

The Professional Science Master's: Retrospective and Prospective

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U. Colorado Boulder

CGS Annual Meeting
December 5, 2013

PSM

PROFESSIONAL
SCIENCE MASTER'S



PSM - An Abbreviated History

- 1997 - Sloan Foundation begins initiative for research universities
- 1997 - Keck Foundation initiative - \$50M grant to start the Keck Graduate Institute. Offers “Master of Bioscience” degree in 5 specialty areas on (coincidentally) the PSM model
- 2002 - Sloan/CGS partnership for “master’s-focused” institutions



PSM History - cont.

- 2006 - Sloan “scale-up”;
CGS “institutionalization”
- 2007 - National Professional Science Master’s Association (NPSMA) formed
- 2012 - CGS transfers affiliation responsibilities to Keck Graduate Institute
- 2013 - 300th official PSM recognized



Guidelines for Affiliation

1. Regional accreditation
2. Program goals & student learning outcomes
3. Minimum credits - Master's
4. Curriculum
 - Disciplinary content
 - Professional Skills
 - Experiential Component



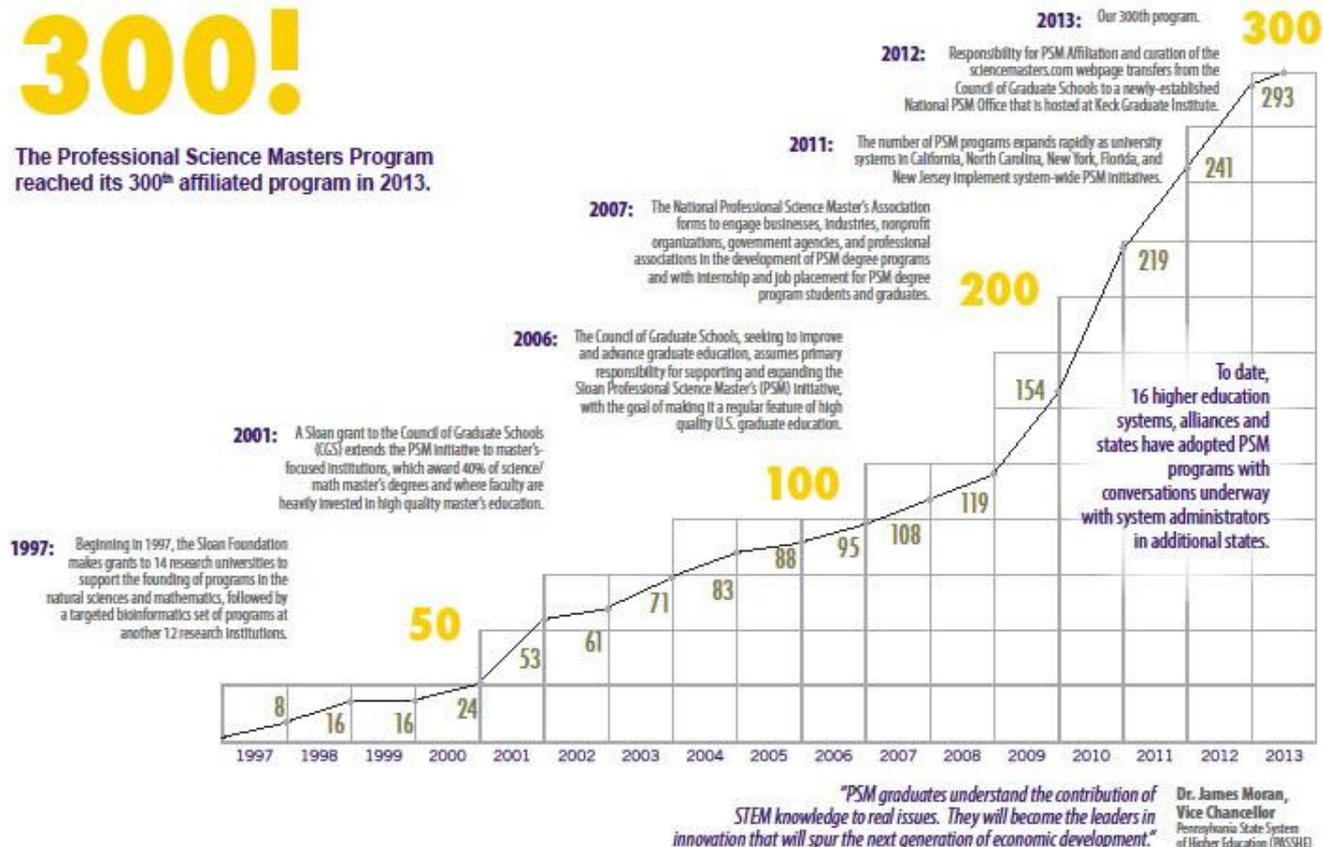
Guidelines for Affiliation, Cont'd.

5. Quality assurance mechanism
6. Engaged employer advisory board
7. Collection of annual data



300!

The Professional Science Masters Program reached its 300th affiliated program in 2013.

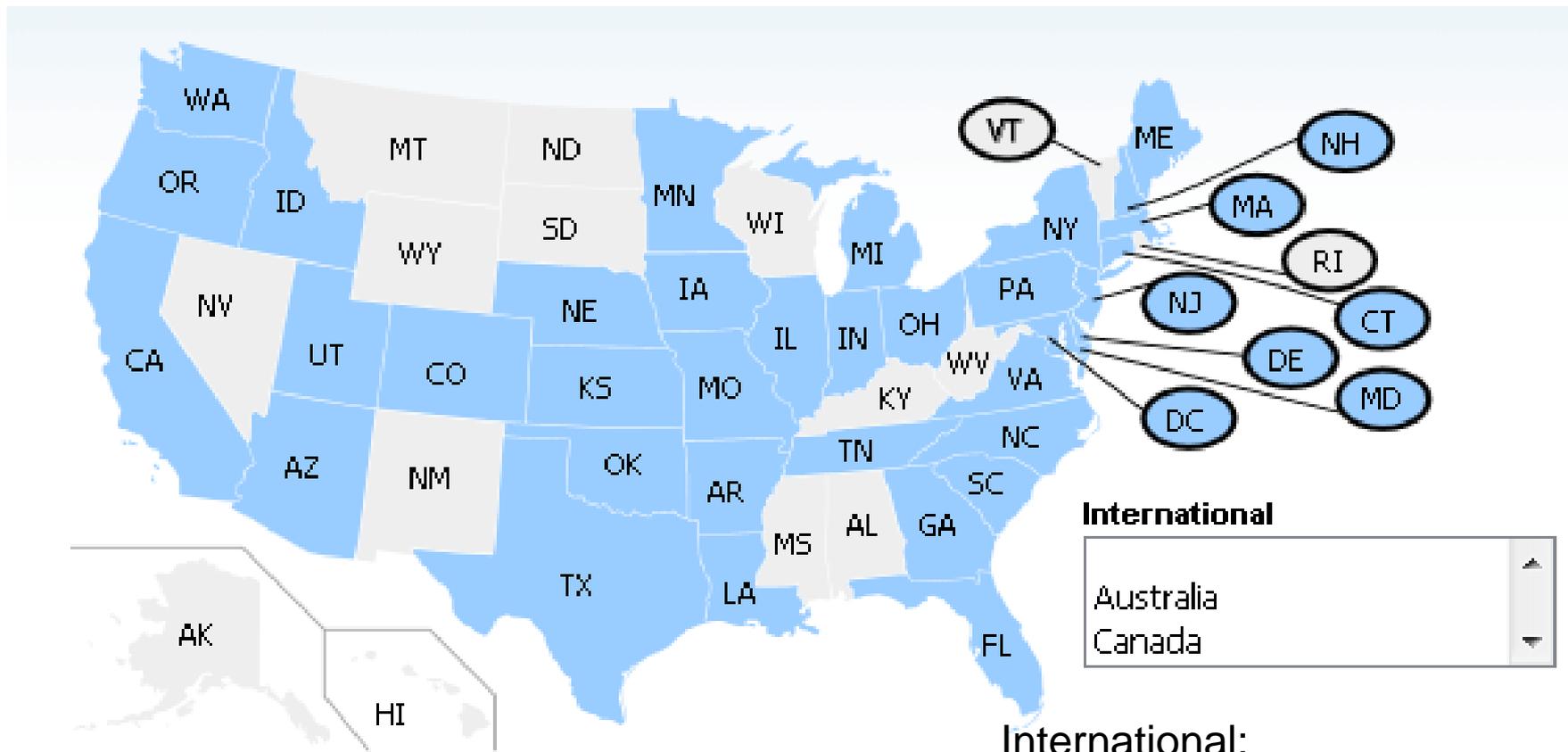


The PSM degree is designed to train the next generation of STEM professionals for integrator and leadership roles in science-intensive industries. By helping translate research into commercialization, PSM graduates are able to fuel innovation and economic growth.

PSM
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PSM PROFESSIONAL
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International:
 Australia
 Canada
 Republic of Korea
 United Kingdom



Systems and States with PSM Initiatives

California State University
City University of New York
HBCU Mid-Atlantic Alliance
MN State Colleges & Universities
PA State System of Higher Ed
State of Arizona
State of Florida
State of Oregon
State University of New Jersey
State University of New York
University of Illinois
University of Massachusetts
University of North Carolina
University of North Texas
Washington State University



PSM Enrollment and Degrees

(93% survey response)

- Over 6,100 applications for fall 2012 (2013 data available January)
 - 46% accepted for admission
- Nearly 1,900 first-time enrollees
- Total enrollment over 5,800
- 1,754 PSM degrees in 2011/12



Demographics of Total Enrollments Fall 2012

- Men 55%, Women 45%
- Full-time 40%, Part-time 60%
- International 15%
- Underrepresented minorities 25%
- Asian, Pacific Islander, White 69%
- Two or more races or unknown 6%



Growth in the PSM 2010-2012

- All respondents (includes new programs):
 - 22% increase in total enrollment
 - 59% increase in PSM degrees awarded
- Respondents to all 3 annual surveys:
 - 8% increase in total enrollment
 - 46% increase in PSM degrees awarded



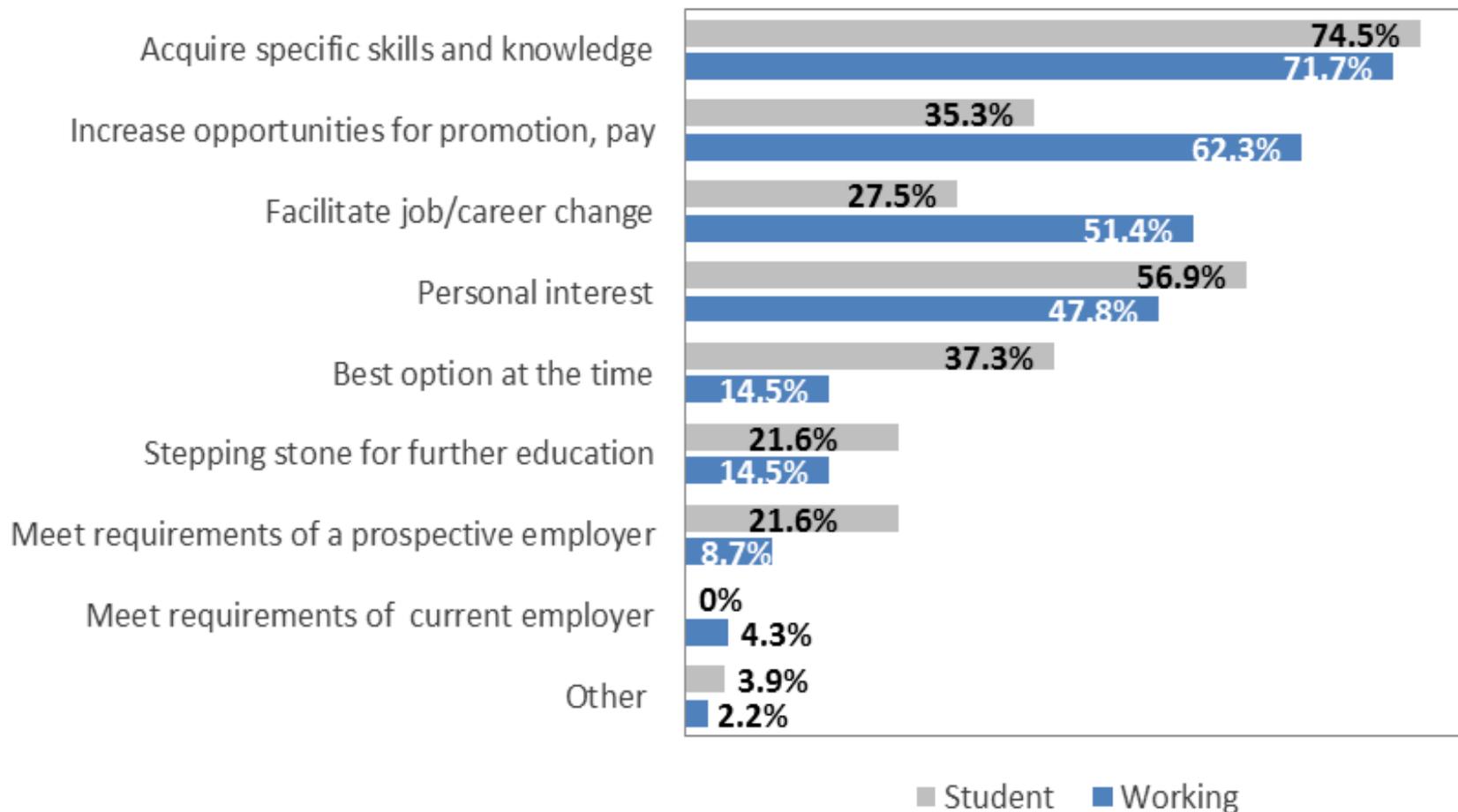
2012 PSM Alumni Outcomes

- 490 useable responses
- 2012/11, 2011/12, 2012/13 graduates
- Representing 78 programs
- 42 institutions



Figure 3.

Reasons for Enrolling in PSM Programs by Status, 2013



Source: Council of Graduate Schools, 2013



Figure 5.

Satisfaction with PSM Programs by Attribute, 2013



■ Very or generally satisfied

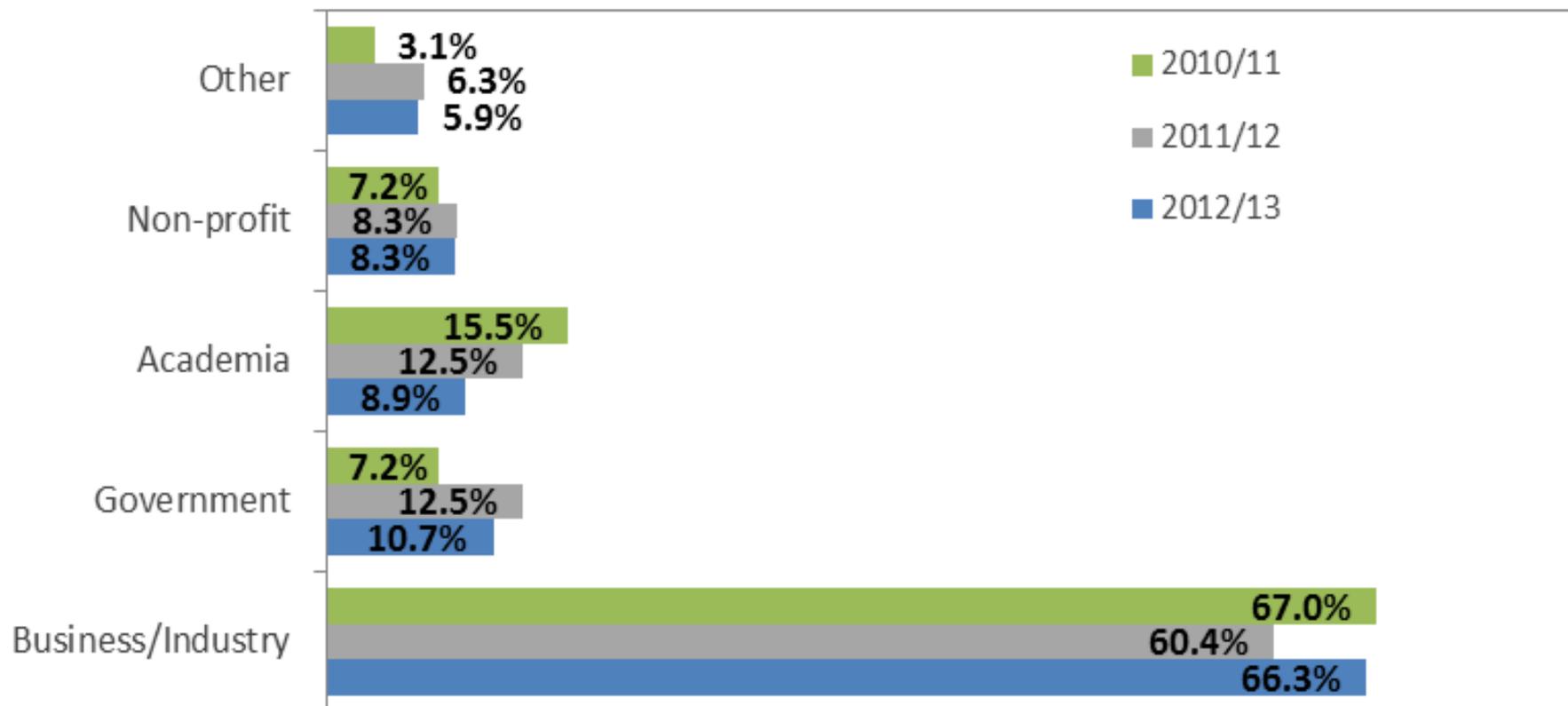
■ Very or somewhat dissatisfied

Source: Council of Graduate Schools, 2013



Figure 11.

Employment of 2010/11, 2011/12 and 2012/13 Graduates by Sector, 2013

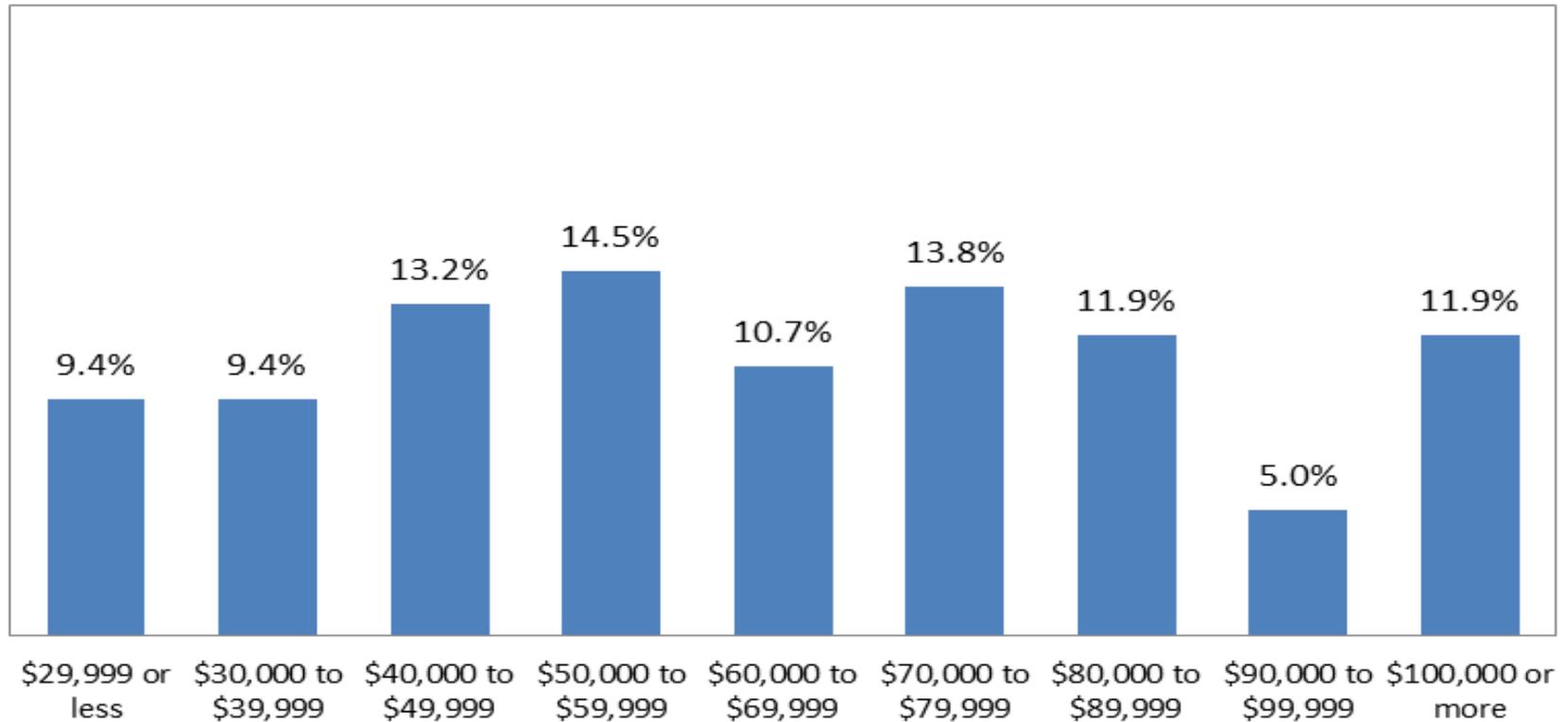


Source: Council of Graduate Schools, 2013



Figure 6.

Salary Distribution Among PSM Graduates Working Full Time, 2013



Source: Council of Graduate Schools, 2013



LONG TERM PSM GOAL

By 2030 (or sooner) supplant the MBA as the preferred preparation for management/leadership in STEM-based enterprises.



Transition of the PSM Office to KGI

A Year of Accomplishments and Planning

James D. Sterling
PSM National Office
Keck Graduate Institute
Claremont, CA

December 5, 2013

CGS Annual Meeting, San Diego, CA



PSM National Office

Housed at KGI

- CGS transferred responsibility for PSM Affiliation and sciencemasters.com on June 31, 2012.
- MOU between PSM office and NPSMA defining distinct roles effective July 1, 2012 through December 31, 2013.
- Alfred P. Sloan Foundation grant to KGI November 2012 to facilitate collaboration and rebate programs for NPSMA membership dues and PSM National Office affiliation fees for new PSMs



PSM Office Activities 2012-13

- Establishment of the PSM National Office at KGI
- Affiliation of New PSM Programs
- The Alfred P. Sloan Foundation transition funding to ease funding for affiliation & fees
 - Affiliation Fee Rebate
 - NPSMA New Institutional Membership Fee Rebate
- Development of the PSM re-affiliation process
- Website upgrades and marketing efforts



PSM National Office Charter

Mission is to provide

- (i) Management of the PSM Affiliation and Re-Affiliation process. Guidelines & Definitions
- (ii) Perform data collection and reporting of enrollment, degrees, and outcomes of PSM programs
- (iii) Develop & manage national and international branding, marketing and support of the PSM initiative.



PSM National Office Steering Committee Charter

- Appointed to provide advice, counsel, and support to the National Office.
- Membership of 15 key stakeholders, led by two co-chairs, composed of representatives from the NPSMA, CGS, Sloan Foundation, PSM Administration, PSM programs, industry, PSM alumni, and at-large organizations (e.g. agencies, non-profits and other organizations) - attempt to distribute the membership appropriately across these categories.



PSM National Office Steering Committee



Guidelines for PSM Affiliation

1. Regional accreditation
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4. Curriculum
 - Disciplinary content
 - Professional Skills
 - Experiential Component



Guidelines for Recognition, Cont'd.

5. Quality assurance mechanism
6. Advisory board
7. Collection of annual data



Benefits of PSM Affiliation

- Materials and resources for students, employers, faculty, administrators, and policy makers
- PSM system links and resources
- PSM initiative news
- Support for Communications, media, and PR
- New program development resources
- Comprehensive list of affiliated PSM programs w/map
- Steering committee information
- Affiliation and Re-affiliation process details
- Engagement of peer reviewers in PSM definition
- Outcomes & employment data: Historical documents



PSM Office Results

- Programs #271-302 approved

Date	Rate	Rebate Amount
11/1/12-10/31/13	75%	$\$Fee \times 0.75 = \$Rebate\ Amount$
11/1/13-10/31/14	50%	$\$Fee \times 0.50 = \$Rebate\ Amount$
11/1/14-10/31/15	25%	$\$Fee \times 0.25 = \$Rebate\ Amount$

- 7 new institutional members of NPSMA received 75% membership dues rebates.
- 9/20 eligible new PSM programs received 75% affiliation fee rebate.



Re-Affiliation Calendar

REAFFILIATION GROUP	REAFFILIATION CYCLE 1	DATE OF PROGRAM AFFILIATION
1	2013 July-November	1997-2002
	2014 January-June	
2	2014 July-November	2003-2007
	2015 January-June	
3	2015 July-November	2008-2009
	2016 January-June	
4	2016 July-November	2010
	2017 January-June	
5	2017 July-November	2011-June 2012
	2018 January-June	



Program Definitions

PROGRAM TYPE	PROGRAM #	FEE	MINIMUM CURRICULUM OVERLAP
Standalone program	1	\$1500	<50%
Cluster of programs	1	\$1500	>50%
	2	\$1000	
	3+	\$500	
Program with tracks	1	\$1500	>75%
	2	\$750	
	3+	\$300	



NATIONAL PROFESSIONAL SCIENCE MASTERS ASSOCIATION: AN OVERVIEW

THE COUNCIL OF GRADUATE SCHOOLS NATIONAL CONFERENCE

PRESENTED BY DR. DAVID KING, PRESIDENT, NPSMA

SAN DIEGO, CA
DECEMBER 5, 2013

OVERVIEW OF THE NPSMA:

- The National Professional Science Masters Association
- The NPSMA is a collaboration of PSM program directors, faculty, administrators, industry representatives, students and alumni who support PSM program development
- The NPSMA cultivates partnerships with industry, non-profits, government agencies and economic development offices to advance PSM programs
- Networking facilitates internship and job placement for PSM students and graduates

HISTORY OF THE NPSMA:

- Founded in 2005 with funding assistance from the Alfred P. Sloan Foundation
- NPSMA main office located at Worcester Polytechnic Institute
- NPSMA hired an Executive Director; elected a Board of Directors and a National Advisory Board
- The web site at *npsma.org* has many helpful resources
- National conferences have been held in Washington, Denver, Atlanta, and Arlington
- Best Practice Workshops have been held for various STEM fields: BioTech, Environmental Sciences, Math, Data Sciences

MISSION OF THE NPSMA:

- Strengthening the PSM movement by engaging all constituents in a synergistic collaboration
- Repurposing and reinvigorating the masters degree in STEM disciplines
- Facilitating university/business partnerships to prepare more cross-trained professionals with advanced skills in STEM combined with business and communication skills
- Promoting PSM hybrid degrees that help address STEM economic and workforce development
- Advancing a STEM degree to help meet 21st century needs

SERVICES OFFERED BY THE NPSMA:

- Annual national conferences that present cutting edge expertise from a broad cross section of fields related to PSM programs, networking and the sharing of best practices
- Regular professional development workshops that focus on some STEM discipline or have an interdisciplinary focus
- Ambassador Program creates PSM alumni chapters to facilitate job placement and networking
- IntroMaps (formerly GradAtlas) is a new service that identifies PSM graduates in fields or locations that may be of interest to new graduates or employers

SERVICES (cont'd):

- The NPSMA Newsletter published periodically offers information on a wide variety of issues related to PSM's
- Consulting Services are available from experienced members of the PSM community to assist with starting PSM programs or any other related challenges
- Advocacy resources to facilitate recruiting, marketing, and promoting PSM programs to policy makers, industry and higher education leaders, etc.

NPSMA AMBASSADOR PROGRAM:

- Local PSM alumni chapters serve affiliated PSM alumni, PSM faculty and program directors
- The local PSM alumni association affiliates itself with the NPSMA under the guidance of the Ambassador Program Coordinator
- Local chapters facilitate mentoring, internship placement, and schedule networking events
- Alumni also benefit from career planning assistance and job placement resources

NPSMA AMBASSADOR PROGRAM (cont'd):

- Alumni help to mentor new PSM students and model best practices
- PSM program directors and faculty can use alumni chapters to facilitate recruiting, advising and placement of new PSM graduates
- NPSMA infrastructure provides the resources and national network links that enhance the value of the alumni chapters
- Participants in the Ambassador program have access to all the support services of the NPSMA and the PSM community

NPSMA INTROMAPS:

- Provides personalized introductions to other PSM graduates based on their current employment location and career field
- Uses LinkedIn profiles to create a large integrated map of PSM graduates who are working all over the world
- Facilitates networking and mentoring with other members of the PSM community via a map-based interface
- Offers a new service available to all NPSMA members including students and alumni
- Provides assistance with career planning, current job openings and re-location (see *intromaps.com*)

MEMBERSHIP IN THE NPSMA:

- The NPSMA offers a variety of membership options:

TYPE	YEARLY FEE
Academic Institution	\$2000./per year
Academic System	\$1500./per campus
Individual	\$75.00/per person
PSM alumni	\$75.00/per person *
PSM student	\$50.00/per person *

*one year free if institution is an NPSMA member

MEMBERSHIP IN THE NPSMA (cont'd):

- NPSMA membership also provides discounts on registration fees for NPSMA conferences and workshops
- Membership provides access to all of the NPSMA services listed above
- See *npsma.org* web site for more information

REBATE PROGRAM FOR NEW NPSMA INSTITUTIONAL MEMBERS:

- Rebate program is administered by the PSM National Office at the Keck Graduate Institute
- Funding for the rebate program is provided by a grant from the Alfred P. Sloan Foundation
- New academic institutional members of NPSMA are eligible for a 50% reimbursement on membership fees until October 31, 2014
- From November 1, 2014 until October 31, 2015, the reimbursement rate will be 25%
- This incentive program provides full member benefits

PSM 300TH MILESTONE EVENT:

- This year marks the 15th anniversary of the launch of the PSM degree initiative with funding from the Alfred P. Sloan Foundation
- There are now 302 affiliated PSM degree programs at about 140 universities and colleges across the US and abroad
- The 300th PSM program was registered at SUNY Cortland in July focusing on Sustainable Energy
- This anniversary occasioned a special 300th PSM Milestone event at the Library of Congress on November 12, 2013

PSM 300TH MILESTONE EVENT (cont'd):

- The Milestone event was sponsored by two members of Congress who have been very supportive of the PSM initiative: Congressman Richard Hanna (22nd Dist.-NY) and Congressman Rush Holt (12th Dist.-NJ)
- Higher education leaders who spoke at the event included SUNY Chancellor Nancy Zimpher, President Juliette Bell from the University of Maryland-Eastern Shore, and President Sheldon Schuster from the Keck Graduate Institute
- Dean Bruce Mattingly and Physics Chair Brice Smith from SUNY Cortland received recognition for the 300th PSM program from Chancellor Zimpher

PSM 300TH MILESTONE EVENT (cont'd):

- Moderator for the event was Ross Grossman, VP at Regeneron Pharmaceuticals, and a major supporter and employer of PSM graduates
- Employers from the US Patent and Trade Office and from Georgetown University Medical Center also spoke about the benefits of hiring STEM graduates with a PSM degree
- PSM alumni spoke about how the PSM changed their lives and launched them into successful careers
- Early benefactors of the PSM also spoke: Michael Teitelbaum from the Sloan Foundation and Debra Stewart, President of the Council of Graduate Schools

PSM 300TH MILESTONE EVENT (cont'd):

- For much more information about the 300th PSM Milestone event see the dedicated web site at *PSMmilestone.com*
- The web site includes biographies of the speakers, photos and video clips of the event, as well as more information about the PSM
- *PSMmilestone.com* also includes press releases and a press kit
- All members of the PSM community are encouraged to contribute relevant materials to the site and to utilize it as a resource for PSM recruiting, marketing, advocacy, etc.

NPSMA CONTACT INFORMATION:

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