Update on Campus Research Initiatives

Overview

• Grand Challenges
• Emerging Areas of Research
• Other internal funding programs
• New directions/future plans
• Targets of opportunity
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“Fractal”, internal research support at all scales
Grand Challenges

• Major, focused and large-scale problems facing humanity that can only be solved by the application of dedicated research findings across disciplines in collaboration with community partners.

• Multidisciplinary, multi-campus

• Typical IU Bloomington contribution to each GC over five years:
  ~12 new faculty lines
  ~$20M (personnel: research scientists, postdocs, grad students [for existing faculty too], equipment, travel, faculty start-ups, etc.)
  2:1 match from Presidential funds
Grand Challenges

Precision Health Initiative

Prepared for Environmental Change

Responding to the addictions crisis
Precision Health Initiative

- Personalized approach to prevention and treatment taking into account individual variables in genes, environment, and lifestyle
  (right treatment for right patient at right time)

<table>
<thead>
<tr>
<th>Cancer</th>
<th>Multiple Myeloma</th>
<th>Childhood Disease</th>
<th>Neurodegenerative Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cure at least one cancer</td>
<td>Triple-Negative Breast Cancer</td>
<td>Cure at least one childhood disease</td>
<td>Find a preventative solution to one neurodegenerative disease, like Alzheimer’s</td>
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<tr>
<td>Chronic Illness</td>
<td>e.g., Diabetes</td>
<td>Fanconi Anemia</td>
<td>Alzheimer’s</td>
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</tbody>
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Precision Health Initiative IUB

• What makes it distinctive from other efforts!

• Behavioral, Psychosocial & Ethics Core
  Precision to Population (P2P) General Cohort Study, pilot study this Fall  Bernice Pescosolido

• Data & Information Sciences  Pedja Radivojac
  Starting with informatics study of gestational diabetes

• Chemical Biology  David Giedroc
  Drug discovery, promising faculty hires
Prepared for Environmental Change

Ellen Ketterson

• Provide government, business, & community partners information and tools needed to prosper in the face of environmental change: actionable, sustainable solutions

• Forecast tools, e.g., Hoosier Resiliency Index (HRI)

• Environmental Resilience Institute: study of social and ecological responses to environmental change

• Pilot projects: water re-use in Pleasant Run Creek Lower Wabash landscape conservation
Faculty hires all across campus:
- Biology
- Geography
- Earth Sciences
- History
- SPEA
- SPH
- Law
- Media
Responding to the Addictions Crisis

Robin Newhouse

- Addressing Substance-Use Disorders
- With State, Governor Holcomb, IU Health, and Eskenazi Health, statewide community partners
- Leveraging strengths in:
  - Data Science & Analytics
  - Education, Training, and Certification
  - Policy Analysis, Economics, and Law
  - Basic and Applied Research
  - Community and Workforce Development
Responding to the Addictions Crisis IUB

- 10 faculty lines, many in School Public Health with partners + $12M (+ Presidential contribution)

- Steering Committee first pass at “Phase 1” (of 3) projects
  (IUB: Terry Mason, David Allison, Kosali Simon, Bill Hetrick)

- Next weeks, Scientific Leadership Team appointed, to begin developing integrated and comprehensive projects by inviting faculty for Phase 2 projects; determined by ~May 2018
Emerging Areas of Research

• IU Bloomington initiative & component of Bloomington Strategic Plan
• Grand Challenges although large in scope, will only be a subset of campus research
• Some research necessarily not as multidisciplinary as Grand Challenges, advance research based on IU Bloomington’s strengths
• Hiring: up to 3 faculty, Cash: up to $3M (over 4 years)
• Addition of resources makes research world-class
• Up to six projects selected over four to five years
Emerging Areas of Research: Round 1

- Selected initiative: Learning: Machines, Brains, and Children

- SICE and Psychology & Brain Science hires
Emerging Areas of Research: Round 2

- 31 Abstracts submitted this summer
- 20 full proposals submitted this past Friday
  - College: 10
  - Media: 1
  - SGIS: 1
  - SICE: 2
  - Optometry: 1
  - SPEA: 4
  - SPH: 1
- Two-tiered faculty review, choose up to two this Fall
Spin-off Benefit?

• Agile, functional, enthusiastic teams of faculty competitive for other funding sources

Don’t work in a team?

• Other OVPR internal funding programs: teams or individual faculty
OVPR (& other) Internal Funding Programs

- Seed funding
- Collaborative funding with Research Centers
- New Research Equipment Fund
- Research Leave Supplement Program
- Reallocation of VPR New Frontiers A&H funding
- Success of Arts & Humanities Council

- creation of Social Sciences and STEM Councils
- partner with VPR for Social Science-only funding programs
Questions?