than many peer institutions. The discrepancy between IU and national averages is conspicuous, and without decisive action it is unlikely that these proportions will change appreciably in the next five years. This fact demands both a more effective program of recruitment and the implementation of retention strategies intended to promote academic excellence through diversity.

### *Strategies*

- The College's standing Committee on Diversity will explore strategies for enhancing diversity, organize symposia on issues related to this topic, and make suggestions on matters ranging from faculty hiring to effective support structures for undergraduate and graduate students.
- The College and individual departments should form new partnerships with such external constituencies as Historically Black Colleges and Universities, Minority Serving Institutions, and the Association for Women in Science.
- Along with the Graduate School, the College will support departmental initiatives to enroll a more diverse student body—initiatives such as NSF REU programs, GAANN programs, and the Ralph Bunche Summer Institute that introduces students from

underrepresented populations to the intellectual demands of graduate school and research methods in political science. The College will strive to expand these types of programs by considering proposals from departments for similar initiatives in their disciplines.

#### **Objective 2.4 Improvement of teaching and learning**

Indiana University has made significant efforts to enroll some of the state and nation's most talented students, and the College will strive to create new learning opportunities for them. Such opportunities include a greater array of small seminars, research collaborations with experienced graduate students, and meaningful participation with faculty on research, editorial, archival, studio, and other projects. Further, because recent campus reports underscore the overwhelmingly positive response of students to inter- and multidisciplinary initiatives, the founding of additional certificate programs will further this initiative of providing intellectually engaging and useful programming for undergraduate students.

#### *Strategies*

- The College will seek ways to facilitate team teaching and interdisciplinary collaboration in the classroom across academic units.
- Departments will create additional opportunities for undergraduate students to enroll in seminars, participate in ongoing faculty research, and enroll in pre-professional courses or independent studies.
- Departments will continue to devise innovative approaches to teaching undergraduates across all disciplines, particularly in scientific and quantitative fields, with the aim of improving the scientific literacy of all students regardless of their majors.
- The College will continue to support advances in classroom technology and provide technical assistance where necessary to enhance more effective learning.
- The Associate Dean for Undergraduate Education will restructure the present advising system to ensure that all undergraduate students are well served.

#### **Objective 2.5 Global competence of all students**

Key to preparing students for effective engagement with the rest of the world is the teaching of both language and culture. At a fundamental level, language learners need to be proficient enough to participate in the exchange of information for their work in business,

science, politics, and the arts. But, equally important, these same learners must cultivate a more profound understanding of the culture in which a given language is typically embedded—its politics, literature, history, art, religion, economics, and more—to enable the transcultural competence necessary for truly meaningful engagement. Supported by new alliances between such academic units as Title VI Centers and academic departments, the College will further strengthen the excellence of present offerings of world languages in part by encouraging a broader curriculum in which language, literature, and culture form a continuous whole leading to general and advanced proficiency. Insofar as it is possible, the goal should be to imbue every major in the College with a depth of knowledge sufficient to produce globally competent citizens.

### *Strategies*

- The College will promote cooperation and coordination between language departments and Area Studies programs, which will be greatly enhanced by the new International Studies Building.
- To ensure continuing, even greater, student access to instruction in less commonly taught languages—including that of new Associate Instructors seeking advanced training-- departments and centers should seek partnerships with other institutions through such programs as CourseShare and the Traveling Scholars program, while also reviewing other collaborative language efforts across the country, including the creation of more virtual classrooms.
- Departments will work with the College to integrate Study Abroad programs with a wider array of curricula and create flexible guidelines insofar as Study Abroad courses might apply to major and minor requirements.
- Departments will enhance the experience of students returning from Overseas Study by incorporating post-program activities into their academic programs.
- Working together, the College and academic units will explore opportunities for developing courses other than those in language and literature that require linguistic competence or contain an international dimension.

## **CORE GOAL 3:**

### **ADVANCE THE FRONTIERS OF KNOWLEDGE**

Academic departments are home to experts in traditional disciplines and are well positioned to understand and respond to specific research opportunities within them. The increasing complexity and globalization of research, however, and the emergence of grand challenges suggest that multidisciplinary research initiatives will play an increasingly important part in advancing the frontiers of current knowledge. A vision of increased multidisciplinary research, however, should not jeopardize support for individual disciplines, which must continue to be nurtured.

This confluence of grand challenges, which may be driven by fundamental scientific questions, social developments, and technological advances with the capacity to transform research methodologies, offers an exciting opportunity for collaboration and for the creation of genuinely new insights. At the same time as we strive for excellence across the College, then, we must also identify areas of distinction that help define who we are and capitalize on investments already made. Four such areas combine present strengths with urgent challenges and provide the College with a competitive advantage relative to its peers.

**I. The Life Sciences and Beyond.** There is an intellectual revolution afoot in the life sciences—one equivalent to the revolutions in chemistry in the 1800s and physics in the 1900s. The life sciences involve the study of living organisms, from their molecular and biochemical subsystems to the ecosystems created by the interaction of multiple species. Through a combination of conceptual advances and technological breakthroughs, knowledge in this field has exploded, transforming contemporary understanding of living organisms and their interactions with each other and with their environment. Advances in the life sciences are also raising new questions about what it is to be human and how best to lead a human or humane existence, questions of human values that reverberate throughout the social sciences, the humanities, the arts, and medicine. These advances also have the potential to fundamentally change the practice of health care and scientific research, directly affecting significant segments of the economy, technology, and education. And, with fourteen National Academy members among the College's faculty and some dozen researchers inducted into the American Academy of Arts and Sciences, the life sciences form a visible strength and key component of our research and teaching missions.

This revolution in the life sciences presents us with educational and funding imperatives to which we must respond. For given the ever-accelerating rate of scientific advancements, without continuous improvements in infrastructure, the quality of physical and life sciences research will suffer if we do not continue to make strategic investments. Here, as elsewhere, the life sciences have become increasingly quantitative, and this tendency cuts across a number of disciplines. Groundbreaking work in molecular biology, for example, has motivated interdisciplinary research that aims to elucidate how molecular components form functional

systems at the cellular level and also at the tissue or organ levels. This research requires experimentation combined with mathematical analysis and computer modeling. Supporting it, in turn, will allow us to prepare future scientists for careers in the growing biological and health science fields, and to educate all students to be responsible citizens in a world where ethical, social, political, and economic questions related to the life sciences will arise with increasing frequency.

### **Objective 3.1 Quantitative Understanding and Modeling**

Recent technological developments have made it possible in many disciplines to collect datasets of unprecedented scope, size, and precision; and computer-based mining and analysis have allowed researchers to recognize complex relations among the data. Mathematical analysis, modeling, and quantitative data analysis are now employed in fields ranging from physics and biology to psychology and cognitive science, from economics and sociology to anthropology and linguistics. These developments are catalyzing new theories and insights, and they may herald an intellectual revolution that spans the physical and life sciences, the social sciences, and the humanities, where digital archives and virtual technologies are changing methods of basic research. Augmenting expertise in the College in quantitative fields thus fosters better research and creates a more collaborative atmosphere. Equally important given the expanding opportunities for graduates with expertise in methods of statistical research, it also benefits our students in intellectual and practical ways for the professional world that awaits them.

Although the College has had significant strength in quantitative approaches in many of these fields, it is imperative to build even more effective computational and intellectual infrastructures than we have done in the past.

#### *Strategies*

- The College will encourage departments to recruit faculty with specific expertise in quantitative methods to spark new collaborations between researchers in mathematics, the physical sciences, statistics, and the life and social sciences.
- The College will ensure that the physical infrastructure necessary to facilitate complex modeling and analysis will be maintained.
- The College will facilitate new collaborations with Informatics faculty, the School of Library and Information Science (SLIS), and UITS staff possessing expertise in high performance and grid computing.

- Departments should expand offerings in quantitative areas and integrate quantitative analysis more thoroughly into existing curricula.

### **Objective 3.2 Core Facilities--From Molecular Biology to Supramolecular Structures.**

The Life Sciences are gaining new understandings of life processes, disease, and the genetic origins of cellular dysfunction. One very successful strategy is to study well-chosen model systems with the goal of making basic discoveries that apply much more broadly. This research often produces far-reaching insights into human biology and disease which cannot be gained by studying humans directly. In addition, genomics and proteomics, among other high-tech fields, are leading the way in identifying networks of functional systems that regulate life processes. Other efforts are aimed at understanding the physical and chemical mechanisms underlying the assembly of clusters of biomolecules into larger structures. The study of these phenomena is important for the understanding of fundamental life processes and will also contribute to better control and design of artificial materials at the nanoscale.

#### *Strategies*

- The College will leverage its already strong facilities for bio-analytical chemistry, nanotechnology, and imaging at various scales (TEM, cryo-electron microscopy, and modern light microscopy techniques).
- Estimations of the long-term costs for staffing, maintenance, and operation should be included in any plans for the acquisition of new core facilities.
- Managers of core facilities will ensure that the next generation of scientists possesses the requisite knowledge to use these facilities effectively.
- The College will make new core facilities widely available, in part, by creating centers that are not limited to any single group or department. Charges for operating these facilities will be distributed among those departments and centers in which users have an appointment.

### **Objective 3.3. Brain and Behavioral Science.**

The mind remains one of the great mysteries of science. It is responsible for attention and perception, motor control and coordination, language, memory, categorization, decision-making, social-emotional processes, problem solving, and more. The study of the mind in concert with that of the brain--as well as studies of the behavior of individuals, groups, and communities--is necessary for understanding the complex processes underlying human and animal behavior. The College has a distinguished tradition of supporting interdisciplinary programs that address social

and cognitive science as well as their neural and endocrine underpinnings, the development of these behaviors over the lifespan, and their evolution over longer periods.

### *Strategies*

- The Neuroscience and Cognitive Science programs will continue to be responsible for promoting interdisciplinary collaborations through training grants and program projects.
- Beginning with the *Decade of the Brain* in the 1990s, the study of the brain has become one of the NIH's highest research priorities. The College will provide the necessary infrastructure for enabling cutting-edge research with the completion of the new labs in the Multidisciplinary Sciences Building – 2 and the renovation of the lab animal facilities.
- Similarly, the U.S. Department of Education and the National Science Foundation have identified the development of human capital through learning as well as social-cultural processes as a research priority. The College will continue to support interdisciplinary research in the social and behavioral sciences that promotes human capital.
- The College will support the recently created center for translational research and encourage more interaction between researchers on campus and those in the Medical School.

### **Objective 3.4 Ethical, Legal, and Social Implications of Scientific Discoveries**

Spectacular advances in the life sciences are raising questions that increasingly inform debates in the social sciences, the arts and humanities, and medicine. The ethical, legal, and social questions associated with these breakthroughs are profound and need to be addressed. With significant assets in the study of ethics and American institutions and scholarly strength in such areas as literature and science, and the history and philosophy of science, the College is well-positioned to attend to the ethical, philosophical, and cultural implications of such advances. As frontiers in the sciences are expanded, therefore, the College will also encourage reflection on the implications of such expansion.

### *Strategies*

- The College will encourage collaborations among humanists, social scientists, and scientists in pursuing interdisciplinary challenge grants.

- The College will facilitate team teaching for faculty who propose interdisciplinary courses bridging the humanities, social sciences, and the sciences.
- Through its centers and programs, the College will make seed funding available on a competitive basis for groups of faculty who develop and submit proposals to federal and private foundations to study the ethical, legal, and social implications of scientific discoveries.

**II. A Greener World.** The College’s commitment to research in the natural and social sciences prominently includes those areas pertaining to the effects of energy production on public health and the environment. Indeed, the twin challenges of sustainable energy production and the protection of ecosystems require the expertise of researchers in a myriad of fields: from physical scientists studying fossil fuels and the reduction of their negative environmental effects to social scientists concerned with energy security and economic policy. Developments on all of these fronts will lead to the creation of a new “green collar” workforce for America prepared to take on the country’s—and world’s--most significant challenges.

This national agenda presents an appreciable opportunity, and one of our goals is to gather and expand existing strengths in the College to realize it. Jointly with the School of Public and Environmental Affairs (SPEA), the College already offers a Bachelor’s degree in Environmental Science, while much of the research activity in this area is coordinated in two centers within the Office of the Vice Provost for Research (OVPR): the Center for Research in Environmental Sciences (CRES) and the Center for Research in Energy and the Environment (CREE). In addition, the College has strong ties to the Lugar Center for Renewable Energy at IUPUI. In the next five years, we hope to expand significantly upon this base.

### **Objective 3.5a Clean and Sustainable Energy**

The College includes faculty conducting significant research in such fields as biodiversity, biofuels, photovoltaics, and battery storage. Other faculty researchers are studying the potentially broad use of wind power, on and off shore, and the environmental impact of burning fossil fuels. The connections between research and the innovation it will inevitably produce are clear. College investment in this area corresponds to the emphasis recently announced in the strategic plan of the Office of the Vice-Provost for Research, further enabling collaboration between offices and the researchers working in this area.

### **Objective 3.5b Climate Change**

The mitigation of climate change will also remain at the forefront of national and international policy. College researchers study such varying aspects of this issue as air quality and atmospheric change, the relationship of land cover change to climate change, microbial diversity, biogeochemical change, and many other areas. Scientists are joined by social scientists in studying many of these and related issues. Water and food security, for example, are key

challenges both for public health and international policy, suggesting ways in which basic science, network analysis, and several disciplines within the social sciences must be mobilized to address the wide range of issues connected to climate change

### **Objective 3.5c Humans and the Environment.**

The relationship between humans and the environment is a reciprocal one: human well-being depends upon a variety of environmental factors, and the viability of ecosystems is directly connected to and affected by human activity. Scientists across the College, many working in tandem with faculty from other Schools, are exploring complex socio-ecological interactions. As an example, faculty from natural and social science departments are studying human-forest systems in temperate and tropical regions; others are assessing the effects of deforestation and its relationship to commodity production. More generally, researchers are considering how population density and transportation systems impact ecosystems; and how regional, global, political and economic processes relate to decisions made at the community, or even household, levels. Such multi-disciplinary study of the relationship between ecosystems and human activity will grow increasingly urgent.

Similarly important are cultural projects—painting, film, literature--that represent this relationship or examine it critically. Eco-criticism, philosophical and legal studies of species and animality, and such ventures as the 2009 NEH Summer Institute on Audubon which featured the collaborations of humanists and biologists represent the kinds of multidisciplinary attention the relationship between humans and the environment has commanded.

### *Strategies*

- The completion of Multidisciplinary Science Building-2 will provide much-needed state of the art laboratory space for environmental researchers. The College will continue to appoint faculty who can participate vigorously in these problems of great national importance and to invest in the kinds of space and technology their research requires.
- Because of the scope of these challenges, the College will encourage collaborations with other schools on campus and with research institutions both in the U.S. and abroad.
- The College will also encourage the establishment of international partnerships by centers and institutes working in this area.
- In conjunction with SPEA, the College will create a complementary undergraduate program in Environmental Studies that will combine courses in the physical and natural sciences with those in the social sciences and humanities.

- Artists and scholars in the humanities as well have contributed significantly to the representation and analysis of environmental issues, and the School of Fine Arts gallery has mounted important exhibitions on art and the environment. The College will continue to support these undertakings and encourage further collaborations between scientists, humanists, and artists, through such means as the focus of the 2010 Themester on sustainability.

**III. Social, Political and Economic Solutions to Contemporary Problems.** Social scientists in the College are addressing current problems including the amelioration of poverty, the promotion of fairness and equity, the expansion of educational opportunities, the improvement of health and healthcare systems, global security and international cooperation, and global migration.

Economists, for example, are working to refine monetary policy and assess its effects on interest rate levels and price level stability. They also apply game theory to price formation, contracting, network formation, public goods provision, and common property resource management. Sociologists and anthropologists are studying the environments of workplaces and laboratories, measuring their impact on job satisfaction and productivity. Political scientists are engaging with issues of import to American society, from electoral politics to immigration and the development of labor markets. Social scientists are engaged in behavioral research ranging from the effects of smoking to adolescent sexuality, from the causes of obesity and childhood nutrition to the prevention of crime.

These and other challenges are too serious to ignore, and their solution depends upon continued support of the social sciences to conduct ground-breaking research and to train the next generation of scientists.

### **Objective 3.6a Network Analysis**

The contemporary world is, in a very real sense, composed of complex networks: systematic structures that organize everything from cell phone communications to the trading of commodities and derivatives, from the operations of cells to those of such popular social network sites as MySpace and Facebook. Network analysts work in mathematics and combinatorics, in game theory and networking, in neural networking and theoretical biology, and across the College. One of the grand challenges in network analysis, for example, is the study of relationships within the financial market community, relationships implicated in the recent financial collapse. Researchers in the College, working with interested parties in the Kelley School of Business, will investigate these linkages. Social network analysis in particular is growing in prominence, as it focuses on the ways in which people relate to each other and how these relations affect individuals' behaviors. Health provides one example. Studying such topics as state responses to medical needs, the relationship between children's health and socio-

economic class, or that between mental health and substance abuse, social scientists address crucial issues facing the nation and its overtaxed health networks.

But these are merely a small sampling of the projects network analysts are undertaking. Network Science is a major strength of the College, and contributes to significant research in a variety of disciplines. Moreover, it possesses the capacity to bring together specialists from a variety of disciplines and schools—Informatics, SLIS, the Kelley School—to better understand how networks form, grow, and either succeed or fail. Few, if any, universities in the country can cite so many distinguished researchers into networks in the social sciences, physics, psychological and brain sciences, statistics, and other disciplines. Network Science thus provides the College with a unique opportunity for distinction and genuine contribution.

### **Objective 3.6b Computational Social Science**

The College needs to provide better support for data base tools available to social science researchers. In general, social and behavioral sciences require the capacities to compare, measure, and search for patterns in semi-structured and heterogeneous data. The challenge is to integrate information over time, place, and types of data so as to scale up the opportunities for modeling and comparison. The complex modeling of human behavior, for example, has the potential to deepen understanding of a number of processes: how human activity might contribute to global climate change, or how public policy might address this issue. Much of today's research, therefore, requires massive amounts of information and advanced computational power to estimate, test, refine and juxtapose models; these projects rely upon technical and infrastructural support. Significant conceptual, technical, and analytic advances are necessary for understanding multimodal human behaviors at different time scales.

### **Objective 3.6c Social Science and International Studies**

The work of comparative social scientists in the College is complemented by that of humanists who study international culture, literature, and the arts. At present, these scholars address such issues as the progress of global democracy, the democratization of China, and electoral reform in east and central Europe; the economies of India, Korea, and countries in the former Soviet bloc; and international conflict in an age of economic uncertainty. This strength of the College prominently includes the historical research of scholars on ancient, temporally remote, and modern cultures alike. Better coordination between these different programs will provide a broader perspective on the complexity of human societies and their diversity.

### ***Strategies***

- With the assistance of OVPR, the College will support the creation of a center to coordinate network analysis.

- The College will complement funding from both the campus and private foundations by seeking external funding to create an institute to underwrite scholarly activities by social scientists. This institute will be similar to the College of Arts and Sciences Humanities Institute (CAHI).
- The College will invest in the infrastructure necessary for successful collaboration among these diverse disciplines. Foremost among these investments will be the construction of the International Studies Building for which architectural drawings will be completed by fall, 2010.
- In conjunction with University IT Services and OVPR, the College will acquire new tools necessary for the annotation and analysis of qualitative data involving different data types, including voice, video, and images. In particular, the College will partner with the Digital Libraries Project and CAHI.
- The College will encourage new initiatives, such as the monthly roundtable of area studies programs, which foster greater collaboration between social science departments and area studies programs.

**IV. Arts and Cultures: From American Culture to Virtual Worlds.** The College of Arts and Sciences is home to outstanding scholars and programs in the arts and humanities dedicated to the teaching and study of world literatures, languages, arts, histories, philosophies, religions, peoples, and cultures. It also includes premier institutes, centers, archives, libraries, and special collections vitally related to scholarship in the humanities. Ongoing support of the College’s Arts and Humanities Institute is one way of recognizing the distinction of the College’s humanists and artists. In difficult economic times such as these, the arts and humanities are hardly a “luxury”; indeed, they may even be more important in reminding people of the values, ethics, and aesthetic sensibilities that help make us who we are. And, as they are integral to a liberal education, they are central to the College’s mission to prepare students to become critically thoughtful, cosmopolitan, and engaged citizens.

Although the strengths of academic units in the arts and humanities are numerous, they might be categorized into four broadly defined groups: global studies including language, linguistics, and Title VI area studies, enterprises enriched by historians and social scientists with wide expertise in international subjects; the arts, including fine arts and art history, creative writing, film, drama and performance, and others; language and literary study, including interpretation and translation; and thought and expression, which encompasses religions, philosophies, ethics,

and folklore. Yet, at the same time as the College possesses these disciplinary strengths, there is a need to launch initiatives in the arts and humanities that foster cooperation across departments.

### **Objective 3.7 American Ethnic Studies**

The Woodrow Wilson Foundation has called the lack of diversity among America's professoriate a "national crisis," one that seems destined to worsen unless decisive action is taken. As the American population grows increasingly multicultural and multi-ethnic, the academy remains, to a considerable extent, unrepresentative of these developments. One method of addressing this issue is to make a significant investment in American ethnic studies construed as broadly as possible to include such areas as History, Religious Studies, Political Science, Folklore and Ethnomusicology, Art History, English, Theatre and Drama, and more. The Arts and Humanities have historically led the College's diversity initiatives—Frances Marshall, for example, the first African-American woman to graduate from the University in 1919, received her B.A. in English—and our commitment to diversity will be furthered by a coordinated hiring initiative in these areas.

#### *Strategies*

- The College will continue to support and promote ethnic studies, such as African American and African Diasporic Studies, Latino, Asian-American, and Native-American and Indigenous Studies, by ensuring that each program has sufficient space and resources to offer students an opportunity to major or minor in these programs.
- The College will encourage departments, especially those in the fine arts, humanities, and social sciences, to work cooperatively to develop hiring plans and, where needed, expanded curricula in such areas as Asian American culture, Latino and Latina culture, and Native American culture.
- The Associate Dean for Undergraduate Education will propose the creation of a new undergraduate requirement in the cultures of America.

### **Objective 3.8 Arts and Humanities in Global Context.**

The College includes distinguished scholars who study international cultures from the British renaissance to colonial and contemporary Brazil, from film and sexuality in China, India, and Western Europe to ancient and medieval Asian cultures. It also features prolific and distinguished faculty with specific expertise in regions of the world that have grown in strategic importance in recent years: the Middle East, Israel, India, post Cold-War Russia, Korea, and

elsewhere. In a manner analogous to the origin of area studies after World War II, the interdisciplinary study of languages and cultures in strategic regions of the world will grow in salience in the twenty-first century, and the College is committed to ensuring that we not only retain but expand our prominent position with regard to the study of such regions.

### *Strategies*

- The College is committed to supporting scholarship in the arts and cultures of different world regions, and it will continue to explore new opportunities to fund faculty and student travel to conduct their research.
- The College will continue its investment in area studies programs and will encourage these programs to promote scholarship in the arts and humanities, as well as those in the social sciences, focusing on those regions of the world encompassed by area programs.
- Departments and programs are encouraged to establish more interdisciplinary projects with other academic units, as well as collaborations with other CIC programs which can be facilitated through Courseshare and other mechanisms.

### **Objective 3.9 Improved Infrastructure for the Arts and Humanities**

The recent construction of multi-disciplinary science buildings suggests the larger need for high-tech venues that function as an intellectual nexus for interdisciplinary research. Once it is completed, the new International Studies Building will serve this purpose, bringing together scholars from several academic units to re-imagine international research and teaching. But spatial and infrastructural requirements hardly end here. A number of archives, such as the Black Film and African-American Music Archives, have outgrown their present locations. If the envisioned future of a university digital library is realized, we will strive to distinguish ourselves through special collections, both printed and digital. Achieving this distinction and this level of support for research will require rich collections of licensed digital products, greater support for innovative digital scholarship, and a broad range of options for distributing—and evaluating—scholars' work. The needs of some current scholarship encompass more than digital libraries and annotation tools, as much research also depends on the digital restoration of audio and video recordings. In addition, three-dimensional visualization of artifacts, buildings, and spatial layouts is necessary not only for curatorship and analysis, but also for the establishment of virtual worlds for both aesthetic and research purposes. It is essential that humanities departments begin preparing for these new developments in both their hiring plans and their assessments of essential infrastructure.

### *Strategies*

- The College will continue its commitment to fund CAHI with the goal of increasing its budget to \$1 million per year to subvene humanistic research and artistic achievement.
- The College will encourage a closer relationship between the College of Arts and Sciences Humanities Institutes (CAHI) and campus archives of national and international distinction in an effort to develop the national profile of humanistic research.
- Departments will be encouraged to hire new faculty with specialization in digital studies of the humanities.
- The development of a new digital infrastructure will require more meaningful collaborations between academic departments and the Institute for Digital Arts and Humanities (IDAH), campus libraries, and the Information Technology Services.
- The College will renew its pledge to improve the physical infrastructure for both significant archives and facilities for viewing and listening to media in their holdings. The ongoing renovation of the Kent Cooper Room in the Wells Library, which will become the Black Film Archive, provides an example of this commitment.

## **CORE GOAL 4:**

### **PROVIDE LEADERSHIP AND SERVICE BEYOND THE SAMPLE GATES**

Greater engagement with state and local communities benefits students and the public in numerous ways. The College's goal of creating a better-informed citizenry, for example, is epitomized by student outreach activities in such programs as the Chemistry Open House and local Chemistry Outreach program, the Physics/Astronomy Open House, the African American Dance Workshop and Camp Soul, and many more. These programs are supplemented by such activities as internships, student in-service participation with a variety of social agencies, and the Science Olympiad. Such activities and co-curricular projects in many departments afford undergraduate and graduate students unique opportunities to learn outside the classroom, as they also help realize the College's commitment to the community.

The faculty performs a crucial role in these and related endeavors that forge bonds between the College and the community. The success of WonderLab, the PEPP Program in Geological Sciences for middle and high school students interested in the physical and earth sciences, the African American Arts Institute, and other outreach activities is directly attributable to the vision and effort of College faculty. And these efforts are in no way secondary to others in fulfilling the College's mission. On the contrary, without direct faculty involvement with such constituencies, the College cannot fulfill its responsibilities to educate, to contribute to public discourse on topics of importance, enhance public welfare, and foster new ideas.

Even if this civic obligation did not exist, community engagement is also a thoroughly practical matter, as it affects public perception of and, ultimately, support for the College. All of us—faculty, students, and staff—must re-double our efforts to help the state government and the citizens of Indiana better appreciate the enormous contributions the College makes to our general well-being: to our cultural life, to our economy, and to our democracy. The College is thus committed to bolster efforts to engage communities, governmental agencies and industry, and most particularly its alumni, whose support of and relationship with academic units is crucial in funding undergraduate scholarships and graduate fellowships; in mentoring undergraduates, particularly in their job searches after graduation; and in cultivating significant partnerships that aid graduate students as they prepare to enter the professional world.

#### **Objective 4.1 Engagement with Alumni and Donors**

Alumni and donor engagement in the College, for the most part, flows from alumni relationships with departments. Such relationships are cultivated in various ways. In some units, emeritus faculty have assumed such leadership and done a superb job; in others, chairs or faculty committees have taken on this responsibility. At the same time, however, a recent survey of College departments indicates great variation in the amount of effort devoted to building relationships with alumni, donors, and friends. While some departments have established

programs to cultivate close relationships with these groups, others are just beginning to realize the importance of these associations. Working in tandem with the College's Office of Advancement, departments can play a significant role in the identification, cultivation, and stewardship of donors and donor prospects. Several strategies are needed to improve this vital connection between academic units and former students and supporters.

### *Strategies*

- Departments will work with the Office of Advancement to identify alumni, other individuals, corporations, and foundations that may have gift interests and to develop programs to enhance alumni engagement with, and to acknowledge gifts made to, the department.
- Departments should communicate more regularly with the Office of Advancement's Marketing and Communication staff, relating news that might be of interest to their alumni: faculty awards, publications, upcoming campus events, and so on.
- Departments should produce well-designed newsletters at least once per year and informative departmental web sites of interest to alumni and supporters. The Office of Advancement will assist all departments and programs with their print and web materials for publicity and marketing.
- Because the success of all outreach initiatives depends upon the maintenance of an up-to-date and accurate alumni database, departments will assist the Office of Advancement by providing updates to contact and employment information for alumni with whom they communicate, so that the central alumni database is kept current.
- While the Office of Advancement plans both small and large-scale events throughout the state and nation to interact with alumni and provide outreach education, departments and programs should similarly invite alumni to such events as receptions at the national and regional meetings of their professional organizations, annual award day ceremonies, and so on.

### **Objective 4.2 Research Partnerships with Other Universities and Industry**

*Accelerating Growth*, Indiana's strategic economic development plan, calls for increasing the state's "capacity for conducting cutting-edge research and development activities within its institutions of higher learning and business." If Indiana is to achieve this objective, business entities and institutions of higher education must work together to expand the state's share of national investments in research and development. Continued growth depends upon scientific discoveries and innovations flowing from universities in concert with industrial research laboratories. These synergistic partnerships will result in more research funding for universities,

growing private-sector research and development in the state, and greater involvement by universities in the commercialization of new discoveries. Although the College has made progress in promoting private-public partnerships, it must establish a more reliable and sustainable mechanism for boosting its collaborations with other universities as well as the private sector so that more faculty are involved and more companies and venture capitalists are motivated to invest in research opportunities in the College.

Partnerships with the private sector are important not only for stimulating greater technology transfer and commercialization, but also for improving the competitiveness of the College for extramural funding. Federal and philanthropic agencies are becoming more focused on large projects, and competition for this funding is intensifying. In such an environment, the securing of research support involves increasingly cross-disciplinary and multi-institutional approaches nested within public and private partnerships. Indeed, a growing number of the new research funding initiatives announced by the federal government in the past few years demand the participation of multiple universities and, in some cases, other constituencies external to the university.

### *Strategies*

- Science is becoming bigger, faster, and more expensive, especially with regard to core facilities, e.g., imaging equipment, BSL-3 labs, NMR facilities. The College will prioritize its investment in new core facilities that will be shared across labs located not only at IU, but also at other institutions in the state.
- The College will develop business plans to enable industrial research labs to use core facilities on a fee-for-services basis. The payments received from the private sector will help to offset the maintenance costs, upgrades, and technical support necessary to operate these facilities.
- The College will support the development of interdisciplinary centers that partner with other academic institutions as well as private industry. Typically, the needs of the private sector are satisfied via outsourcing, but local companies, in particular, could reap greater returns on political and human capital by partnering with the College in multidisciplinary centers that coincide with their specific R&D goals.
- The College will collaborate with the IU Research and Technology Corporation (IURTC) to attract research scientists from private industry to the new incubator facility and appoint them adjunct faculty so that they can be involved in grant submissions and the training of graduate students. The recruitment of these scientists is an example of how we can better use the physical infrastructure of the College to enhance the intellectual infrastructure.

### **Objective 4.3 Education beyond the Sample Gates**

Throughout, this Plan has underscored the dual educational goals of a more engaged citizenry and a more effectively trained workforce. The former goal is achieved by a wide variety of initiatives: travel abroad, internships, increased interaction with advocacy groups, political campaigns, non-profit organizations, and legislative committees, and other programs designed to broaden students' awareness of the world in which they live. Such involvement also enhances students' preparation for post-graduate work in fields ranging from law to public policy.

At the same time, the College recognizes its obligation to educate students for the workplaces they will enter and seize educational opportunities that present themselves, utilizing them to greater effect in responding to two national priorities in particular. The first involves a much-reported crisis in the education of American school children. Since the early 1980s, numerous calls from the public and private sectors alike have urged schools to improve the education of American students in Science, Technology, Engineering, and Mathematics (STEM) fields. The need for such progress is just as acute today as it was twenty-five years ago.

Similarly, a 2008 report of the National Research Council describes a "global knowledge economy" with an acute demand for "science professionals" who are fully equipped to enter "new and revitalized industries" and fill "the well-paying jobs they bring." Meeting this demand will require new M.S. and M.A. degrees and the creation of certificate programs designed to meet specific needs in scientific, technical, and other fields. New programs in such areas as statistics, survey methodology, virtual worlds, geology, foreign language and area studies, professional communication, medical physics, computational linguistics, biotechnology, and communication disorders also have the potential to enroll working professionals seeking additional training. Learning beyond the Sample Gates, then, specifically includes these initiatives.

### ***Strategies***

- Through new collaborations and certificate programs that combine experiential learning and co-curricular activities with classroom instruction, the College will strive to deepen undergraduate students' political and civic understanding and increase their opportunities for meaningful community engagement. The newly-developed PACE (Political And Civic Engagement) program, for example, provides students with opportunities to understand and participate more effectively in American political and civic life.
- The Associate Dean for Undergraduate Education will continue to expand pre-college outreach and engagement initiatives designed to attract pre-college students to campus, especially in STEM-related disciplines, and include the greater participation of under-represented groups in STEM areas.

- Faculty should be encouraged to share their expertise and recent research with area teachers, become involved in meaningful, professionally relevant community activities and thereby serve the state, nation, and their profession. Examples of such activities include collaboration with the state Department of Education on such programs as Twenty-First Century Scholars or the design of courses/curricula directly related to the preparation of future teachers.
- In partnership with the School of Education, the College will continue to develop innovative approaches to increasing the number of undergraduates preparing to teach science and mathematics.
- Departments should encourage faculty to apply for funding from such programs as the NEH Summer Workshops in the Humanities for Teachers and various programs at the National Science Foundation that link college faculty with teachers.
- Departments should assess the market for professional Masters' degree or certification programs in their disciplines. The College will support such efforts, particularly those requiring technical assistance for instruction in virtual classrooms online. The Office of Advancement will be tasked with the responsibility of consultation with corporate and institutional partners to ascertain their educational needs.

## **CONCLUSION**

Since its election in 1909 as one of sixty-two institutions comprising the Association of American Universities, Indiana University has weathered the storms of a Great Depression, world wars, and much more. The present economy and its potential to damage higher education must count as such a storm, as it has the capacity to undo the progress we have made and undermine our resolve to move forward with research programs, learning initiatives, and affiliations that will benefit all of us. This crisis could stifle innovation by inducing some to suspend new initiatives or tempt others to accept enervated or outmoded thought instead of advancing the frontiers of knowledge. Perhaps most dangerous of all, it could induce us to long nostalgically--and unrealistically--for a bygone era that will not return. If, however, we are united in our resolve to advance the missions of the College in research, teaching, and service, we will transform the challenges that confront us into opportunities for a distinguished future.

Yet, we must also accept the harsh reality that we cannot support all the undertakings we once did. Instead, as the result of a careful deliberative process, this Plan identifies specific areas of excellence, though certainly not all, to cultivate. In so doing, we both establish our unique identity and secure a competitive advantage over peer institutions. At the same time, this Plan advocates the implementation of new programs and initiatives that will create a more diverse, more international, more dynamic environment for learning and research. In the midst of a crisis that necessitates hard and even painful decisions, in short, we must remain a forward-looking, proactive institution.

This process begins with a renewed commitment to our core goals and shared mission to support outstanding faculty and to integrate their innovative research into the kind of education that will serve our students well after graduation. In so doing, we revise liberal education for the new century and better serve our students, our community, and our nation

The challenges the College faces in the next five years are enormous. But so too are the opportunities. A new century of distinguished research and teaching awaits, and this plan is intended as a call to action to help us overcome any obstacle that might prevent us from reaching these goals.