

# Establishing and Sustaining Professional Science Master's Programs: Introduction

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# Professional Science Master's - What is it?

*A new kind of degree that:*

- Prepares graduates for work—outside academia—involved in applications of discipline.
- Combines technical competencies with workforce skills, e.g. management, policy, communications, law – “Science Plus!”
- Leads to a wider variety of career options than provided by traditional graduate programs.





# How is the PSM different?

- More advanced science/math than MBA.
- Often interdisciplinary.
- More professional skills (business, law, communication) than PhD.
- Connections with potential employers (internship).
- Project or team experience vs. thesis: real world experience.





# Professional Science Master's Degree - Why?

- Gap in U.S. Science Graduate Education
  - Strong: Bachelors, PhDs in science.
  - But BA/BS insufficient for science career.
  - PhD too long, with uncertain prospects.
  - Attractiveness of PhD declining among domestic students; < 20% of majors continue in science/math graduate programs.

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# PSM – Why?

## Science Students Ask:

- If I take time to obtain an advanced degree, will I be able to enter my chosen profession?
- Can I aspire to a level of compensation roughly comparable to my peers in other professions?
- Is a career in science compatible with “having a life”?





# PSM – Why?

## Employers Views:

- Many need PhDs, but not in large numbers
- Do want advanced science skills,
- PLUS...
  - Interdisciplinary teamwork, flexibility
  - Project management
  - Computational skills
  - Communication ability
  - Basic business skills
  - Ethics
  - Regulatory issues

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# How Do Employers Help?

- Advise PSM faculty
- Mentor PSM students
- Tuition for employees
- Internships
- Prospective employers
- Champions re: regional economic development

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# PSM - A Brief History

- 1997 - Sloan Foundation initiative for research universities. Resulted in about 60 new programs/tracks.
- 1997 - Keck Foundation initiative – \$50M grant to start the Keck Graduate Institute. Offers “Master of Bioscience” degree in 5 specialty areas in (coincidentally) PSM model.
- 2000 – Sloan funds “single-track” PSMs in bioinformatics. Resulted in 16 new programs.





# History - continued

- 2002 – Sloan/CGS partnership for “master’s-focused” institutions. Two-part feasibility and implementation awards resulted in about 30 new PSM programs/tracks.
- 2005 (and continuing) Sloan “scale-up/sustainability” initiative targeting system-level adoptions of PSM (notably U. North Carolina and California State U.)
- 2006 – Sloan/CGS “institutionalization” initiative.





# The CGS/Sloan PSM Initiative

- The CGS project consolidates multiple PSM activities under the CGS umbrella.
- Goal: “The institutionalization and promotion of the PSM degree as a regular feature of graduate education.”
- We expect to achieve the following objectives:
  - Continuation and improvement of existing PSM programs.
  - Encourage and assist the development of new PSM programs.





# The CGS/Sloan PSM Initiative

- Significant increase in the number of students enrolled in all PSM programs.
- Expansion of funding by NSF and other agencies to include PSM programs.
- Increase in the number and variety of employment sector champions of the PSM.
- Support of states through work with NCSL and NGA
- Advocate for PSM in federal legislation.





# Why Should You Consider Establishing PSM Programs?

- The bulk of the new jobs being created are in the non-academic sector; these programs prepare students for employment in non-academe.
- Most universities have a commitment to outreach. PSM programs fit perfectly as they provide well-educated graduates who will apply their skills to endeavors within the state.





# Why Should States Consider Supporting PSM Programs?

- Because master's graduates typically are a less mobile group than PhD recipients.
  - About two-thirds of S&E master's degree graduates were employed in the state in which they earned a degree.
  - About one-fourth of S&E doctorate recipients plan employment in the state in which they earned their PhD
- PSM programs are more popular with women than traditional master's programs in Natural Sciences.





# Summary

## Win, Win, Win

- Win for the student – alternative way to remain in their field without getting a PhD
- Win for the university - provide students with another career option and help solve community workforce needs
- Win for the employers – local, regional, state – have a technically trained cadre of workers





# For further information: Contact the CGS PSM Project Staff

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