Previous Recommendations on Graduate Education

Revitalizing Graduate Education for the 21st Century

National Academies of Sciences, Engineering, and Medicine

Yasmeen Hussain

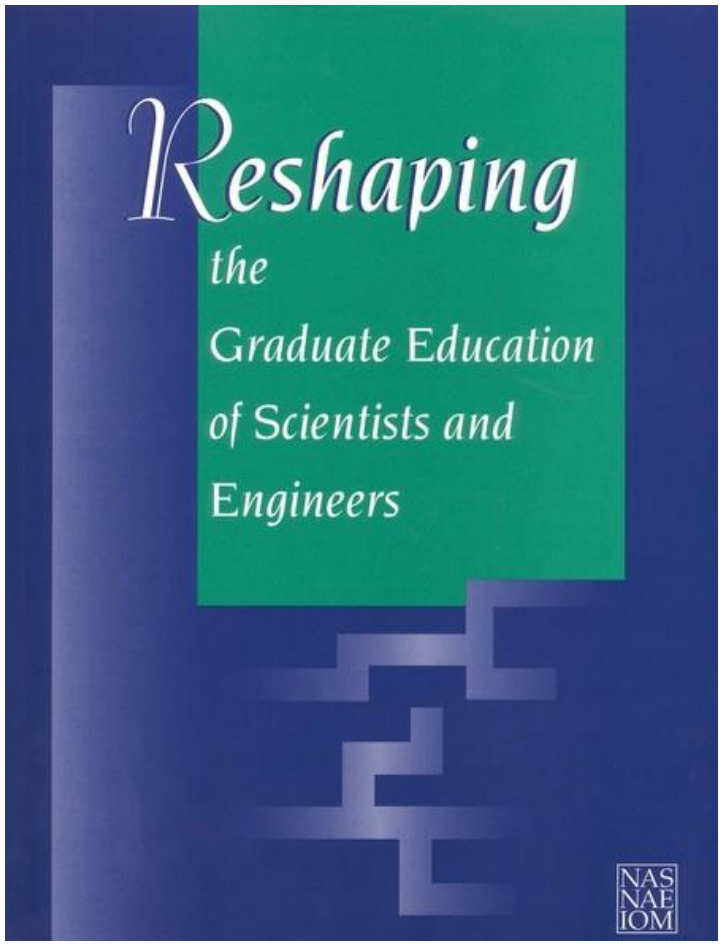
May 22nd, 2017

Goal

- Understand previous recommendations of reports on graduate education

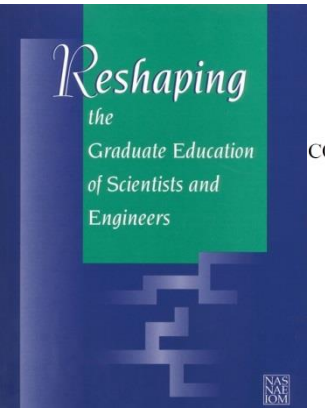
- Impact of recommendations

National Research Council, 1995



20 Reports, 1995-2017

- National Research Council (National Academies)
- Council of Graduate Schools
- American Association of Universities
- Woodrow Wilson National Fellowship Foundation
- American Chemical Society
- National Institutes of Health
- National Science and Technology Council
- Mellon Foundation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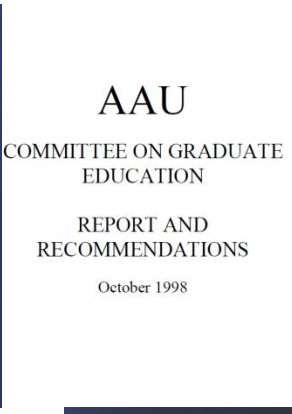
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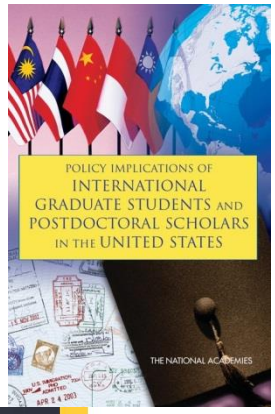
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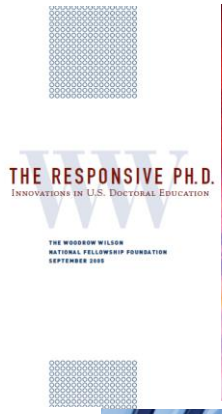
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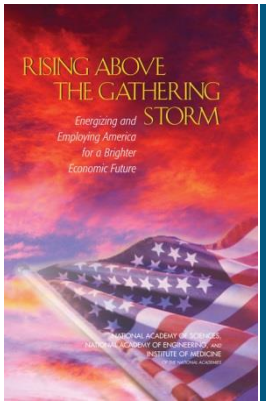
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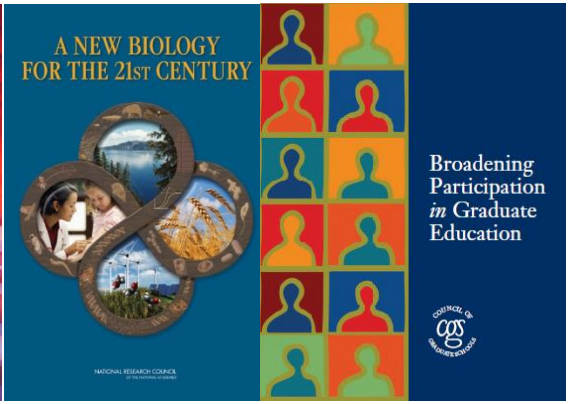
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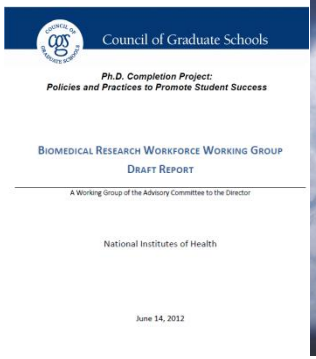
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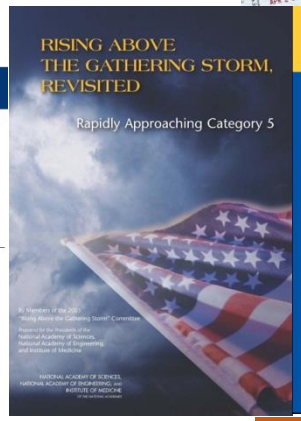
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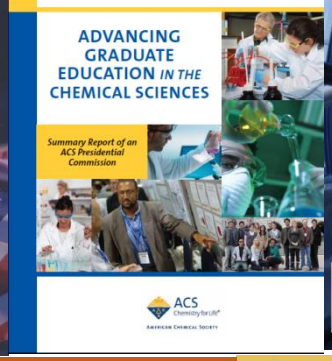
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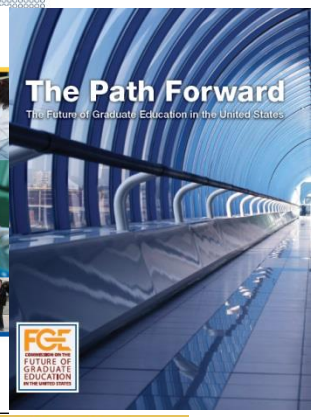
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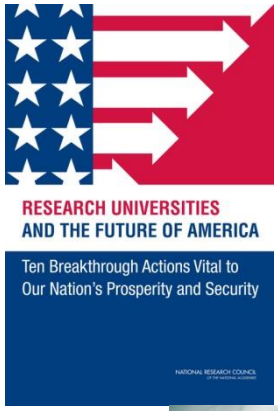
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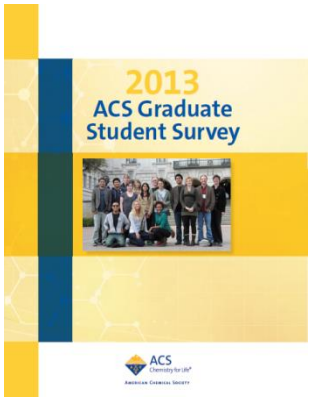
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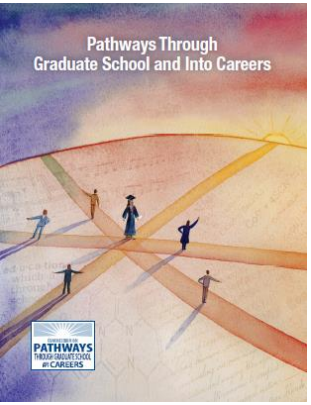
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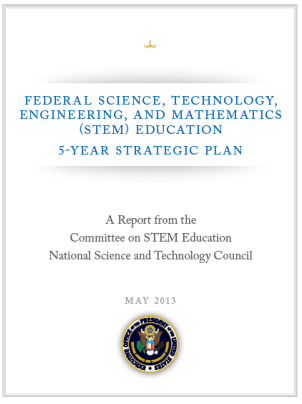
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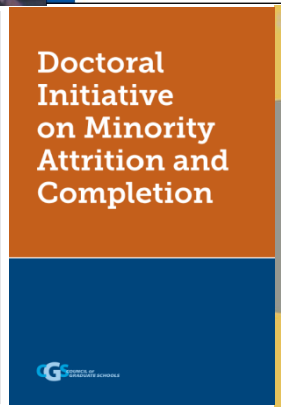
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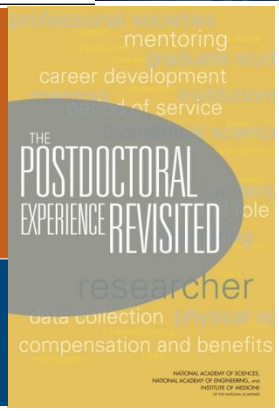
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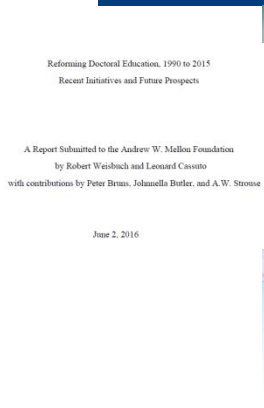
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June 2, 2016


PROFESSIONAL DEVELOPMENT
Shaping Effective Programs
for STEM Graduate Students

Comprehensive, Not All-Encompassing

- Included: some reports not centered on graduate education but which have pertinent recommendations
- Not included: important reports peripheral to graduate education (K-12, Undergraduate, and Early Career)
  - Undergraduate: AAAS, NSF, PCAST, Mathematical Association of America, American Physical Society
- Not included: important reports that have relevant data, but which do not have recommendations
  - NSF, Carnegie Foundation, Department of Education, American Institutes for Research, American Mathematical Society, National Science Board

Key Themes

- Student Infrastructure & Policies
- Data
- Careers & Competencies
- Degree Experience
- Buy-In

Student Infrastructure & Policies

- Financial Support
- Emphasize Diversity
- Start Early
- International Students
- Prioritize Student Needs

"Government…should adjust their support mechanisms to include new education/training grants to institutions and departments"

– National Research Council, 1995

Data

- Departments Collect Data
- Agencies Collect Data
- Departments Provide Data

"We recommend the establishment of a national database of information on employment options and trends. This information…should include, by field, data on career tracks, graduate programs (including financial aid), time to degree, and placement rates."

– National Research Council, 1995

Careers & Competencies

- Diverse Career Preparation
- Professional Development
- Internships
- Career Assistance
- Social Engagement
- Interdisciplinarity

"To produce more versatile scientists and engineers, graduate programs should provide options that allow students to gain a wider variety of skills…Off-campus internships in industry or government can lead to additional skills and exposure to authentic job situations."

– National Research Council, 1995

Degree Experience

- Support During Degree
- Student Well-Being
- Mentoring
- Shorten Degree
- Improve Completion
- Evaluate Programs

"The primary objective of graduate education is the education of students…A student's progress should be the responsibility of a department rather than of a single faculty member…Each institution is urged to set its own standards for time to degree and to enforce them."

– National Research Council, 1995

Buy-In

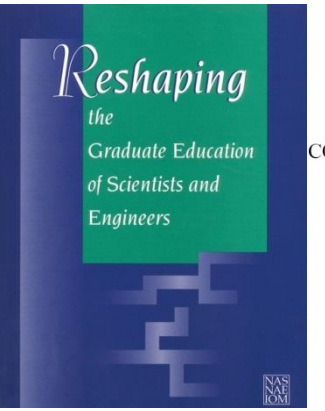
- Student Involvement
- Employer Involvement
- Professional Societies
- Faculty Support
- Convene & Discuss

"A national discussion group—including representatives of governments, universities, industries, and professional organizations—should deliberately examine the goals, policies, conditions, and unresolved issues of graduate-level human resources."

– National Research Council, 1995

Impacts of Recommendations

- *Rising Above the Gathering Storm Revisited*
  - National Science Foundation increased $ for graduate fellowships and traineeships
  - US government allowed international students with STEM degrees to stay longer after graduation
- Challenges: Diffuse institutions and data
- Indicators: Reoccurring recommendations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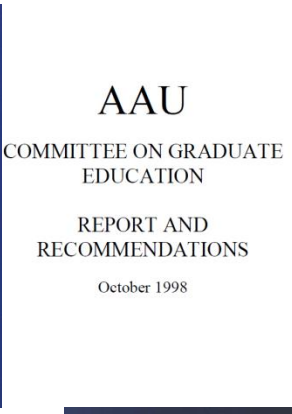
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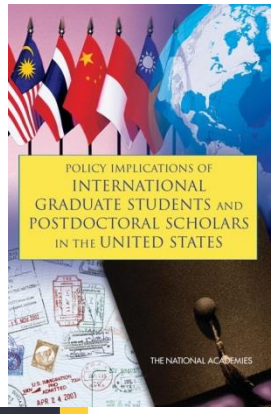
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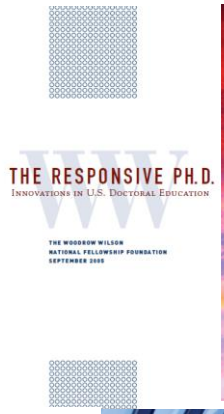
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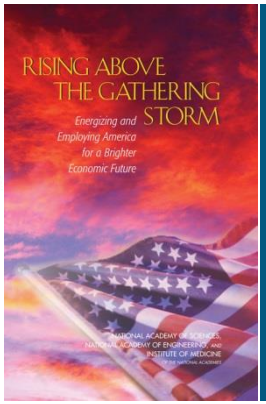
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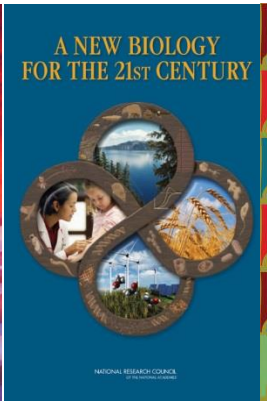
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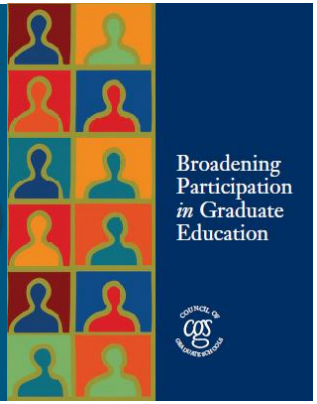
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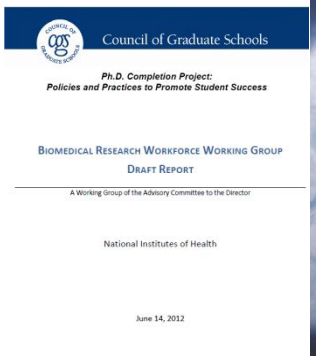
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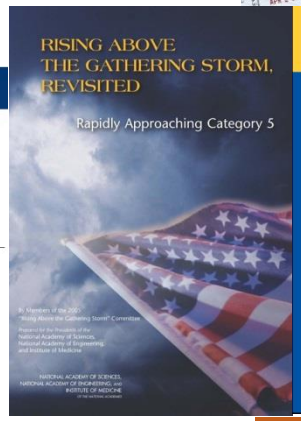
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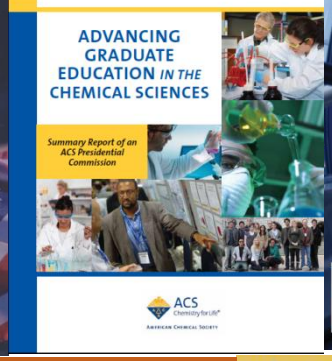
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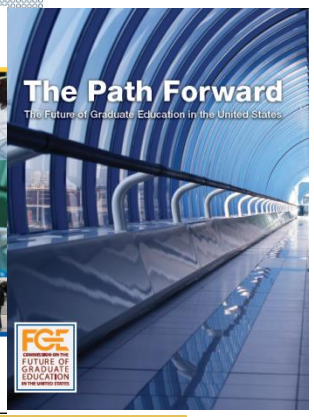
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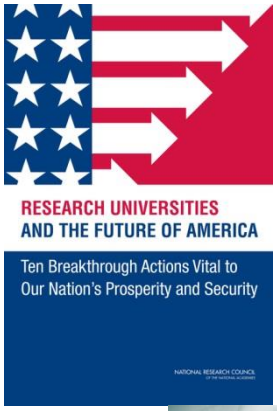
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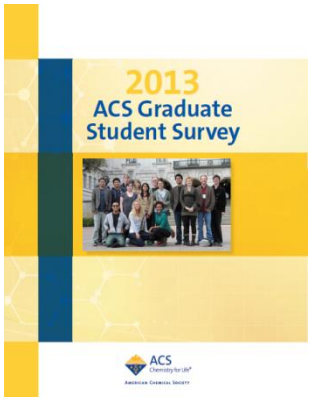
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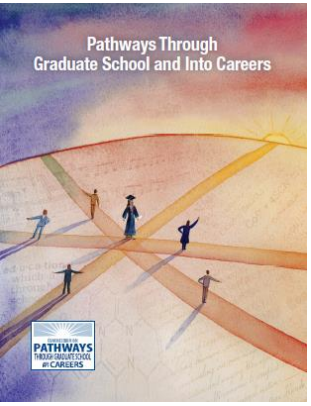
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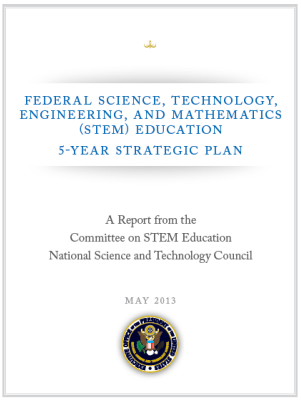
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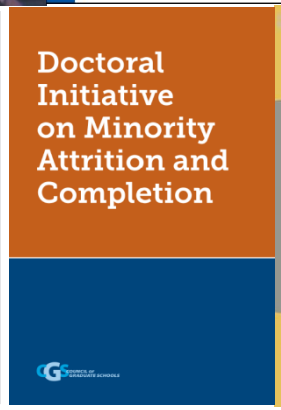
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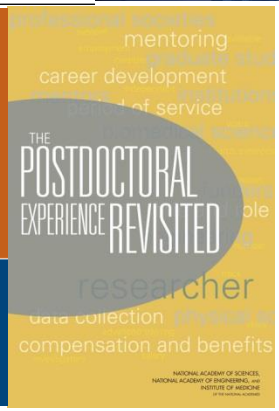
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