Enrollment and Degrees in Professional Science Master’s (PSM) Programs: 2010
Enrollment and Degrees in Professional Science Master’s (PSM) Programs: 2010

Nathan E. Bell
Director, Research and Policy Analysis
Council of Graduate Schools

Jeffrey R. Allum
Research Associate
Council of Graduate Schools
The 2010 Professional Science Master’s Enrollment and Degrees Survey was conducted by the Council of Graduate Schools with a grant from the Alfred P. Sloan Foundation. The survey is designed to provide information about applications to Professional Science Master’s (PSM) programs, enrollment in these programs, and degrees awarded. A PDF version of this survey report is available online at www.sciencemasters.com. For more information about the survey or the survey report, please contact:

**Council of Graduate Schools**
One Dupont Circle NW, Suite 230
Washington, DC 20036-1173
www.cgsnet.org

Jeffrey R. Allum
(202) 223-3791
jallum@cgs.nche.edu

Nathan E. Bell
(202) 223-3791
nbell@cgs.nche.edu

Suggested citation:


Copyright © 2011 Council of Graduate Schools, Washington, DC

ALL RIGHTS RESERVED. No part of this work covered by the copyright herein may be reproduced or used in any form by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, web distribution, or information storage and retrieval systems—without the prior written permission of the Council of Graduate Schools, One Dupont Circle, NW, Suite 230, Washington, DC 20036-1173.
# Table of Contents

LIST OF FIGURES ........................................................................................................ iv

ACKNOWLEDGMENTS ................................................................................................. vi

EXECUTIVE SUMMARY ............................................................................................... vii

INTRODUCTION ........................................................................................................... 1
  Research Design....................................................................................................... 1
  Data Collection....................................................................................................... 1
  Data Analysis......................................................................................................... 2
  Limitations............................................................................................................. 3

FINDINGS ....................................................................................................................... 3

Characteristics of Survey Respondents ...................................................................... 3

Applications .............................................................................................................. 4
  Applications Received .......................................................................................... 4
  Applications Accepted ....................................................................................... 6

First-Time Enrollment ............................................................................................... 9
  Yield Rates........................................................................................................... 10
  First-Time Enrollment by Institutional Control ................................................... 11
  First-Time Enrollment by Carnegie Classification ........................................... 12
  First-Time Enrollment by Field of Study .......................................................... 13

Total Enrollment ....................................................................................................... 16
  Total Enrollment by Institutional Control ........................................................... 17
  Total Enrollment by Carnegie Classification .................................................... 18
  Total Enrollment by Field of Study ................................................................... 19

Degrees ...................................................................................................................... 22
  Degrees by Institutional Control ....................................................................... 23
  Degrees by Carnegie Classification ................................................................... 24
  Degrees by Field of Study .................................................................................. 26

Future Professional Science Master’s Enrollment and Degrees Surveys ................. 28

REFERENCES ............................................................................................................. 29

APPENDIX A: Survey Questionnaire ........................................................................... 30
List of Figures

Figure 1. Distribution of PSM Programs Represented by Survey Respondents by Field of Study, Fall 2010 .......................................................................................................................... 4
Figure 2. Applications Received by PSM Programs by Institutional Control and Carnegie Classification, Fall 2010 ........................................................................................................... 5
Figure 3. Applications Received by PSM Programs by Field of Study, Fall 2010 ................................................................. 5
Figure 4. Mean and Median Number of Applications Received by PSM Programs by Field of Study, Fall 2010 .................................................................................................................. 6
Figure 5. Applications Accepted by PSM Programs by Institutional Control and Carnegie Classification, Fall 2010 ........................................................................................................... 6
Figure 6. Applications Accepted by PSM Programs by Field of Study, Fall 2010 ................................................................. 7
Figure 7. Mean and Median Number of Applications Accepted by PSM Programs by Field of Study, Fall 2010 .................................................................................................................. 8
Figure 8. Acceptance Rates in PSM Programs by Field of Study, Fall 2010 ................................................................. 8
Figure 9. General Characteristics of First-Time Enrollment in PSM Programs, Fall 2010 ................................................................. 9
Figure 10. Yield Rates in PSM Programs by Institutional Control and Carnegie Classification, Fall 2010 .................................................................................................................. 10
Figure 11. Yield Rates in PSM Programs by Field of Study, Fall 2010 ................................................................................. 11
Figure 12. First-Time Enrollment in PSM Programs by Race/Ethnicity and Institutional Control, Fall 2010 .................................................................................................................. 12
Figure 13. First-Time Enrollment in PSM Programs by Carnegie Classification, Fall 2010 ................................................................. 12
Figure 14. First-Time Enrollment in PSM Programs by Field of Study, Fall 2010 ................................................................. 13
Figure 15. First-Time Enrollment in PSM Programs by Field of Study and Gender, Fall 2010 .................................................................................................................. 14
Figure 16. First-Time Enrollment in PSM Programs by Field of Study and Enrollment Status, Fall 2010 .................................................................................................................. 15
Figure 17. Distribution of First-Time Enrollment in PSM Program Among U.S. Citizens and Permanent Residents by Field of Study, Fall 2010 ....................................................................... 15
Figure 18. Distribution of First-Time Enrollment in PSM Programs Among Temporary Residents by Field of Study, Fall 2010 .................................................................................................................. 15
Figure 19. First-Time Enrollment in PSM Programs by Field of Study and Race/Ethnicity, Fall 2010 ........................................................................................................................................... 16
Figure 20. General Characteristics of Total Enrollment in PSM Programs, Fall 2010 ................................................................. 17
Figure 21. Total Enrollment in PSM Programs by Institutional Control and Enrollment Status, Fall 2010 ........................................................................................................................................... 18
Figure 22. Total Enrollment in PSM Programs by Carnegie Classification and Gender, Fall 2010 ..... 19
Figure 23. Total Enrollment in PSM Programs by Carnegie Classification and Race/Ethnicity, Fall 2010 ................................................................. 19
Figure 24. Total Enrollment in PSM Programs by Field of Study, Fall 2010 ................................................................. 20
Figure 25. Total Enrollment in PSM Programs by Field of Study and Gender, Fall 2010 ................................................................. 20
Figure 26. Total Enrollment in PSM Programs by Field of Study and Enrollment Status, Fall 2010 ................................................................. 21
Figure 27. Distribution of Total Enrollment in PSM Programs Among U.S. Citizens and Permanent Residents by Field of Study, Fall 2010 ................................................................. 22
Figure 28. Distribution of Total Enrollment in PSM Programs Among Temporary Residents by Field of Study, Fall 2010 ................................................................. 22
Figure 29. Total Enrollment in PSM Programs by Field of Study and Race/Ethnicity, Fall 2010 ................................................................. 22
Figure 30. General Characteristics of PSM Degrees Awarded, 2009/10 ................................................................. 23
Figure 31. Degrees Awarded by Institutional Control and Citizenship, 2009/10 ................................................................. 24
Figure 32. PSM Degrees Awarded by Doctoral Institutions by Carnegie Classification and Gender, 2009/10 ................................................................. 25
Figure 33. PSM Degrees Awarded by Carnegie Classification and Race/Ethnicity, 2009/10 ................................................................. 25
Figure 34. PSM Degrees Awarded by Field of Study, 2009/10 ................................................................. 26
Figure 35. PSM Degrees Awarded by Field of Study and Gender, 2009/10 ................................................................. 27
Figure 36. Distribution of PSM Degrees Awarded to U.S. Citizens and Permanent Residents by Field of Study, 2009/10 ................................................................. 27
Figure 37. Distribution of PSM Degrees Awarded to Temporary Residents by Field of Study, 2009/10 ................................................................. 27
Figure 38. PSM Degrees Awarded by Field of Study and Race/Ethnicity, 2009/10 ................................................................. 28
ACKNOWLEDGMENTS

A number of individuals and organizations deserve acknowledgment for the 2010 Professional Science Master’s Enrollment and Degrees Survey. First, the survey was made possible by a grant from the Alfred P. Sloan Foundation, whose initial funding made PSM programs possible, and whose continued support allows us to understand their growth and development. In particular, we thank Michael Teitelbaum of the Sloan Foundation for his important support of this work.

The development of the questionnaire was greatly enriched by the input and support provided by members of the National Professional Science Master’s Association (NPSMA), including Dagmar Beck (Rice University), Bogdan Vernescu (Worcester Polytechnic Institute), Susan Stites-Doe (The College at Brockport, State University of New York), Cliff Chancey (University of Northern Iowa), Elizabeth Friedman (Illinois Institute of Technology), and Kevin Sightler (University of Illinois at Urbana-Champaign). In addition, we thank Don Langenberg, Director of Strategic Planning and External Projects at NPSMA, and Sheila Tobias, long-time supporter of the PSM, for their feedback about the survey. Input was also provided by select members of the Council of Graduate Schools’ PSM Advisory Board, including Linda Strausbaugh (University of Connecticut), Patricia Bishop (University of Central Florida), Saeed Foroudastan (Middle Tennessee State University), David King (State University of New York at Oswego), and Inge Wefes (University of South Florida).

Thank you to the graduate deans at CGS’ member institutions for encouraging PSM program directors to complete the survey and for providing assistance with data collection and reporting. Thank you also to the NPSMA for your support both prior to and during the data collection stage for this survey. Thank you for urging your members to participate in the survey and for conveying the importance of the survey to your members.

We also want to thank the members of the CGS PSM team—Carol Lynch, Sally Francis, Leontyne Goodwin, and Josh Mahler—for their advice regarding survey questions and the administration of the survey. In particular, we want to recognize Josh Mahler for his diligent assistance with planning, data collection, and web site maintenance. Josh was also responsible for the design of this report cover, and we thank him for that contribution.

Finally, and most importantly, a special thank you goes to the PSM coordinators, program directors, and staff at the 209 programs in 95 institutions who participated in this survey. We are grateful for your efforts in providing data in a timely manner, and we hope that this report supports the continued success of your PSM programs.
EXECUTIVE SUMMARY

The *Professional Science Master’s Enrollment and Degrees Survey* is an annual survey of enrollment and degrees in Professional Science Master’s (PSM) programs. These programs, which combine study in science and/or mathematics with coursework in management, policy, law, or related fields, are designed to prepare graduates for careers in business, government, and non-profit organizations.

In spring 2011, 235 PSM programs from 110 institutions of higher education were invited to participate in the survey. The survey sought data regarding the number of applications received and accepted for fall 2010, the number of first-time and total enrollees for fall 2010, and the number of degrees awarded during the 2009/10 academic year (July 1, 2009 to June 30, 2010). Within these categories, data were collected by gender, citizenship, race/ethnicity, and, where applicable, enrollment status (full-time vs. part-time). The survey generated 209 usable responses, for an 89% response rate.

General Characteristics

Of the 209 usable responses, 174 reported students who were either enrolled in a PSM program in fall 2010 or graduated from a PSM program during the 2009/10 academic year. These responses serve as the basis for this report. The majority (98.3%) of the 174 PSM programs with students were from institutions located in the United States. Among the U.S.-based programs, 73.7% were in public institutions. Two-thirds (67.3%) of all U.S.-based PSM programs were in doctoral institutions. More than one-half (53.4%) of all PSM programs were in either biology/biotechnology or environmental sciences.

Applications

PSM programs responding to the survey received 4,396 applications for admission to PSM programs for fall 2010. Among U.S.-based respondents, 76.7% of all applications were received by public institutions and 23.3% were received by private, not-for-profit institutions. Nearly two-thirds (63.2%) of all applications were received by doctoral institutions. PSM programs in biology/biotechnology received more applications than programs in other fields of study, constituting 34.1% of all applications received for fall 2010.

PSM programs reported that 2,134 applications were accepted for fall 2010. Among U.S.-based PSM programs, 75.6% of the applications accepted were for admission to public institutions, and 60.0% were for admission to doctoral institutions. Biology/biotechnology programs accounted for the largest percentage of accepted applications, constituting 33.2% of all applications accepted.

The overall acceptance rate for the PSM programs responding to the survey was 48.0%, meaning that nearly half of all applications received were accepted for admission to PSM programs. Among U.S.-based PSM programs, the acceptance rate was 47.6% at public institutions and 50.7% at private, not-for-profit institutions. U.S.-based doctoral institutions had a slightly lower application acceptance rate (45.8%) than master’s-focused or specialized institutions (52.7%).
First-Time Enrollment

Respondents to the survey reported that 1,471 students enrolled for the first time in a PSM program in fall 2010, 1,444 of whom were enrolled in programs based in the United States. Among U.S. and non-U.S.-based PSM programs, 55.5% of first-time enrollees were men, and 58.9% of all first-time PSM students were enrolled full-time. Roughly one in six (16.8%) first-time enrollees in U.S.-based PSM programs were temporary residents (i.e., international students). Among U.S. citizens and permanent residents who were enrolled for the first-time in a PSM program in fall 2010, 22.2% were underrepresented minorities (Black/African American, Hispanic/Latino, or American Indian/Alaska Native). More than two-thirds (69.0%) of all first-time PSM enrollees in fall 2010 were in programs in biology/biotechnology, computational sciences, and environmental sciences.

The overall yield rate, which is the number of first-time enrollees divided by the number of applications accepted, was 68.6% across all PSM programs. The yield rate was 72.7% among U.S.-based public institutions, 57.3% at private, not-for-profit institutions, 52.7% at master’s-focused or specialized institutions, and 45.8% at doctoral institutions.

Total Enrollment

Institutions responding to the survey reported a total of 4,753 students enrolled in PSM programs in fall 2010, 4,630 of whom were enrolled at U.S.-based institutions. Total enrollment in PSM programs was divided fairly evenly between men (51.1%) and women (48.9%). Roughly two in every three (64.0%) PSM students were enrolled part-time. Roughly one in every eight (13.4%) PSM students enrolled in U.S.-based institutions were temporary residents. Among U.S. citizens and permanent residents, 29.2% of enrollees in the fall of 2010 were underrepresented minorities.

The majority (83.5%) of students enrolled in U.S.-based PSM programs were enrolled in public institutions. By Carnegie classification, 65.0% of PSM students in U.S.-based institutions were enrolled in master’s-focused or specialized institutions. Nearly three-quarters (73.3%) of all PSM students were pursuing degrees in computational sciences, biology/biotechnology, or environmental sciences.

Degrees

Institutions responding to the survey awarded 1,102 PSM degrees in academic year 2009/10, the majority (1,066 or 96.7%) of which were granted by U.S.-based institutions. The 1,102 degrees were divided evenly between men and women (546 each). One in four (24.1%) graduates of U.S.-based PSM programs were international students. Among U.S. citizens and permanent residents, 22.4% of PSM graduates in 2009/10 were underrepresented minorities. Among U.S.-based PSM programs responding to the survey, 80.5% of degrees were awarded by public institutions. By Carnegie classification, and among U.S.-based institutions, 47.7% of PSM degrees were awarded by doctoral institutions, and 52.3% were awarded by master’s-focused or specialized institutions.
Nearly six in ten (57.7%) PSM degrees awarded in 2009/10 were in biology/biotechnology and computational sciences. Men earned the majority of the PSM degrees granted in mathematics and statistics, physics and geological sciences, and computational sciences. Women earned the majority of the degrees granted in “other” fields (which includes chemistry, forensic science, nanoscience, and national defense), medical-related sciences, and biology/biotechnology. Three-quarters (74.0%) of temporary residents who earned PSM degrees did so in the fields of biology/biotechnology and mathematics and statistics.
INTRODUCTION

The Professional Science Master’s (PSM) is an innovative graduate degree designed to allow students to pursue advanced training in science, while simultaneously developing workplace skills highly valued by employers. PSM programs prepare graduates for careers in business, government, and non-profit organizations, combining rigorous study in science and/or mathematics with coursework in management, policy, law, or related fields. Along with an emphasis on writing, leadership, and communication skills, most PSM programs require a final project or team experience, as well as an internship in a business or public sector setting.

The PSM initiative began in 1997 with grants from the Alfred P. Sloan Foundation to support the founding of programs in the natural sciences and mathematics at research institutions (Sims, 2006). In 2001, a Sloan Foundation grant to the Council of Graduate Schools (CGS) extended the PSM initiative to master’s-focused institutions. In 2006, CGS assumed primary responsibility for supporting and expanding the PSM degree, with the goal of making it a regular feature of U.S. graduate education. As of July 2011, 237 programs in 110 institutions are recognized as PSMs by CGS. For more information about the PSM initiative, and for a complete list of PSM programs, please visit www.scinemasters.com.

The 2010 Professional Science Master’s Enrollment and Degrees Survey is an annual survey of enrollment and degrees in Professional Science Master’s (PSM) programs. Previous PSM enrollment and degrees surveys were conducted for academic years 2008 and 2009 by NPSMA, the National Professional Science Master’s Association (2009, in press). The revamped 2010 survey was carried out by CGS with a grant from the Alfred P. Sloan Foundation. It collected data regarding applications, first-time enrollment, total enrollment, and degrees awarded.

Research Design

The design of the 2010 Professional Science Master’s Enrollment and Degrees Survey was based upon a review of more than 20 enrollment and degrees questionnaires. A draft version of the questionnaire was reviewed by members of the Executive Committee of the NPSMA, select members of the CGS PSM Advisory Board, and Don Langenberg, Director of Strategic Planning and External Projects for the NPSMA. The questionnaire, which appears in Appendix A, includes 43 question items.

Data Collection

The survey was launched on April 7, 2011 via an e-mail to PSM program directors and graduate deans (or equivalent) representing 235 PSM programs from 110 institutions of higher education that were recognized by CGS as PSM programs as of April 2011. As many as three e-mail reminders and one cycle of telephone calls were used to collect data from non-respondents. The survey closed on May 27, 2011, after collecting 209 usable responses, for an 89% response rate.

Invitees were asked to provide data regarding the number of applications received for admission for the fall term of 2010, the number of applications accepted for the fall term of 2010, the number of first-time enrollees for the fall term of 2010, the total number of enrollees for the fall term of 2010,
and the number of degrees awarded during the 2009/10 academic year (July 1, 2009 to June 30, 2010). Invitees were asked to provide enrollment data by gender, citizenship, race/ethnicity, and enrollment status, and degree data by gender, citizenship, and race/ethnicity. Invitees were not asked to provide applications data by gender, citizenship, and race/ethnicity since some institutions do not collect these demographic data from applicants. Detailed explanations and descriptions of these data elements appear with the questionnaire in Appendix A.

Data Analysis

Data were reviewed, cleaned, and edited using a process outlined by Van den Broeck, Argeseanu, Eeckels, and Herbst (2005). The dataset was screened for instances where data were lacking, in excess, inconsistent, revealed strange patterns, or were otherwise suspect. Anomalies were recorded and diagnosed as being missing, erroneous, or seemingly extreme. Irregularities were treated accordingly, usually by contacting respondents directly.

Certain definitions were adopted to facilitate the analysis and reporting of the survey data. The term “underrepresented minorities” refers to U.S. citizens and permanent residents identified as being Hispanic/Latino, American Indian/Alaska Native, or Black/African American. The term “institutional control” refers to the classification of institutions as public; private, not-for-profit; or private, for-profit institutions of higher education. The term “Carnegie classification” refers to the basic classification of the Carnegie Classification of Institutions of Higher Education. In this report, institutions classified as research universities with very high research activity (RU/VH), research universities with high research activity (RU/H), and doctoral/research universities (DRU) are sometimes grouped as “doctoral institutions.” Master’s colleges and universities and specialized institutions are grouped in this report as “master’s-focused or specialized institutions.” The term “enrollment status” refers to whether a student was enrolled primarily full-time or part-time. Institutions were encouraged to apply their own definition of full-time and part-time enrollment status. Fields of study, as defined on www.sciencemasters.com, were used to cluster programs within this report. Finally, given the smaller numbers of enrollments and degrees reported in the fields of chemistry, forensic sciences, nanoscience, and national defense, these four fields were combined into a single “other” category in this report.

The analytical process and subsequent report required the suppression of some data. Data from PSM programs based outside of the United States were suppressed when examining enrollments and degrees by citizenship and race/ethnicity since these definitions differ outside the U.S. Data from non-U.S.-based programs were also suppressed when examining data by institutional control and Carnegie classification for the same reason.

This report includes descriptive statistics regarding applications to, applications accepted for, enrollment in, and degrees awarded by PSM programs responding to the survey. The report refrains from describing similarities or differences between or within first-time enrollment, total enrollment, and degrees due to the fact that this was the first attempt to collect these data using this methodology, thus, there is no point of reference from which analysts can be sure that such comparisons are valid and reliable. For the same reason, this report neither highlights nor summarizes a number of interesting and potentially provocative findings resulting from the
analysis. We are hopeful that data generated by the 2011 Professional Science Master’s Enrollment and Degrees Survey will provide a more sound basis for highlighting these types of findings.

Limitations

This study has some limitations, the first of which has already been mentioned: some sets of data were necessarily suppressed for certain analyses. These suppressions were relatively small and they are disclosed throughout this report. One responding institution was particularly large and is likely to have skewed certain findings. Although this institution represented only 3% of all PSM programs, it constituted 19.9% of all first-time enrollees, 44.4% of total enrollees, and 28.6% of all degrees awarded. Data from this institution were included in all analyses, due to the fact that this data collection effort is essentially a census of all CGS-approved PSM programs. Speculations about what effects these data might have on the analyses have been noted by analysts, but have not been reported. Once the 2011 Professional Science Master’s Enrollment and Degrees Survey has been completed, analysts may be better poised to discuss any effects that this particularly large institution has on the final findings. Finally, this report almost certainly understates the total number of applications to, applications accepted by, enrollments in, and degrees awarded by PSM programs. The sample was restricted to CGS-approved PSM programs as of April 2011 (a figure that has grown since then), and while the survey had a very high response rate, a small percentage of PSM programs did not respond to the survey.

FINDINGS

This report includes the findings regarding applications to, applications accepted by, enrollments in, and degrees awarded by respondents to the 2010 Professional Science Master’s Enrollment and Degrees Survey. The report begins with a description of the characteristics of the survey respondents.

Characteristics of Survey Respondents

The 2010 Professional Science Master’s Enrollment and Degrees Survey generated 209 responses from 95 institutions of higher education. Of those, 174 programs from 85 institutions of higher education reported students who were either enrolled in a PSM program in fall 2010 or graduated from a PSM program during the 2009/10 academic year (July 1, 2009 to June 30, 2010). The responses from these 174 programs serve as the basis for the analysis and this report. In most cases, responding programs reporting no students were only recently approved by CGS as PSM programs and had not yet enrolled students in fall 2010. These programs were therefore excluded from the analysis.

The vast majority (98.3%) of the 174 PSM programs with students were from institutions located in the United States. Among these U.S.-based programs, three-quarters (73.7%) were in public institutions, and one-quarter (26.3%) were in private, not-for-profit institutions. By basic Carnegie classification, two-thirds (67.3%) were located in doctoral institutions, and one-third (32.7%) were located in master’s-focused or specialized institutions. Among programs located in doctoral institutions, 53.9% were in research universities with very high research activity (RU/VH), 38.3%
were in research universities with high research activity (RU/H), and 7.8% were in doctoral/research universities (DRU).

PSM programs responding to the survey were grouped into eight fields of study. More than one-half (53.4%) of all programs were in either biology/biotechnology or environmental science. The six remaining fields constituted 46.6% of all PSM programs. Figure 1 depicts the distribution of programs by field of study.

Figure 1.
Distribution of PSM Programs Represented by Survey Respondents by Field of Study, Fall 2010

Applications Received

Institutions responding to the 2010 Professional Science Master’s Enrollment and Degrees Survey received 4,396 applications for admission to PSM programs for the fall term of 2010. Among the U.S.-based respondents, approximately three-quarters (76.7%) of all applications were received by public institutions, and 23.3% were received by private, not-for-profit institutions (see Figure 2). Nearly two in every three (63.2%) applications were received by doctoral institutions, and slightly more than one in every three (36.8%) were received by master’s-focused or specialized institutions. Among applications received by doctoral institutions, 71.7% were received by research universities with very high research activity (RU/VH), 19.8% were received by research universities with high research activity (RU/H), and 8.5% were received by doctoral/research universities (DRU).
As shown in Figure 3, PSM programs in biology/biotechnology received more applications than programs in other fields of study, constituting 34.1% of all applications received for fall 2010. PSM programs in mathematics and statistics generated the second largest number of applications (22.5%). Computational sciences and environmental sciences received 13.5% and 10.7% of all applications for fall 2010 respectively.

PSM programs responding to the survey received a median of 14.0 applications each and a mean of 28.5 applications each for fall 2010. The medians for all eight fields of study, as well as the total, are smaller than the means (see Figure 4). This is the case because many PSM programs received a small number of applications for admission for the fall term of 2010, and a few PSM programs
received a particularly large number of applications. This is particularly pronounced in mathematics and statistics and computational science PSM programs, fields in which a few PSM programs received a very large number of applications.

Applications Accepted

Respondents to the 2010 Professional Science Master’s Enrollment and Degrees Survey reported that 2,134 applications were accepted for the fall term of 2010. Among U.S.-based PSM programs, three-quarters (75.6%) of the applications accepted were for admission to public institutions and 24.4% were for admission to private, not-for-profit institutions. Sixty percent of PSM applications accepted were for admission to doctoral institutions, and 40.0% were for admission to master’s-focused or specialized institutions (see Figure 5). Among applications accepted by doctoral institutions, 64.9% were accepted by research universities with very high research activity (RU/VH), 27.6% were accepted by research universities with high research activity (RU/H), and 7.6% were accepted by doctoral/research universities (DRU).

Figure 5.
Applications Accepted by PSM Programs by Institutional Control and Carnegie Classification, Fall 2010

Source: Council of Graduate Schools, 2011
Represents only U.S.-based programs
As depicted in Figure 6, biology/biotechnology programs accounted for the largest percentage of accepted applications among the eight fields of study (33.2%), according to the PSM programs responding to the survey. PSM programs in mathematics and statistics accounted for 17.5% of all accepted applications, and computational sciences accounted for 15.8% of all accepted applications.

Programs responding to the survey reported a median of 9.5 and a mean of 13.7 applications accepted for fall of 2010. As illustrated in Figure 7, the mean number of accepted applications was larger than the median number of accepted applications in all fields of study, indicating that a small number of PSM programs in each field of study received a large number of applications. Mathematics and statistics and computational sciences have particularly large variances with respect to the number of applications accepted by different programs; most programs accepted a small number of applications but a small number of programs accepted a large number of applications for the fall of 2010.

The overall acceptance rate for the PSM programs responding to the 2010 Professional Science Master’s Enrollment and Degrees Survey was 48.0%, meaning that nearly half of all applications received were accepted for admission to PSM programs. Among U.S.-based PSM programs, the acceptance rate was 47.6% at public institutions and 50.7% at private, not-for-profit institutions. U.S.-based doctoral institutions had a slightly lower application acceptance rate (45.8%) than

---

1 Two survey respondents provided the number applications accepted by their program but not the number of applications received. The number of applications accepted by these two institutions (n=23) was suppressed from all acceptance and yield rate calculations.
master’s-focused or specialized institutions (52.7%). Among U.S.-based doctoral institutions, research universities with high research activity (RU/H) had the highest application acceptance rate (64.2%), followed by research universities with very high activity (RU/VH) (41.4%), and doctoral/research universities (DRU) (40.9%).

As illustrated in Figure 8, the majority of application acceptance rates by field of study were near the overall average of 48.0%. For instance, acceptance rates in “other” fields (which includes chemistry, forensic sciences, nanoscience, and national defense), computational molecular biology/bioinformatics, physics and geological sciences, and biology/biotechnology, were 51.5%,
49.0%, 48.5%, and 46.0% respectively. PSM programs in two fields of study (environmental sciences and computational sciences) had acceptance rates that were considerably higher on average than the overall mean (65.6% and 56.7% respectively). PSM programs in two fields of study (medical-related sciences and mathematics and statistics) had acceptance rates that were considerably lower than the average (43.8% and 37.7% respectively).

First-Time Enrollment

Respondents to the 2010 *Professional Science Master’s Enrollment and Degrees Survey* reported that 1,471 students enrolled for the first time in a PSM program in fall of 2010, the majority of whom (1,444) were enrolled in programs based in the United States. Among U.S. and non-U.S.-based PSM programs, slightly more than one-half (55.5%) of all first-time students were men, compared with 44.5% who were women. Among this same population, more than one-half (58.9%) of all first-time students were enrolled full-time, while less than one-half (41.1%) were enrolled part-time. Roughly one in six (16.8%) first-time enrollees in U.S.-based PSM programs were temporary residents (i.e., international students). Among U.S. citizens and permanent residents who were enrolled for the first-time in a PSM program in fall 2010, 22.2% were underrepresented minorities, which includes Hispanic/Latino, American Indian/Alaska Native, and Black/African American. Roughly two-thirds (68.6%) were Asian/Pacific Islander or White, and 9.2% were either of two or more races or their race/ethnicity was unknown. These characteristics are summarized in Figure 9.

![Figure 9. General Characteristics of First-Time Enrollment in PSM Programs, Fall 2010](image_url)

Source: Council of Graduate Schools, 2011
Gender and enrollment status calculations based upon U.S. and non-U.S.-based programs
Citizenship calculations based upon only U.S.-based programs
Race/ethnicity calculations based upon only U.S. citizens and permanent residents enrolled in U.S.-based programs
Yield Rates

The overall yield rate, which is the number of first-time enrollees divided by the number of applications accepted, was 68.6% across all PSM programs. As shown in Figure 10, yield rates varied widely by institutional and program characteristics. The yield rate for U.S.-based public institutions (72.7%) was higher than the yield rate for private, not-for-profit institutions (57.3%). The yield rate was higher at master’s-focused or specialized institutions (52.7%) than at doctoral institutions (45.8%). Within doctoral institutions, the yield rate for research universities with high research activity (RU/H) (64.2%) was higher than for the yield rate for doctoral institutions with very high research activity (RU/VH) (41.4%) and doctoral/research universities (DRU) (40.9%).

Yield rates also varied by field of study. Respondents to the survey representing PSM programs in computational sciences, medical-related sciences, and environmental sciences reported particularly high yield rates, 92.9%, 91.5%, and 85.8% respectively. Mathematics and statistics PSM programs and computational molecular biology/bioinformatics programs reported particularly low yield rates, 45.3% and 44.0% respectively (see Figure 11).
**First-Time Enrollment by Institutional Control**

Four in every five (79.8%) first-time students in U.S.-based PSM programs were enrolled in a public institution, and one in every five (20.2%) were enrolled in a private, not-for-profit institution. The majority of first-time students enrolled in public institutions were men (57.9%). Women constituted a greater percentage (55.0%) of first-time enrollees at private, not-for-profit institutions. Nearly two-thirds (64.7%) of first-time enrollees at private, not-for-profit institutions were enrolled full-time compared to slightly more than one-half (56.4%) of first-time enrollees at public institutions. More than one-quarter (27.1%) of first-time enrollees in U.S.-based private, not-for-profit institutions were temporary residents (i.e., international students), compared with 14.2% in public institutions.

Among U.S. citizens and permanent residents in U.S.-based public institutions, 25.7% of first-time enrollees were underrepresented minorities, 66.9% were Asian/Pacific Islander or White, and 7.4% were either of two or more races or their race/ethnicity was unknown. By contrast, 8.0% of first-time enrollees in U.S.-based private, not-for-profit institutions were underrepresented minorities, 75.6% were Asian/Pacific Islander or White, and 16.4% were either of two or more races or their race/ethnicity was unknown. This is depicted Figure 12.

---

**Figure 11.**
Yield Rates in PSM Programs by Field of Study, Fall 2010

- **Computational Sciences**: 92.9%
- **Medical-Related Sciences**: 91.5%
- **Environmental Sciences**: 85.8%
- **Other**: 69.8%
- **Total**: 68.6%
- **Biology/ Biotechnology**: 60.7%
- **Mathematics and Statistics**: 45.3%
- **Comp. Molecular Biology/Bioinformatics**: 44.0%

Source: Council of Graduate Schools, 2011

Two responding programs did not provide complete data and were excluded. Physics and Geological Sciences data were suppressed due to small cell counts. Other includes chemistry, forensic sciences, nanoscience, and national defense.
By basic Carnegie classification, 51.7% of first-time enrollees in U.S.-based PSM programs were enrolled in doctoral institutions in the fall of 2010, compared to 48.3% who were enrolled in master’s-focused or specialized institutions (see Figure 13). Among first-time students enrolled in doctoral institutions, 68.4% were enrolled in a research institution with very high research activity (RU/VH), 25.0% were enrolled in research universities with high research activity (RU/H), and 6.6% were enrolled in doctoral/research universities (DRU).

First-time enrollment by gender at doctoral institutions was virtually equal, with 51.8% of first-time enrollees being men and 48.2% being women, according to U.S.-based institutions responding to the survey. In master’s-focused or specialized institutions, a larger proportion of first-time enrollees were men (58.9%) than women (41.1%).

First-time enrollees in U.S.-based doctoral institutions were more likely than first-time enrollees in master’s-focused or specialized institutions to be enrolled full-time. Nearly three-quarters (72.0%) of first-time students at doctoral institutions were enrolled full-time, compared to less than one-half (43.6%) of first-time students at master’s-focused or specialized institutions.
U.S.-based doctoral institutions responding to the survey reported that 25.0% of their first-time enrollees were temporary residents. This is substantially larger than the 8.0% reported by master’s-focused or specialized institutions. The majority (69.5%) of temporary residents enrolled in PSM programs for the first time in the fall of 2010 were enrolled in research universities with very high research activity (RU/VH). Considerably smaller percentages of temporary residents were enrolled in research universities with high research activity (RU/H) and doctoral/research universities (DRU), 19.8% and 10.7% respectively.

Master’s-focused or specialized institutions enrolled more first-time students who were underrepresented minorities than did doctoral institutions. More than one-quarter (27.0%) of U.S. citizens and permanent residents at U.S.-based master’s-focused or specialized institutions were underrepresented minorities compared to 17.0% at doctoral institutions. The percentages of first-time enrollees who were Asian/Pacific Islander or White were virtually identical at master’s-focused or specialized (70.0%) and doctoral institutions (67.0%). Doctoral institutions reported a much larger portion of first-time enrollees who were either of two or more races or whose race/ethnicity was unknown (16.0%) than did master’s-focused or specialized institutions (3.0%).

First-Time Enrollment by Field of Study

The three largest fields of study with respect to first-time enrollments included biology/biotechnology, computational sciences, and environmental sciences. Together, these three fields of study constituted over two-thirds (69.0%) of all first-time enrollees in PSM programs in the fall term of 2010. As shown in Figure 14, first-time enrollment was smallest in “other” fields (which

![Figure 14. First-Time Enrollment in PSM Programs by Field of Study, Fall 2010](image)
includes chemistry, forensic sciences, nanoscience, and national defense) and physics and geological sciences.

The majority of first-time students enrolled in the fields of computational sciences, computational molecular biology/bioinformatics, and physics and geological sciences were men, representing 72.2%, 71.2%, and 70.0% of all first-time enrollees, respectively. As shown in Figure 15, PSM programs in medical-related sciences and “other” fields (which includes chemistry, forensic sciences, nanoscience, and national defense) had substantially more first-time enrollees who were women than men.

As shown in Figure 16, the majority (70.2%) of first-time students in computational sciences were enrolled part-time. There was a fairly even mix between full-time and part-time first-time enrollment in environmental science and “other” fields (which includes chemistry, forensic sciences, nanoscience, and national defense). First-time enrollment in the remaining five fields of study included larger percentages of full-time students, particularly mathematics and statistics PSM programs (86.3%) and physics and geological sciences PSM programs (84.0%).
There were considerable differences between first-time students who were U.S. citizens and temporary residents (i.e., international students) with respect to field of study (see Figures 17 and 18). Overall, U.S.-based respondents to the survey reported that 16.8% of all first-time enrollees...
were temporary residents. These students were most likely to be enrolled in two fields of study: mathematics and statistics and biology/biotechnology, which accounted for 36.6% and 35.4%, respectively, of all temporary resident first-time enrollees. U.S. citizens and permanent residents were more likely to be enrolled in PSM programs in biology/biotechnology (29.0%), computational sciences (22.0%), and environmental sciences (21.1%).

PSM programs responding to the survey reported variances in race/ethnicity by field of study. As shown in Figure 19, PSM programs in computational science, “other” fields (which includes chemistry, forensic sciences, nanoscience, and national defense), computational molecular biology/bioinformatics, and mathematics and statistics had higher percentages of underrepresented minority first-time enrollees who were U.S. citizens or permanent residents than the overall average (22.2%) for all U.S.-based PSM programs responding to the survey. PSM programs in environmental sciences and medical-related science programs reported comparatively larger percentages of students who were either of two or more races or whose race was unknown, 15.7% and 15.8% respectively.

![Figure 19. First-Time Enrollment in PSM Programs by Field of Study and Race/Ethnicity, Fall 2010](image)

**Total Enrollment**

Institutions responding to the 2010 Professional Science Master’s Enrollment and Degrees Survey reported a total of 4,753 students enrolled in PSM programs in fall 2010, 4,630 of whom (97.4%) were enrolled at institutions of higher education based in the United States. Total enrollment in PSM programs was divided fairly evenly between men and women, with 51.1% of all PSM enrollees being men and 48.9% being women. Roughly two in every three (64.0%) PSM students were enrolled part-time, compared to one in every three (36.0%) who were enrolled full-time. Some 13.4% of all enrollees in U.S.-based PSM programs were temporary residents. Among U.S. citizens and permanent residents, 29.2% of enrollees in the fall of 2010 were underrepresented minorities,

---

1 One institution had a large number of part-time students, which may skew this particular finding.
which includes Hispanic/Latino, American Indian/Alaska Native, and Black/African American, 64.0% were Asian/Pacific Islander or White, and 6.8% were either of two or more races or their race/ethnicity was unknown. A summary of these characteristics appears in Figure 20.

**Figure 20.**
General Characteristics of Total Enrollment in PSM Programs, Fall 2010

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>51.1%</td>
</tr>
<tr>
<td>Women</td>
<td>48.9%</td>
</tr>
<tr>
<td>Full-time</td>
<td>64.0%</td>
</tr>
<tr>
<td>Part-time</td>
<td>36.0%</td>
</tr>
<tr>
<td>International</td>
<td>13.4%</td>
</tr>
<tr>
<td>Underrepresented minorities</td>
<td>29.2%</td>
</tr>
<tr>
<td>Asian/Pacific Islander or White</td>
<td>64.0%</td>
</tr>
<tr>
<td>Two or more races or unknown</td>
<td>6.8%</td>
</tr>
</tbody>
</table>

**Total Enrollment by Institutional Control**

The majority (83.5%) of students enrolled in U.S.-based PSM programs were enrolled in public institutions, compared to 16.5% who were enrolled in private, not-for-profit institutions, according to survey respondents. Total enrollments were composed of virtually equal parts men and women, regardless of institutional control. Women represented 48.6% of total enrollments in public institutions (compared to 51.4% men) and 51.8% of total enrollments in private, not-for-profit institutions (compared to 48.2% men).

There were differences between public and private, not-for-profit institutions with respect to enrollment status, as shown in Figure 21. One-third (32.5%) of students in U.S.-based public institutions were enrolled full-time, while two-thirds (67.5%) were enrolled part-time. The enrollment status of students in private, not-for-profit institutions was more evenly distributed: 51.8% of students were enrolled full-time compared to 48.2% who were enrolled part-time.

As a percentage of total enrollment, temporary residents comprised a larger share of students at private, not-for-profit institutions than at public institutions in fall 2010. One-quarter (25.6%) of enrollees at private, not-for-profit institutions were international students compared to 11.0% at public institutions. Among U.S. citizens and permanent residents, 32.9% of enrollees in public institutions were underrepresented minorities, while 62.1% were Asian/Pacific Islander or White, and 5.1% were either of two or more races or their race/ethnicity was unknown. By contrast, 8.5% of enrollees in private, not-for-profit institutions were underrepresented minorities, 74.8% were Asian/Pacific Islander or White, and 16.7% were either of two or more races or their race/ethnicity was unknown.
Total Enrollment by Carnegie Classification

By Carnegie classification, 65.0% of PSM students in U.S.-based institutions were enrolled in master’s-focused or specialized institutions, and 35.0% were enrolled in doctoral institutions. Enrollments within doctoral institutions are largest at research universities with very high research activity (RU/VH). This category represented 63.9% of all students enrolled in U.S.-based doctoral institutions. Roughly one-quarter (27.2%) of total enrollments in PSM programs located within U.S.-based doctoral institutions were in research universities with high research activity (RU/H), and 8.9% were in doctoral/research universities (DRU).

Data provided by U.S.-based respondents to the survey reveal that the distribution of total enrollees by gender was about equally divided, regardless of Carnegie classification. Men constituted 51.0% of enrollees at doctoral institutions and women constituted 49.0%. Similarly, men constituted 50.8% of enrollees at master’s-focused or specialized institutions and women constituted 49.2%. Within doctoral institutions, there were some differences. Men comprised 54.5% of the PSM enrollees in research universities with very high research activity (RU/VH), 46.7% in research universities with high activity (RU/H), and 39.3% in doctoral/research universities. These findings appear in Figure 22.

There are considerable differences in the enrollment status of PSM students attending doctoral institutions versus master’s-focused or specialized institutions. Four in every five (80.6%) PSM enrollees in U.S.-based master’s-focused or specialized institutions were enrolled part-time in fall 2010, and one in every five (19.4%) were enrolled full-time. By contrast, one-third (33.3%) of PSM students enrolled in U.S.-based doctoral institutions attended part-time, compared to 66.7% who were enrolled full-time.

As a percentage of total enrollment, temporary residents (i.e., international students) comprised a larger share of students at doctoral institutions than at master’s-focused or specialized institutions. Over one-quarter (29.2%) of the enrollees at doctoral institutions were international students compared to 4.9% at master’s-focused or specialized institutions.
Roughly three-quarters (64.8\%) of temporary residents enrolled in PSM programs in doctoral institutions in the fall of 2010 were enrolled in research universities with very high research activity (RU/VH), and one-quarter (25.5\%) were enrolled in research universities with high research activity (RU/H). Less than ten percent of temporary residents enrolled in doctoral institutions were enrolled in doctoral/research universities (DRU).

As with first-time enrollment, master’s-focused or specialized institutions enrolled a larger percentage of underrepresented minorities than doctoral institutions. As shown in Figure 23, one-third (34.9\%) of U.S. citizens and permanent residents at U.S.-based master’s-focused or specialized institutions were underrepresented minorities compared to 15.6\% at U.S.-based doctoral institutions. Asian/Pacific Islander and White students constituted 61.9\% of total enrollment at master’s-focused or specialized institutions, and 69.0\% of total enrollments at doctoral institutions.

**Total Enrollment by Field of Study**

Total PSM enrollment in fall 2010, as reported by all survey respondents, was dominated by three fields of study. Nearly three-quarters of all PSM students were pursuing degrees in computational sciences (32.0\%), biology/biotechnology (24.8\%), or environmental sciences (16.5\%). Total enrollment in all five remaining fields of study was relatively small (see Figure 24).
Total enrollment in physics and geological sciences, and, to lesser extents, mathematics and statistics, computational molecular biology/bioinformatics, and computational sciences, contained more men than women. As shown in Figure 25, the percentage of men enrolled in each of these three fields was 75.3%, 61.3%, 58.1%, and 56.6%, respectively, in fall 2010. By comparison, enrollments in “other” fields (which includes chemistry, forensic sciences, nanoscience, and national defense, etc.) were more balanced, with percentages ranging from 32.0% to 5.2%.
national defense) and, to a lesser extent, medical-related sciences, are more heavily composed of women, with 66.5% and 59.6% each. The remaining field categories are fairly even with respect to gender.

PSM programs in three fields of study, computational sciences, environmental sciences, and “other” fields (which includes chemistry, forensic sciences, nanoscience, and national defense), have large percentages of part-time students: 87.8%, 77.5%, and 70.9% respectively. PSM programs in mathematics and statistics and physics and geological sciences have large percentages of students who are enrolled full-time, 76.4% and 71.9% respectively. Figure 26 illustrates these differences.

Temporary residents are most likely to be enrolled in PSM programs in biology/biotechnology or mathematics and statistics. As Figures 27 and 28 illustrate, 36.1% and 34.0% of all temporary residents were enrolled in programs within these two fields in fall 2010. U.S. citizens and permanent residents were more likely to be enrolled in computational science, biology/biotechnology, and environmental science programs, 35.8%, 22.1%, and 18.3% respectively. Programs in the four remaining fields of study constituted small numbers of enrollments regardless of citizenship.

Underrepresented minorities, which includes Hispanic/Latino, American Indian/Alaska Native, and Black/African American, represented large percentages of total enrollment in PSM programs in computational sciences, “other” fields (which includes chemistry, forensic sciences, nanoscience, and national defense), and computational molecular biology/bioinformatics, representing 42.6%, 34.3%, and 33.6%, respectively, of all U.S.-based enrollments in these fields of study in fall 2010 (see Figure 29). PSM programs in the five other fields of study enroll smaller percentages of underrepresented minority students.
Degrees

Institutions responding to the 2010 Professional Science Master’s Enrollment and Degrees Survey awarded 1,102 degrees in academic year 2009/10 (July 1, 2009 to June 30, 2010), the vast majority
(1,066 or 96.7%) of which were granted by U.S.-based institutions. The 1,102 degrees were divided evenly between men and women (546 each). Roughly one in four (24.1%) graduates of U.S.-based PSM programs were international students. Among U.S. citizens and permanent residents, 22.4% of PSM graduates in 2009/10 were underrepresented minorities, which includes Hispanic/Latino, American Indian/Alaska Native, and Black/African American. Over two-thirds (70.3%) were Asian/Pacific Islander or White, and 7.3% were either of two or more races or their race/ethnicity was unknown. A summary of these characteristics appears in Figure 30.

**Figure 30.**
General Characteristics of PSM Degrees Awarded, 2009/10

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>50.0%</td>
</tr>
<tr>
<td>Women</td>
<td>50.0%</td>
</tr>
<tr>
<td>International</td>
<td>24.1%</td>
</tr>
<tr>
<td>Underrepresented minorities</td>
<td>22.4%</td>
</tr>
<tr>
<td>Asian/Pacific Islander or White</td>
<td>70.3%</td>
</tr>
<tr>
<td>Two or more races or unknown</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

Source: Council of Graduate Schools, 2011

Gender calculations based upon U.S. and non-U.S.-based programs
Citizenship calculations based upon only U.S.-based programs
Race/ethnicity calculations based upon only degrees awarded to U.S. citizens and permanent residents by U.S.-based programs

**Degrees by Institutional Control**

Among U.S.-based PSM programs responding to the survey, four in five (80.5%) degrees were earned from a public institution, and one in five (19.5%) were earned from a private, not-for-profit institution. Degrees awarded by public and private, not-for-profit institutions were distributed nearly evenly between men and women. Half (50.2%) of degrees awarded by U.S.-based public institutions were awarded to men, and half (49.8%) to women. Similarly, nearly half (47.1%) of degrees awarded by U.S.-based private, not-for-profit institutions were awarded to men, and slightly more than half (52.9%) were awarded to women.

One-third (33.2%) of all graduates who earned their PSM degree from a U.S.-based private, not-for-profit institution were temporary residents, and one-fifth (21.9%) of all graduates who earned their degree from a public institution were temporary residents. When compared with U.S. citizens and permanent residents, temporary residents were slightly less likely to have earned their degree from a public institution. As shown in Figure 31, 81.9% of U.S. citizen and permanent resident PSM graduates earned their degree from a public institution compared to 73.2% of temporary residents.
Among U.S. citizens and permanent residents who earned a degree from a public institution in the 2009/10 academic year, 25.7% were underrepresented minorities, 68.3% were Asian/Pacific Islander or White, and 5.9% were either of two or more races or their race/ethnicity was unknown. Underrepresented minorities constituted a smaller percentage (7.5%) of graduates of private, not-for-profit institutions. Nearly four in five (79.1%) private, not-for-profit graduates were Asian/Pacific Islander or White, and 13.4% were either of two or more races or their race/ethnicity was unknown.

### Degrees by Carnegie Classification

By Carnegie classification, and among U.S.-based institutions, 47.7% of PSM degrees were awarded by doctoral institutions, and 52.3% were awarded by master’s-focused or specialized institutions in 2009/10. Among U.S.-based doctoral institutions, research universities with very high research activity (RU/VH) awarded 68.2% of all PSM degrees, research universities with high research activity (RU/H) awarded 23.8% of all degrees, and doctoral/research universities (DRU) awarded 8.1% of all PSM degrees.

U.S.-based programs responding to the survey reported that the distributions of degrees awarded by gender, according to institutional control, were fairly even. Slightly more than one-half (53.9%) of PSM degrees awarded by U.S.-based doctoral institutions were awarded to men, whereas slightly less than half (46.1%) of degrees were awarded to women. Slightly fewer than half (45.6%) of all PSM degrees awarded by master’s-focused or specialized institutions were awarded to men in 2009/10, compared to 54.4% that were awarded to women. Among doctoral institution, as shown in Figure 32, men were more likely than women to have earned a PSM degree from a research university with very high research activity (RU/VH). Three in four (75.2%) men earning a degree from a doctoral institution did so at a research universities with very high research activity (RU/VH), compared with 59.8% of women.
U.S.-based master’s-focused or specialized institutions awarded 6.8% of all PSM degrees to temporary residents, and U.S.-based doctoral institutions awarded 43.0% of all PSM degrees to temporary residents. The majority (72.6%) of PSM degrees awarded to temporary residents by doctoral institutions were awarded by research universities with very high research activity (RU/VH). One in five (20.1%) degrees awarded to temporary residents by doctoral institutions were awarded by research universities with high research activity (RU/H), and 7.3% were awarded by doctoral/research universities (DRU).

Master’s-focused or specialized institutions awarded a larger percentage of degrees to underrepresented minorities than doctoral institutions (see Figure 33). Nearly one-third (30.9%) of PSM degrees awarded by master’s-focused or specialized institutions to U.S. citizens and permanent residents in the 2009/10 academic year were awarded to underrepresented minorities, which includes Hispanic/Latino, American Indian/Alaska Native, and Black/African American. Two-thirds (64.7%) of degrees awarded by master’s-focused or specialized institutions were awarded to Asian/Pacific islander and White graduates, and 4.4% were awarded to individuals who were either of two or more races or their race/ethnicity was unknown. By contrast, 8.8% of PSM degrees were awarded by doctoral/research universities (DRU).
awarded by U.S.-based doctoral institutions to U.S. citizens and permanent residents in the 2009/10 academic year were awarded to underrepresented minorities, 79.2% to Asian/Pacific islander and White graduates, and 12.0% to individuals who were either of two or more races or their race/ethnicity was unknown.

**Degrees by Field of Study**

By field of study, biology/biotechnology and computational sciences constituted the largest number of PSM degrees awarded in the 2009/10 academic year. As shown in Figure 34, these two fields combined awarded more than half (57.7%) of all PSM degrees awarded that academic year, 31.6% and 26.1% respectively. Mathematics and statistics and environmental sciences awarded an additional one-quarter of all degrees in the 2009/10 academic year, 13.8% and 11.3% respectively.

![Figure 34. PSM Degrees Awarded by Field of Study, 2009/10](source: Council of Graduate Schools, 2011)

There were also differences in PSM degrees awarded in 2009/10 academic year by field and by gender. Men earned the majority of the PSM degrees awarded in mathematics and statistics, physics and geological sciences, and computational sciences, 67.5%, 56.0%, and 54.3% respectively. As shown in Figure 35, women earned more degrees than men in “other” fields (which includes chemistry, forensic science, nanoscience, and national defense), medical-related sciences, and biology/biotechnology, 68.2%, 57.9%, and 57.5% respectively.
Temporary residents were more likely than U.S. citizens and permanent residents to earn PSM degrees in the fields of biology/biotechnology and mathematics and statistics. In fact, these two categories accounted for three-quarters (74.0%) of all PSM degrees earned by temporary residents in U.S.-based institutions in 2009/10. By contrast, U.S. citizens and permanent residents were more likely to earn PSM degrees in the fields of computational sciences, biology/biotechnology, and environmental sciences (see Figures 36 and 37).
As shown in Figure 38, the field of study in which the largest percentage of underrepresented minorities earned a degree in 2009/10 was computational sciences (35.7%). One-quarter (25.6%) of degrees earned in “other” fields (which includes chemistry, forensic science, nanoscience, and national defense) were earned by underrepresented minorities.

Future Professional Science Master’s Enrollment and Degrees Surveys

In October 2011, the Council of Graduate Schools will implement the 2011 Professional Science Master’s Enrollment and Degrees Survey using the same methodology utilized in this current survey. The report summarizing those survey results will include the information presented in this report, as well as data on the year-to-year changes in applications, enrollment and degrees in PSM programs.
REFERENCES


## Section I. Institution and Program

<table>
<thead>
<tr>
<th>Institution name</th>
<th>Full name of the PSM program or track (no abbreviations)</th>
</tr>
</thead>
</table>

(Complete a separate questionnaire for each program or track.)

Name of the individual completing this questionnaire

Phone number

E-mail address

☐ Check this box if your program or track has not yet enrolled any students (as of fall 2010), then click the “Submit by E-mail” button below. Otherwise, continue to Section II.

## Section II. Applications

Total number of applications:
- Received for admission for 2010 fall term.
- Accepted for admission for 2010 fall term.

## Section III. Enrollment and Degrees

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>(Column A) First-time enrollment 2010 fall term</th>
<th>(Column B) Total enrollment 2010 fall term</th>
<th>(Column C) Degrees awarded academic year 2009/10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>U.S. citizens and permanent residents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URM (underrepresented minorities: Hispanic, American Indian, African American)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-URM (Asian/Pacific Islander, White)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (race/ethnicity unknown, two or more races)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-resident aliens (temporary residents)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citizenship unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Enrollment Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part-time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Click the “Submit by E-mail” button below to send your questionnaire to CGS. Please submit your questionnaires by May 5, 2011.

Submit by E-mail

If you have problems submitting this questionnaire electronically, please contact Josh Mahler at (202) 461-3862 or jmahler@cgs.nche.edu.
For questions about this survey and/or questionnaire, please contact Jeff Allum at (202) 461-3878 or jallum@cgs.nche.edu.
This survey was made possible by a grant from the Alfred P. Sloan Foundation.
© 2011 Council of Graduate Schools
APPENDIX A.

SURVEY INSTRUCTIONS AND DEFINITIONS

About This Survey. The 2010 Professional Science Master’s Enrollment and Degree Survey is an annual survey of enrollment and degrees in Professional Science Master’s (PSM) programs. Previous surveys were conducted in 2008 and 2009 by the National Professional Science Master’s Association (NPSMA). The 2010 survey is being carried out by the Council of Graduate Schools (CGS) with a grant from the Alfred P. Sloan Foundation. It is being sent to program directors who oversee programs recognized by CGS as PSMs with a copy to the graduate dean (or equivalent). It collects data regarding applications, first-time enrollment, total enrollment, and degrees awarded. As noted in the Guidelines for Recognition as a Professional Science Master’s Program, PSM programs must collect annual data relative to enrollment, degrees, completion, and demographics. The results will be published in mid-June 2011. A link to the report will be emailed to PSM program directors and graduate deans (or equivalent) and posted online at www.sciencemasters.com. CGS will prepare customized reports for each PSM-granting program, comparing their program with the national dataset.

Confidentiality. All data and information submitted for the 2010 Professional Science Master’s Enrollment and Degree Survey will be treated as confidential and will be used only for research or statistical purposes. Any information released publicly will be in a format that does not allow the identification of institutions or the personal identification of students. All survey data are stored on a secure, password-protected server, and access to the raw survey data is restricted to those individuals directly involved in data collection and analysis. Participation in this survey is voluntary.

Instructions for Completing the Survey. The 2010 Professional Science Master’s Enrollment and Degree Survey includes three sections: Section I (Institution and Program); Section II (Applications); and Section III (Enrollment and Degrees). Specific instructions for each section are described below. Complete a separate questionnaire for each PSM program or track at your institution.

Section I. Institution and Program

Enter the full name of your institution and PSM program or track (without abbreviations). Institutions with more than one PSM program or track must complete a separate questionnaire for each program or track. Enter the full name of the individual completing the questionnaire, as well as his/her phone number and e-mail address. This contact information may be used should CGS researchers need to clarify survey responses.

Section II. Applications

This section collects data regarding the number of applications received and accepted for the 2010 fall term. Specific instructions for completing this portion of the survey are as follows:

- Total number of applications received for admission for 2010 fall term—The number of completed applications received for admission for the 2010 fall term, which fulfill the institution's requirements to be considered for admission (including payment or waiving of the application fee, if any).

- Total number of applications accepted for admission for 2010 fall term—The number of applicants who have fulfilled the institution's requirements to be considered for admission (including payment or waiving of the application fee, if any) and have been granted an offer of admission for the 2010 fall term.

Section III. Enrollment and Degrees

Section III collects three types of data (first-time enrollment, total enrollment, and degrees awarded) according to three types of characteristics (gender, citizenship/race/ethnicity, and enrollment status). Specific instructions for completing this portion of the survey are as follows:

- Column A: First-time enrollment 2010 fall term—Enter the number of students enrolled for the first time in the PSM program at your institution during the 2010 fall term by gender, citizenship/race/ethnicity, and enrollment status. This may include PSM students previously enrolled in another graduate program at your institution or in a graduate program at another institution. It may also include students who already hold another graduate or professional degree. Report first-time enrollment in whole numbers. Do not use a full-time-equivalent (FTE) calculation for part-time students; rather, count each student as “1” regardless of their enrollment status. Do not include non-degree students.
Column B: Total enrollment 2010 fall term—Report all students enrolled in the PSM program at your institution during the 2010 fall term by gender, citizenship/race/ethnicity, and enrollment status. Include first-time (column A) and continuing students. **Report total enrollment in whole numbers. Do not use a full-time-equivalent (FTE) calculation for part-time students; rather, count each student as “1” regardless of their enrollment status.** Do not include non-degree students.

Column C: Degrees awarded academic year 2009/10—Report graduates who earned a degree from the PSM program in academic year 2009/10 (between July 1, 2009 and June 30, 2010) by gender and citizenship/race/ethnicity.

Characteristics—This survey is designed to collect data regarding enrollments and degrees according to three types of enrollee/graduate characteristics (gender, citizenship/race/ethnicity, and enrollment status). Demographic categories are based upon those used by the federal government. Specific instructions are as follows:

- **Gender**—Within each column (A, B, and C), report the number of men, women, and unknown gender, as well as the total for gender.

- **Citizenship/race/ethnicity**—Within each column (A, B, and C), report the number of enrollees/graduates who are U.S. citizens and permanent residents (subdivided by race/ethnicity), non-resident aliens (temporary residents), or of unknown citizenship, as well as the total. Use the following definitions when determining the number of enrollees/graduates by citizenship/race/ethnicity:
  - **U.S. citizens and permanent residents**—Indicate the number of enrollees/graduates who are U.S. citizens, including those from Puerto Rico and the U.S. territories, and permanent residents holding green cards according to the three race/ethnicity categories below:
    - **URM** (underrepresented minorities)—Include enrollees/graduates who are:
      - **Hispanic/Latino**—U.S. citizens or permanent residents of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.
      - **American Indian/Alaska Native**—U.S. citizens or permanent residents having origins in any of the original peoples of North and South America (including Central America) who maintain cultural identification through tribal affiliation or community attachment.
      - **Black/African American**—U.S. citizens or permanent residents having origins in any of the black racial groups of Africa (except those of Hispanic origin).
    - **Non-URM**—Include enrollees/graduates who are:
      - **Asian**—U.S. citizens or permanent residents having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Malaysia, Pakistan, the Philippines, South Korea, Thailand, and Vietnam.
      - **Native Hawaiian/Other Pacific Islander**—U.S. citizens or permanent residents having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific islands.
      - **White**—U.S. citizens or permanent residents having origins in any of the original peoples of Europe, North Africa, or the Middle East (except those of Hispanic origin).
    - **Other**—Include enrollees/graduates who are:
      - **Race/ethnicity unknown**—Include enrollees/graduates who are U.S. citizens or permanent residents whose race/ethnicity is not known.
      - **Two or more races**—U.S. citizens or permanent residents having origins in any two or more of the following race categories: American Indian/Alaska Native, Asian, Black/African American, Native Hawaiian/Other Pacific Islander, or White.
APPENDIX A.

Note: All individuals of Hispanic/Latino origin should be reported in the “URM” field of this questionnaire, regardless of race.

- **Non-resident aliens** (temporary residents)—Indicate the number of enrollees/graduates who are not citizens, national, or permanent residents of the United States and who are in the country on a visa or temporary basis and do not have the right to remain indefinitely.

- **Citizenship unknown**—Report the number of enrollees/graduates whose citizenship is not known.

- **Enrollment status**—Within columns A and B (first-time enrollment and total enrollment) report the number of enrollees who are enrolled full-time and part-time for the 2010 fall term. Use your institution’s definition of full-time and part-time enrollment status.

**IMPORTANT—Consistency Check.** Section III of this survey is designed to capture enrollment and degree data according to three types of enrollee/graduate characteristics: gender, citizenship/race/ethnicity, and enrollment status. **The totals for each of these types of characteristics within each column should be equivalent.** For example, if the PSM program at your institution has 18 first-time enrollees, then report a total of 18 first-time enrollees by gender, 18 first-time enrollees by citizenship/race/ethnicity, and 18 first-time enrollees by enrollment status in column A.

**Survey Submission.** After filling in all fields, please click the “Submit by E-mail” button at the bottom of the questionnaire. A new window will appear in your e-mail application (e.g., Outlook) addressed to CGS staff member Josh Mahler, with the completed questionnaire form attached as a PDF document. Click the “Send” button in your e-mail application to submit the questionnaire. If you have problems submitting this questionnaire electronically, please contact Josh Mahler at (202) 461-3862 or jmahler@cgs.nche.edu. If you are unable to submit by e-mail, print the completed questionnaire and fax it to (202) 331-7157.

**Deadline.** **Please submit your completed survey by Thursday, May 5, 2011.**

**Questions.** For questions about this survey, please contact Jeff Allum at (202) 461-3878 or jallum@cgs.nche.edu.