2006-2007 Science

Section	Document Name
Fiscal Health	• Science.pdf

Mission

The IUPUI School of Science provides outstanding basic science and mathematics education for all IUPUI students and focused advanced education for science and mathematics majors. Faculty are committed to a curriculum that promotes scientific inquiry, laboratory instruction, cross-disciplinary leanring, problem solving, and undergraduate research.   Faculty engage 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. Graduate education involving research-based M.S. and Ph.D. programs are critical to the mission of the School.

Goals and Objectives

1. Build a Strong and Diverse Faculty

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Campus Planning Theme: Teaching and Learning, Research, Scholarship and Creative Activity
Secondary Goals:
Sub Unit: None
Time Frame: on going

Actions taken for 2006-2007:

- 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 2006-2007:

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 2007-2008:

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 resoruces 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 2006-2007:

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 2006-2007:

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 learing projects

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

Activities planned for 2007-2008:

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

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- 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
- Promote Interdisciplinary Studies and Biotechnology programs to increase enrollment
- Work with Ivy Tech to articulate AA and AS to BS degrees at IUPUI

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 2006-2007:

- 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

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Evidence of Progress for 2006-2007:

- 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 ocupied, 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 2007-2008:

- 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 oppoortunities for students seeking a career in the health or life sciences
- Increase applications for grants and science education. To do this, we are investing in a grant writer/coordinator who will facilitate the writing of grants for science education and work with the School of Education. Increase number of co-op programs
- Initiate use of alumni mentor network. We also are mounting a strong push to attract freshmen who are better prepared in science and mathematics coming out of high school.
- Support for the new Pre-med club

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 2006-2007:

- 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 web site
- 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 2006-2007:

- 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

Activities planned for 2007-2008:

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

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 2006-2007:

- 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)
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Evidence of Progress for 2006-2007:

CTE awards for Women in Science and Diversity Scholars Research Program

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Activities planned for 2007-2008:

- Continue above actions
- Establsih 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 2006-2007:

- 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 2006-2007:

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 2007-2008:

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

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 2006-2007:

- 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 2006-2007:

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 frist 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 2007-2008:

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 2006-2007:

- 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

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Evidence of Progress for 2006-2007:

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 2007-2008:

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 2006-2007:

- 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 2006-2007:

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 2007-2008:

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

Actions taken for 2006-2007:

- Active Alumni Association Board

- Active Dean´´s Advisory Council

- Identified major gift prospects. Hired major gifts director.

Evidence of Progress for 2006-2007:

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.

Activities planned for 2007-2008:

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.

3. Increase alumni programs
Campus Planning Theme: Civic Engagement
Secondary Goals:
Sub Unit: None
Time Frame: Ongoing

Actions taken for 2006-2007:

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 2006-2007:

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 2007-2008:

Continue activities above

Continue to support meetings and mission of Science Alumni Bosrd.

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 2006-2007:

- 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 distrubited School´s first media kit.

Evidence of Progress for 2006-2007:

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 2007-2008:

Continue activities above.

Generate attrative 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 2006-2007:

Evidence of Progress for 2006-2007:

Activities planned for 2007-2008:

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

Reallocation Plan

Other Question(s)

1) *Diversity*. In the past year (July 1, 2006-June 30, 2007) 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?

2) *International activities*. Over the past year, in what international projects and activities have your faculty, staff, and students engaged? What new efforts have been undertaken to internationalize the curriculum?