



# WPI

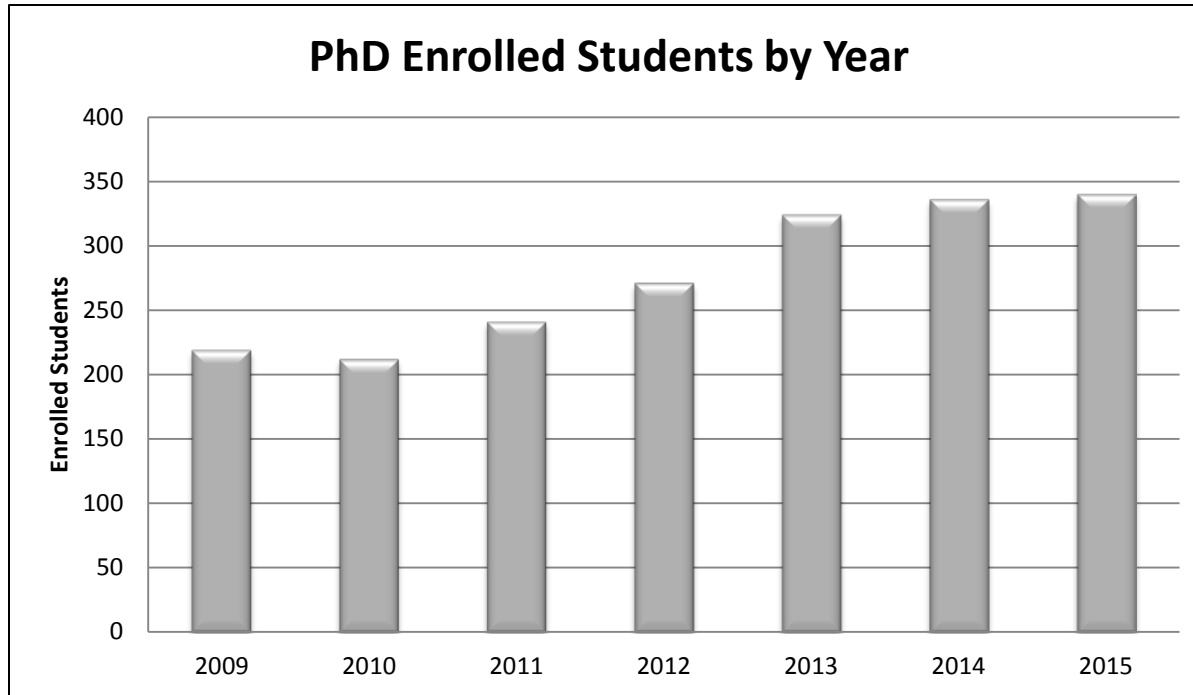
## WPI PhD Plan

Terri A. Camesano and Michael McGrade

Some data and slides courtesy of  
GQP group advised by Sharon Wulf:  
David Fogaren, Julienne Labrecque,  
Marjorie Miller, Stephanie Pals Papia,  
Charles Prescott

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# WPI PhD Program History



**2015**

Twenty one  
disciplines

340 current  
students

Over past six years WPI has expanded degree offerings for PhD candidates as well as number of students

# What's missing in the PhD?

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“If graduate students are considered to be trainees...everyone involved should make sure that their training is valuable to both society and the students. Graduate school is currently a research experience that is intellectually stimulating but not a clear stepping stone towards any career path.” ---  
Jessica Polka, Postdoctoral research fellow at Harvard Medical School\*



To build a scientist, *Nature*, 2015, 523:371-373

# WPI PhD Plan

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- **Core Implementation Team Selected**

- 2 Leads (Camesano / McGrade)
- 13 Members

- **Individual Development Plans**

- 4 pilot groups identified
- Common set of core competences
- Build leaders
- Enhances skill sets of students needed for post graduation
- Empower inward reflection and action on developing



# Competitive Analysis

WPI	Cornell	Stanford	University of California, Davis
Communication	Communication	Communication	Writing and Publishing Presentation Skills
Pedagogy	Teaching	Teaching	Teaching and Mentoring
<i>Interdisciplinary thinking</i>			
Ethics	Responsible Conduct of Research		Scholarly Integrity and Professionalism
Personal-Professional Balance	Personal Development	Personal Development	Wellness and Life Balance
Leadership Skills	Leadership and Management	Leadership and Management	Leadership and Management
<i>Global Mindset</i>			
Off-Campus Experience	Career Development	Career Development	Career Exploration, Job Searching, and Networking
		Specialized Content and Skills	

# WPI PhD Plan

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- Elevate and make more distinctive our university's doctoral programs
- Pilot program to extend a competitive advantage to our graduate students by providing a host of opportunities
- Goals by 2018
  - Establish Individual Development Plans for all PhD students
  - Launch a Center for Graduate Professional Development to offer professional and career-enhancing opportunities
  - Offer PhD students opportunity to participate in global and industrial experiences (target 20%)
  - Launch at least 2 interdisciplinary PhD programs in areas aligned with strategic plan

# PhD Plan- Faculty and Staff Teams

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- **Core Implementation Team:** Maggie Becker, Terri Camesano, Luca Capogna, Tanja Dominko, Michael McGrade, Sia Najafi, Dave Ortendahl, Jessica O'Toole, Amy Peterson, Reeta Prusty Rao, Susan Roberts, Aaron Sakulich, Deb Scott, Sharon Wulf, Alex Wyglinski
- Additional faculty engaged for specific initiatives: Aaron Deskins, David DiBiasio, Jianyu Liang, Balaji Panchapakesan, Liz Ryder, Marsha Rolle, Rick Sisson
- GQP group advised by Sharon Wulf: David Fogaren, Julianne Labrecque, Marjorie Miller, Stephanie Pals Papia, Charles Prescott

# Pilot Groups Going Forward

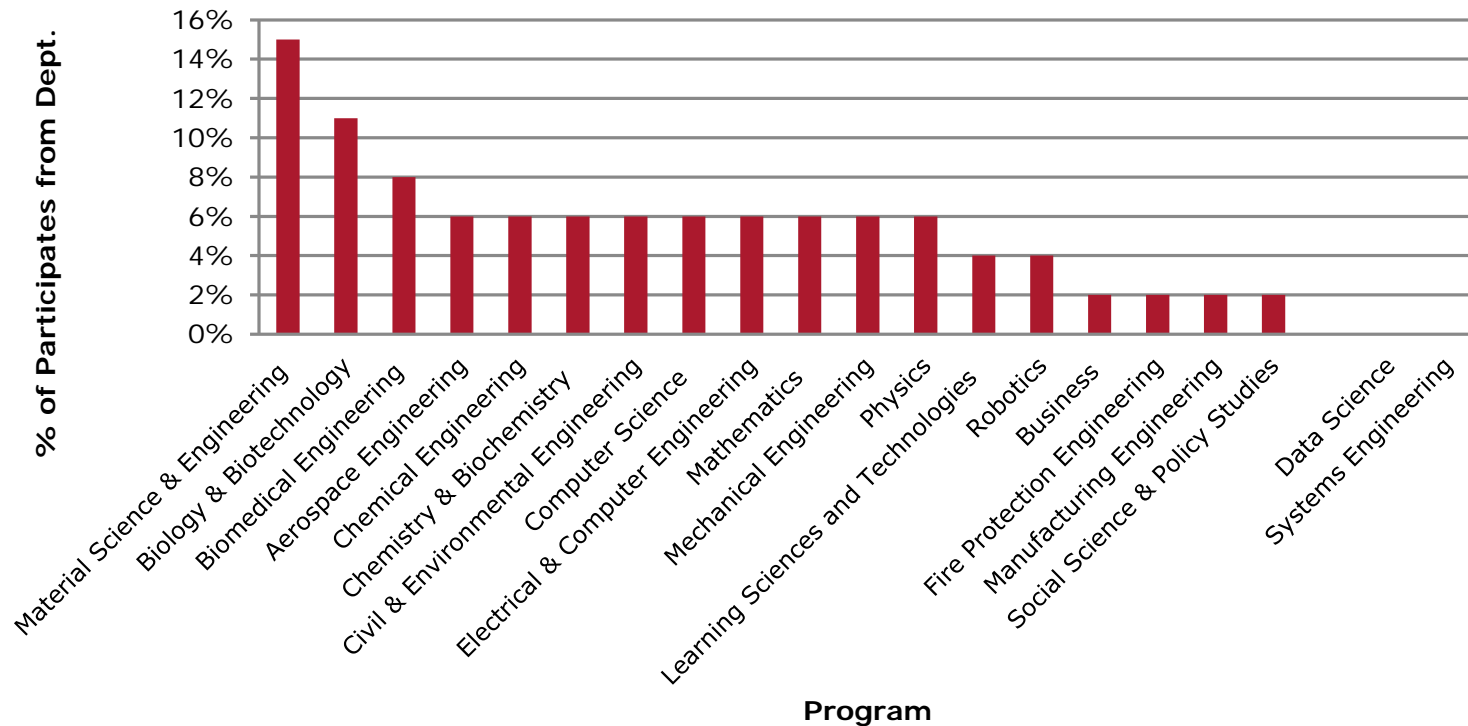
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- Individual Development Plans
  - Biomedical Engineering (Marsha Rolle)
  - Chemical Engineering (Amy Peterson and Sue Roberts)
  - Bioinformatics and Computational Biology (Liz Ryder)
  - Materials Science (Rick Sisson)
- Internships
  - Building on efforts of ECE (Alex Wyglinski) and Math (Luca Capogna), CEE (Aaron Sakulich) and ChE (Sue Roberts)
  - In the process of collecting data from faculty and students to guide and support this effort
  - CDC is on board to support



# PhD Student Survey

## Response Rate by Department

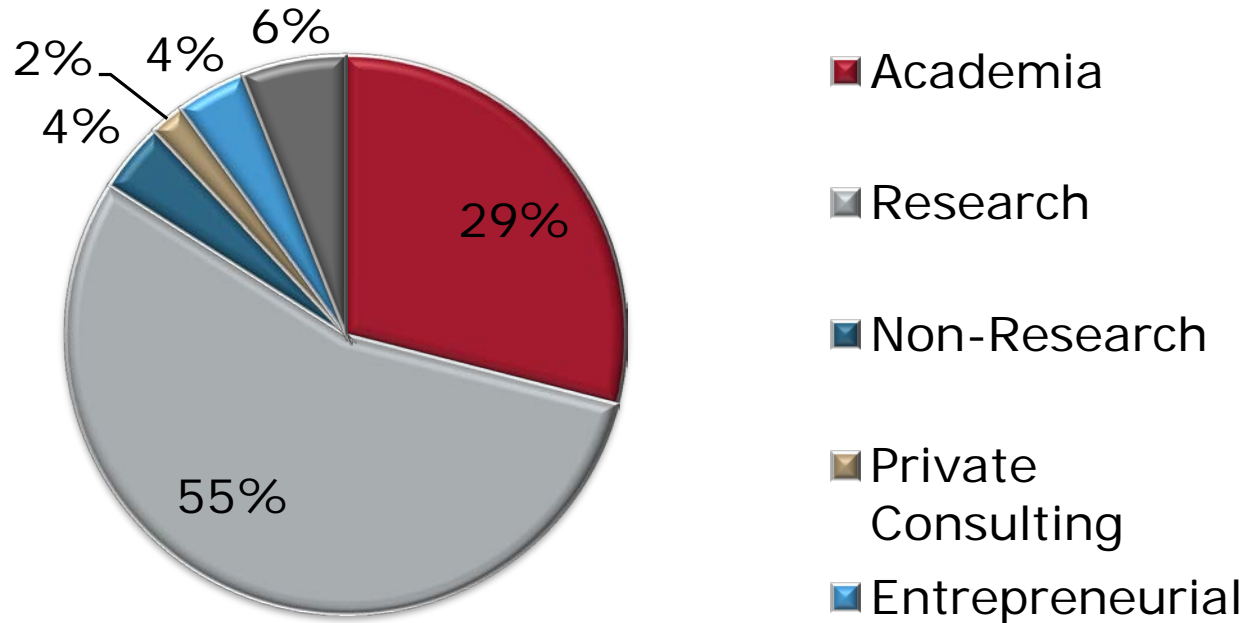


- Students Surveyed 323
- Student Responses 53
- 16% Response Rate

# Plans after Degree Completion

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## Post Graduate Plans

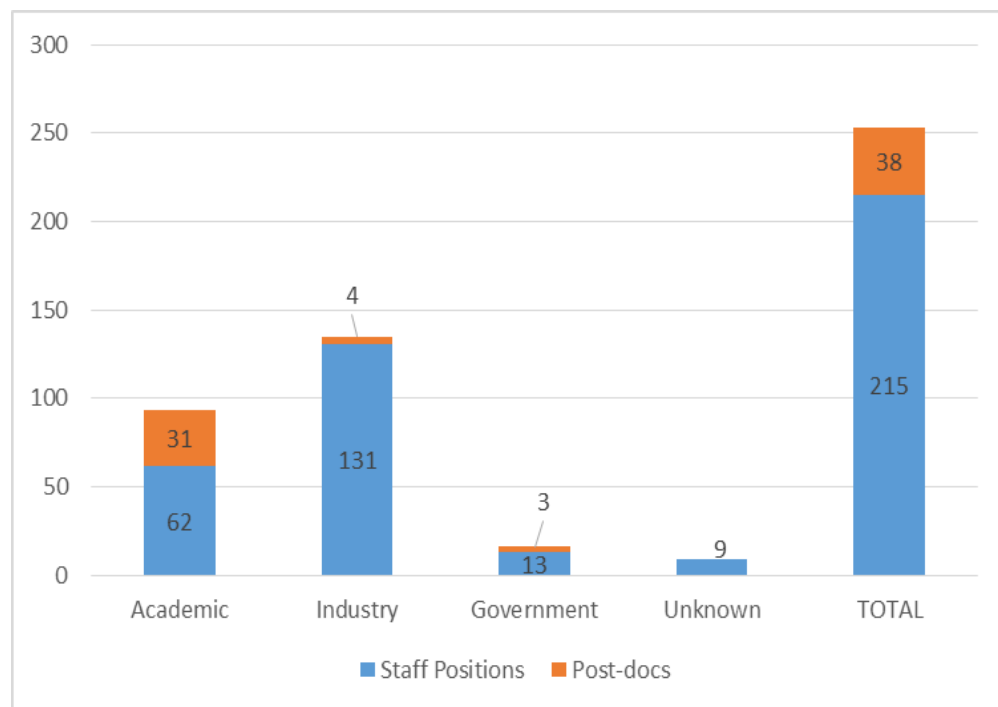


- Majority of participants, 84%, seek careers in research or academia

# PhD Placements

Students who began their PhD programs in fall 2001 through fall 2013

Sector	Staff	Post-doc	Total
Academic	62	31	93
Industry	131	4	135
Government	13	3	16
Unknown	9	0	9
TOTAL	215	38	253



# Academia

Why are you choosing a career in teaching?

- Because I love teaching!
- I enjoy teaching
- It's what I'm used to and I think educating the next generations of utmost importance
- Personal interest
- I like teaching

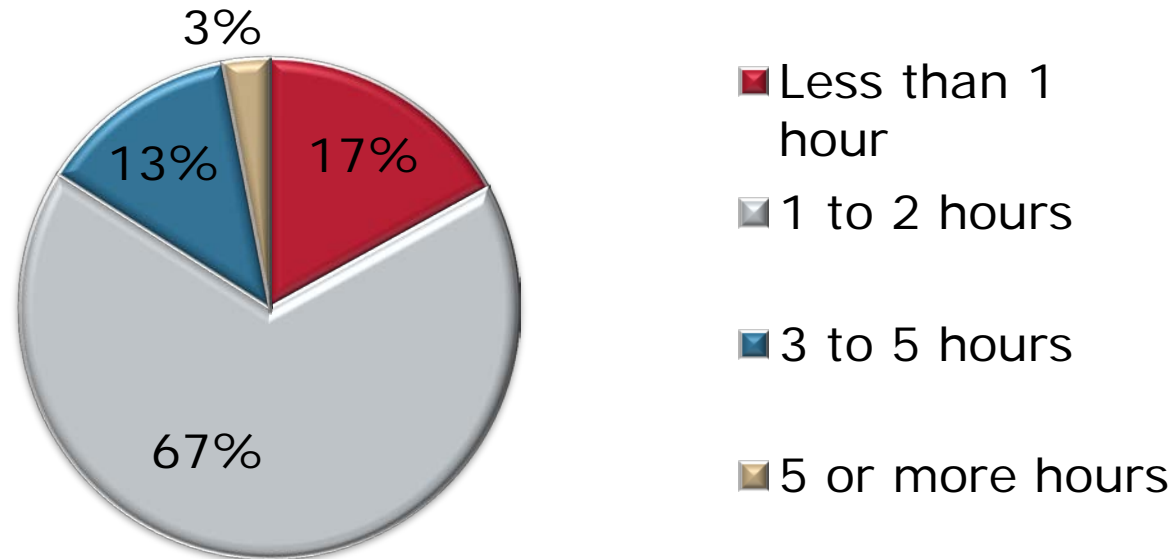
What could WPI do to better prepare you?

- Provide more TA opportunities
- Better mentoring, more defined outline for graduation and thesis requirements
- Provide more teaching opportunities
- More collaboration program with departments in other universities
- Provide a better structured TA system

# Personal Development

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Weekly Time on Personal Development



- Out of 30 responses
- 67% would take 1 to 2 hours a week to develop personal skills
- 50% of participants have taken gone to a deveopment seminar

# Industry

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- Nearly 30% of the group surveyed felt they were not prepared to work in industry

## What is the program lacking?

- Internship experiences
- Very academia-centered program. Industrial terms not taught, nor profit trends, or how to create and meet timelines
- Being practical and team/project based work
- Connections with the business world
- Mentoring
- The program is not preparing me to succeed in both academia and industrial research
- I'm not sure why one would need a PhD in the "business world" exactly

# Collaborative Research

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- 40% of participants have conducted research in collaboration with other departments outside of their own research area
- We expect that this can grow as the research themes of the strategic plan are moved forward into specific initiatives

# Next Steps

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- This is a work in progress
- We welcome participation
- We welcome feedback

