The National Academies of
SCIENCES • ENGINEERING • MEDICINE

Committee on Revitalizing Graduate STEM Education for the 21st Century

TPSE Math
March 10, 2017
The Context

• The world is changing
  – Both within and outside the STEM enterprise
• Over 60% of new Ph.D.’s are not going into academic research
• We’ve been training new Ph.D.’s the same way for the last 100 years
The Big Question

• How can and should graduate training be modified/adapted to more appropriately meet the needs of the 21st Century?
  – Without compromising what it means to be a Ph.D.
  – Without “tracking” students too early in the process
The National Academies of Sciences, Engineering, and Medicine
Committee on Revitalizing Graduate STEM Education for the 21st Century

• **Committee Chair:** Alan Leshner, CEO Emeritus, AAAS

• **Study Term:** September 2016-September 2018

• **Sponsors:**
  • The Burroughs Wellcome Fund
  • The Institute of Education Sciences
  • The National Science Foundation
  • The Spencer Foundation
Committee Members
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Project Scope

• Describe current landscape of graduate education and career pathways
• Identify barriers and information gaps for students to achieve their goals
• Identify policies and model programs that would improve alignment of graduate education with students’ and prospective employers’ needs
• Identify potential incentives for stakeholders to change
What do we hope to accomplish?

• Start a national conversation
• Identify successful models that might be adapted elsewhere
• Distill overarching principles of where graduate education should be evolving
  – And how?
A National Dialogue on Graduate Education

Engage the graduate education community on critical issues:

• **Universities**: Students, faculty and administration
• **Employers**: Industry, government, non-profits and academia
• Professional Societies and Associations
• Policymakers (federal and state)
• Funding agencies
Some Discussion Questions

• What makes someone a Ph.D. in math and science?
• What experiences are now missing in graduate school?
• What strategies can the various stakeholders use to increase preparedness for the broad range of career opportunities?
• Are there model programs that could be adapted for more widespread use?
• How to make change happen?
  – How might the current incentive(s) system(s) for institutions, faculty and students be better aligned to the ways graduate education should evolve?
For additional information
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