Undergraduate Research at Purdue

Where are we?
Where could we be?

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Why Undergraduate Research

Strategic outcomes

• Increases in student retention rates (Nagda et al. 1998)

• Research students are twice as likely to graduate and five times more likely to go on to graduate school (Summers and Hrabowski (Science, 2006)

• Increased personal development, growth of self-confidence, independence of work and thought, and a sense of accomplishment (Lopatto 2006)

• Top high school students view research experiences as an essential element when deciding on enrollment (US News and World Report)

• Research experiences inspire students to select STEM careers (Science (2009) Russell, Hancock, and McCulloug)

• More successful careers after graduation (Kremmer, J. F., & Bringle, R. G. (1990))
"Captivated by the excitement and the rewards of the research mission, research universities have not seriously attempted to think through what that mission might mean for undergraduates...(and have) undergraduate programs (that are) sideshows to the main event”

The Boyer Commission Report REINVENTING UNDERGRADUATE EDUCATION: A Blueprint for America’s Research Universities

“…break out of the tired old teaching versus research debate and define in more creative ways what it means to be a scholar.”

Scholarship Reconsidered- Boyer
First database record of undergraduate research was in chemistry in 1967.

Registrar tracking of all current UR courses was complete in 2004.

2,300 students were enrolled in UR units in 2011.

UR enrollment increased 31% from 2004-2011.

Enrollment data indicates 30% of Purdue undergrads do research before graduation.

Peer institutions UR: OSU~22%, Nebraska~26%, Caltech 85%.
Where does UR happen at Purdue

Beyond the STEM disciplines

- Research occurs across all schools at Purdue, but primarily in STEM
- Research course codes are not uniformly used - possibly under counting
- Summer (SURF, DURI, LSAMP) and international research experience not counted (~250 students per year)
Who are these UR at Purdue?

Diversity meets the masses

- Generally UR at Purdue demographically look similar to the general student population
- Undergraduate women and men equally participate in UR
- Specifically underrepresented students proportionately engage in research more often
- This may be due to targeted UR programs such as LSAMP and SACNAS.
How does the world see UR at Purdue?

Invisible success

• Web search is the main means of gathering decision making information “Research 3 or more colleges find information about each of your criteria fro Step 1. Find your colleges by doing a Google search”

• Google search comprise 48% of all web searches

• Test: Google ‘University name and Undergraduate Research’

• Points: Hit on first page (1), multiple hits first page (1), First position (1), University wide program page, first on page (1+1), University wide menu page (1)

• Purdue UR Google presence is not as impressive as our peers.
Hidden UR resources at Purdue

Invisible success II

- Purdue has no central web site UR information and promotion
- Individual programs have information cites
“Makers All” campaign has put UR at the front of its marketing campaign.

Undergraduate Research Symposium (2005) ~150 participants

Purdue Journal of Undergraduate Research - JPUR

- 2011: 47 submissions, 7 articles, 8,000 printed copies
- 2012: 89 submission, 10 articles, 20 “research snapshots”, 20% non-STEM research
• Of the Top 30 institutions cited by US New and World Report for having cutting edge UR programs, only 6 were high enrollment Tier 1 research universities.

“The biggest things are always the easiest to do because there is no competition.”

Willian van Horne
Railroad Builder and Tycoon

University of Maryland--Baltimore County
Baltimore, MD

University of Michigan--Ann Arbor
Ann Arbor, MI

University of Nebraska--Lincoln
Lincoln, NE

University of North Carolina--Chapel Hill
Chapel Hill, NC

University of Wisconsin--Madison
Madison, WI

University of California--Berkeley
Berkeley, CA
What is our path forward?

- There is a vibrant Undergraduate Research (UR) occurring at Purdue. Better than many of our peers.

- UR has been nearly invisible until the last few years
  - Purdue Undergraduate Research Symposium (2005)
  - *Makers All* campaign
  - Journal of Purdue Undergraduate Research
  - Still a long way to go – showcase our students and faculty

- UR has essentially occurred “organically” – passionate faculty and students.

- A focused UR strategic plan that is effectively implemented could position Purdue as a leader in UR.

- Full white paper and presentation on UR will be available this April (Prof Greg Michalski – Provost Fellow for Undergraduate Research)
http://aresty.rutgers.edu/

http://honors.tamu.edu/research/index.html

http://www.gradschool.purdue.edu/programs/summer.cfm

http://discoverypark.itap.purdue.edu/learningcenter/duri/