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

   - 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 2005-2006:

   - Hire only faculty who demonstrate potential for excellence in research and who will be competitive for external funding, regardless of their focus
   - Increased start-up packages 10x since 1990
   - Merit awards for productive faculty

Evidence of Progress for 2005-2006:

The School hired 26 new faculty in the last 3 years who will contribute significantly to the teaching and research missions. The start-up packages for new faculty were competitive with national standards. This investment should result in increased research funding in the next 5 years.

Activities planned for 2006-2007:

   - Develop a financial plan for the School that directs hiring 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
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 2005-2006:

   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.
   - AS and 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

   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
   - Extensive undergraduate involvement in research
   - Service learning opportunities

   Evidence of Progress for 2005-2006:

   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

   Other evidence includes reduced DFW rates in several key courses in Physics (152/251), Chemistry (C105), and mathematics (163/164)

   Activities planned for 2006-2007:

   Continue to develop new programs and educational methods that attract students in areas of high need and promote learning and engagement
   - BS/BS double degree program in physics/electrical engineering
   - BS/MS 5 year program in physics/electrical engineering
   - Multimedia based content delivery (supported by course transformation grants) in physics and psychology
   - Develop cooperative education opportunities for science students interested in gaining experience in industry before graduation.
2. Increase overall retention and graduation rates by 10%.

**Campus Planning Theme:** Teaching and Learning

**Secondary Goals:**
- None

**Time Frame:** 2002-2006

**Actions taken for 2005-2006:**

- 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)
- Closer ties with University College counselors
- Enhanced scholarship support (Dean’s Beginning and Continuing scholars, donor-funded scholarships and awards)
- Hired faculty who specialize in “gateway” courses
- Recognized students who have performed well in gateway science and math courses, regardless of school (the SOS “A” Convocation)
- Established Women in Science House and Women in Science program
- Support for student organizations, including the seven departmental clubs, and the Psi Chi Honor Society
- Psychology peer-advising office
- Expanded communications with late and unregistered students
- Streamlined process for moving pre-science majors into Science from University College

**Evidence of Progress for 2005-2006:**

- Extensive student participation in the programs cited above, e.g., large turnout for the “A” convocation, student use of the MAC and CRC, and student participation in DSRP. In the current group, science students represent 9 of 25 students in the DSRP program. Others schools have 3 or fewer students involved.
- Two joint meetings of the SoS and UColl advising groups.
- Women in Science House fully occupied, with 20% of first year students returning for a second year.
- Almost perfect retention to graduation of Dean’s Scholarship awardees (>90%)

**Activities planned for 2006-2007:**

- All the actions mentioned above
- Expand the Freshman work program in biology to include all students
- New scholarship opportunities for students interested in a career as secondary science or math teachers
- New scholarship opportunities for students seeking a career in the health or life sciences
- Improved student advising during registration.
3. Gain external recognition for our undergraduate programs

**Campus Planning Theme:** Teaching and Learning

**Secondary Goals:**

**Sub Unit:** None

**Time Frame:** Ongoing

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**Actions taken for 2005-2006:**

- Enhanced connections with schools
- Enhanced connections with admissions office
- Several articles in High School Link promoting our new or unusual programs
- 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
- Sought internal and external funding for new and continuing programs
- Began major upgrade of school website
- New literature system in conjunction with campus communications plan
- 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 2005-2006:**

- High school math contest has tripled in attendance
- Forensic science for HS teachers conference well attended, popular
- Coordinated literature for departments, programs, and activities produced
- CTE and NSF funding for education efforts
  - CTE - Establish the Urban Center for the Advancement of Science and Math Education (UCASE)
  - CTE - Establish the Center for Undergraduate Education in the Health and Life Sciences
  - NSF - Establish Robert Noyce Scholarships for secondary science and math teachers
  - NSF - SMOGEE: Students as Mentors and Owners of Geoscience and Environmental Education
- Number of Science majors increased 11% from Fall 2004 to Fall 2005

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**Activities planned for 2006-2007:**

- Same as above actions
- Capitalize on IUPUI as the place to study a wide range of health-related professions
- Presentations to business and corporate groups, schools, and others
- Revitalize Dean's advisory committee

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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 2005-2006:

- 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)

Evidence of Progress for 2005-2006:

CTE awards for Women in Science and Diversity Scholars Research Program

Activities planned for 2006-2007:

- Continue above actions
- Establish and articulate policies on tolerance and diversity
- 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 2005-2006:

- Continued multidisciplinary Centers of Excellence in new areas (Therapeutic Neuroscience, Visualization and Imaging, Nanoscale Imaging, Evidence-Based Psychiatric Practices, Center for Earth and Environmental Sciences, Center for Regenerative Biology)

- Maintained current disciplinary strengths

Evidence of Progress for 2005-2006:

A new M.S. pre-proposal in Forensic and Information Sciences was developed and approved by PU to proceed through IUPUI and PU review and approval processes.

New Certificate programs in Computer and Information Science were approved by PU.
A new IU Ph.D. proposal in Biostatistics was developed and is being reviewed by IUPUI and IU committees for approval to submit to the IU Trustees.

New graduate student stipends were provided for underrepresented minority students.

Activities planned for 2006-2007:

Develop a financial plan for the School to support and sustain high quality graduate programs in Science.

Continue to develop the new Forensic and Information Sciences undergraduate and M.S. programs.

Develop new Computer and Information Science certificates to prepare students for emerging new regional job opportunities in the sciences.

Develop new collaborative Ph.D. programs that build on the emerging interdisciplinary nature of research nationally.

Identify new resources for graduate student support.

Submit:

☐ 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 2005-2006:

- Identified emerging research directions and used existing strengths to capitalize on them

- Hired research-competitive new faculty

- Used centers of excellence and multidisciplinary activities to attract large grants

- Returned 70% of F/A to departments as incentive to submit proposals

- Identified key internal and external collaborations No changes.

Evidence of Progress for 2005-2006:

A financial plan to guarantee start-up packages for new faculty over the next 5 years was developed.

A new staff position was added in the Dean’s office to assist faculty with application preparation and grants management.
For the first four months of 2006-7, faculty generated $3.8 million in new awards, which is ahead of performance in 05-06 with a total of $6.1 million in awards for the year.

A new faculty research orientation program was developed.

Activities planned for 2006-2007:

Develop a sound financial plan for the School to support faculty research.

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.

3. Increase research infrastructure

Campus Planning Theme: Research, Scholarship and Creative Activity
Secondary Goals:
Sub Unit: None
Time Frame: Ongoing

Actions taken for 2005-2006:

- Return 70% of F/A to departments

- Seek funding through Campaign for IUPUI for centers of excellence

- Seek funding through 21st Century fund and external agencies of centers for excellence or other infrastructure projects

Evidence of Progress for 2005-2006:

Eight of the approximately 70 Signature Center proposals had Science faculty as the principal investigator and three additional proposals had Science faculty as co-investigators. A financial plan was developed to allow Science to match funds from the Signature Center proposals.

Planning of the new Medical and Information Sciences Building is proceeding for a January, 2007 by faculty from Mathematical Sciences and Computer and Information Sciences.

A Blueprint plan for collaboration among Chemistry and Chemical Biology, Biochemistry and Molecular Biology and the Center for Chemical Genomics is being formed to share space in the Medical Sciences building.

The Associate Dean for Research and faculty Research Committee are conducting an internal review of all research Centers and core facilities in the School to assess their contribution to research infrastructure and future space and financial needs.

Activities planned for 2006-2007:
Write Signature Center proposals in response to the new initiative of Executive Vice Chancellor and Dean of the Faculties, Uday Sukhatme.

Develop a plan for new shared research space in the Medical Information Sciences Building and Medical Sciences Building that is provided to the School by the Dean of the School of Medicine. The goal is to increase collaboration in life sciences research between Science and Medicine faculties.

Work with the IU Vice President of Life Sciences, Craig Brater, to develop a strategic research plan in the School of Science for life sciences research.

Collaborate with other IUPUI Schools and Research Centers to recruit new faculty with joint appointments in Science.

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 2005-2006:**
   - Used input from Dean’s Advisory Council and Alumni Association Board of Directors
   - Made corporate scientists and state government agencies part of grant proposals and other initiatives
   - Began effort to develop co-op programs
   - Continued Frontiers in Science series
   - Participating in Connect Tech No changes

   **Evidence of Progress for 2005-2006:**

   Discussed Signature Center Proposals, new Ph.D. proposal in Biostatistics and Strategic Planning with Dean’s Advisory Council.

   Identified individuals to help with Women in Science and Windows in Science programs.

   Worked productively with Veolia Water with scientific collaborations and financial support for the Center for Earth and Environmental Sciences.

   **Activities planned for 2006-2007:**
Continue meeting with Dean’s Advisory Council to identify goals for business and corporate engagement.

Engage members of the Dean’s Advisory Council in Strategic Planning for the School.

Recruit individuals in the business and corporate communities to mentor students in Women in Science program, Windows on Science course and various community outreach activities like Science Olympiad, Science Fairs etc.

Work with strategic corporate partners in the development of specialized Centers of research in the School

2. Enhance fundraising

**Campus Planning Theme:** Civic Engagement

**Secondary Goals:**

**Sub Unit:** None

**Time Frame:** Ongoing

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**Actions taken for 2005-2006:**

- Active Alumni Association Board

- Active Dean’s Advisory Council

- Identified major gift prospects. Hired major gifts director.

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**Evidence of Progress for 2005-2006:**

An agreement was signed with IU Foundation to have Anne Marie Chastain move to IU Foundation and continue to develop the major gifts program with stronger guidance and support from the Foundation staff.

Developed excellent ‘Moving the Mission Forward’ newsletter that is distributed to faculty, staff and Dean’s Advisory Council.

Continued productive meetings and communications with Retired Faculty and community groups.

Increased gifts to support student scholarships, research and outreach activities.

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**Activities planned for 2006-2007:**

Reorganize the staff and support for major gifts development in the Dean’s office.

Develop a new strategy for enhancing fundraising in the School of Science as part of the Strategic Planning effort.

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3. Increase alumni programs

**Campus Planning Theme:** Civic Engagement
Campus Planning Theme: Civic Engagement
Secondary Goals:
Sub Unit: None
Time Frame: Ongoing

Actions taken for 2005-2006:

- Elected new Alumni Board president
- Hosted retreat to establish yearly goals
- Collaborated with Liberal Arts to offer science and faith program for Dean’s Day
- Hosted first young alumni/graduating seniors event
- continued School of Science night at men’s basketball game

Evidence of Progress for 2005-2006:

Alumni Board meetings are well-attended and specific activities are planned, like enhancement of the common student study areas in LD/SL.

Above activities are well attended.

Activities planned for 2006-2007:

- Continue activities above
- Continue to support meetings and mission of Science Alumni Board
- Participate in campus-wide Winter College

4. Enhancement of media exposure

Campus Planning Theme: Civic Engagement
Secondary Goals:
Sub Unit: None
Time Frame: Ongoing

Actions taken for 2005-2006:

- Working closely with Media Relations
- Developed School and Department fact cards and brochures
- Faculty have given radio and educational television spots and interviews.
Produced and distributed School’s first media kit.

Evidence of Progress for 2005-2006:

A new attractive ‘Moving the Mission Forward’ newsletter was prepared.

A new Fact Sheet and attractive Web site for the School of Science are almost finished.

We were able to get Science achievements like David Stocum’s new Keck grant in Regenerative Biology featured in various print and TV media. There were more than 20 media placements in the first two quarters of 2007.

We will partner with other health and life sciences schools on the local public radio program, Sound Medicine.

Activities planned for 2006-2007:

Continue activities above.

Generate attractive and informative quarterly newsletter and Fact Sheet.

Reorganize the School of Science Web site to be more attractive, easier to navigate and more informative than the old site.

Contribute School of Science articles and information to IUPUI and Life Sciences media and information sources.

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 2005-2006:

Evidence of Progress for 2005-2006:

Activities planned for 2006-2007:

The faculty, staff and administrators of the School of Science will start strategic planning in January 2007.
The faculty, staff and administrators of the School of Science will start strategic planning in January, 2007. A new Mission Statement and new Goals and Objectives for the School will be developed as part of the Strategic Planning Process.

**Fiscal Health**

* Fiscal health report for 2006-07 is attached as PDF file.

**Statement regarding STF expenditures**
The School of Science makes extensive use of educational technologies at the undergraduate level in every department. The costs of these operations far exceed the funds available from STF, so STF money is used to support some central resources, to provide partial support for departmental resources, and to provide startup support for new projects in a few departments each year. Most other technology support comes from departmental budgets and from the office of the Dean. The central resources supported by STF funds in the School include one open lab for student use, one computer classroom, two computer testing rooms, and one support staff member. Within the departments, STF funds are used to support computer labs and other learning technologies such as computer interfaced equipment in teaching labs. Startup projects vary each year, but generally involve expansion of learning technologies in the teaching labs.

The data below reflects the budgeted uses of STF funds during 2006-2007. Under the category of "other" in the use of student technology fees, we have $55,633 used to provide salary and benefits for one technical staff person whose efforts are devoted to student technology, and $27,734 for backup servers and systems that support our workstations and servers.

**Reallocation Plan**

**Other Question(s)**

1) **Doubling goals:** In what ways has and will your responsibility center contribute to the Chancellor's doubling goals for enrollment (retention and graduation rates and degree conferrals), research and scholarship (grants and contracts), and civic engagement (service learning, internships, community collaborations)?

   'Research and scholarship': In the past three years, the School has hired 29 new faculty with competitive start-up packages. With proper mentoring, the numbers of research grants and funding should increase significantly in the next five years. The faculty participated in 11 Signature Center Proposals to enhance research infrastructure at IUPUI.

2) **Diversity:** What actions have you taken and what results have you achieved in retaining and graduating a diverse student body; enhancing diversity in research, scholarship, and creative activity; and recruiting, developing, and supporting diverse faculty and staff?

   'Retaining and graduating a diverse student body': A Women in Science undergraduate program was created to increase women recruitment, retention and graduation in science areas where they are underrepresented. New underrepresented minority graduate student scholarships were initiated to increase the recruitment of URM students. A new Diversity Student Research Program was initiated.

   'Recruiting, developing, and supporting diverse faculty and staff': The Dean's office has successfully recruited and supported underrepresented minority and women staff members.

3) **Campus collaboration:** In what ways has your unit collaborated with other units to enhance teaching and learning and/or research and scholarship? What plans do you have to strengthen collaborative activities in coming years?

   Collaboration 'to enhance teaching and learning': The School collaborated with Education to form the new Urban Center for Advancement of Science and Education. We will hire a new faculty member with CTE funds in math and science education.
Collaboration to enhance research: The School collaborated with the School of Medicine to co-locate faculty in the new MISB and Medical Sciences research buildings to collaborate on interdisciplinary research projects with the goal to increase external funding in these areas. Science faculty collaborated with many other IUPUI Schools on eleven Signature Center proposals.

4) International scholarship: How extensively are faculty in your school involved in research on international topics or in collaborations with international colleagues? Please cite some examples.

Bonnie Blazer-Yose (Biology) has active collaborations with colleagues in Italy and Germany, and she and her students have exchanged visits with faculty and students in both countries. Dr. Blazer-Yost had an IUPUI International Development fund grant for this activity.

Asok Sen in Mathematical Sciences wrote an International Development Fund grant to support his research collaborations with colleagues in Poland and Italy.

5) Internationalization of curriculum: How extensive are international perspectives and content in curricula in your school? Are international perspectives present in the core requirements for undergraduate degrees? Are there degree or certificate programs with an international emphasis? Do you have study abroad programs?

The School of Science has not participated significantly in international curricular activities. Computer and Information Science offers approximately 1/3 of its credit hours in non-major applied computer science courses online as distributed education, some of which is being offered internationally through collaborations.