

*The National Academies of*  
SCIENCES • ENGINEERING • MEDICINE

Committee on Revitalizing Graduate STEM  
Education for the 21<sup>st</sup> Century

TPSE Math  
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# 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 21<sup>st</sup> 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  
[NAS.edu/GradEd](http://NAS.edu/GradEd)

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