

Master's Programs and Enrollment at Duke University: A Status Report (Spring 2015)

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1. Executive Summary

In Spring 2014, The Graduate School (TGS) and the Master's Advisory Council (MAC) began a comprehensive study of the recent growth in master's programs at Duke University, with the broader goal of assessing the effect of master's programs on the educational environment at Duke. The following report is informed by university enrollment data; a faculty survey developed in collaboration with the Office for Institutional Research (OIR); data from OIR's graduate student and exit surveys; a brief inquiry on master's trends and policies sent to deans of academic affairs at peer institutions; statistics and other materials gathered through online research; as well as meetings and ongoing discussions with staff in relevant student service positions across campus.

- Master's enrollment has increased by 51 percent since 2004, with an enrollment of 3,750. This growth has added 1,200 master's students and is unevenly distributed across schools. Approximately 350 additional master's students are projected to be on the Durham campus in the next three to five years.
- The master's population is increasingly international, from 17 percent in 2005 to 29 percent in 2015. About half of the growth in Duke's total master's enrollments in the past 10 years has been of "alien" immigration status. Most of these international students are from India and China. Relative to domestic students, international students face some additional challenges and present unique resource needs within the university.
- Master's programs are common at peer institutions, and Duke typically lags the median of peer institutions in terms of the number of master's programs and degrees awarded.
- Most peer institutions have not seen much growth in the number of master's programs, nor do they anticipate many new master's program proposals. In contrast, Duke has added several master's programs in recent years, with continued faculty interest in developing new master's programs.
- Overall, there is a belief among faculty that there are more positive effects than negative effects of master's students on undergraduate and doctoral education and on the faculty.
- Within some schools and departments, there were groups that believe the negative effects outweigh the positive effects, or that there is strain regarding the number of master's students.
- The effect of master's student revenues and cost on school or departmental hiring, research, and operations is not well understood.

- The infrastructure and support for master's students (including international master's students) needs to keep pace with the increasing master's enrollment. Key areas of concern are: Career Services; Library Services; International House; Counseling and Psychological Services (CAPS); Housing, Transportation, and Safety.

Introduction

The growth in master's degree programs at Duke is frequently discussed in the context of the 2008 financial crisis and an increasingly challenging job market, but it might also be helpful to take into account the role played by the globalization of education and the university's commitment to interdisciplinarity. These latter developments are integral to Duke's core principles, as set out in *Making a Difference: The Strategic Plan for Duke University* (2006) and *A Global Vision for Duke University* (2013).¹ In addition, the perceived value of a master's degree has changed in many fields, with some students and parents feeling that a master's degree now conveys a mark of unusual accomplishment that was previously achieved by a baccalaureate degree. Such factors have led to stronger demand for master's education in many academic fields.

From its inception, as Trinity College became Duke University in 1924, the master's degree has been a core component of this institution's academic program. In its first academic year, Duke offered both a master of arts and a master of education along with the bachelor of arts and doctor of philosophy degrees. Over the past two decades, however, the nature of the degree has changed significantly: concurrent with the rise in master's students and programs, Duke's graduate education has become more internationalized, interdisciplinary and interdepartmental, recombining and blurring the boundaries between traditional disciplines as well as the distinction between research and professional degrees.

Academic Council minutes from the past two decades reveal that, between academic years 1997-1998 and 2007-2008, Duke approved and established *for the first time*: 1) graduate degrees sponsored by interdisciplinary institutes; and 2) domestic and international inter-institutional graduate programs (*jointly sponsored* degrees). There were also many new *joint* and *dual* degrees created as collaborations between different schools at Duke. Joint degrees are those that are a hybrid of two existing degree programs, usually with blended requirements and tuition structures, that are mutually dependent – a student can't get one if s/he fails to complete the other. A prominent example is the JD/MA series between the Law School and the Graduate School. Dual degrees are those in which each is pursued independently, with the full requirements and tuition of both. A well-known example is the MD/PhD between the School of

¹ Cf. https://global.duke.edu/sites/default/files/A_Global_Vision_For_Duke_University_1.pdf (*A Global Vision*) and <http://stratplan.duke.edu/plan.html> (*Making a Difference*).

Medicine and the Graduate School. More recently, Duke approved its first three degree programs at Duke Kunshan University, all of which are master's: the MMS in 2011-12 (Fuqua), and the MSc degrees in Global Health (2011-12) and Medical Physics (2013-14), administered by the Graduate School.

Over the past fifteen years, the kinds of master's programs that have been approved reveal a wider trend of moving toward degrees that combine *research* experience and knowledge in specific disciplines with *professional* training (often focusing on management or technical skills). The 2010 Academic Council presentation for a new proposed program in Pratt, the Master of Engineering, highlighted many of the complexities of this shift.² Note, for example, how the curricular content for this degree places it *between* an MS in Engineering, a traditional research degree, and the Masters of Engineering Management, which, when compared to Fuqua's MBA, is still more of a "hybrid" degree:

MBA	MEM	MEng	MS
(professional)	(management orientation)	(tech / industry orientation)	(research)

In a December 2009 report to the Provost and Academic Council, an Ad Hoc Committee on Master's Degrees chaired by then-dean of The Graduate School Jo Rae Wright defined the distinction between research and professional master's as follows:³

... *professional master's programs* [are] those intended to prepare graduates for entry-level professional employment in government, business, clinical, and non-profit sectors and requiring employment-related courses, internships, and intentional development of communication and professional skills targeted for specific professional work contexts.

Research master's do not generally require a workplace skills component and are designed to deepen the student's knowledge of the concepts that drive research questions in a field. They provide the student with necessary grounding for pursuing further research in a field either in an advanced degree program (Ph.D.) or in a private or public sector research context.⁴

The committee also noted, however, that a majority of the new master's degrees tend to have a two-pronged approach or be "hybrid" professional / research degrees. How we draw distinctions between such hybrid professional-research programs — programs that, moreover, are often

² Academic Council Minutes (January 21, 2010).

³ 2009 Ad Hoc Committee on Master's Report: <http://academiccouncil.duke.edu/agenda/archive/2009-2010/>

⁴ *Ibid.* p. 1

situated in emerging and experimental academic fields — should perhaps be a subject for further debate in the Academic Council, as many faculty members suggested in the Faculty Survey.

A point to bear in mind is that the financing of master's education differs from that of undergraduate as well as PhD students. While undergraduate admissions is need-blind, and more than 50% of Duke undergraduates receive financial aid, master's students generally receive little institutional assistance. Within Duke Graduate School, PhD students receive a guaranteed stipend as well as tuition (for their first five years), whereas master's students receive neither. Any institutional financial aid is awarded and funded by the sponsoring unit, though master's students may also work as research and teaching assistants to help defray their costs. Domestic master's students may qualify for federal financial aid, but financial help is generally not available to international master's students. Duke master's degrees typically take three or more semesters. The cost of full-time tuition in the various schools for master's degrees varies from about half to roughly twice the cost of Duke undergraduate tuition, but is generally similar (~\$45,000/yr); consequently, the cost of master's education at Duke is a substantial financial investment.

2. Enrollment Statistics & Trends

As shown in Figure 1, between Fall 2004 and 2014, the total number of master's students at Duke increased dramatically, approximately 51 percent (from 2,501 to 3,768). Meanwhile, the Ph.D. population grew by 14 percent, while the non-Ph.D. doctoral student population increased by 41 percent.⁵ Figure 2 shows that master's enrollment growth rates within individual schools range from 4 percent in Divinity (509 to 530) to 770 percent in Engineering (44 to 383).

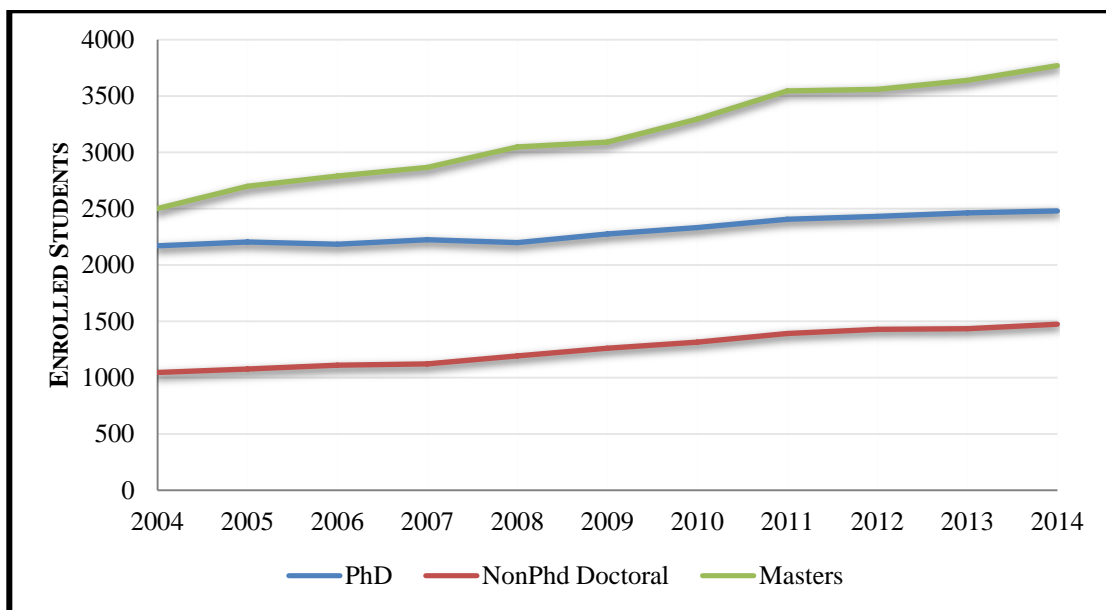


Figure 1: Graduate and Professional Student Populations on Campus, 2004-2014

⁵ The non-Ph.D. doctoral population includes the Doctor of Medicine, Juris Doctor, Doctor of Physical Therapy, Doctor of Nursing Practice, Doctor of Theology, and Doctor of Ministry degrees.

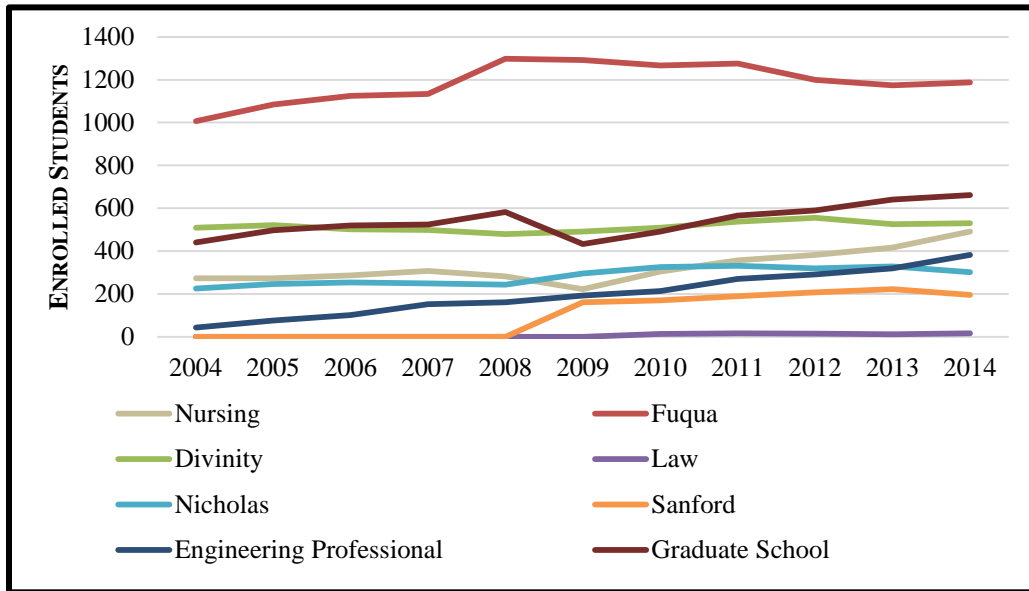


Figure 2: Master's Population Growth on Campus by School, 2004-2014

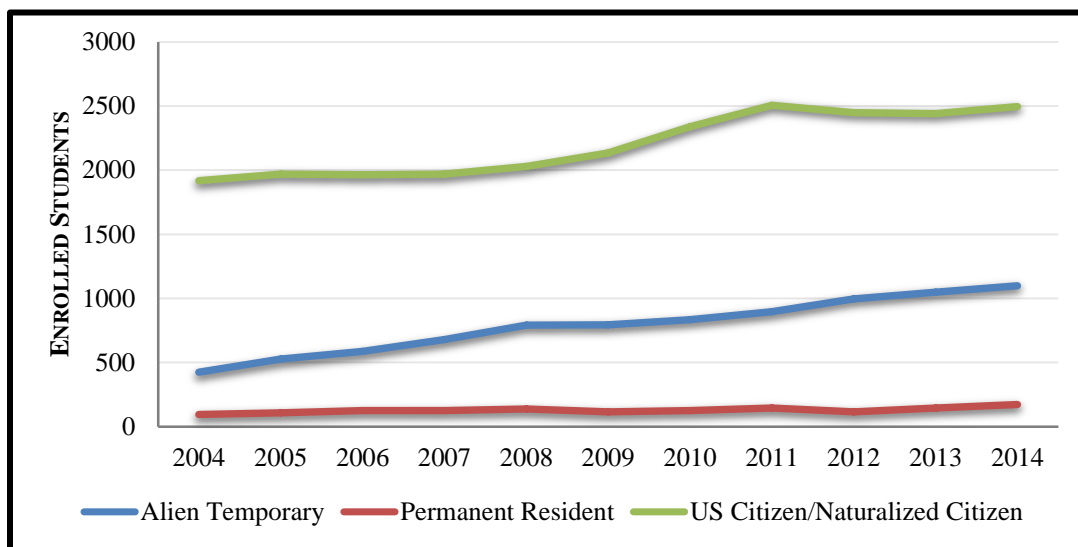


Figure 3: Citizenship Status of Master's Students, on Campus, 2004-2014

As the graphs illustrate, the number of master's students on campus has increased fairly steadily since 2004. Although the growth in master's enrollments has resulted in part from the addition of new programs, about two-thirds of the growth (over 800 students) has resulted from the expansion of master's programs that were approved prior to 2004. Figure 3 further demonstrates that in recent years there has also been a significant internationalization of the master's student population.⁶ The percentage of the master's population that is international increased from 17 percent in 2005 to 29 percent in 2015. Since AY 2004, the total enrollment for master's students on campus has grown by 1267. Within that same population, the number of enrolled alien (international) masters students on campus has grown by 674, or 53% of the overall growth. .

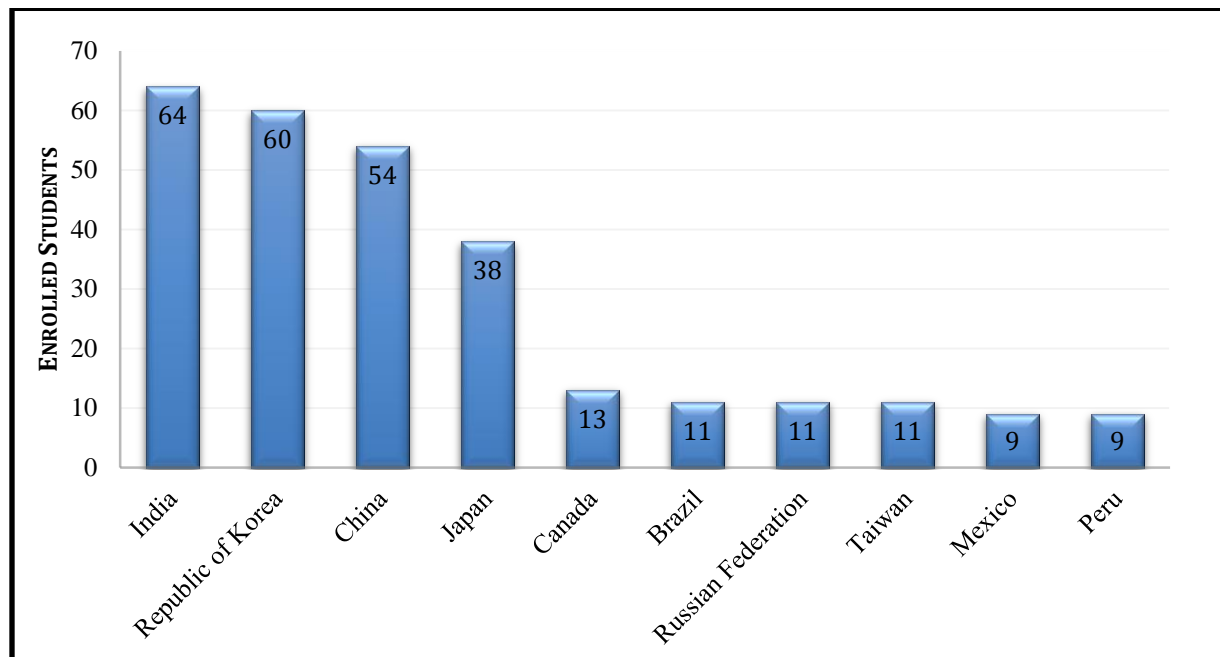


Figure 4: 2004 International Master's Students, on Campus, by Top Ten Nationalities

⁶ When referring to statistics, the designation "international students" refers only to those students with "Alien Temporary" status; those who have "Permanent Resident" or "Alien Permanent" status are grouped together with those who have "US Citizen/Naturalized Citizen" status, as many of the concerns outlined here (cultural adjustment, visa considerations, etc.) are likely not as applicable.

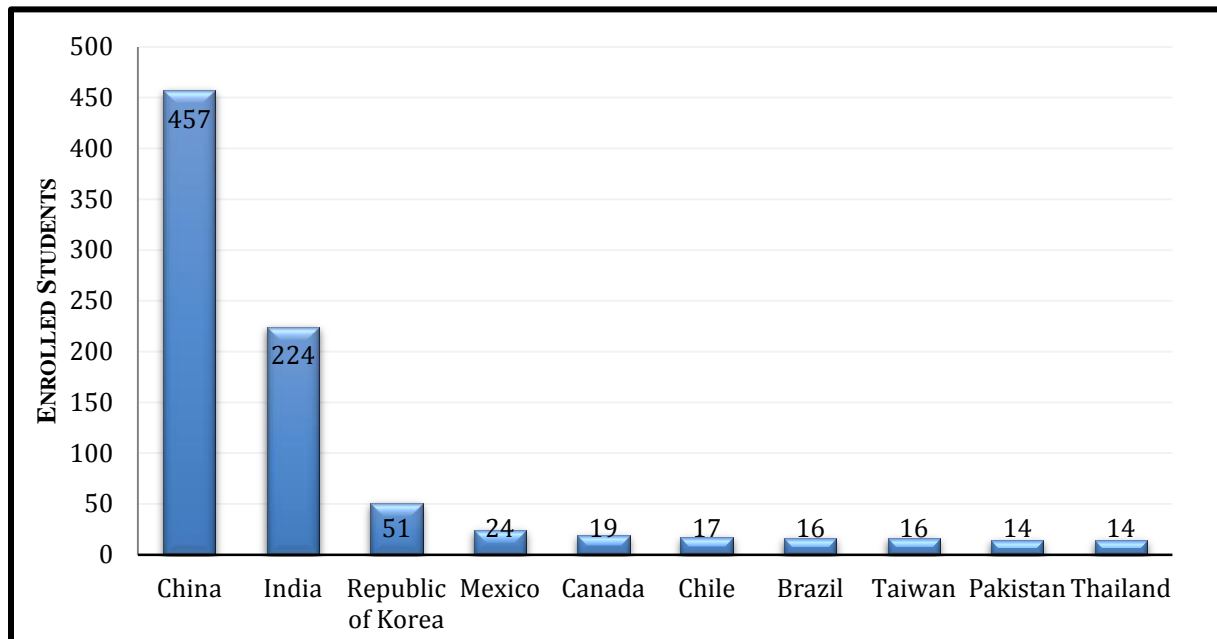


Figure 5: 2014 International Masters Students, on Campus, by Top Ten Nationalities

As seen in Figures 4 and 5, master's students from Asia have outnumbered master's students from other regions over the past ten years. Furthermore, the number of master's students from China has increased ~850 percent (54 to 457) over the past ten years, outpacing the growth of master's students from India (~350% increase, 64 to 224). In contrast, the numbers of master's students from Korea and Japan have decreased during this period.

	2004		2009		2014	
Departments	Int'l Pop	% of Total Pop	Int'l Pop (Change from 2004)	% of Total Pop	Int'l Pop (Change from 2009)	% of Total Pop
AM East Asian Studies (TGS)	3	27%	3 (0%)	30%	29 (867%)	85%
AM Economics (TGS)	12	60%	54 (350%)	76%	105 (94%)	72%
AM Political Science (TGS)	1	25%	7 (600%)	64%	14 (100%)	88%
MS BME (TGS)	6	40%	32 (433%)	51%	18 (-44%)	50%
MS CompSci (TGS)	5	50%	5 (0%)	63%	10 (100%)	91%
MS Economics & Comp (TGS)	0	NA	0	NA	5	71%
MS Electrical & Comp Engr (TGS)	3	30%	38 (1367%)	86%	68 (68%)	92%
MS Global Health (TGS)	0	NA	3	23%	24 (700%)	37%
MS Mech Eng/MAT Sci (TGS)	3	25%	3 (0%)	38%	6 (100%)	60%
MS Statistical and Econ Mdl (TGS)	0	NA	0	NA	15	88%
MS Statistical Science (TGS)	1	100%	0 (-100%)	NA	12	80%
MBA Daytime (Fuqua)	220	28%	336 (53%)	39%	346 (3%)	40%
MMS Foundations of Business (Fuqua)	0	NA	11	11%	47 (327%)	42%
MEM Engr Mgmt (Pratt)	20	45%	101 (405%)	52%	205 (103%)	83%
MEng Civil Engr (Pratt)	0	NA	0	NA	5	67%
MEng Electrical & Comp Engr (Pratt)	0	NA	0	NA	20	87%
MEng Environmental Engr (Pratt)	0	NA	0	NA	5	71%
MEng Mechanical Engr (Pratt)	0	NA	0	NA	7	54%

Table 1: Growth in International Population in Master's Programs with At Least Five Students in 2014

Table 1 shows the numbers and percentages of international students in master's programs in 2004, 2009, and 2014. Generally, there has been a large increase in the proportion of international students in many of Duke's master's programs. So much so, international students are a majority of the master's population in a number of departments and programs. The internationalization of the master's student population will be discussed in a separate section below.

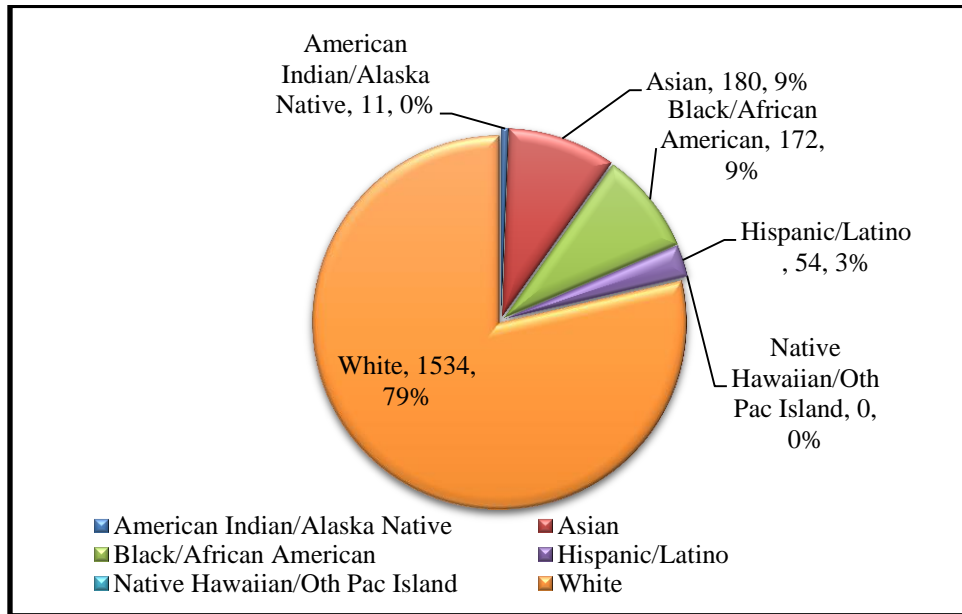


Figure 6: Enrolled Master's Students on Campus, American Citizens, by Ethnicity, 2004

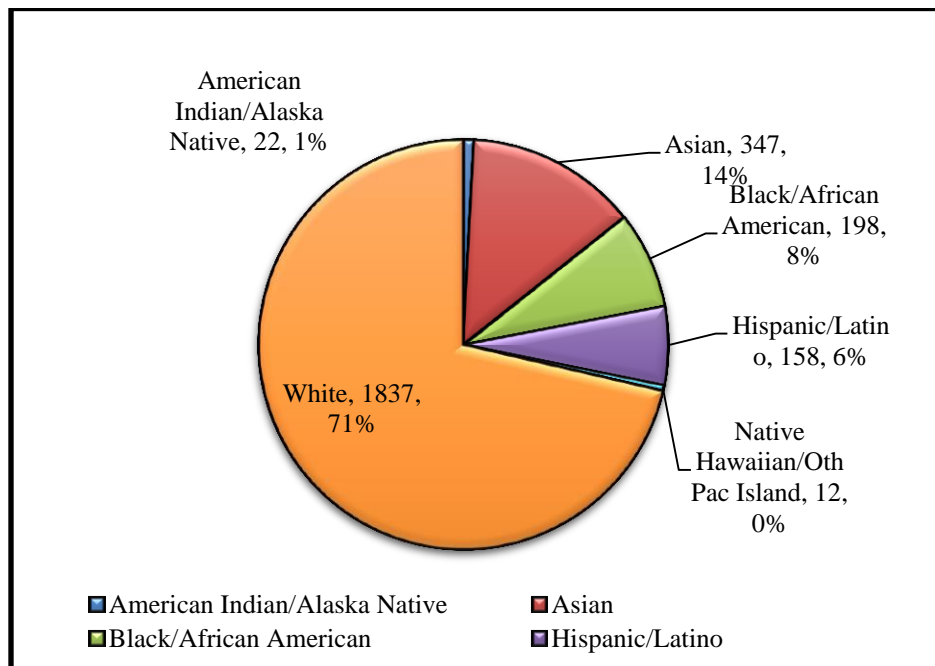


Figure 7: Enrolled Master's Students on Campus, American Citizens, by Ethnicity, 2014

Figures 6 and 7, showing the enrollment distributions by race/ethnicity from 2004 and 2014, demonstrate that the number of white master's students in the domestic total master's student population has decreased by 8 percent in the past ten years, though white students still vastly outnumber students of other ethnicities, at 79 percent in 2004 and 71 percent in 2014. The number of Asian master's students increased by 5 percent and the Hispanic/Latino population by 3 percent, while the number of Black/African American master's students decreased by 1 percent.

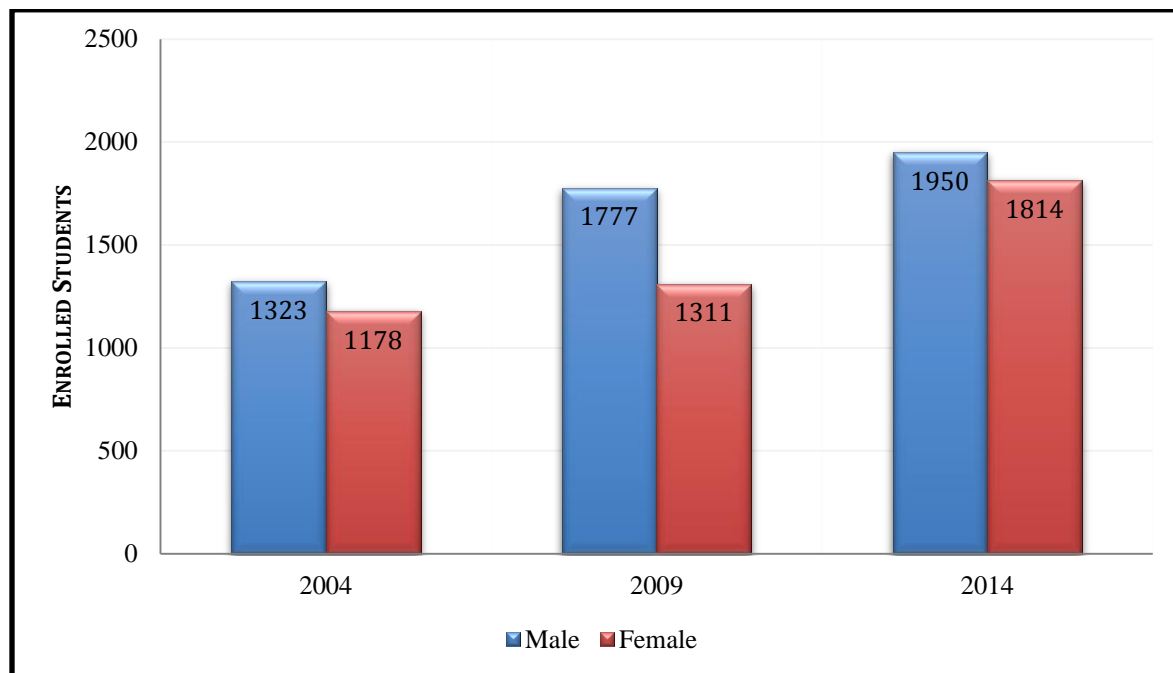


Figure 8: On Campus Master's Population by Gender: 2004, 2009, 2014

The master's population has maintained a roughly balanced gender profile with male students outnumbering female students by a small margin in 2004, 2009, and 2014 (Figure 8).

Projected Growth of Master's Programs at Duke

None of the schools expect decreased master's student enrollments over the next five years, and several expect growth (Table 2). The professional master's programs at Duke are expecting collectively to enroll approximately 230 more students in the next 3-5 years. The Graduate

School estimates approximately 80 more students during this timeframe, but it is difficult to predict how many more master's programs will be proposed and approved, or how enrollments in existing programs will vary. Beyond this estimate of 310 more Duke master's students, there will be at least an additional 40 DKU master's students who will spend one semester in Durham (25 MMS; 15 Medical Physics). In total, it is reasonable to predict that approximately 350 additional master's students will be using campus resources over the next three to five years.

Projected Growth of Master's Student Enrollments Over the Next 5 Years		
School	Students	Notes
Divinity	5	
Fuqua	10-15	MMS: gradual increase over the next 5 years
Law	0	
Medicine	50-60	MBS: 20-30 over the next 1-2 years; then 50-60
Nicholas	0	
Nursing	0	
Pratt	150	MEMP: 30; MEng: 120 over the next 3-5 years
Sanford	0	
TGS	~80	Several new master's are under development; increased enrollments in existing programs are also anticipated
DKU	~40	MMS: 25; Medical Physics: 15 (one semester on campus)
Total	~350	Anticipated additional master's students on Durham campus

Table 2: Projected growth of master's student enrollments in all Duke schools between 2015 and 2020.

Master's Enrollment at Peer Institutions

In order to get a sense of enrollment trends at Duke's peer institutions, the MAC developed an online survey distributed to academic deans of graduate schools at peer institutions ("Ivy Plus" schools). Among the nine institutions that responded to the survey, only one expected the number of research master's programs to increase significantly in the next five years (this survey did not request information specifically about growth in professional degrees).⁷ Most deans

⁷ The schools that responded: Columbia University; Emory University; Johns Hopkins University (Whiting School of Engineering); UNC-Chapel Hill; University of California, Los Angeles; University of Virginia; University of Wisconsin-Madison Graduate School; Vanderbilt; and Yale University. Those that did not respond: University of

reported that there have been very few master's degree proposals being submitted in the last several years, with few if any new program proposals expected in the next few years. Correspondingly, data gathered online and from institutional research staff at peer institutions revealed no evidence of a general pattern of increase in research master's students versus doctoral students over the past five-ten years (at 14 out of 17 peer institutions, the available data indicate that there has been either no change or a decrease). At about 20 percent master's students, TGS currently is in the middle range when compared to peer institutions. There are, however, a number of obstacles to getting complete enrollment statistics comparable to ours: several institutions only recently began to keep separate data on doctoral versus master's students; the distinction between a professional and research master's varies (the 2014 Duke Faculty Survey also indicated some differing opinions regarding this distinction; cf. the following section); and, in some cases, the numbers provided do not distinguish between terminal master's degrees and those awarded to students on the path to, or dropping out of, a Ph.D. degree.

Information obtained from the Association of American Universities Data Exchange (AAUDE) offers a means of comparing Duke's master's programs with those of its peer institutions (Table 3). Using AAUDE criteria for counting master's programs, the average number of master's *programs* at Duke and its private peer institutions was 75 in 2012-13. Of the 14 institutions included on that list, nine had a greater number of master's programs than Duke. Duke was below the average, which had only 66 programs that year. Table 4 lists the distinct master's programs currently active at Duke, and does not list each variant (e.g. all joint degree combinations). The average number of master's degrees awarded by Duke and its private peer institutions in 2012-13 was 2,767. Duke, which awarded 2,233 master's degrees that year, was again below the average. Eight of the 14 listed private institutions awarded a greater number of master's degrees in 2012-13 than Duke. In sum, Duke does not have a large number of master's programs or students relative to its peers, but does seem to be unusual in the growth rate of the numbers of master's programs and enrollments.

California, Berkeley; Cornell; Harvard; MIT; Northwestern; Princeton; Stanford; University of Chicago; University of Michigan; and University of Pennsylvania.

University	Programs	University	Degrees Awarded	University	Total Students	Grad/Prof Students	MBA Program
Private		Private		Private			
MIT	32	Princeton	573	Princeton	7975	2691	No*
Princeton	41	Emory	1342	MIT	11189	6773	Yes
Emory	49	Vanderbilt	1421	Yale	11906	6679	Yes
Chicago	55	Yale	1618	Vanderbilt	12710	5922	Yes
Duke	66	MIT	1760	Emory	14236	6677	Yes
Yale	71	Duke	2233	Chicago	15245	9345	Yes
Stanford	72	Cornell	2289	Duke	15386	8821	Yes
Johns Hopkins	77	Stanford	2310	Stanford	18519	11072	Yes
Vanderbilt	85	Chicago	2717	Johns Hopkins	20871	14801	Yes
Cornell	87	Northwestern	3274	Northwestern	21215	12309	Yes
Harvard	91	Penn	3767	Cornell	21424	7200	Yes
Northwestern	103	Harvard	4041	Harvard	28147	17763	Yes
Columbia	106	Johns Hopkins	4439	Penn	24725	6530	Yes
Penn	117	Columbia	6958	Columbia	26471	18987	Yes
Average	75	Average	2767	Average	17859	9684	
Median	75	Median	2300	Median	16953	8011	
Public		Public		Public			
Virginia	62	Virginia	1635	Virginia	23907	7377	Yes
UC Berkeley	70	North Carolina	2043	North Carolina	29278	10757	Yes
North Carolina	70	UC Berkeley	2199	UC Berkeley	35893	10247	Yes
UCLA	82	Wisconsin	2156	UCLA	39945	12121	Yes
Michigan	124	UCLA	2978	Wisconsin	42269	11949	Yes
Wisconsin	133	Michigan	4281	Michigan	43426	15427	Yes
Average	90	Average	2549	Average	35786	11313	
Median	76	Median	2178	Median	37919	11353	

Table 3: Master's degree program and conferral data from AAUDE, 2012-2013

* – Princeton does not have an MBA program but does offer a master in finance.

Note: Faculty size is an important indicator for comparison, but the AAUDE data counts only tenure-track faculty. Duke's professor-of-the-practice track and other non-tenure-track regular-rank faculty categories are not picked up in the AAUDE data; thus, we are not able to list total faculty size in the table.

TGS (research master's degrees)	Fuqua
Quantitative Financial Economics (MS)	Daytime MBA
Bioethics and Science Policy	Cross Continent MBA
Biomedical Engineering	Global Executive MBA
Civil and Environmental Engineering	Weekend Executive MBA
Computer Science	MMS: Seoul National University
Earth and Ocean Sciences	MMS: Foundations of Business
East Asian Studies	
Economics	Law
Economics and Computation	LLM: International Law Graduates
Electrical and Computer Engineering	LLM: Entrepreneurship
Global Health	LLM: Judicial Studies
Historical and Cultural Visualization	Medicine
History	MHS: Physician Assistant
Humanities	MHS: Pathologist's Assistant
Liberal Studies	MHS: Clinical Research Training Program
Master of Arts in Teaching	MHS: Clinical Leadership
	MMCI: Clinical Informatics (in Fuqua until '13-'14)
Master of Fine Arts in Experimental & Documentary Arts	Master of Biostatistics
Mechanical Engineering and Materials Science	Nicholas
Medical Physics	MEM: Environmental Management
Political Science	MF: Forestry
Religion	DEL-MEM: Environmental Management
Slavic and Eurasian Studies	Nursing
Statistical and Economic Modeling	MSN: Nursing
Statistical Science	CRNA: Certified Registered Nurse Anesthetist
Divinity	Pratt
Master of Divinity	MEMP: Engineering Management
Master of Theological Studies	MEng: Engineering
Master of Theology	Sanford
Master of Christian Ministries	MPP: Public Policy
Master of Arts in Christian Studies	MIDP: International Development Policy
Master of Arts in Christian Practice	Duke Total: 54 Programs

Table 4: Master's Programs at Duke, Fall 2014. This table does not count joint or dual variants of master's programs as separate entities, for example the J.D./M.A. between Law and TGS.

Table 5 shows the research and professional master's programs that have been established at Duke since 1997. They are listed in order by academic year of approval, from oldest to most recent.

Master's Degree	Year	Type of Degree	2014 Enrollment
Master of Engineering Management	1996-1997	Professional (Pratt)	303
East Asian Studies	1997-1998	Research (TGS)	35
MHS: Clinical Leadership	1999-2000	Professional (Medicine)	8
Joint Executive MBA Fuqua/Goethe Institute	2004-2005	Professional (Fuqua)	Cancelled
Medical Physics	2004-2005	Research (TGS)	35
MMS: Seoul National Univ.	2006-2007	Professional (Fuqua)	0
Global Health	2008-2009	Research (TGS)	70
MMS: Foundations of Business (pilot)	2008-2009	Professional (Fuqua)	112
Christian Studies	2009-2010	Professional (Divinity)	15
MFA: Experimental and Documentary Arts	2009-2010	Research (TGS)	29
MEng: Engineering	2009-2010	Professional (Pratt)	79
Master of Biostatistics	2009-2010	Professional (Medicine)	37
MMCI: Clinical Informatics	2009-2010	Professional (Fuqua; transferred to Medicine in 2013-14)	25
Global Health (DKU)	2011-2012	Research (TGS/DKU)	5
MMS (DKU)	2011-2012	Professional (Fuqua/DKU)	32
MMS Finance (United Arab Emirates)	2011-2012	Professional (Fuqua)	Never launched
Historical and Cultural Visualization	2013-2014	Research (TGS)	3
Bioethics and Science Policy	2013-2014	Research (TGS)	9
Economics & Computation	2013-2014	Research (TGS)	7
Statistical Science	2013-2014	Research (TGS)	15
Medical Physics MS (DKU)	2013-2014	Research (TGS/DKU)	5
Quantitative Financial Economics	2014-2015	Research (TGS)	Approved Dec '14
Biomedical Science	2014-2015	Professional (Medicine)	Approved Dec '14

Table 5: New Duke Master's Degree Programs approved since 1997

At Duke, proposals for new master's degrees are generally born of the efforts of groups of faculty interested in developing a master's program in their field. Standardized guidelines are available from the university administration for the points that must be addressed in a degree proposal, including curricular, faculty, student, job market and university resource issues. Flowcharts for the review and approval process of various sorts of master's degrees are available on the Academic Council website (<http://academiccouncil.duke.edu/wp-content/uploads/2011/11/Flow-charts-for-new-degree-programs-20141.pdf>). In brief, all master's proposals first must be approved by the faculty of the sponsoring unit and the dean of the sponsoring school. For research master's (those in the Graduate School), the Executive Committee of the Graduate Faculty (ECGF) must review and approve a proposal for it to move forward. For professional master's, or any master's program with interdisciplinary sponsorship or global dimensions, MAC reviews proposals for logistical and resource issues, and provides advisory input to the Provost and Academic Programs Committee (APC). APC reviews all master's proposals that the Provost forwards for review from MAC and/or ECGF. A positive vote by APC leads to consideration by the Executive Committee of the Academic Council, and formal review and voting by the full Academic Council. If Academic Council approves the proposal, it is considered and voted on by the Board of Trustees.

In practice, few degree proposals have been rejected definitively. Instead, most go through multiple rounds of revision, particularly prior to and during consideration by ECGF or MAC. Some take well over a year of back and forth to get to the point of an approved proposal that is forwarded to the Provost for further consideration. Only two master's proposals have been rejected and not brought forward again in the past few years.

Duke does not have an institutional mechanism for the discontinuation or suspension of underperforming master's programs. In response to the large number of master's proposals under committee review in 2013, former Provost Peter Lange mandated a review of all new master's degree programs at the end of the third year of operation, as a condition of their approval. The implication was that master's programs that were not meeting Duke's standards or expectations would be closed. The review process for new master's programs is yet to be developed. Existing master's programs are reviewed as part of the cyclical external review of academic units, approximately every seven to eight years, or as part of a professional accreditation process (for many professional master's programs). Here too, a mechanism can be developed to discontinue unsatisfactory master's programs. A few research and professional master's degrees that received full approval have suspended operations of their own accord, because of resource issues or concerns with the quality of the applicants attracted to the program.

Faculty Perceptions about Master's Degrees at Duke

In Spring 2014, the Office of Institutional Research (OIR) administered a survey to the faculty about their perceptions of master's degrees at Duke University. The Master's Programs Survey was administered to 1863 regular rank Duke faculty members across all schools between February

25 and April 6, 2014. Altogether, 521 faculty members responded to the survey, with an overall response rate of nearly 28%.⁸ Non-clinical faculty across the university responded at 31% overall, while the response rate was 17% for clinical department faculty involved in some way in master's education. The administration process was as follows. An advance letter was sent to survey recipients on February 21, 2014, informing them of the purpose of the survey and encouraging them to participate. The survey was launched on February 25, 2014, and two reminders were sent on March 18 and March 31, respectively. The survey was closed on April 6, 2014. The results discussed are based on the answers of those faculty members who responded to the survey.

The faculty survey revealed some disagreements, and perhaps confusion, regarding the distinction between research and professional master's degrees. In response to a question about whether their academic unit has an *admitting* research or professional master's degree, or both, faculty responses were sometimes conflicting — even within individual departments (see Table 6 below). Overall, the differences were less marked in traditionally professional schools.

Specific Departments	Research Y	Research N	Prof Y	Prof N	Both Y	Both N
Humanities						
Art, Art History	8	1	4	5	4	5
Natural Sciences						
Computer Science	5	0	3	2	4	2
Statistical Science	9	1	5	6	4	4
Social Sciences						
Economics	9	0	3	4	9	2
Political Science	15	0	1	9	2	7
Nicholas						
Earth & Ocean Sci	3	2	6	1	4	1
Enviro Sci & Policy	3	7	10	0	5	6
Basic Sciences						
Pathology	0	6	6	5	0	5
Schools Only						
Divinity	8	8	10	0	17	0
Law	2	5	10	1	4	3
Clinical departments	24	22	11	30	12	22

Table 6: Does Your Department/Unit Offer an Admitting Master's Program (e.g. Research Master's, Professional Master's, or Both)? Number of respondents is indicated for each possible answer. Examples of departments with inconsistent answers are listed.

⁸ Faculty response rates for recent surveys have varied: 2012 Faculty Intellectual Property Survey, 27%; 2013 Faculty Survey about Undergraduate Advising and Mentoring, 43%; and 2013 DukeEngage Faculty Survey, 37%. Not all of these surveys went to the population that were surveyed for this report, but are illustrative of the difficulty in getting very high response rates on faculty surveys.

As indicated above, these differences might reflect the extent to which a given school is offering a combination of *professional* and *research* master's degrees. Many faculty respondents, moreover, suggested that this distinction may no longer be valid or, at least, is not as clear as it has been in the past.

University and Departmental Philosophies on Master's Degrees

The survey participants were also asked to address the broader question of whether their department, or primary academic unit, or the university as a whole has a philosophy on master's degrees. In regard to the question of whether their own primary department or unit has a philosophy on master's degrees, the response averages were 19 percent strongly or generally disagree; 21 percent ambivalent; and 60 percent strongly or generally agree. In addition, as one would expect, faculty from departments that currently offer an admitting master's program were more likely to agree that their department or primary unit has a philosophy on master's programs (see data below).⁹

In contrast, when asked whether Duke has a philosophy on master's degrees, the responses were, respectively, 30 percent strongly or generally disagree, 38 percent ambivalent, and 32 percent strongly or generally agree. In short, far fewer faculty members feel that the university has an overall philosophy on master's degrees. This difference compared to the views on departmental master's philosophy reflects a sentiment often noted in the survey's text responses: It might be difficult for Duke to develop a comprehensive philosophy on master's program; many faculty members stressed that the purpose and relevance of master's programs varies widely by discipline.

⁹ For Figures 11 and 12, faculty from Sanford, Nursing, Pratt, Fuqua, Nicholas, and Divinity are always counted among those with admitting master's programs. Only one faculty respondent from Basic Sciences fell into the admit category, so we combined admitting and non-admitting faculty into one category. Humanities, Natural Sciences, Social Sciences, and Medical were divided into admitting and non-admitting categories of faculty.

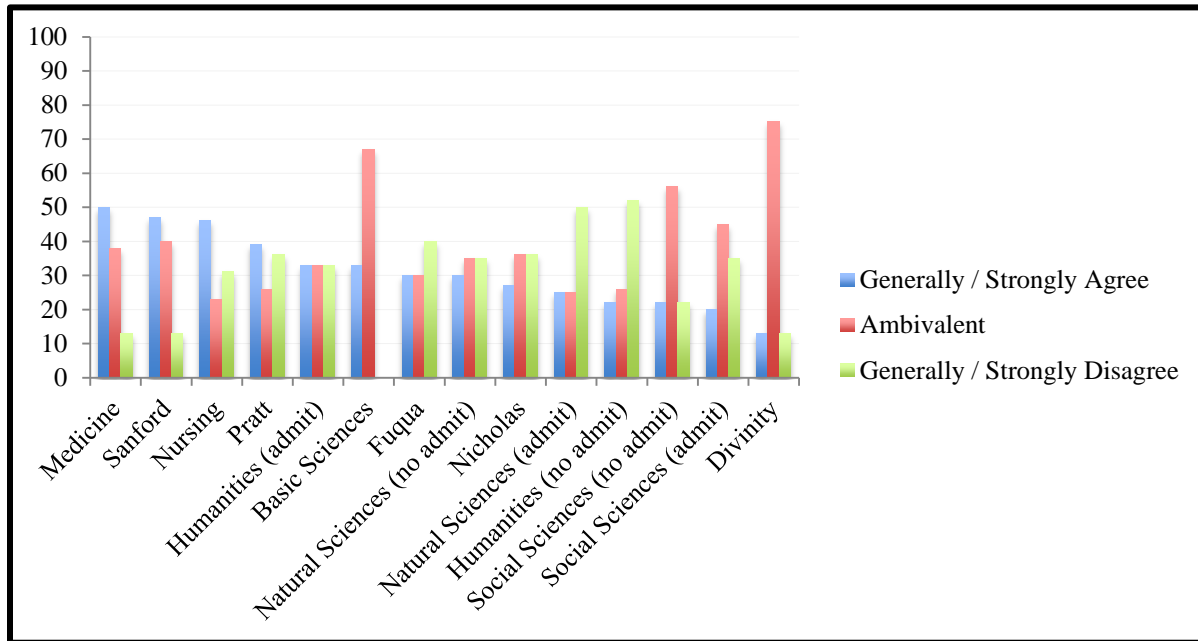


Figure 9: To what extent do you agree or disagree with the following statements?
Duke has a philosophy on master's degrees. Graph conveys percentages of respondents.

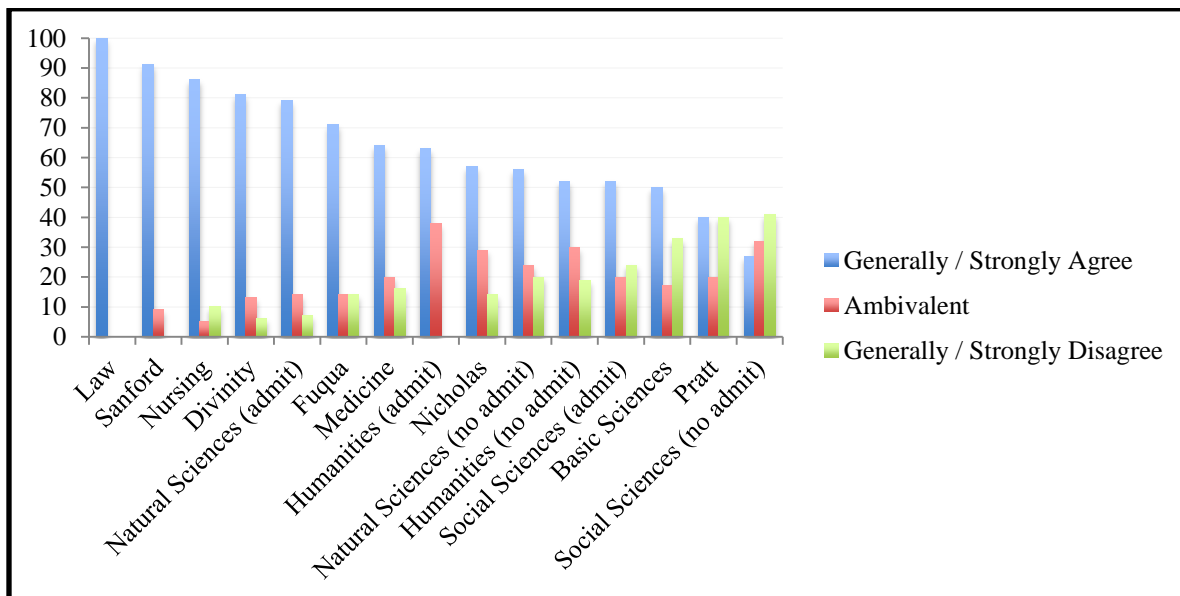


Figure 10: To what extent do you agree or disagree with the following statements?
My department/unit has a philosophy on master's degrees. Graph conveys percentages of respondents.

Relevance of Terminal Master's

Another question on the faculty survey asked about the *relevance* of terminal master's degrees in their fields. There is widespread agreement among faculty in departments or units with admitting master's programs that the degree they offer is relevant (see Figure 11 below). Eighty-four percent of respondents from such departments report that the terminal master's degree is relevant for their field of study. Faculty from departments *without* admitting master's programs are almost evenly divided (51 percent agreeing).

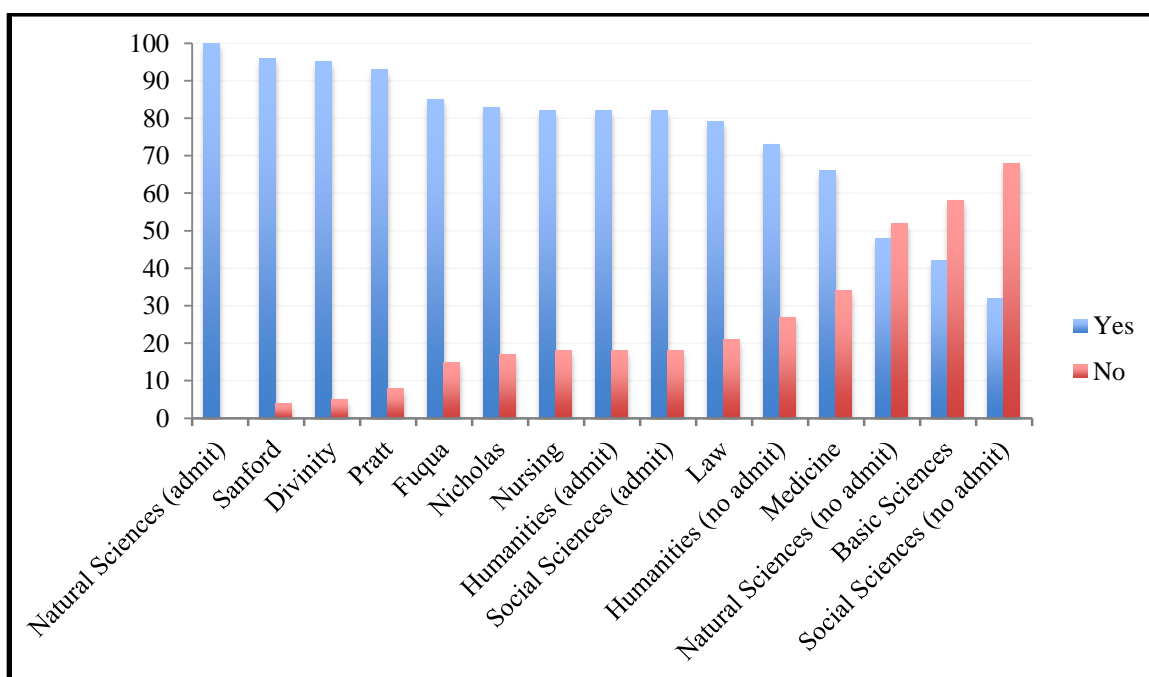


Figure 11: Is a Terminal Master's Degree a Relevant Degree for Your Field of Study?
Graph conveys percentages of respondents.

Relationship to Strategic Goals of Academic Unit

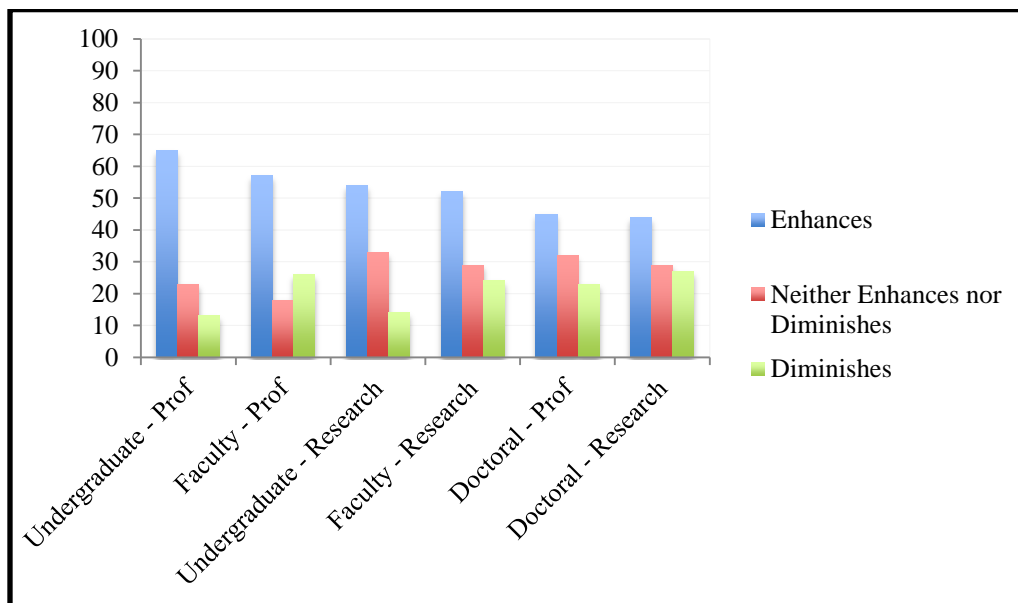
Finally, one question concerned with the role of master's degrees at Duke is phrased in terms of academic unit strategies (those of the faculty member's primary school, division or department). Faculty were asked to what extent they agree or disagree with the statement that research/professional master's degrees are "closely related to the strategic goals of my

department/unit.” Faculty might consider the program strategically important because, for example, it generates revenue or serves as a transitional or preparatory step on the way to a Ph.D. (i.e. regardless of whether it is a relevant terminal degree in the field). Among academic units that admit master’s students, 73 percent of faculty respondents generally or strongly agreed for research master’s, and 61 percent for professional master’s, that the degree is closely related to the unit’s strategic goals. By contrast, a minority of faculty in departments/units that do not admit master’ students felt that master’s degrees are closely related to their units strategic goals – 18 percent for research master’s and 17 percent for professional master’s degrees.

3. Effects on the Academic Environment

Overall Effect on Undergraduates, Doctoral Students, and Faculty

When asked in the 2014 Master's Programs Survey about the effects of the master's population on faculty, undergraduate, and doctoral students, faculty respondents from the Basic Sciences (Medical School), Natural Sciences (Arts & Sciences), Nicholas, Pratt, and Social Sciences (Arts & Sciences) had the lowest percentages reporting positive effects and the highest percentages reporting negative effects. As Figure 12 and Table 7 demonstrate, survey participants generally report that the master's population has more positive effects on the overall experience of undergraduates than on faculty or doctoral students; this is particularly true in Sanford and Nursing.



*Figure 12: Campus-Wide Percentage Results for the Question
“Given the Pros and Cons of Professional/Research Master’s Students Within Your Department/Unit,
What Best Describes Your Opinion of the Influence of Professional/Research Master’s Students
on the Academic Environment for Undergraduate Students, Doctoral Students, and Faculty?”*

Overall Effect on Undergrad Students									
Professional					Research				
#Resp	Division	Pos	Neut	Neg	#Resp	Division	Pos	Neut	Neg
22	Sanford	100	0	0	13	Sanford	85	15	0
19	Nursing	100	0	0	52	Humanities	79	14	8
30	Humanities	73	13	13	12	Nursing	75	25	0
26	Clinical	69	27	4	39	Clinical	72	28	0
16	Basic Sciences	50	38	13	60	Social Sciences	53	30	17
19	Nicholas	47	26	26	22	Basic Sciences	46	32	23
28	Social Sciences	39	36	25	37	Pratt	32	43	24
33	Pratt	36	36	27	13	Nicholas	31	62	8
35	Natural Sciences	26	43	31	57	Natural Sciences	30	46	25
Average		65	23	13	Average		54	33	14

Overall Effect on Doctoral Students									
Professional					Research				
#Resp	Division	Pos	Neut	Neg	#Resp	Division	Pos	Neut	Neg
11	Fuqua	73	27	0	16	Divinity	88	13	0
14	Divinity	71	29	0	46	Clinical	59	41	0
20	Nursing	65	35	0	47	Humanities	53	15	32
21	Sanford	54	46	0	12	Nursing	50	42	8
27	Humanities	54	4	42	67	Social Sciences	48	18	34
27	Clinical	53	48	0	14	Nicholas	36	43	21
16	Basic Sciences	31	38	31	37	Pratt	32	24	43
20	Nicholas	30	15	55	10	Fuqua	30	20	50
31	Social Sciences	23	32	45	55	Natural Sciences	24	35	42
33	Pratt	21	46	33	22	Basic Sciences	18	41	41
34	Natural Sciences	18	35	47	Average		44	29	27
Average		45	32	23					

Overall Effect on Faculty									
Professional					Research				
#Resp	Division	Pos	Neut	Neg	#Resp	Division	Pos	Neut	Neg
13	Divinity	100	0	0	16	Divinity	94	6	0
20	Nursing	95	5	0	49	Clinical	76	22	2
23	Sanford	74	22	4	13	Sanford	69	8	23
13	Fuqua	69	8	23	51	Humanities	63	10	27
28	Clinical	64	29	7	14	Nicholas	50	14	36
20	Nicholas	55	5	40	12	Nursing	50	42	8
31	Humanities	55	16	29	66	Social Sciences	45	20	35
17	Basic Sciences	35	29	35	33	Pratt	42	30	27
31	Pratt	29	36	36	22	Basic Sciences	32	36	32
34	Natural Sciences	24	18	59	10	Fuqua	30	40	30
31	Social Sciences	23	26	52	53	Natural Sciences	26	26	47
Average		57	18	26	Average		52	23	24

Table 7: Effects of Master's Students on Undergrads, Doctoral Students and Faculty: Percentage Breakdown by Divisions. Divisions with Fewer than 10 Respondents are Excluded. (Average = Average of division percentages rather than the total number of respondents for each category.)

Faculty were also asked about the positive effects of research and professional master's students on the undergraduate, doctoral, and faculty populations when it comes to course options, classroom discussions, and academic research. With the exception of Sanford, within no division did a majority of respondents indicate that the research or professional master's populations have a positive influence on these three areas of the academic environment. Faculty were more likely to agree that master's students contribute to the general diversity of the academic community and allow Duke to have more of an influence on society (see Table 8 for the division-specific percentages for perceptions of effects on course options and classroom discussions for undergraduate and doctoral students).

When asked if *research* master's students enhance course options as a "strong plus in their own right," (as opposed to enhancing course options for the doctoral or faculty populations specifically), Divinity had the highest percentage of respondents agreeing with this statement, at 63 percent. Divinity also had the highest number of respondents (90 percent) suggesting that enhancement of classroom academic discussions makes research master's students "a strong plus in their own right." Humanities followed, with 47 percent of faculty reporting this. Other (relatively) high percentages were reported in Sanford (39 percent), Pratt (36 percent), and Nursing (35 percent).

When considering the role of *professional* master's students as a "strong plus in their own right," faculty from Divinity, Nursing, Sanford, and Nicholas – schools with large professional master's populations – were more likely to associate positive effects with master's students. Fifty-eight percent of Divinity faculty respondents indicated that professional master's students "enhance classroom academic discussions" as a strong plus in their own right and a large proportion of respondents in Nicholas (60 percent), Nursing (72 percent), and Sanford (73 percent) indicated so as well.

Positive Effect on Undergraduate Students				Positive Effect on Doctoral Students			
Discussion		Course Options		Discussion		Course Options	
Research				Research			
Humanities	49	Sanford	42	Humanities	33	Humanities	33
Nicholas	36	Humanities	40	Clinical	29	Social Sciences	24
Social Sciences	35	Natural Sciences	34	Social Sciences	23	Pratt	24
Pratt	33	Basic Sciences	33	Pratt	21	Natural Sciences	24
Basic Sciences	33	Social Sciences	30	Nicholas	20	Clinical	22
Sanford	31	Pratt	29	Basic Sciences	18	Basic Sciences	21
Nursing	24	Nursing	21	Natural Sciences	15	Nicholas	
Clinical	24	Clinical	20	Sanford		Sanford	
Natural Sciences	24	Nicholas	12	Nursing		Nursing	
Average	32	Average	29	Average	23	Average	25
Median	33	Median	30	Median	21	Median	24
Professional				Professional			
Sanford	54	Sanford	65	Humanities		Humanities	
Nicholas	36	Nicholas	44	Nicholas		Nicholas	
Humanities	29	Pratt	24	Social Sciences		Social Sciences	
Pratt	26	Natural Sciences	23	Pratt		Pratt	
Nursing	24	Humanities	21	Basic Sciences		Basic Sciences	
Basic Sciences	21	Nursing	21	Sanford		Sanford	
Natural Sciences	13	Basic Sciences	21	Nursing		Nursing	17
Social Sciences	10	Social Sciences	12	Clinical		Clinical	
Clinical	9	Clinical	9	Natural Sciences		Natural Sciences	
Average	25	Average	27	Average		Average	17
Median	24	Median	21	Median		Median	17

Table 8: When thinking about the positive consequences of research/professional master's students, in what ways do you think they influence the academic environment for undergraduate students, doctoral students, and faculty? Percentages of respondents are indicated. Divisions with fewer than 10 respondents are excluded.

Current Master's Enrollments: Faculty Views on Capacity, Balance and Strain

Table 9 summarizes faculty responses about the capacity of their unit for master's students, the balance of master's and doctoral students in their unit, and the extent to master's student teaching and advising is a strain. *University-wide* about 30 percent of faculty respondents say that the number of master's students taught in their department / unit is *substantially* or *somewhat higher* than they can handle (the percentage calculated here excludes those faculty members who responded "Not applicable / Don't know").

Of all the *schools and divisions*, Nursing respondents reported the most strain with regard to the number of master's students they advise and teach, with around 70 percent of respondents reporting that this number is somewhat or substantially more than they can handle. Nicholas and Divinity also had a relatively high number of respondents reporting that the master's population is substantially (50 percent) or somewhat (40 percent) more than they can handle.¹⁰

In 40 percent (10 of 25) of the *individual programs* that had at least five faculty responses, more than a third of the respondents reported that the number of master's students is already too high. Seven programs reported that the number of master's students is in balance with the number of Ph.D. students or that they have the capacity to admit more master's students (see Table 9).

¹⁰ About 65 percent of the 521 faculty who took the faculty survey administered by OIR reported that they teach master's students. Schools with the highest percentage of faculty reporting that they teach master's students were Divinity and Law, which each had 100 percent of faculty respondents reporting that they teach master's students. Clinical, Natural Sciences, and Basic Sciences had the lowest percentages of faculty reporting that they teach master's students, at 49.3 percent, 35.5 percent, and 23.7 percent, respectively.

Department	Strain	Balanced	Capacity	Total Resp	% Strain
Statistical Science	6	0	1	7	86
Biomedical Eng	12	2	2	16	75
Enviro Scie & Policy	8	3	0	11	73
Nursing	18	6	1	25	72
Sanford	10	12	1	23	43
Divinity	7	10	0	17	41
Economics	6	7	2	15	40
Computer Science	2	2	2	6	33
Earth & Ocean Sci	2	4	0	6	33
Religion	2	2	2	6	33
Art, Art Hist & Visual Stud	3	5	2	10	30
Fuqua	5	13	2	20	25
Political Science	4	7	5	16	25
Biology	1	3	1	5	20
Marine Sci & Conserv	1	5	0	6	17
Clinical	2	4	7	13	15
Radiology	1	6	0	7	14
Electrical & Comp Eng	1	7	0	8	13
Civil & Enviro Eng	0	1	8	9	0
History	0	1	7	8	0
Law	0	7	0	7	0
Radiation Oncology	0	5	1	6	0
English	0	3	2	5	0
Mech Eng & Materials Sci	0	4	1	5	0
Pathology	0	5	0	5	0

Table 9: What do you think about the balance between professional/research master's and doctoral students in your department?

In the narrative sections of the faculty survey, the participants commented on the potential for strain on faculty, staff, and infrastructure caused by the growth in master's programs. Many expressed concern that master's students draw on important university resources – faculty time, classroom space, advising capacity, and course offerings.

Eighty-two percent (176 of 216) of faculty respondents from departments with admitting master's programs indicated that faculty members are providing advising to master's students adequately, more than adequately or very well. Thirty-six percent (78 of 216) indicated that the advising is adequate, while 27 percent (59 of 216) indicated that they are advising master's students very well.

Eighty-five percent (39 of 46) of faculty from departments *without* admitting master's programs reported that they are providing advising and guidance adequately, more than adequately, or very well. These numbers probably reflect faculty who teach, advise or hire as research assistants master's students who come from programs housed in other departments.

Pratt, Medicine and Social Science departments with admitting programs had the highest percentage of faculty responding that they provide academic advising and guidance "very poorly" or "less than adequately." Thirty-two percent (7 of 22) of faculty respondents from departments with admitting master's programs in Medicine reported that advising is less than adequate or very poor. In Pratt, 31 percent of faculty (11 of 36) indicated that advising of master's students is very poor or less than adequate, while in Social Sciences 29 percent (9 of 31) reported this.

Seventy nine percent (152 of 193) of respondents from departments with admitting master's programs reported that faculty members provide master's students with assistance in finding employment adequately, more than adequately, or very well. Pratt faculty were most likely to respond that faculty provided assistance in finding employment very poorly or less than adequately; forty-six percent (15 of 33) of Pratt faculty respondents reported this. Thirty-three percent of Pratt respondents (11 of 33) reported that the assistance is adequate and 21 percent (7 of 33) reported that this assistance is provided more than adequately or very well.* Medicine faculty from departments with admitting master's programs were also more likely than average to respond that assistance in finding employment is less than adequate or poor, with 33 percent (6 of 18) of faculty reporting this. Social Sciences faculty from departments with admitting master's programs also reported this at rates higher than average (33 percent or 9 of 27 respondents).

When asked to consider the balance between master's and doctoral students, 10 percent of faculty respondents (25 of 242) from all schools and divisions indicated that the balance in their department / unit is upset by too many *research* master's students, and 14 percent (29 of 206) said it is upset by too many *professional* master's students. There was considerable school-to-school variation. In the Nicholas School, more than 50 percent of responding faculty indicated that the balance in their department / unit is upset by too many *professional* master's students. The remaining percentage responded that the balance is about right. Pratt also had a relatively high percentage of faculty (23 percent, or 7 of 30 faculty) reporting that the balance between master's students in their department/unit is upset by too many professional master's students.

Student Exit Survey Responses

According to a graduate and professional student exit survey administered by OIR between 2009 and 2013,¹¹ more than 35 percent of master's students in 5 of 12 schools or divisions felt that the availability of faculty was an obstacle to their academic success.¹²

Master's students in Nicholas were most likely to report that the availability of faculty was an obstacle to their academic success. Fifty percent of Nicholas master's students reported this on average between 2012 and 2013. Nicholas master's students were also the most likely to report that their relationship with their advisor was a major or minor obstacle to their academic progress, with 44.5 percent reporting this on average in 2012 and 2013. Nicholas master's students were also the least likely to report that the quality of their academic advising and guidance was good, very good, or excellent.¹³ As noted above, over half of Nicholas faculty respondents reported that the balance of students in their department is upset by too many professional master's students.

These data on the perceptions of Nicholas master's students correlate with Nicholas faculty responses about how well they are meeting the advising and guidance needs of master's students. Nicholas and Pratt had the highest percentages of faculty reporting that they meet the advising and guidance needs of students "less than adequately" or very poorly. Nicholas also had the highest number of faculty reporting that they are responding to student concerns very poorly or less than adequately.

¹¹ Information from the GPS Exit Survey for the Arts and Sciences and Professional Schools, conducted by OIR in 2009-2013. The number of A&S master's respondents included in the aggregated results referred to here are the following, listed by year: 2009 - 110 respondents; 2010 - 145 respondents; 2011 - 120 respondents; 2012 - 150 respondents; 2013 - 191 respondents. Among the other schools, the highest number of responses on average between 2009 and 2013 were from the Fuqua School, with 225 on average responding. Average 2009-13 response rates for the other schools were as follows: Divinity - 58; Engineering - 36; Environment - 50; Law - 94; Medicine - 65; Nursing - 34; and Public Policy - 34.

¹² The Office of Institutional Research (OIR) administers the Graduate and Professional Student Exit Survey to graduating students during the Spring Semester every other year. For the purposes of the analysis in this report, responses from graduating students who participated in the enrolled GPS survey in the years when the exit survey was not conducted are also included. Due to changes made to some of the employment questions and other areas in recent years, only responses for the past two years (2012 and 2013) are displayed for questions on employment status and obstacles to academic success.

¹³ Other schools and divisions in which more than 35 percent of master's students reported the availability of faculty to be an obstacle were Humanities (47.3 percent), Divinity (41.6 percent), Medicine (37.4 percent), and the Natural Sciences division of A&S (36.4 percent) on average in 2012 and 2013.

About 84 percent of Divinity master's students reported the quality of their academic advising to be good, very good, or excellent on average between 2009 and 2013. This corresponds with faculty views: The majority of Divinity faculty respondents – 88 percent – said they meet advising needs more than adequately or very well, with the remainder of Divinity respondents reporting that these needs are adequately met.

Of all the professional schools, Medicine (86 percent) and Pratt (85 percent) had the highest percentage of master's student survey respondents rating advising good, very good, or excellent on average between 2009 and 2013. Nicholas (66 percent) and Nursing (65 percent) had the lowest percentages of master's students reporting that the quality of academic advising and guidance was good, very good, or excellent on average during this time period. Nonetheless, these percentages for the latter two schools are still a substantial majority of the respondents.

4. Financial Motivations and Concerns

Another issue that emerged quite forcefully in the faculty's narrative responses was concern about the financial and ethical issues involved in admitting master's students to programs for which full and partial tuition scholarships or other relief are rarely offered. While PhD students tend to be fully funded, master's students usually pay partial or full tuition and have fewer opportunities to earn money as either teaching or research assistants. It is crucial, the faculty noted, that Duke considers what kinds of financial aid and fellowships are available to master's students, as well as the amount of debt they already carry from their undergraduate education.

Many faculty members expressed concerns about accepting master's students who will accumulate substantial debt and are unlikely to obtain job placement and adequate salary levels upon graduation. Furthermore, offering master's degrees to generate revenue rather than to deeply educate students in important areas might contribute to a polarization in the U.S. between wealthy education consumers and those less able to afford higher education. A master's degree might increasingly be seen as a privilege of the wealthy rather than a true educational accomplishment.

Exit surveys administered to graduate students in 2012 and 2013 showed that more than 50 percent of respondents from Nicholas, Fuqua, Humanities, Law, and Pratt indicated that the current job market has been a major or minor obstacle to their academic progress during both years. With the exception of the Nursing and Medicine, 40 percent of student respondents from the other schools and divisions on average reported job placement concerns in both 2012 and 2013.

According to the 2012 and 2013 survey results, master's respondents in the Humanities and Social Sciences were the least likely of the A&S divisions to report having "signed a contract or made definite commitment for a job offer." Seventeen percent of master's respondents in the Humanities reported this, while 10 percent reported it in the Social Sciences and 20 percent in the Natural Sciences. Twenty-four percent of Social Sciences master's respondents reported they would be "returning to, or continuing in, pre-graduate employment." Twenty-two percent reported this in the Humanities and ten percent in the Natural Sciences. In addition, Social Sciences and Natural Sciences had the highest percentages of master's student respondents in A&S reporting that they would pursue another full-time degree program (38 percent and 20 percent, respectively).

Among the professional schools, Fuqua (62 percent), Law (56 percent), and Medicine (54 percent) had the highest percentage of master's respondents reporting that they had "signed a contract or made definite commitment for a job offer" in 2013. Nicholas and Sanford had the lowest percentage of respondents reporting this, at 17 percent and 22 percent, respectively. At 51 percent, Nicholas had the highest percentage of respondents reporting in 2013 that they were "seeking position but have no specific prospects."

Graduate Debt and Starting Salaries

Data for the reported starting salaries and educational debt for masters students graduating between 2009 and 2013 are reported in Table 10. On average, Humanities master's students reported the lowest starting salary of the A&S divisions at \$46,670. This salary is significantly lower than the average starting salaries reported by Social Sciences at \$73,380 and Natural Sciences at \$78,130.

In addition, the average graduate education debt reported for Humanities master's students during this time period was the highest among all of the A&S divisions at \$35,250. By comparison, average graduate education debt was around \$12,900 for Social Sciences and \$5,360 for Natural Sciences master's students.

Among the other schools, Law and Fuqua respondents reported the highest starting salaries on average, both around \$122,000. The lowest starting salaries were reported by Divinity (\$39,480), Sanford (\$49,980), and Medicine (\$53,780).

Average debt reported for new professional school master's graduates was highest in Medicine, with students reporting an average of \$63,740 during this period. Law (\$54,130) and Fuqua (\$53,200) also reported relatively high debt levels. Pratt students, who reported an average a starting salary of \$80,890 reported the lowest amount of graduate debt on average among the professional schools – \$25,990. Divinity, Sanford, and Nicholas reported debt levels of \$32,880, \$30,080, and \$38,280, on average.¹⁴

	Avg. Salary	Avg. Debt
Law	\$122,070	\$54,130
Fuqua	\$122,030	\$53,200
Nursing	\$102,500	\$50,080
Pratt	\$80,890	\$25,990
Natural Sciences	\$78,130	\$5,360
Social Sciences	\$73,380	\$12,900

	Avg. Salary	Avg. Debt
Nicholas	\$55,780	\$38,280
Medicine	\$53,780	\$63,740
Sanford	\$49,980	\$30,080
Humanities	\$46,670	\$35,250
Divinity	\$39,480	\$32,880

*Table 10: Average Salaries and Graduate Debt Levels
from 2009 to 2013 in the A&S Divisions and Professional Schools*

¹⁴ Nursing Salaries from 2009, 2012, and 2013 only; Medicine Salaries do not include 2012. No debt data for Public Policy and Nursing in 2011.

Affordability and Sharing of Master's Program Revenues

Affordability may affect the type of students a given program can recruit. Significant financial aid may be required to recruit a diverse student population of high academic quality. Several faculty members mentioned grading students on two different scales – one for master's and one for doctoral students. The data are not sufficient to determine if this is more generalized beyond the open-ended responses of those faculty, but this is a question that deserves additional exploration.

There were also questions about fairness of uniformly high tuition charges to students. For example, should students in disciplines with significantly lower expected future salaries – disciplines that are nevertheless vital to the overall academic community and liberal arts mission of the university – receive more financial aid than students in disciplines associated with higher starting salaries?

There is considerable uncertainty among faculty members about the use of master's tuition revenue within the University. Some faculty respondents wondered how master's tuition should be shared among departments and divisions, particularly as several new programs have been approved in recent years. Will revenue be shared between the hosting department(s) and administration, or distributed more broadly across the university? A particular concern is that some programs' curricula involve the efforts of other academic departments for the delivery of required coursework; currently, these non-sponsoring units get no compensation in return for their efforts.

Many faculty respondents raised issues about the motivations for starting master's degrees. Some of the open-ended responses suggested that financial reasons were behind much of the desire for starting master's degrees. A concern raised by some is that having the generation of revenue as a primary motivating factor might come at the expense of a high-quality graduate student body. A smaller group of faculty members suggested that Duke *should* offer master's degrees where they are profitable and "enhance faculty productivity."

5. International Students

When referring to statistics in the following section, the designation “international students” refers only to those students with “Alien Temporary” status; those who have “Permanent Resident” or “Alien Permanent” status are grouped together with those who have “US Citizen/Naturalized Citizen” status, as many of the concerns outlined here (cultural adjustment, visa considerations, etc.) are likely not as applicable.

In the past decade, the international master’s student population has grown rapidly, and international students now comprise a much more significant portion of the overall master’s student population than they did in 2005. In the 2014-2015 academic year, 29 percent of the master’s students on campus are international students, as compared with just 17 percent in 2005. While the overall master’s student population grew by 50 percent from 2005 to 2015, the international master’s student population grew by 159 percent overall. Between 2005 and 2015, the number of international master’s students on campus grew steadily by an average of 10 percent per year, whereas the number of non-international master’s students grew by an average of just 3 percent per year.

These international students share the following challenges:

- Finding suitable off-campus housing and getting to and from campus
- Adjusting to a new academic culture and standard
- Adapting to life in the US
- Gaining access to the resources needed to learn English
- Handling the legal restrictions on finding employment and getting visas to work or study in the United States

CAPS and International Students

Evidence for the challenges that international students face can be seen in reports from the CAPS office. Twelve-to-thirteen percent of the students who accessed CAPS in 2013-2013 were international students, compared to 5% in 2006. These ratios roughly scale with the percentage change in the international student population. Dr. Jeff Kulley, the Associate Director of Clinical Services, has observed that international students tend to struggle the most with the following issues:

- **Housing:** It may be more difficult for international students to find housing from abroad and/or to find housing in a place off-campus where they feel safe.
- **Advisor relationships:** All graduate students have some concern about exploitative or abusive advisors, but this strain may be even greater for international students, as the advisor may have indirect control over the student's immigration status. Due to cultural differences, international students may also be reluctant to question authority figures; they also may not be aware of the inappropriateness of abusive advising styles (they may believe that this is just the way things are done).

Housing and Transportation

Graduate students are more likely than undergraduate students to use the services of International House to help locate safe, affordable housing and transportation to and from campus. International graduate students think the transportation in Durham and around Duke is lacking. They are most interested in finding housing on campus, rather than looking for an off-campus apartment, yet options are few. Currently, Duke only has 50 beds to offer graduate students, so there is nowhere near enough on-campus housing to accommodate the international graduate students who may want it. In response to a 2013 Housing Resolution from the Graduate and Professional Student Council, the Office of Housing, Dining, and Residential Life redesigned its off-campus housing website and appointed a housing assignments coordinator. A portion of that individual's job description is dedicated to providing resources for students who need to find off-campus housing.

Academic Culture

Most international master's students also have a need for training in U.S. academic culture with regard to plagiarism rules, class participation expectations, and group work. It is increasingly the case, for example, that our international students come from educational systems where class participation is not important. This presents real difficulties for students who do not feel confident speaking up or who do not understand the value of listening to other students. Frequently, this group of students is more familiar with the "banking" model of education, in which the professor serves as an authority figure imparting knowledge to the student.¹⁵ In addition, master's students tend to be at a lower proficiency in English than Ph.D. students,

¹⁵ Phone conversation with Edie Allen, July 18, 2014.

which often makes communicating academic norms more challenging. International master's students need support and guidance to adjust to new rules about academic culture.¹⁶

This problem is aggravated by the fact that master's students are pressured to learn quickly, since they have limited time at Duke, compared with Ph.D. students. They are dealing with a short, intense period of study and have only months to adjust and develop the necessary socio-cultural and academic skills to succeed on the job market or transition into competitive doctoral programs at other institutions. This is true for all master's students, but is especially challenging for international students.

International House

Duke's International House offers extensive programming throughout the academic year that is intended to help international students adjust to and navigate their lives as graduate students in Durham. This includes a special, two-day orientation program specifically for international students (and in addition to normal orientation activities). For orientation, experienced graduate students can volunteer to serve as International House Orientation Peers who get in touch with all incoming international students prior to orientation in order to solicit questions and concerns. Those Peers are then present at orientation events to welcome the incoming students. In addition to Orientation, International House also runs a series of workshops throughout the year called the "Connect. Learn. Grow. Series." The organizers of this series run weekly programs that "offer international students and scholars further opportunities to learn how to navigate their life at Duke." Topics range from "Cooking 101" to "American Common Courtesy" to "Reading Scientific Journal Articles." Further services offered by International House include a language partner program that pairs non-native language speakers with native speakers for weekly conversation exchange; English, Spanish and Chinese conversation clubs that meet weekly; an "International Friends" program that pairs international students with locals "to promote friendship and exchange"; and "Global Café," a weekly informal gathering open to all members of the Duke community. The International House staff also maintains a "Living Essentials" section of the site that serves as a reference guide to topics from Banking to Visas. These and related services are not specifically targeted to master's students, but are likely to be especially helpful to many of them as they look for help in acculturating in a relatively short timeframe.

English for International Students

¹⁶ The total enrollment in EIS classes for the academic year 2013-14 was 590 students, according to Allen. This included 435 graduate students and 155 professional school students. Seventy-five percent of the international students who come to Duke must be tested in English. Sixty percent of those tested take a writing course through EIS and 50 percent take one of EIS's oral communication courses. July 2014 phone conversation with Assistant Program Director of EIS, Edie Allen.

The English for International Students (EIS) program is a service of the Graduate School to provide English skills training for its international students. Courses are currently required for those who place into them on the basis of assessments of English proficiency. Some professional master's programs also pay a seat charge for their students to take EIS courses. Some of the professional schools offer their own programs to help their international students gain English language skills. EIS is at capacity in terms of having enough computer labs and staff to test students. All full-time instructors are teaching their maximum loads, requiring a large number of sections to be taught by adjuncts. Each faculty member can teach no more than three sections per semester. Sections have served up to twelve students. Thus for every 36 additional international students requiring EIS instruction per term, one new faculty member must be employed and trained. This is very challenging not only because of the cost, but also because suitably qualified instructors are very difficult to find.

Work Experience and Visas

Pursuing employment and internships in the US is a more complicated process for international students, in part because of the challenges associated with obtaining a work visa.

Optional Practical Training (OPT) visas are required for international students to obtain work experience in the U.S. after they graduate. Applying for the visa is a complicated process requiring the payment of a \$380 application fee and proof of the relationship between the student's education and prospective employment. In order to work in the U.S. after graduating, international students must apply for the OPT visa during the year they want to begin working. Students who work at internships while in school must obtain a Curricular Practical Training (CPT) visa. Many engineering students, for example, seek an internship as part of their graduation requirements.

The increased number of master's programs will probably mean that there are more students applying for OPT and CPT visas. As departments create new master's programs, a large percentage of their target audience is international.¹⁷

Last year, the U.S. government reviewed Optional Practical Training [OPT] visas, and felt they were not being properly tracked.¹⁸ As a result, the Duke Visa Services staff must now place

¹⁷ According to Yelverton, there were 375 applications (out of 830 total international students master's students at Duke) for Optional Practical Training [OPT] visas in fall 2013, down from 440 applications (out of 799 total international master's students at Duke) in fall 2012, but slightly up from 360 in fall 2011. The drop in the number of OPT requests but increase in the number of total master's students indicates that master's students might be concerned about the possibility of finding jobs in the U.S. and are applying for OPT visas in fewer numbers, according to Yelverton.

greater emphasis on documenting how work performed on the OPT visa is related to the student's education. Duke Visa Services does not know how much it will be asked to document this information.

New master's degrees that do not easily match to a potential job make it more difficult for Duke Visa Services staff to persuade US government officials of the relevance or connection of the educational training to a particular job..¹⁹

¹⁸ NAFSA, the Association of International Educators reported in March 2014 that the U.S. General Accountability Office [GAO] had released a report on the F-1 and M-1 OPT benefit, recommending that the Bureau of Immigration and Customs Enforcement [ICE] require additional employment information from students and schools.

"GAO Report Makes Recommendations to Tighten OPT Program," March 11, 2014.

http://www.nafsa.org/Find_Resources/Supporting_International_Students_And_Scholars/ISS_Issues/GAO_Report_Makes_Recommendations_To_Tighten_OPT_Program/

¹⁹ July 2014 conversation with Duke Visa Services Director Lois Yelverton.

6. Career Services and Professional Development

Several issues specific to the master's population affect the extent to which Career Services can effectively assist the students in finding employment upon graduation. The three most pressing concerns are:

- Vaguely described job opportunities for graduates of some master's programs. Units proposing new master's programs are currently asked in degree proposals to provide general information on career opportunities for their graduates. It would be helpful to the Career Center for them to provide detailed information about the specific employment opportunities that would be available to students upon graduation.
- Finding employment for students from interdisciplinary and research master's degree programs. Greater efforts should be made to reach out to Career Center staff and to consult with Duke's interdisciplinary centers (such as the Center for Energy, Development, and the Global Environment and the Center for Latin American and Caribbean Studies). These centers have been very proactive in reaching out to Career Services to help find employment for their undergraduate students.
- The greater challenges faced by international students seeking employment. Employers must sponsor H-1B visas or students must obtain OPT visas, which require advance planning and detailed proof of the connection between the student's degree and the employment they are seeking

Overview of Professional Development and Career Services

There is a centralized Duke University Career Services office which serves undergraduate students, graduate students, and alumni (up to four years after graduation) from Trinity, TGS and Pratt. Services include counseling and drop-in advising, as well as networking events and skills workshops. These include resume writing, interviewing skills, leadership development, and networking strategies.

A number of professional schools have their own offices of career services, distinct from this centralized office.²⁰ If students from these professional schools visit Career Services at Smith Warehouse, they are typically referred to the career services center associated with their department or office.²¹

A wide variety of professional development opportunities are organized collaboratively by the Career Center, Postdoctoral Services and the Graduate Student Affairs and Academic Affairs units within TGS. These opportunities include one-time events, workshop series, peer-to-peer mentoring, formal coursework, and certificate programs. Most of these opportunities are relevant to master's students, but most career development resources on TGS's website are oriented toward Ph.D. students. This is in part because master's degree students are more likely to visit Career Services.²²

Of the 1,265 alumni, faculty, postdocs, and students who attended the Professional Development Series workshops (one of several professional development opportunities open to master's students) in the 2013-14 academic year, about 100 were master's students. About 700 were Ph.D. students. Roughly 400 were postdocs.²³

Many of the master's programs housed within TGS are designed to prepare students for success as researchers in their chosen fields, and thus as applicants to Ph.D. programs. For this reason, TGS has also developed some programming for the 2014-15 academic year designed to help master's students interested in applying to Ph.D. programs.

New Master's Programs' Effect on Career Services

Adding new master's programs can affect Career Services in ways that may not always be considered when programs are proposed. The Career Services office would appreciate having units work with them to begin developing career and internship opportunities for new master's programs *before* they are approved. Reviewing plans for the role of Duke Career Services and the potential for specific employment opportunities for students upon graduation should be part of the proposal development process for any new program. This may be particularly valuable for interdisciplinary master's degrees, where the relevant types of job opportunities are often less clear. Incorporating Career Services into the proposal process will help any new program

²⁰ The following professional schools have their own career services offices: Divinity, Law, Medicine, Nursing, Office of Postdoctoral Services, Fuqua, Sanford, and Nicholas. Pratt provides employment support through 3 Career Services staff and does not rely on faculty for career support.

²¹ <http://studentaffairs.duke.edu/career/about-us>

²² June 2014 conversation with Assistant Dean for Graduate Student Professional Development Melissa Bostrom.

²³ Data gathered by Melissa Bostrom, Assistant Dean for Graduate Student Professional Development.

consider important questions such as: how will this new program affect job placement for undergraduates who are in related majors? Will the program be large enough to attract employers for recruitment events?²⁴ Addressing these questions early, during the proposal process for a new master's program, would prevent issues later on.

Over time, the focus and demographics of master's programs will sometimes change, and as a result, the potential employment outcomes for its students may also change. For this reason, it would also be important to have programs maintain an ongoing connection with Career Services or to have an aspect of each program's periodic reviews (after it has been established) look at how its career placement goals are being addressed by Career Services.

²⁴ According to Executive Director Bill Wright-Swadel, Career Services needs a cohort of students looking for the same kind of jobs to bring prospective employers to Duke. Therefore if departments want to bring employers to Duke, they need to provide a cohort of students to make it worthwhile for employers to come for recruitment.

7. Library Services

Library staff noted that master's students have served as excellent research and library assistants, and that they have been active in the digital humanities, and in generating ideas for seminars. Master's students have made important contributions to digital scholarship as Bass Connections fellows and in the Ph.D. Humanities lab. Because they do not have stipends, master's students are more eager than Ph.D. students to work as library assistants.

The library resources required to accommodate the needs of masters students have not kept up with student growth. Increasing numbers of master's students have put pressure on some library resources, such as

- Data and Visualization Services,
- Library space, which serves as work space for many masters students on campus,
- film and video collections budget,
- formatting non-thesis master's projects so that they are in the appropriate format to be stored on DukeSpace, and
- book retrieval for graduate students where beginning last summer, Lilly Library and Perkins Library began to retrieve requested books for graduate students and there has been nearly a 15 percent increase in the amount of items requested and delivered.

8. Counseling & Psychological Services (CAPS)

CAPS does not currently gather identifying information about its student clients in fine enough detail to distinguish master's students from Ph.D. students. Therefore they cannot accurately assess the effect on their services of an increase in the Master's student population. An interview with Dr. Jeff Kulley, associate director for clinical services at CAPS, suggested that the increase in master's students has had a substantive effect, and that there are a number of important issues that, in his view, arise specifically for master's students. Dr. Kulley's expert opinions point to areas that CAPS could begin tracking so that more complete statistical data could be used to investigate the specific effects of a larger Master's student population on CAPS.

Statistical Analysis

CAPS tracked the number of patients who used their services during each academic year from 2005 to 2013; they differentiated graduate/professional student clients (combined doctoral & master's) from undergraduate student clients and also noted how many patients in each of the two subgroups were international. From these data, the following trends can be identified:

- CAPS saw a consistent growth in the number of student clients, both undergraduate and graduate/professional. Though the numbers within each subgroup tend to fluctuate from year to year, and sometimes significantly, the number of graduate/professional student clients has steadily grown by an average of 5 percent per year, and the number of undergraduate student patients has steadily grown by an average of 4 percent per year.
- The proportion of international student clients has grown consistent with the total increase in international graduate students. On average, the number of international student patients grew by 27 percent per year between 2006 and 2013. In 2006, 5 percent of the students who visited CAPS were international students. By 2013, 13 percent of the students who used CAPs were international students.

The statistical data that CAPS gathered between 2005 and 2013 does not include some important information. For example, within the graduate/professional student subset, it does not differentiate between doctoral students and master's students. There is also a lack of data to differentiate between students who receive funding and those who do not..

Dr. Jeff Kulley's Observations

In an interview for this report, Dr. Kulley shared a number of observations and impressions about master's students and international students who use CAPS. Many of these observations address issues that are not captured by the statistical data.

According to Dr. Kulley, the most common sources of stress tend to differ among undergraduates, master's students, and doctoral students.²⁵ The following issues tend to occur more commonly among master's students than the other student groups:

- Financial pressures: Many master's students go into monetary debt to fund their education; this also causes them to worry about the financial burden they are putting on their families. All Ph.D. students, on the other hand, receive funding.
- Master's programs attract students who are in transition: They may be preparing for further education, trying to catch up after less rigorous undergraduate training, or trying to improve their job prospects in a difficult marketplace.

As noted earlier in the report, 12 to 13 percent of the students who used CAPS in 2013-2014 were international students. Dr. Kulley's impression is that these students tend to struggle more commonly with:

- Housing – it may be more difficult for international students to find housing from abroad and/or to find housing in a place off-campus where they feel safe
- Advisor relationships – the advisor has influence over the student's immigration status.

CAPS Staffing Needs

CAPS has not increased staff resources on pace with increased demand from both undergraduate and graduate student populations for CAPS services. Given the proportionally-larger increase in international student patients, CAPS may benefit from hiring multilingual staff members. For example, there is currently only one CAPS psychologist who speaks Mandarin.

²⁵ According to a report on 2009-2013 exit survey data prepared by the Office of Institutional Research, compared with Ph.D. students, master's students were more likely to perceive program structure or requirements, competition among peers, course scheduling, cost of housing, insufficient financial support, and physical and/or mental health issues as obstacles to academic progress. In comparison to master's students in Social and Natural Sciences, master's students in humanities were in general more likely to indicate course scheduling and insufficient institutional financial support as obstacles to academic progress. Office of the Provost, Budgets, Planning, and Institutional Research, "2009-2013 GPS Exit Survey: MA/MS and Ph.D. Students' Perceptions of Their Educational Experiences." April 2014, pp. 6-7.

9. DukeReach

According to its Website, DukeReach provides comprehensive outreach services to identify and support students in managing all aspects of their wellbeing. We provide case management services including coordination, advocacy, referrals, and follow-up services for students who are experiencing significant difficulties related to mental health, physical health, and/or psycho-social adjustment.

Given this mission, DukeReach sometimes sees students who are then referred to CAPS for counseling services, and when needed it continues to manage their cases following the referral. Not every DukeReach case results in a referral to CAPS, nor do all of them require follow-up Case Management services.

Assistant Dean of Students Christine Pesetski has been with the DukeReach office since her position was created in July, 2013. She provided summary data about Care Reports for Graduate and Professional Students that her office handled from July 2013 to September 2014. Her reporting was split into two cycles: July 1, 2013-February 6, 2014 and February 6, 2014-September 30, 2014.

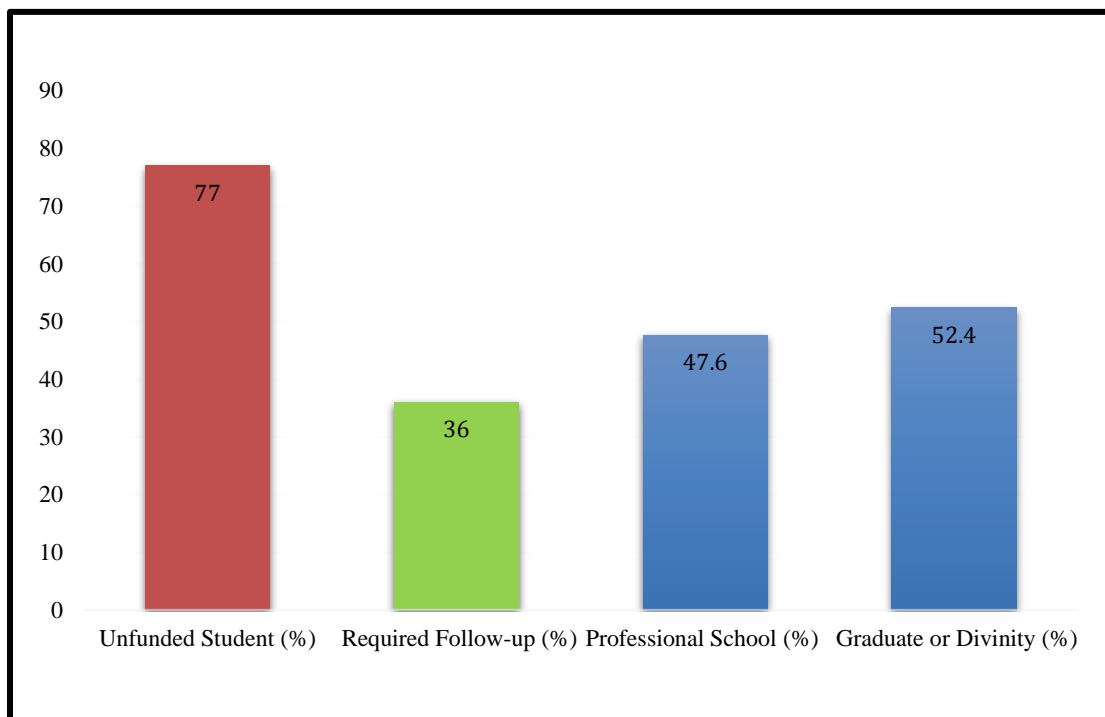
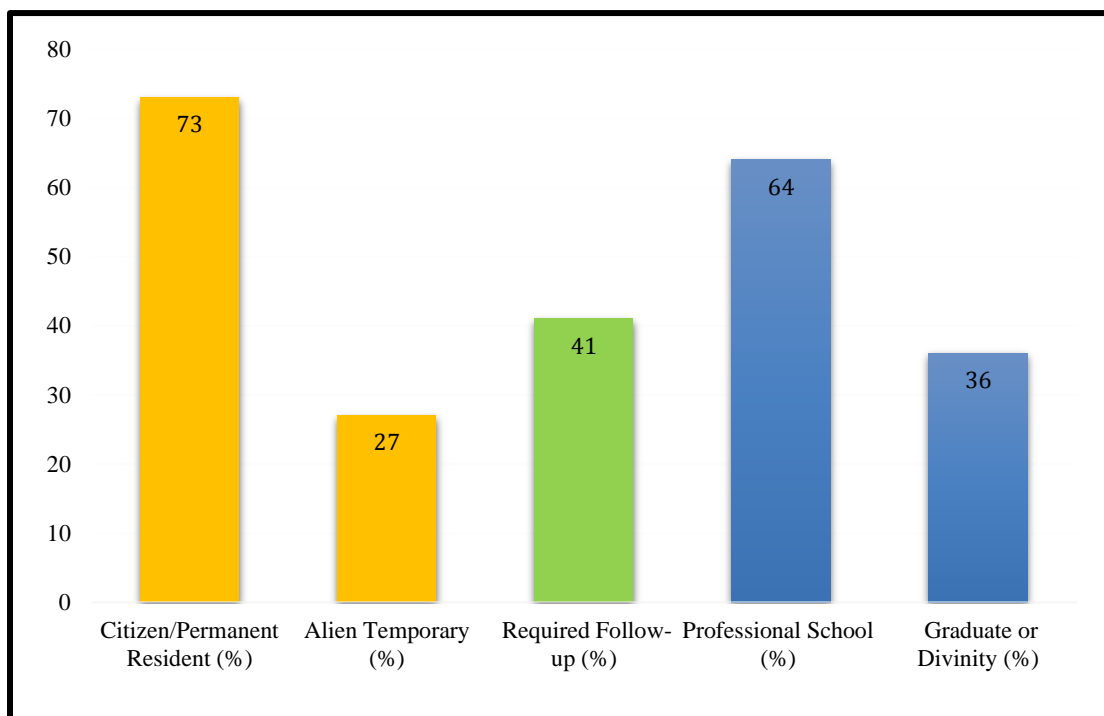


Figure 13: DukeReach Care Reports Statistics for Graduate & Professional Students, July 2, 2013 – February 6, 2014.

- Between July 2, 2013 and February 6, 2014, DukeReach prepared care reports for 61 distinct graduate or professional students. Of those students, 72 percent were unfunded, and the majority of the reports addressed “Mental Health” concerns. Thirty-six percent of the submitted care reports resulted in follow-up case management services for the students. Thirty-six percent of the submitted care reports were for students in either the Graduate or Divinity School, and the remaining 64 percent for students in the various professional schools (Fuqua, Law, Medical, Nursing, Pratt [master’s], and Sanford).



*Figure 14: DukeReach Care Reports Statistics for Graduate & Professional Students
February 6, 2014 – September 30, 2014.*

- Between February 6, 2014 and September 30, 2014, DukeReach prepared care reports for 75 distinct graduate or professional students. Of those students, 73 percent were citizens or had Alien Permanent status, and 27 percent had Alien Temporary status. Forty-one percent of the submitted care reports resulted in follow-up case management services for the students. Thirty-six percent of the submitted care reports were for students in either TGS or Divinity School, and the remaining 64 percent for students in the various

professional schools (Fuqua, Law, Medical, Master's, Nursing, Pratt [master's], and Sanford). Fifty-two percent of the submitted care reports were for students in either TGS or Divinity School, and the remaining 48 percent were for students in the various professional schools (Fuqua, Law, Medical, Nursing, Pratt [master's], and Sanford).

Ms. Pesetski reported on several observations that she has made during her time with DukeReach:

- The need for case management for graduate and professional students has been growing.
 - The reports support this observation: In the first reporting cycle, 36 percent of the care reports resulted in case management services; in the second reporting cycle, 41 percent of the care reports resulted in case management service.
- One of the key sources of stress for graduate students is finances. Ms. Pesetski suggested that the university needs to look at the issue of debt and job placement for master's students, many of whom pay full tuition.
 - In the first reporting cycle, 72 percent of care reports were for unfunded graduate and professional students. The second reporting cycle did not distinguish between funded and unfunded students.

The data from the second reporting cycle suggests another potential observation: the percentage (27 percent) of care reports submitted for students with Alien Temporary status was consistent with the percentage of international students in the graduate population. The first reporting cycle did not distinguish between students with Citizen or Alien Permanent status and students with Alien Temporary status.

The data that DukeReach has gathered and reported points to some suggestive trends and could provide useful information for tracking the effect of master's programs on student support services: It also has some limitations and could be improved, in order to maximize its usefulness:

- Future reporting should continue to distinguish between funded and unfunded students, in order to confirm Ms. Pesetski's important observation about the potential stress that finances place on Graduate and Professional students.
- Future reporting should continue to distinguish between students with Alien Temporary status and Citizen or Alien Permanent status, in order to determine whether DukeReach consistently works with a significant number of international students.

- Current reports divide students by school (Divinity vs. TGS vs. Fuqua, etc.). While this allows for estimates about the number of master's vs. doctoral students requiring Care Reports, it would be more accurate to more consciously distinguish between master's and doctoral students, as some schools include both. As of yet, the reports from Duke Reach are inconclusive and imprecise about the number of master's vs. doctoral students who receive Care Reports:
 - In the first reporting cycle, the majority of Care Reports were filed for students in the schools more like to grant only a master's (64 percent from the Professional Schools), and only 36 percent of the Care Reports were filed for students in the Divinity or TGS.
 - In the second reporting cycle, the majority of Care Reports were filed for students in the schools more like to grant a doctorate (52.4 percent from the Divinity and TGS), and only 47.6 percent of the Care Reports were filed for students in the Professional Schools.

10. Housing, Transportation, and Campus Safety

Master's students must usually find housing off campus, as undergraduate students inhabit most of the available on-campus housing.²⁶ Currently there are no plans to build housing structures on campus for graduate students.²⁷

There are three interrelated concerns about graduate student housing:

- Finding safe and affordable housing off campus
- Getting safely and efficiently to and from off-campus housing²⁸
- Off-campus safety in general

Finding Safe and Affordable Housing

Because graduate students must seek housing off-campus, it is crucial that they be able to find safe and affordable off-campus housing. Concern about this issue prompted the Graduate and Professional Student Council (GPSC) to issue a housing resolution on the topic in 2013. Housing, Dining and Residence Life (HDRL) responded to this concern by making a staff change and updating its off-campus housing website.

²⁶ As of June 2014, there were 50 beds available to graduate students on Swift Avenue on Central Campus. Priority for housing assignment is awarded to students who arrive from abroad on student visa status and it is their first time attending school outside of their home country. First-time international students applying for the full academic year (August 18, 2014 through May 11, 2015) are given priority in assignment to on-campus housing. All students applying for less than the full academic year are assigned on a space available basis after all full academic year students have been accommodated. International students do not receive priority when applying for less than the full academic year. Assignments are made in the order of receipt of completed applications (M.J. Williams, Duke Housing, Dining, and Residence Life, July 2014 email).

²⁷ For example, the apartments at American Tobacco range in price from \$1300 to \$2600/month, depending on unit size and building, according to a Friday June 13, 2014 Email from Courtney Duffy Coyle, Blackwell Street Management Company LLC, American Tobacco Historic District.

²⁸ According to the 2012 Anderson Strickler survey, the three most popular zip codes listed by survey respondents were all in Durham in the area surrounding campus; 27705, 27707, and 27701. The top-noted apartment complexes occupied by student respondents included the Forest Apartments, University Apartments, West Village, Addington Farms, Colonial Village at Deerfield, Trinity Commons, University Commons, Parc at University Tower, Station Nine, Lofts at Lakeview, and Pinnacle Ridge.

The average asking rent in Durham has been on the rise. According to a Housing and Urban Development Study, the average asking rent in the Raleigh-Durham Housing Market Area was \$874 per month in 2013, up 2.6 percent from the average asking rent of a year earlier.

In 2013, “alarmed by the struggle of graduate and professional students to find safe and affordable housing near Duke’s campus,” GPSC issued a Housing Resolution urging the Duke University administration to reinstate a program coordinator position to manage Duke Community Housing.²⁹

HDRL responded by re-designating a staff specialist (non-exempt) position as a program coordinator (exempt) position. The position is titled housing assignments coordinator, and a portion of this individual’s position is dedicated to off-campus housing, specifically:

- Assisting liaison responsibilities for off-campus housing website
- Providing resources to students, landlords and vendor-related to the off campus market
- Work with students to explore housing options and provide resources regarding leases, landlords, and off-campus living³⁰

HDRL also responded to the request for improved access to information by redesigning its off-campus housing website. The redesigned website went live in the fall semester and includes apartment listings, general information about moving and living off-campus, resources about getting around off-campus, and crime statistics and neighborhood reports.

Transportation

The ability to access Duke’s campus via public transportation is vital for the master’s student community for several reasons:

- As noted above, nearly all master’s students must seek housing off-campus.
- Though 89 percent of graduate student respondents to a 2012 survey report having a car or other vehicle, parking on Duke’s campus is limited – and will continue to be limited for the foreseeable future.

²⁹ 2013 Memo from the GPSC Community Housing Subcommittee concerning the hire of a Duke HDRL Community Housing Program Coordinator.

³⁰ Email from MJ Williams, December 2, 2014.

- International students, who are a growing portion of the master's student population, may not have a car or driver's license.

The Duke Parking and Transportation Office is working to ensure that public transportation to and from Duke's campus is available to students living in off-campus housing. As of June 2014, Duke Parking and Transportation was anticipating increased ridership on Duke Transit routes near several new developments in the Ninth/Main Street areas and planned to monitor route ridership as these new apartment complexes begin taking in tenants. The office plans to work with local agency partners and developers to creatively solve transportation needs related to the master's population as they arise.³¹ Parking and Transportation is also trying to anticipate what the many new apartment complexes in Durham will do to ridership, and it may ask the owners of apartment complexes if they are willing to subsidize transit.

Public transportation is and will continue to be an important issue, particularly as there is a lack of convenient parking for graduate students, especially Arts & Sciences and Divinity School students who must park on East Campus or at Smith Warehouse and take Duke Transit to West Campus. The amount of available parking will only decrease in the immediate future, when the 751 lot, which served Fuqua students, closed at the end of the fall 2014 semester to make way for the construction of a 2000-space parking garage. Until this new garage is completed, available parking on Duke's campus will be further limited.

Even if the amount of available parking were to increase in the future, public transportation would still be essential for international students, many of whom may not have a car or driver's license. As the international student population continues to grow in Duke's master's programs, they must be able to get to and from campus from off-campus housing, most likely via public transportation.

Safety

For master's students, the issue of safety must be divided into off-campus and on-campus experiences. The issue of finding safe housing off-campus is addressed above. From 2004 – 2014, women were more likely to report feeling insecure when walking alone at night on and off campus than men, according to a Graduate and Professional Student Survey conducted by the Duke Office for Institutional Research. Similarly, international students tended to indicate feeling less secure than US students when walking alone off-campus. In response to concerns about finding safe off-campus housing, HDRL incorporated neighborhood reports and crime statistics into the information compiled on their redesigned off-campus housing website. Ensuring that there is adequate public transportation to and from campus could further improve

³¹ Email from Alison Carpenter, July 7, 2014.

student safety off-campus, as it would decrease the need for students to walk long distances in areas where they might not feel safe.

As master's students generally do not live on campus and are primarily there for class and research, Duke Police believe they can handle the anticipated increase in the master's student population over the next 3-5 years.³² However, several incidents of students being robbed on campus prompted GOSC to send out a safety survey to graduate and professional students at the end of summer 2013.³³ In the narrative comments, students called for increased and more consistent security staffing around campus, as well as better lighting and security in parking lots. Many suggested that a stronger, more visible police presence would help allay their fears. Many students voiced concern about walking to their cars or trying to get home after dark. They expressed a need for more consistent busing and van services, as well as available parking that is proximally located to the buildings that graduate students leave at night. Concerns about feeling safe while walking to one's car at night were consistent among students in the Law School, Nursing, Sanford School, Fuqua, Medicine, and Pratt.

³² July 2014 meeting with Duke Chief of Police John Dailey.

³³ July 2014 email from Shannon O'Connor.

11. Views of schools on resource implications of increased master's enrollments

The rapid and large increase in master's student enrollments has brought increased administrative loads for the schools that administer their degree programs, as well as the departments and programs sponsoring the degree.

The Graduate School has the largest number of master's degree programs, with 22 currently active (<http://gradschool.duke.edu/academics/programs-degrees>). These include 21 research-oriented master's and one professional-oriented master's degree (MA in Teaching). Four of these master's degrees are located in Pratt, two are in signature institutes, three are directly in the Graduate School, and the rest are in Arts and Sciences. Nine new master's degree programs have been added in the last five years, and the enrollments of many existing programs have increased.

Some administrative stresses relate to the increased number of master's students generally. Because the Graduate School does not fund master's students, assisting them with finding financial aid and helping them keep on track with paying their bursar's bills occupies more staff time than similar work for PhD students. The greatly increased enrollments of master's students and the structural nature of research master's program course requirements have also strained the Academic Affairs unit, in that no additional resources have been provided to deal with the increased pressures of many more thesis administrative reviews, complicated degree audits for graduation, and so forth. The increased numbers of master's students has been correlated to increased incidents of cases where student support has been required from Graduate Student Affairs. Such cases range from issues involving mental health, sexual assault, harassment, student conflicts, illness, criminal arrests (theft, drugs, assault), and death. These cases are very time consuming and some require a strict protocol to resolve (e.g., harassment, sexual assault, and mental health). Figure 15 shows that the number of nonacademic incident cases has increased over the past few years, with proportion involving master's students growing at a faster rate than those involving PhD students.

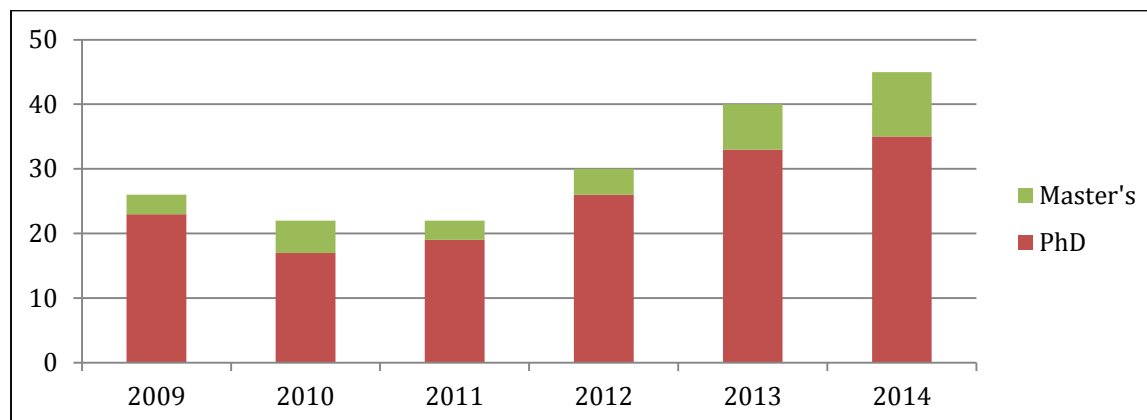


Figure 15. Nonacademic Incident Cases in The Graduate School, 2009-2014

Some increased strains seem to relate particularly to the greatly increased numbers of international masters students in Graduate School programs. For example, in 2012-2013, there were nearly 30 reported cases of academic misconduct by graduate students. All but a couple of these cases involved international master's students. Partially in reaction to this, starting in Fall 2013, the Graduate School has conducted a mandatory training program in Academic Integrity and Responsible Conduct of Research (a condensed version of the mandatory RCR training for PhD students). The English for International Students program and some of the individual master's programs also increased their discussion of western academic standards for originality in submitted work, and the coverage of what constitutes plagiarism. This increased discussion of the sanctity of academic integrity appears to have paid off: In the past two years, the reported cases of academic misconduct for research master's and PhD students have been about the same, a few of each.

An additional strain for The Graduate School related to master's programs has been the creation of two master's degree programs at Duke Kunshan University. With no additional resources, this has required the creation of an application process for admission at DKU, as well as the development of academic programming and administration for these DKU master's programs. Because the DKU master's programs currently lead to Duke degrees, the same oversight and processes that apply to Duke master's students in Durham also apply to those at DKU.

The leadership of all schools at Duke were given an opportunity to comment on the consequences of increased master's enrollments for their administrations. Generally, schools report that increased master's students have not increased workloads or stresses in ways that other increased populations would not do as well. The exception is that because in many programs the increase has involved a substantial rise in international students, administrative tasks related to international students have increased (e.g. tasks related to student visas).

The increased master's enrollments have had significant resource implications in three major areas among those schools with large master's enrollments. In terms of personnel, as master's numbers have increased, some schools have made proportionate increases in faculty and staff to keep teaching and administrative workloads roughly constant. The master's tuition revenues have been used to achieve these ends. In schools where the increased student numbers have been more modest, the existing faculty and staff have often taken on increased workloads to absorb these students, to the point where there is generally a sense that carrying capacity has been reached. A second major area where increased master's enrollments have had a significant resource consequence is in physical space and infrastructure. Some schools feel that their existing facilities are at their limits, and in some cases, a lack of additional space has caused master's programs to stop growing. Finally, increased master's students have led to increased needs for services. Within schools, tuition revenues have been used to expand services as needed, though this is often a point of strain as additional service resources often lag increased demand. More problematic has been the need for increased access to centralized university services and programs. These are often at capacity, and there appears to be little ability to absorb increased student numbers on a timely basis.

Some professional schools emphasize that while they have had modestly increased enrollments of master's students, they have dealt with the increased resource needs internally, with minimal effect on the broader university. They think that in fairness, the rapid increase in master's students across the university shouldn't get translated into additional expectations in allocated costs distributed across all the schools.

Despite the increased resource needs of growing master's student populations, the schools recognize several significant benefits to the increased numbers. This group often brings increased diversity to the overall population of the school. Additional courses and training events are often added, which can provide significant learning opportunities for students in other degree programs, as well as for the school's own master's students. The tuition from master's programs can be used not only to support the master's students themselves, but also to support other priorities of the school. Ultimately, as the diverse populations of master's students graduate, they increase the global awareness of Duke and its schools, and its network of alumni and supporters.

12. Conclusions and Unresolved Questions

The impetus for this report was a generalized concern about the growth in master's degree programs and student enrollment at Duke University. Part of the concern was the lack of information on what effect the approval of new master's degrees would have on the academic culture of Duke University in general, and graduate education in particular. Whenever a discussion of increases in the undergraduate population is entertained, there is an analysis of the effect of the increase on the undergraduate experience, faculty resources, and institutional services, and how the institution will absorb this increase. Any decision on whether or not to increase the undergraduate enrollment has been preceded by an analysis of these factors. Yet, this type of analysis was not done before the large increases in the master's student population occurred over the past ten years. As such, it was imperative that such analyses occur now, before this population continues to grow much further.

This document is to serve as a foundation for a sustained discussion of master's degrees and their role at Duke University. The results might raise additional questions that need further exploration, yet they serve as a beginning point for a broader discussion.

Conclusions

Overall, the general results of this study are as follows:

- Master's enrollment has increased by 51 percent since 2004, with a current enrollment of 3,750. This growth has added 1,200 master's students, approximately two-thirds from expansion of existing programs and a third from new programs started since 2004.
- A further 350 master's students on campus are anticipated in the next 3-5 years, including both Durham-based programs and DKU students temporarily in Durham as part of their programs.
- The master's population is increasingly international, from 17 percent in 2005 to 29 percent in 2015. Most of the international students are from India and China. International students face challenges that do not confront domestic students, and also require additional university resources.
- Master's programs are common at peer institutions, and Duke typically lags the median of peer institutions in terms of the number of programs and degrees awarded.
- Most peer institutions have seen little if any growth in the number of master's programs, nor do they anticipate many new master's programs proposals in the next few years. In

contrast, Duke has added several master's programs in recent years, with continued faculty interest in developing new master's programs. The reasons for the difference in master's growth at Duke relative to most of our peers remain unclear.

- Overall, there is a belief among faculty that there are more positive effects than negative effects of master's students on undergraduate and doctoral education and on the faculty.
- Within some schools and departments, there were groups that believe the negative effects outweigh the positive effects, or that there is strain regarding the number of master's students.
- The effect of master's student revenue on school or departmental hiring, research, and operations is not well understood.
- The infrastructure and support for master's students (including international master's students) needs to keep pace with the increasing master's enrollment. Key areas of concern are: Career Services; Library Services; International House; Counseling and Psychological Services (CAPS); Housing, Transportation, and Safety.

Results from this study, coupled with extensive discussion within the Master's Advisory Council, have led to the recommendations in the next section. Whereas the data, findings and reporting presented in this study have provided many answers about the status of master's programs and their growth at Duke, this work has not resolved some important questions.

Questions Generated During the Master's Programs Assessment

- Do master's students and doctoral students consume services differently?
- How do different schools/programs serve their master's students? Should there be any standardization of services, expectations, etc?
- What is the capacity of Duke to add more masters students? Is there a breaking point? What is the limiting factor?
- How does Duke centrally plan for additional masters students, and how does it allocate appropriate resources in accord with such growth?
- Do master's students categorically add to or detract from the Duke brand? Does it depend on the program, and does the answer correlate with whether a given program is a professional or a research master's degree?

- Is there a meaningful distinction between “professional” and research” master’s programs?
- Do master’s students feel like an integral part of Duke, or do they feel like “second class citizens”?
- How much financial aid is provided to master’s students? Is it enough?
- Has the addition of master’s students increased the number of faculty, PhD students, programs offered, etc.? Has it increased the availability of advanced courses open to undergraduates?
- What are the reasons for the steep increase in students from China?
- Is the international student composition too heavily skewed toward one or two specific nationalities?
- Communications and analysis of enrollment data from peer universities suggests the growth in the number of master’s programs at Duke is unusually high. Why?

13. Recommendations

1. The (new) Duke University strategic plan should include a discussion about the strategy for master's programs and a statement of philosophy on master's programs. For example: Does Duke seek to have many master's students (like Columbia) or few master's students (like Princeton)? How should Duke think about the set or portfolio of masters programs offered? Is the decision making process and oversight of masters programs and enrollments adequate? If not, how might it be revised?
2. Additional data are needed to better understand the differing needs of master's and PhD students as well as international and domestic students. These data would provide at least two types of information: better awareness of where, how and by whom physical and intellectual resources are consumed; and better understanding of the delivery and consumption of student-related services by masters programs across campus. We propose a combination of interviews, deeper surveys,³⁴ and focus groups – of students, program administrators, and resource providers. Particular areas of interest include, but are not limited to:
 - Housing, including International House
 - Library Services
 - English language support and instruction (including but not limited to the EIS program)
 - Parking and Transportation
 - CAPS
 - Career Services
 - Information Technology
3. We believe a better understanding of *how* services are *provided* to meet a particular need would provide valuable information about best practices within the University. Towards this goal, we recommend that specific data be collected and analyzed concerning how masters programs consume, provide for, and budget the student services examined as part of Recommendation 2. In some cases, University resources offer centralized support; in other cases (or in conjunction with University services), individual schools/programs provide internal support. It would be beneficial to document what mechanisms and institutions are already in place and to understand their financial implications, so that best

³⁴ The Office of Institutional Research (OIR) has offered to help produce an exit survey for all master's students with customizable options for school and discipline-specific questions. Such a survey would yield more precise information than current survey tools.

practices in terms of both quality and cost can be identified. To the extent possible, data should be gathered from peer schools as well.

4. We believe that Recommendations 2 and 3 point towards the establishment of systematic planning and reporting for student services on the part of existing and new masters programs. Assessments of this programmatic infrastructure and support should also be considered during program review.
5. Require the following evaluations as part of both (a) new master's proposals and (b) external reviews of existing masters programs:
 - A demonstration of the program's fit with the broader educational activities and mission of the sponsoring host program(s).
 - An assessment of the effects of the program on the broader university undergraduate and graduate populations.
 - A balanced discussion of the positive and negative effects of the program (including financial), as well as any key risk factors, including the strain placed on the particular school or department.
 - An analysis of synergies that may exist among graduate students and across the University. For example, are there ways that Ph.D. and master's students in the same school or department can be encouraged to collaborate in ways that reduce the potential for a cultural divide between populations? An example of such collaboration could be a grant fund for master's students to act as research assistants to dissertating Ph.D. students in the same department and field.
 - Clear articulation of the specific student learning outcomes for the program, and the means by which those outcomes are assessed and measured.
6. Develop rubrics for determining whether master's programs are successful and in keeping with the criteria of their approval, and a mechanism to suspend or discontinue programs that fail to meet quality standards.

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- Megan von Isenburg, Research and Education, Medical Center Library
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- Clay Adams, Associate Dean of Students
- Lola Yelverton, Director, Visa Services
- William Wright-Swadel, Director, Career Services
- Melissa Harden, Assistant Director, Strategies, Parking and Transportation

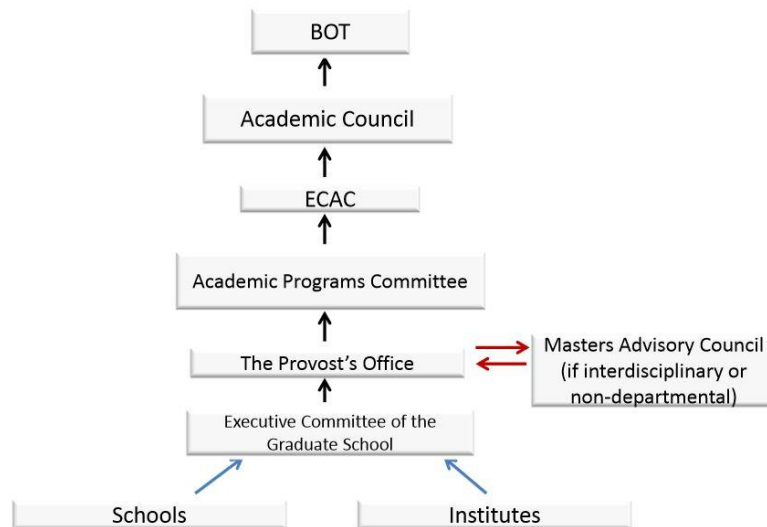
- Beth Campbell, Communications and Systems Manager, Parking and Transportation
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- John Dailey, Duke Chief of Police
- Shannon O'Connor, Young Trustee, M.D.-Ph.D. student, Biomedical Engineering

Appendix A: Approval Process for New Degree Programs

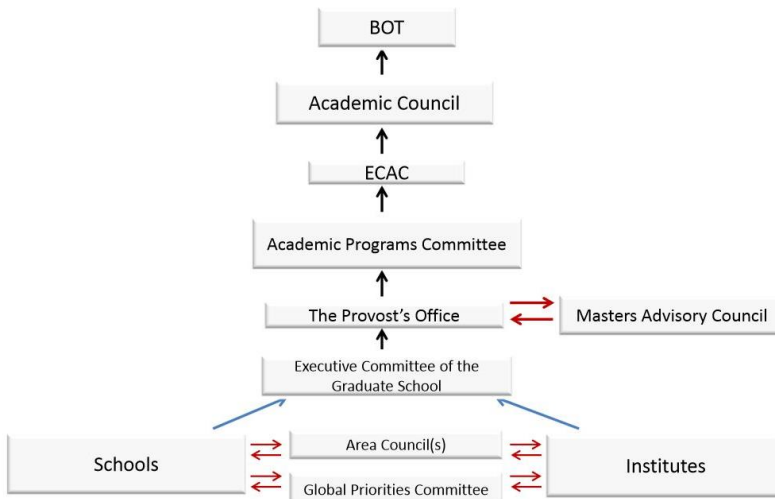
Black lines: approval process

Blue lines: program sources

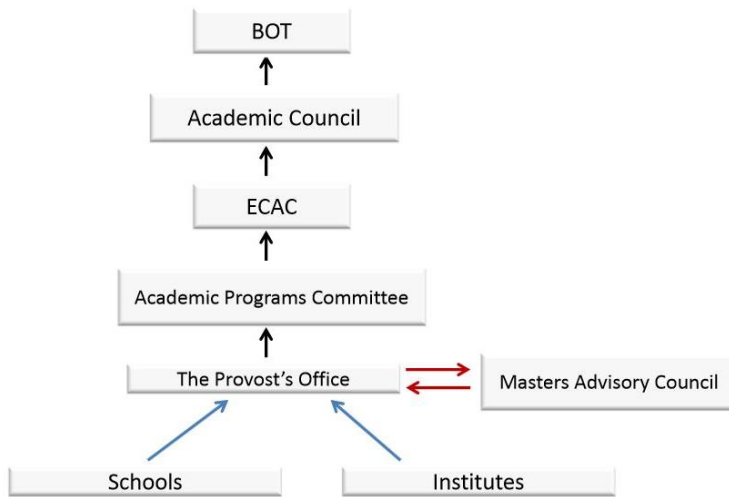
Red lines: advisory input



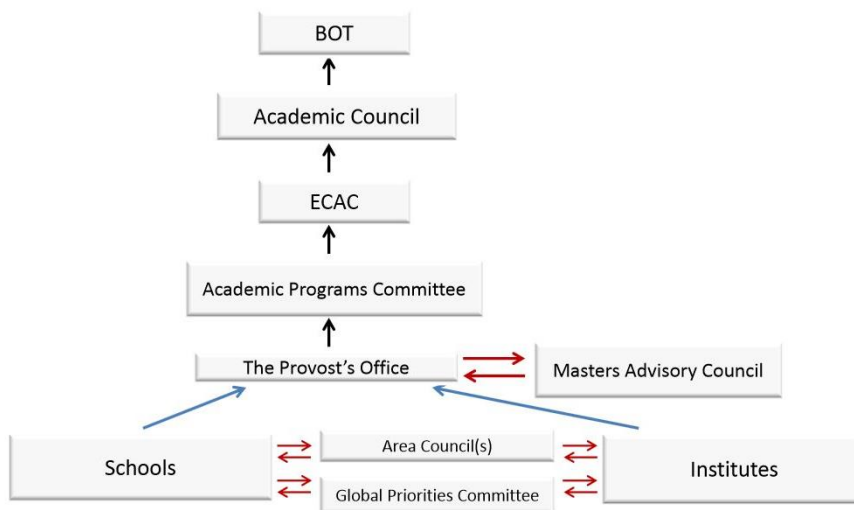
**For Graduate School
Degree Programs
without a Global
Component**



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