

2007-2008 Science

Section	Document Name
Fiscal Health	• Science.pdf
Other Questions	• Answers to Questions for Academic Units.doc

Mission

The IUPUI School of Science provides outstanding basic science education for all IUPUI students, education in depth for students in our School, and engages in fundamental and applied research in the physical, biological, mathematical, and psychological sciences in order to increase scientific knowledge and advance the development of the life sciences at IUPUI and in the State of Indiana.

Goals and Objectives

1. Build a Strong and Diverse Faculty

1. Build a strong and diverse faculty

Campus Planning Theme: Teaching and Learning, Research, Scholarship and Creative Activity

Secondary Goals:

Sub Unit: None

Time Frame: on going

Actions taken for 2007-2008:

- Hired six new research faculty based on potential for research excellence (one each in the departments of biology, computer & information science, Earth sciences, and Mathematical sciences, and two in Chemistry and Chemical Biology)
- One of these hires was made in collaboration with the School of Informatics
- Collaborated with the IU School of Medicine to create research space for School of Science faculty and graduate students in the new Health INformation and Translational Science (HITS) Building.
- Gained funding for two new Signature Centers: the Assertive Community Treatment (ACT) Center and the Center for Membrane Biosciences
- Established financial plan that will permit ongoing hiring of faculty in strategic areas
- Created new Service Award
- Created new graduate programs in Forensic Sciences and Biostatistics

Evidence of Progress for 2007-2008:

- The School hired 31 new faculty in the last 4 years who will contribute significantly to the teaching and research missions. The start-up packages for new faculty were competitive with national standards.
- Research funding increased from \$6.2 Million in 2006-07 to \$8.3 Million in 2007-08
- Successful creation of new graduate programs, research centers, and strategic relationships with other units.

Activities planned for 2008-2009:

- Continue to safeguard financial resources to allow ongoing expansion of faculty in strategic areas
- Collaborate with other Schools and Research Centers to jointly hire faculty in strategic areas
- Identify campus resources, external resources and collaborative opportunities for faculty to pursue their research and scholarly activities
- Continue strategic hiring of faculty in biology, chemistry, psychology and mathematics
- Begin planning for new Science and Engineering Laboratory Research Building
- Expand incentives for gaining additional external research support
- Provide school level support for graduate student funding

2. Develop Nationally Recognized Undergraduate Programs in Select Areas

1. Maintain and develop undergraduate programs that provide students with the learning skills and knowledge essential for employment and life-long learning.

Campus Planning Theme: Teaching and Learning, Best Practices

Secondary Goals:

Sub Unit:

Time Frame:

Actions taken for 2007-2008:

We continue to promote and expand new degree programs in areas of demand:

- BS in Environmental Science in collaboration with SPEA and the School of Liberal Arts
- BS in Interdisciplinary Studies.
- BS in biotechnology, in conjunction with four corporate partners (Eli Lilly, Roche Diagnostics, Dow AgroSciences, Baxter Pharmaceutical Solutions),
- BS in Forensic and Investigative Science in collaboration with the School of Law and SPEA
- Combined BS/BS in physics and Electrical Engineering

We also continue to use and develop innovative pedagogical practices and other educational experiences that promote student learning and engagement

- Just-in-Time Teaching (JiTT) in biology, chemistry and physics
- Peer Lead Team Learning (PLTL) in chemistry
- Computer-based testing and homework systems in chemistry, mathematics, physics, and psychology
- Transformation of Psychology B105 (Psychology as a Biological Science)
- Extensive undergraduate involvement in research
- Service learning opportunities

Completed articulation agreements with Ivy Tech covering Biology, Chemistry, Mathematics and Psychology

Collaborated with School of Education to establish scholarship opportunities for students pursuing certification to teach science and mathematics.

Evidence of Progress for 2007-2008:

Substantial increase in undergraduate enrollment and high student quality.

- Admitted class increase from 465 in Fall 2007 to 586 in Fall 2008
- Enrolled class increase from 215 in Fall 2007 to 263 in Fall 2008
- Mean SAT score of enrolled class of 1139
- Mean High School GPA of enrolled class 3.63

In many cases, evidence is provided by student enrollment and participation.

- Enrollment in our program in forensic and investigative science
- Enrollment in our program environmental sciences
- Enrollment in our double degree programs in physics/engineering.
- Participation in undergraduate research projects
- Student publication of research papers in collaboration with faculty mentors
- Participation in service learning projects

Successful application for Robert Noyce Award (NSF)

Creation of Woodrow Wilson Teaching Fellows programs

Activities planned for 2008-2009:

Continue to develop new programs and educational methods that attract students in areas of high need and promote learning and engagement

- BS/MS 5 year program in physics/electrical engineering
- Develop cooperative education opportunities for science students interested in gaining experience in industry before graduation
- Improve capstone experiences
- Promote Interdisciplinary Studies and Biotechnology programs to increase enrollment
- Work with Ivy Tech to promote articulated degree programs

Expand opportunities for science students to pursue careers in secondary education, including 4 year programs leading to a Baccalaureate degree and licensure as a secondary school teacher in biology, chemistry, Earth science, mathematics, and physics.

▼ 2. Increase overall retention and graduation rates by 10%.

Campus Planning Theme: Teaching and Learning

Secondary Goals:

Sub Unit: None

Time Frame: 2002-2006

Actions taken for 2007-2008:

- All the actions in Objective 1
- Supported undergraduate research students financially, including students in the Diversity Scholars Research Program
- Enhanced and expanded activities of the Math Assistance Center (MAC)
- Enhanced and expanded the Chemistry Resource Center (CRC)
- Expanded mentoring in Psychology B104
- Hired several new advisors (Dean's office, psychology, biology)
- Closer ties with University College counselors
- Enhanced scholarship support (Dean's Beginning and Continuing scholars, health and life science scholarships, scholarships for secondary education candidates)
- Recognized students who have performed well in gateway science and math courses, regardless of school (the SOS "A" Convocation)

- Continued to improve support for Women in Science House (increased subsidy, new RA)
 - Support for student organizations, including the seven departmental clubs, and the Psi Chi Honor Society
 - Psychology peer-advising office
 - Continued expanded communications with late and unregistered students
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Evidence of Progress for 2007-2008:

- 47% increase in baccalaureate degrees conferred since 03-04
 - Women in Science House fully occupied, with 40% of the rooms occupied by returning students
 - Almost perfect retention to graduation of Dean's Scholarship awardees (>90%)
 - Upward trajectory in retention rates (all categories)
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Activities planned for 2008-2009:

- All the actions mentioned above
- Continue to expand MAC, Chemistry Resource Center, Psychology mentoring, and other supplemental instruction.
- Proactive efforts to reenroll students who have "stopped out."
- Continue to expand opportunities for students to work on campus.
- Work with campus on creation of the Honors College
- Work with campus partners to implement the RISE initiative.
- Continue to focus on reducing DFW rates in courses with high attrition.
- Initiate use of alumni mentor network.

3. Gain external recognition for our undergraduate programs

Campus Planning Theme: Teaching and Learning

Secondary Goals:

Sub Unit: None

Time Frame: Ongoing

Actions taken for 2007-2008:

- Enhanced connections with schools
 - Enhanced connections with admissions office
 - Continued to sponsor events involving students in K-12 and teachers: High School Mathematics Contest, Genetic Update Conference, High School teachers conferences in psychology and forensic science
 - Created new High School Programming Contest
 - Began placing graduate students in K12 schools under NSF funded GK12 program
 - Sought internal and external funding for new and continuing programs
 - Began major upgrade of school web site
 - Outreach activities associated with individual departments, centers and programs, e.g., the Center for Earth and Environmental Science
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Evidence of Progress for 2007-2008:

- Undergraduate enrollment up 26% in 5 years
 - NSF funded GK12 program
 - High participation in High school math contest, programming contest
 - Forensic science for HS teachers conference well attended, popular
 - NIH Support for Bridges to the Baccalaureate program
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Activities planned for 2008-2009:

- Same as above actions
- Capitalize on IUPUI as the place to study a wide range of health-related professions
- Expand GK12 program placing graduate students in K12 classrooms.
- Work with admissions and other campus offices in support of enrollment shaping initiative.
- Presentations to business and corporate groups, schools, and others
- Revitalize Dean's advisory committee
- Complete upgrade of school web site
- Acquire data on student success in job search and graduate/professional admissions

☒ 4. Increase diversity of undergraduate student body and faculty

Campus Planning Theme: Teaching and Learning, Campus Climate for Diversity

Secondary Goals:

Sub Unit: None

Time Frame: 2002-2006

Actions taken for 2007-2008:

- Continue to support and participate in the Diversity Research Scholars Program (DSRP)
 - Continue to support and participate in the Louis Stokes Alliance for Minority Participation (LSAMP) program
 - Continue to support and participate in the McNair Scholars program
 - Expand support for and programs associated with Women in Science House (WIS)
 - Created diversity council, began creation of diversity plan
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Evidence of Progress for 2007-2008:

- CTE awards for Women in Science and Diversity Scholars Research Program
 - Received Bridges to the Baccalaureate grant from NIH
 - Minority representation increased from 15% to 18% over last 5 years
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Activities planned for 2008-2009:

- Continue above actions
- Complete diversity action plan
- Collaborate with Ivy Tech to expand transfer of minority students in the life sciences (Bridges to Baccalaureate program)
- Apply for NSF funding under S-STEM program supporting scholarships aimed at increasing diversity among science and math majors

▶ 3. Development of Nationally Recognized Research and Graduate Programs

▼ 1. Develop new academic programs of high scientific and national significance that build on current strengths

Campus Planning Theme: Teaching and Learning, Research, Scholarship and Creative Activity

Secondary Goals:

Sub Unit: None

Time Frame: Ongoing

Actions taken for 2007-2008:

- Continued multidisciplinary Centers of Excellence in strategic areas (Therapeutic Neuroscience, Visualization and Imaging, Nanoscale Imaging, Evidence-Based Psychiatric Practices, Center for Earth and Environmental Sciences, Center for Regenerative Biology)
 - Created two new signature centers (Assertive Community Treatment (ACT), Membrane Biosciences)
 - Completed ICHE approval process for Biostatistics PhD program
 - Completed ICHE approval process for Forensic and Investigative Sciences MS program
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Evidence of Progress for 2007-2008:

- Gained ICHE approval of Biostatistics PhD program
 - Gained ICHE approval of Forensic and Investigative Sciences MS program
 - Two new signature centers (Assertive Community Treatment, Membrane Biosciences)
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Activities planned for 2008-2009:

- Work with academic units at Purdue West Lafayette to increase independence of graduate programs from PWL oversight
- Continue to safeguard financial resources to allow ongoing expansion of faculty and programs
- Develop new collaborative Ph.D. programs that build on the emerging interdisciplinary nature of research nationally.
- Continue to identify and forecast national research trends as they impact graduate training and employment opportunities

▼ 2. Increase annualized external funding for research

Campus Planning Theme: Research, Scholarship and Creative Activity

Secondary Goals:

Sub Unit: None

Time Frame: 2002-2007

Actions taken for 2007-2008:

- Identified emerging research directions and used existing strengths to capitalize on them
- Hired five research-competitive new faculty
- Used centers of excellence and multidisciplinary activities as a catalyst to increase external funding
- Restructured use of indirect cost recovery to incentivize faculty efforts to increase external funding

Evidence of Progress for 2007-2008:

- 34% increase in external funding (\$6.2M to \$8.3M) since 06-07
 - 21% increase in proposals submitted (128 to 155) since 06-07
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Activities planned for 2008-2009:

- Continue to hire faculty who are research active and will seek external funding (up to 10 new hires for 08-09)
- Effectively mentor new faculty in grant writing to increase numbers of applications for external funding.
- Work with IU Foundation to identify foundation, corporate and other non-governmental sources for research support.
- Identify long term strategies to expand external funding of the six signature centers.
- Participate in campus-wide nanotechnology initiative
- Plan for additional research space in new building that will permit expansion of research programs and external funding

⌵ 3. Expand and improve research and graduate education

Campus Planning Theme: Research, Scholarship and Creative Activity

Secondary Goals:

Sub Unit: None

Time Frame: Ongoing

Actions taken for 2007-2008:

- All items in sections 1 and 2
 - Expanded recruitment to graduate programs
 - Sought external funding for graduate education
 - Worked with EVC Sukhatme to establish support for additional Teaching Assistants
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Evidence of Progress for 2007-2008:

- Graduate degrees conferred have increased by 76% over 5 years (from 98 to 172).
 - Six signature centers funded with Science faculty as PIs. Including significant funding for graduate student support.
 - Faculty and research from mathematics and computer science have occupied space in the HITS building leased from the IUSM.
 - Physics Department awarded a GAANN grant.
 - Continued strong publication record by faculty and graduate students
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Activities planned for 2008-2009:

- All items in sections 1 and 2
- Make graduate student funding available to departments earlier, so that funding is known before offers must be made to prospective students

- Revise the way that departments and investigators are charged for graduate tuition remission
- Create permanent budget line for TA stipends
- Facilitate graduate student support to investigators who have external funding
- Expand collaboration with the IU School of Medicine on use of research space, joint hires and other strategic areas
- Submit GAANN proposals in several departments
- Planning for new building to incorporate research space and office for research faculty, graduate students and postdoctoral fellows
- Ongoing review of the use of space and research infrastructure by the research centers in the school

4. Enhance External Development

1. Further develop business and corporate connections

Campus Planning Theme: Civic Engagement

Secondary Goals:

Sub Unit: None

Time Frame: Ongoing

Actions taken for 2007-2008:

Initiated conversations with industry leaders about key messages that the school should project.

Evidence of Progress for 2007-2008:

- Hosting Chinese visiting scholar at encouragement of Dow AgroSciences.
- Successfully collaborated with Dow AgroSciences to present month-long "Women in Chemistry" exhibit.

Activities planned for 2008-2009:

- Rebuild Dean's Advisory Council with executive-level decision-makers in key science/life sciences companies and organizations.
- Identify opportunities for decision-makers to interact with faculty and staff.
- Identify opportunities for faculty to speak to social/networking/corporate organizations (i.e. Rotary).
- Increase communications with decision-makers.
- Ensure that IUPUI/IU personnel who interact with decision-makers understand and pass along key SOS messages.

2. Enhance fundraising

Campus Planning Theme: Civic Engagement

Secondary Goals:

Sub Unit: None

Time Frame: Ongoing

Actions taken for 2007-2008:

- Increased the number of proposals submitted to corporations and foundations. (This effort was lead primarily by

Anne Marie Chastain at IUF-Indy.)

- Increased the number of opportunities for donors and prospects to meet with faculty; by engaging donors/prospects in this manner, we hope to enhance linkage and interest.

Evidence of Progress for 2007-2008:

In FY08, the School of Science raised a record \$780,633.30, an increase of 30 percent from the previous fiscal year. In this same time, we increased the number of donors from 687 in FY07 to 701.

Activities planned for 2008-2009:

- Supplement IUF-driven annual fund solicitations with additional direct mail asks from the school and departments; our goal here is to increase and upgrade the donor base.
- Initiate marketing campaign to promote planned giving vehicles and opportunities; directed to constituents ages 55+.
- Seek specific opportunities to move "consecutive year donors" to higher giving level.
- Continue to engage donors/prospects in "meet the faculty" events.
- Increase communication with donors and prospects; pieces should combine traditional print newsletters, magazines and letters as well as electronic vehicles.

☑ 3. Increase alumni programs

Campus Planning Theme: Civic Engagement

Secondary Goals:

Sub Unit: None

Time Frame: Ongoing

Actions taken for 2007-2008:

- Partnered with School of Liberal Arts to present continuing education program focused on climate change and global warming.
- Partnered with School of Engineering and Technology to host graduating senior event, through which we intended to introduce seniors to the alumni association and the opportunities it offers.

Evidence of Progress for 2007-2008:

- Added two new members to the SOS Alumni Association Board of Directors.
- Hosted successful Dean's Day continuing education event with the School of Liberal Arts; more than 100 alumni participated in event as guests and presenters.
- Hosted successful graduating senior event with School of Engineering and Technnology.

Activities planned for 2008-2009:

- Resume partnership with Liberal Arts (and other schools, including SPEA and Law) to present forensic science-focused Dean's Day program

- Resume partnership with Engineering and Technology to host graduating senior event.
- Coordinate department-specific activities, such as receptions, mentoring programs, lectures and career panels.
- Work with school's student leaders to present a Career Day, which will feature alumni who work in various science- and math-related fields.
- Identify opportunities to engage young alumni.
- Increase communication with alumni, at the school and department levels; pieces should combine traditional print newsletters, magazines and letters as well as electronic vehicles.
- Expand members on the SOS Alumni Association Board of Directors.

4. Enhancement of media exposure

Campus Planning Theme: Civic Engagement

Secondary Goals:

Sub Unit: None

Time Frame: Ongoing

Actions taken for 2007-2008:

- Met regularly with IUPUI Media Relations director Rich Schneider to discuss story ideas and media pitches.
 - Engaged department chairs to help with identification of stories.
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Evidence of Progress for 2007-2008:

- In FY08, doubled the number of separate media stories which featured research programs in the School of Science or quoted SOS faculty as experts.
 - In FY08, increased the number of media pitches and news releases.
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Activities planned for 2008-2009:

- Continue weekly conversations with IUPUI Media Relations.
- Meet regularly with faculty to discuss ongoing and new research projects.
- Identify national stories on which SOS faculty may comment as experts.
- Update SOS media guide and experts list.
- Expand "news" feature on SOS website.
- Cultivate local/regional reporters, especially science, life sciences and education reporters.

5. Strategic Planning

Develop a new Strategic Plan for the School of Science

Campus Planning Theme: Best Practices

Secondary Goals:

Sub Unit:

Time Frame:

Actions taken for 2007-2008:

The faculty and administration continued to implement plans developed during 2006.

Evidence of Progress for 2007-2008:

The School of Science is now on firm financial footing, with improved performance in undergraduate and graduate education and research.

Activities planned for 2008-2009:

The faculty and administration will continue to implement plans developed during 2006.

Fiscal Health**Reallocation Plan****Other Question(s)**

1. What are you doing to increase
 - a. the number of undergraduate degrees your unit grants?
 - b. the number of undergraduate degrees you grant to low-income students (Pell recipients)?
 - c. the number of first-time full-time students who complete degrees in four years?
 - d. the percentage of students completing courses successfully?
 - e. your research funding?

Note: Answers to all questions in this section are included in an attached document. Please that document "Answers to Questions for Academic Units" to see the complete report, including figures and other data that could not be reproduced here.

Question 1a**What are you doing to increase the number of undergraduate degrees your unit grants?**

Actions in this area can be categorized according to the "pipeline" for students from application to graduation. That is, The total number of graduates can be increased by (1) increasing the number of qualified applicants to the school; (2) increasing the percentage of admitted students who enroll; and (3) increasing the retention of students to graduation. The School of Science has been active in all of these areas. Examples include

Increasing applications of qualified students

- Recruiting visits to local high schools
- Mailings to all students who send ACT and SAT scores to IUPUI indicating a science or pre-professional focus
- Undergraduate Research Opportunities Program (in addition to CRL programs)
- Outreach programs, including the Scientist's Apprentice Summer Camp, programs at high school career fairs, faculty appearances at middle schools, high schools, and the State Fair
- Professional development programs for high school teachers, including the Project Lead the Way, and the High School Teachers Psychology Conference
- High School student contests (Math Contest, Programming Contest)
- Creation of dual degree programs with the School of Engineering
- Creation of a Career Services office (proposed)

Increasing the percentage of admitted students who enroll (yield)

- Phone calls from faculty and/or current students to all applicants
- A series of targeted mailings to all admitted students, including invitations to campus visits
- Creation of merit-based scholarships: Health and Life Science Scholars, Deans Scholars, Science Education Scholars

Beginning next year, the School of Science will launch a major new recruitment initiative. This initiative will include numerous actions that will positively affect both applications and the percentage yield of accepted students. This initiative will include several new mailings, student-to-student e-mails, new informational materials, a parent-to-parent letter, a school open house, personal phone calls, a “shadowing” program, and podcasts about school programs, student life, etc. All mailings and other contacts will be coordinated using IUPUI’s new uTalk system.

Increasing the retention of students to graduation

- Use of modern pedagogies including Just-in-Time Teaching (JiTT) and Peer-led Team Learning (PLTL) in gateway courses
- Creation of Assistance Centers focused on disciplinary learning: Math Assistance Center, Chemistry Resource Center, Psychology Resource Center (new)
- Creation of peer mentoring programs in introductory biology courses, Physics tutoring room
- Psychology Peer-Advising office
- Opportunities for students to work on campus in career-related positions
- Creation of merit-based scholarships for continuing students (all programs above, plus an additional program for students who have made significant improvements in academic performance)
- “A” Student Convocation for all students who show promise in introductory course work
- Extracurricular opportunities for students to engage with the school as a community
- Warning process that requires students who are academically at risk to meet with advisors before they are placed on probation
- Letters to students who have not registered for the next semester by the end of priority registration
- Letters to students who are inactive but who are close to meeting degree requirements

Results: These efforts have clearly produced results. The figure below shows the increase in the numbers of degrees awarded by the school during the last 6 academic years. During this time, the numbers of bachelor’s degrees awarded have increased by 37%, and the numbers of graduate degrees awarded have increased by 166%.

See figure in attached document

Question 1b

What are you doing to increase the number of undergraduate degrees you grant to low-income students (Pell recipients)?

All programs intended to increase the overall numbers of degrees have this effect. Some are particularly targeted to have a disproportionate effect on the numbers of degrees awarded to low income students. These include targeting our recruiting visits to IPS schools, and creating the campus work programs.

Results: The School of Science results are in line with those of the campus as a whole. According to IMIR data, the percentage of degree seeking students in the school of science who receive Pell grants is 27% (averaged over the last four years). The figure for IUPUI as a whole is 26%. Similarly, the percentage of bachelor’s degrees awarded by the School of Science that went to Pell recipients is 22% (averaged over three years). The equivalent figure for campus is 21%.

Question 1c

What are you doing to increase the number of first-time full-time students who complete degrees in four years?

Again, all programs intended to increase the overall numbers of degrees have this effect. Some are particularly targeted to have a disproportionate effect on the numbers of degrees awarded to first-time full time students. These include all recruitment efforts focused on traditional students (high school visits, targeted mailings based on SAT results, and merit scholarship programs). We also work with data provided by University College to identify and target retention efforts towards students who are in this cohort.

Results: IMIR data show that the numbers of science students completing their degree in four years is as high as or higher than our peer schools. This is illustrated by the data below.

**Number of Students Graduating in 4 years
from four cohorts, by school**

	2001	2002	2003	2004	Average
Science	28	31	36	39	33.5
Liberal Arts	17	18	21	18	18.5
Engineering & Technol.	24	21	13	24	20.5

Question 1d

What are you doing to increase the percentage of students completing courses successfully?

Many of the retention programs described above are focused on improving the percentage of students completing courses successfully. Particular examples include

- Use of modern pedagogies including Just-in-Time Teaching (JiTT) and Peer-led Team Learning (PLTL) in gateway courses.
- Creation of Assistance Centers focused on disciplinary learning: Math Assistance Center, Chemistry Resource Center, Psychology Resource Center (new)
- Creation of peer mentoring programs in introductory biology courses, Physics tutoring room.

Question 1e

What are you doing to increase your research funding?

The School of Science seeks to increase research funding at many levels. These methods are targeted at individual faculty members, interdisciplinary groups of faculty, and departments. We also work to expand opportunities to seek funding by supporting increased research infrastructure, and support of graduate education. Some examples of these activities include:

- The School successfully supported six research groups to seek funding through IUPUI's Signature Center program. This gives these groups additional leverage in seeking external funds.
- Expansion of existing and development of new graduate programs, e.g., the new PhD program in biostatistics, and the MS program in Forensic and Investigative Science.
- In faculty searches, we consider ability to obtain external funding as a top priority. By leaving the rank and tenure status of all positions in the ongoing faculty searches, we anticipate that a good numbers of the new hires will bring with them external funding.
- The School strongly encourages faculty to seek internal funding, e.g., RSFG grants, which can be used to leverage

external funding.

- We strongly encourage our existing faculty to apply for external funding.
- The Associate Dean sends alerts to selected faculty members when relevant funding opportunities are announced by NSF, NIH, Dept. of Agriculture, and other external sources.
- We are working with the Indiana University Foundation to identify and pursue philanthropic support for research.
- We continuously pursue collaborative research opportunities with partners across campus, with particular emphasis on the Schools of Medicine, Engineering and Technology, and Education
- We encourage faculty to explore collaborative research opportunities with partners at other institutions and private companies, such as pharmaceutical firms
- We have worked to expand research facilities in many ways, including renovation, leasing of external space, improved utilization of existing space, and expansion to new facilities (in planning stage)
- We have used indirect cost recovery to provide incentives, seed funds, and bridge funding to individual investigators
- We have successfully sought funds from the Department of Education GAANN program, NSF's GK-12 program, NIH training grants, and other mechanisms to support graduate education, thus freeing other funds for support of research assistants.
- We have run seminars for faculty on "grantsmanship."
- We encourage faculty to attend workshops on grant writing, and on particular funding opportunities offered by professional societies, the Office of Professional Development (former) and the Office of the VC for Research (planned).

- 2. If you had to implement a budget reduction of 3-5% a) what would be your budget priorities and b) what strategies would you employ to walk the fine line of maintaining critical operations and investing in your future? Please describe how faculty will be involved in the decision making process.**

Even under the scenario of a 3 to 5% budget cut (say, over the next bi-annum), Science must maintain a steady (though likely has to be somewhat reduced) pace in hiring in critical areas such as Biology and Chemistry. We must take advantage of the anticipated tough job market for academic job seekers to maintain forward momentum on our effort to restore our full-time tenured and tenure-track faculty to the 1997 level. This is critical if the School is to rebuild its strength, maintain the quality and integrity of its academic and research programs, and build a strong foundation for their continuing development in the future.

A second area of high priority is graduate student funding. Graduate students are becoming increasingly important to our instructional efforts and it is critical to our research programs.

Last fall, at the urging of the ICHE, we made a request to the Purdue University Graduate School that diplomas awarded to the School of Science PhD recipients be changed to reflect the fact that the degrees "are awarded for study in Indianapolis." The response we received underscored further that faculty recruitment and increasing graduate student support must be given the highest priority in the School of Science if we hope to achieve greater autonomy in our graduate programs. It was noted in the Purdue Graduate School response that "some concerns have been raised. Among them are: the number of faculty in the programs prepared to independently direct Ph.D. research; the nature of the research facilities for some programs; and the level of funding available for students and research in order to support a critical mass of students in some programs." Hence, even if we have to dip into our reserves, faculty recruitment must go forward.

To implement cuts in other areas, the dean will ask the chairs, in consultation with the respective faculty of their departments, to submit department budget plans showing two or more budget cut scenarios of increasing severity in the range of 3 to 8%. Decisions will then be made to allocate the cuts (differentially) in accordance with instructional and other programmatic needs measured against documented past return on investment and anticipated productivity.

- 3. Please describe current commitments or plans that require multiple year funding, including the amount of funding required and the length of time the initiative's funding is required.**

Providing start-up funds for incoming faculty constitute the one single biggest multi-year commitment in the budget of the School

restoring start-up funds for incoming faculty constitute the one single biggest drain on the budget of the School of Science (outside of faculty and staff compensations). We currently have a total commitment of approximately \$2.13M, of which \$1.1M will be paid out of the FY 2008-09 budget. If we succeed in all our recruitment efforts in the next three years (and restore our faculty to the 1997 level as planned), our annual pay-out in start-up funds will peak at just under \$2M before it begins a downward trend in 2012-13.

Even if we were to assume that the School will not continue to grow once we have recovered to the 1997 level, we will have 132 full-time tenured or tenured track members on our faculty. Conservatively, we must then plan on replacing our faculty at a rate of at least 3 to 4 per year due to normal retirements or resignations. Using the data from the past five years, this means that the School must set aside at the minimum \$1.4M a year to fund start-up costs for new faculty in perpetuity.

4. How do you intend to use your reserves over the next four years? Please provide the information by fiscal year.

As noted in the answer to Question 2, if we have to dip into our reserves, we will use the reserves to sustain our faculty recruitment efforts. We believe that we will be able to replenish our reserves once our student recruitment and retention efforts (see answers to Question 1) start producing results. We also anticipate that our income from indirect cost recovery will trend upwards as our new faculty hires become more productive and successful in attracting external funding (See answer to Question 5).

5. What are the current numbers and percentages of tenure-track faculty, clinical faculty, and lecturers in your school? Please describe your plan for allocating new faculty positions so as to influence the number and percentage in each category.

The School of Science does not have any clinical appointments. During the past decade, the size of the School's tenured and tenure-track faculty (TTF) went from a high of 124 in 1997-98 to a low 102 in the current academic year. During the same period, our non-tenure track lecturer rank (NTTF) grew from 11 to 38; nearly half of these NTTF appointments are in the Department of Mathematical Sciences. Currently our full-time faculty rank consists of 72.8% TTF and 27.2% NTTF.

While we are most appreciative of the instructional contributions of the lecturers in our rank, we believe that their total number should be capped at its current level, and then be reduced to no more than 20% of our full-time faculty over the next five years.

We note that the period of significant TTF attrition, from 1997 to present, also coincided with a period of nearly steady and then growing enrollment, and an expansion of our academic programs (notably in Forensic & Investigative Sciences and Biostatistics). We cannot possibly sustain our academic and research programs, let alone raising them to the next level, without aggressively rebuilding and adding to the strength of our tenured and tenure-track rank, especially in areas that are critical to the "life and health sciences" mission of our campus. It is therefore imperative that the School concentrate all its effort on restoring its tenured and tenure-track faculty rank in the next few years to at least the 1997-98 level, and we must do so aggressively. For example, the School has made the decision that the rank and tenure status of all positions in the ongoing faculty searches be left open to ensure that we will attract the strongest possible pool of candidates. It is our strong belief that a synergistic mix of senior and junior appointments is crucial if we are to build research programs that can be competitive for external funding quickly.

6. How do you define return on investment for diversity efforts in your unit (e.g, numbers of faculty/staff/students recruited and retained, grants received for special studies, new teaching methods or courses, placement of graduates, program reputation)? What are you doing to improve your ROI?

During the past four years, the School of Science hired three faculty members (belonging to underrepresented groups) with assistance from the SRUF program (or the program preceding SRUF). Two of these are in Mathematical Sciences and one in Earth Sciences. One of the hires in Mathematical Sciences has already received his first NSF research award, and the other is making good progress toward tenure and promotion and also actively seeking external funding. The faculty in Earth Sciences just joined in August. All three faculty members are being carefully counseled by their chair as they develop and advance in their teaching and research careers. Every effort is being made to ensure that they would be provided with a supportive working environment.

We will continue to be strategic in our hiring effort, and all chairs have been tasked to pay special attention to any opportunities that would increase the diversity of our faculty.