WE GRADUATE SUCCESS STORIES
Strategic Plan

- Our Vision
  - #1 choice for science-minded Hoosiers
  - Major contributor of the highest quality fundamental and applied scientific research
  - Supportive environment for a diverse population of students, faculty and staff

- Our Values
  - Outstanding teaching
  - Innovative research
  - Commitment to diversity
  - Academic excellence
  - Dedicated to IUPUI’s vision as an urban research university with national and global impact

- Our Plan
  - Innovate
  - Educate
  - Engage
  - Develop
  - Communicate
Departments & Programs*

- Biology  
- Chemistry & Chemical Biology  
- Computer & Information Science  
- Earth Sciences  
- Mathematical Sciences  
- Physics  
- Psychology  
- Forensic and Investigative Sciences*  
- Neuroscience*
Undergraduate Degrees

- Biology (B.A. and B.S.)
- Biology Teaching (B.A.)
- Biotechnology (B.S.)
- Chemistry (B.A. and B.S.)
- Chemistry Teaching (B.A.)
- Computer & Information Science (B.A. | B.S. | B.S./M.S. Dual Degree)
- Earth Science Secondary Teaching (B.A.)
- Forensic & Investigative Sciences (B.S.)
- Interdisciplinary Studies (B.S.)
- Mathematics (B.S.)
- Math Teaching (B.S.)
- Neuroscience (B.S.)
- Psychology (B.A. and B.S.)
- Physics (B.S.)
- Physics & Electrical Engineering (B.S./B.S. Dual Degree)
- Physics & Mechanical Engineering (B.S./M.S. Dual Degree)
- Physics Teaching (B.S.)

- Environmental Science (B.S.)
- Geology (B.A. and B.S.)
- Geology (B.S./M.S. Dual Degree)
Master’s Degrees

- Biology
- Chemistry
- Computer & Information Science
- Forensic & Investigative Sciences
- Industrial / Organizational Psychology
- Mathematics: Applied

- Geology
Ph.D. Degrees

- Addiction Neuroscience
- Biology
- Chemistry
- Clinical Psychology ♦
- Computer & Information Science
- Mathematics
- Physics

♦ ICHE – Indianapolis approved

LGRAD – Lilly/SOS/IUSM
Contributing to Indiana’s STEM Needs

**STEM SKILLS ARE IN DEMAND**
In Indiana, STEM skills have stayed in demand even through the economic downturn.

**STEM:**
2.4 jobs for every 1 unemployed person

**Non-STEM:**
5.0 unemployed people for every 1 job

**HOW SCIENCE@IUPUI IS MEETING THE DEMAND**

- 507 undergraduate
- 202 graduate
- 32* PhDs
- 741 2014 graduates

*NSF CI-STEP ↑10%

Source: www.changetheequation.org
Serving the State

178 full-time academic faculty
84 full-time staff

Current Science students

2,148 undergraduate
274 M.S.
221 Ph.D.

162,583 Credit hours taught per year
IUPUI’s Central Indiana CI-STEP program

Designing, Implementing, and Assessing Comprehensive Undergraduate STEM Education Reform

• Collaboration between IUPUI Science and IUPUI Engineering & Technology
• Developed and implemented many best practices
• One clear objective: Increase STEM graduates by 10% each year
• Objective achieved: overall rate for science and math degrees = 11%
STEM Curriculum Transformation
- Peer-Led Team Learning
- Cyber PLTL (cPLTL)
- Peer-Led Recitations in Biology, Chemistry
- Just in Time Teaching (JiTT)
- NSF TUES Distributed Drug Discovery (D3) Program: Interdisciplinary, authentic research laboratory courses

STEM Teacher Preparation
- Woodrow Wilson Indiana Teaching Fellowship (WWITF)
- Robert Noyce Teacher Scholarship & Internship Program (NSF)
- UCASE: The Urban Center for the Advancement of STEM Education
- SMTI: The Science and Math Teacher Imperative

Undergraduate Programs for Student Success
- STEM Floor (Fall 2013)
- Summer Success Academy
- Life-Health Science Internship
- NIH Bridges to the Baccalaureate
- Center for Research & Learning (CRL) Diversity Research Programs: NSF LSAMP & URM, IUPUI DSRP, MURI

NSF CI-STEP Science Talent Expansion Program
- STEM Summer Bridge
- Course Transformation STEP Mini-Grants to faculty
- Women in Science House (WISH) Residential Living Community
- PREPs: Pre-Professional & Career Preparation for Science Students
- >10% increase in STEM graduation rates
Living and Learning Science

Residential Based Learning Community
• Women in Science House (WISH)
• 30 Science students

Student involvement and community
• Regatta, Science Picnic, etc.
University Tower STEM Floor

Residential Based Learning Community
• Science and E&T \(\rightarrow\) 72 students
• Computer lab
• Resources for first-year students
• Contemporary dining facility
• Fitness center

Residents reported higher sense of belonging than other on-campus Science students.
INDIANA’S LIFE SCIENCES HUB
“Having a dental school and medical school on campus really drew me to IUPUI. I didn’t know if I would be able to take advantage of them or not but I wanted that possibility. And now that I’m on campus I’ve learned from personal experience and heard from other students that dental and medical school faculty appreciate School of Science students and provide really great mentorship.”

Kathryn DelaCruz | 2012 Alumna, B.S. Biology | IU School of Dentistry student
PREPARED FOR MY FUTURE

“My educational and research experience at IUPUI prepared probably better than any of the students in my class; even those from some of the country's greatest undergrad institutions.

I feel so lucky that I stumbled upon IUPUI rather blindly out of high school, and I am now realizing that it was the greatest preparation I could have asked for to become a leader in the scientific and medical fields.”

Josh Horton | 2012 Alumnus Chemistry ’12 | MD/PhD Student, NYU School of Medicine
CHARTING NEW TERRITORY IN PHYSICS
“My educational and research experience at IUPUI prepared probably better than any of the students in my class; even those from some of the country's greatest undergrad institutions.

Qurat-ul-Ann “Anna” Mirza | Class of 2015 | Physics & Mathematics
BRIDGING RESEARCH WITH PATIENT CARE
“Being around doctors who are involved in translational research has really opened my eyes.”

Coupled with his interest in science, the laboratory work he completed through undergraduate research opportunities has helped him realize that he could be both a physician and a scientist.

Devin Bready | Class of 2015 | Chemistry | Goldwater Scholar
Alumni Success

Kevin Kabat
PU M.S. Psychology 1981
CEO Fifth Third Bank

Deb Peters
IU B.A. Geology 1988
Owner and CEO, QEPI Inc.

Adam Kelly
PU M.S. Biology 1998
Partner, Loeb & Loeb, Chicago
Biotech IP law
Chicago 40 under 40
Consultant to China

John Kupferschmid
PU B.S. Math 1978
Director of Congenital Heart Surgery
Texas Transplant Institute, San Antonio
Pediatric cardiac physician
SUPPORTING OUR RESEARCH

$14 million DIRECT AWARD DOLLARS

8 NSF CAREER AWARD WINNERS
School of Science Research Centers

School of Science-administered:

• Assertive Community Treatment Center (ACT)
• Center for Urban Health
• Institute for Mathematical Modeling & Computational Science
• IU Center for Regenerative Biology and Medicine
• Center for Earth and Environmental Science
• Center for Regenerative Biology and Medicine
• Environmental Geochemistry and Health Core
• Institute for Mathematical Modeling and Computational Science
• Nanoscale Imaging Center
• Nuclear Magnetic Resonance Center
• Visual Information Sensing and Computing Center

IUPUI-administered with significant Science faculty involvement, examples:

• IU Alcohol Research Center (NIH)
• IU Simon Cancer Center (NIH)
• Stark Neuroscience Institute
• Integrated Nanosystems Development Institute
• STEM Education Research Institute (SIRI)
• Urban Center for STEM Education (UCASE)
• Indiana University Center for Aging Research
• Quantitative Renal Imaging Signature Center
• Indiana CTSI
• Center on Diabetic Retinal Vascular Disease
• IU Center for Spacetime Symmetries
PREDICTING PHYSICAL APPEARANCE FROM DNA

• Susan Walsh, assistant professor of biology
• $1.1 million grant from the U.S. Department of Justice's National Institute of Justice to develop and improve "DNA intelligence" tools that may help identify unknown suspects, perpetrators and missing persons
Additional media coverage:

- Co-author of study confirming bones found in 2012 in Leicester, England, are indeed those of King Richard III, who died on the battlefield in 1485.
- Co-developer of a forensic DNA phenotyping test that was used to predict the king's hair and eye color from the ancient bones.
Faculty Productivity

IMPROVING LARGE-SCALE SOFTWARE SYSTEMS

• James Hill, assistant professor of computer science
• Research led to an open-source artifact named CUTS, which is used by several industrial partners, such as BBN Technologies, Boeing, General Electric Research, Raytheon, and Lockheed Martin Advanced Technology Labs
• Funding from the Australian DOD and others
TRACKING GLAUCOMA IN STEM CELLS

• Jason Meyer, assistant professor of biology
• National Institutes of Health grant to study how glaucoma develops in stem cells created from skin cells genetically predisposed to the disease
• Five-year, $1.8 million grant funded by the NIH’s National Eye Institute
Faculty Productivity

PSYCHIATRIC REHABILITATION

• Michelle Salyers, professor of psychology; co-director of the ACT Center of Indiana
• National leader in evidence-based treatment services focused on recovery
• The ACT Center has been working since 2001 to conduct research and provide training and consultation that supports recovery in adults with severe mental illnesses
• The ACT and its collaborators have been awarded dozens of grants since its inception
• Current funding includes grants from NIH (3), PICORI, American Psychology Association and IU Health
Science and Engineering Laboratory Building

- Phase 1 – recently completed and occupied
- ~75% Science
- ~25% Engineering & Technology
- No state tax dollars
- No student tuition dollars
- $27-million project
- 35,000 square feet
- Phase 2 in planning

Join us for a tour at 6 p.m.