



International Graduate Applications and Enrollment

Fall 2022



Enyu Zhou & Alessandro Regio



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Key Takeaways

Since 2004, the Council of Graduate Schools' *International Graduate Admissions Survey* has offered an important first look at changes in the application and enrollment patterns of international graduate students pursuing graduate degrees at U.S. institutions. It is not surprising that U.S. and international interest in the survey data has increased in the wake of the COVID-19 pandemic. Disruptions in place-based study and global economic shifts have made it more important to closely follow current patterns. Both universities and policymakers stand to benefit from having the most complete and recent information available on international student enrollments in U.S. programs.

Despite challenges to student mobility in 2020, recent data from the Council of Graduate Schools indicate that international graduate applications and enrollment remained robust in the period 2021-2022. Additional key takeaways are summarized below and discussed in the following sections.

- **The first-time international graduate enrollment rebound continues.** U.S. graduate programs participating in the CGS International Graduate Admissions Survey received a total of 983,385 applications from prospective international students, extended 328,260 offers of admission to international graduate applicants, and enrolled 112,705 first-time international graduate students in the Fall of 2022.
- **The overall representation of sending countries is shifting.** U.S. universities have witnessed a surge in applications and enrollments from India and countries in Sub-Saharan Africa since Fall 2020. Meanwhile, graduate applications have decreased two years in a row from Chinese nationals.
- **Enrollments in master's programs continue to grow as a share of total international enrollments in U.S. graduate programs.** Shifts in country representation are related to this growth: according to CGS's survey population, more than 8 out of 10 (85%) Indian students studying in U.S. graduate programs are master's students.

While patterns in the data change from year to year, this year's report suggests that U.S. universities remain a destination of choice for international students from around the world. We encourage CGS member institutions to consider their own data in the context of the broader patterns above and consider additional insights provided in the pages of this report. We organize the data into seven "stories" that provide more detail and context for our high-level takeaways.

About the CGS International Graduate Admissions Survey

In 2004, the Council of Graduate Schools (CGS) launched an annual empirical examination of international graduate application, admission, and enrollment trends in response to member institutions' interest in changes in the enrollment of international students seeking master's and doctoral degrees from U.S. colleges and universities. The survey is designed to capture information about application counts and offers of admission, as well as first-time and total graduate enrollment of international students for each fall admission cycle.

For this survey, an international student is defined as a person who is not a citizen, national, or permanent resident of the United States and is in this country on a student visa, or on a temporary basis, and does not have the legal right to remain indefinitely. Undocumented students, individuals with deferred action status, and refugees are not included in this definition of international students.

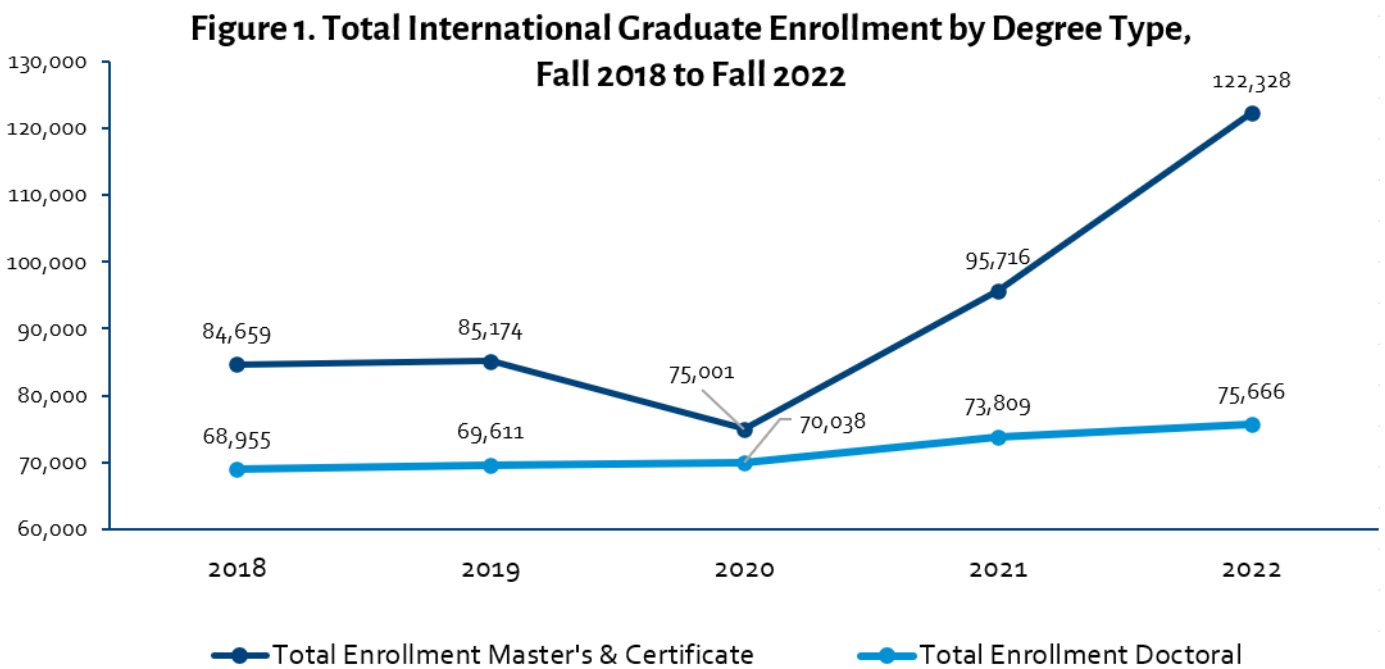
Between September and November 2022, the survey was sent to 759 U.S. colleges and universities, which were CGS members as of January 2022, as well as other institutions that were members of Conference of Southern Graduate Schools (CSGS), the Midwestern Association of Graduate Schools (MAGS), the Northeastern Association of Graduate Schools (NAGS), or the Western Association of Graduate Schools (WAGS). A total of 370 institutions, or 48.7%, responded to the survey.

Not all responding institutions provided valid data for all sections of the survey (i.e. final applications, offers of admission, first-time enrollment, and total enrollment). Where the institutions included in a given data set are different than the total, this is noted below the data.

Key Takeaways

Story #1: Total Master's and Doctoral Enrollments Rise

Master's and Certificate enrollments increased for the second year in a row since Fall 2020, rising from 95,716 in Fall 2021 to 122,328 in Fall 2022. Meanwhile, Doctoral enrollments rose from 73,809 students to 75,666 students in the same period. This increase in enrollment across both types of degrees is likely a combination of continued rebounding in a post-COVID education landscape as well as positive trends in international enrollments from key regions of growth around the world.



The number of institutions included in the analysis for master's and certificate applications was 182 and, for doctoral applications, 146. The number of institutions included in the analysis for master's first-time enrollment was 169 and, for doctoral first-time enrollment, was 124.

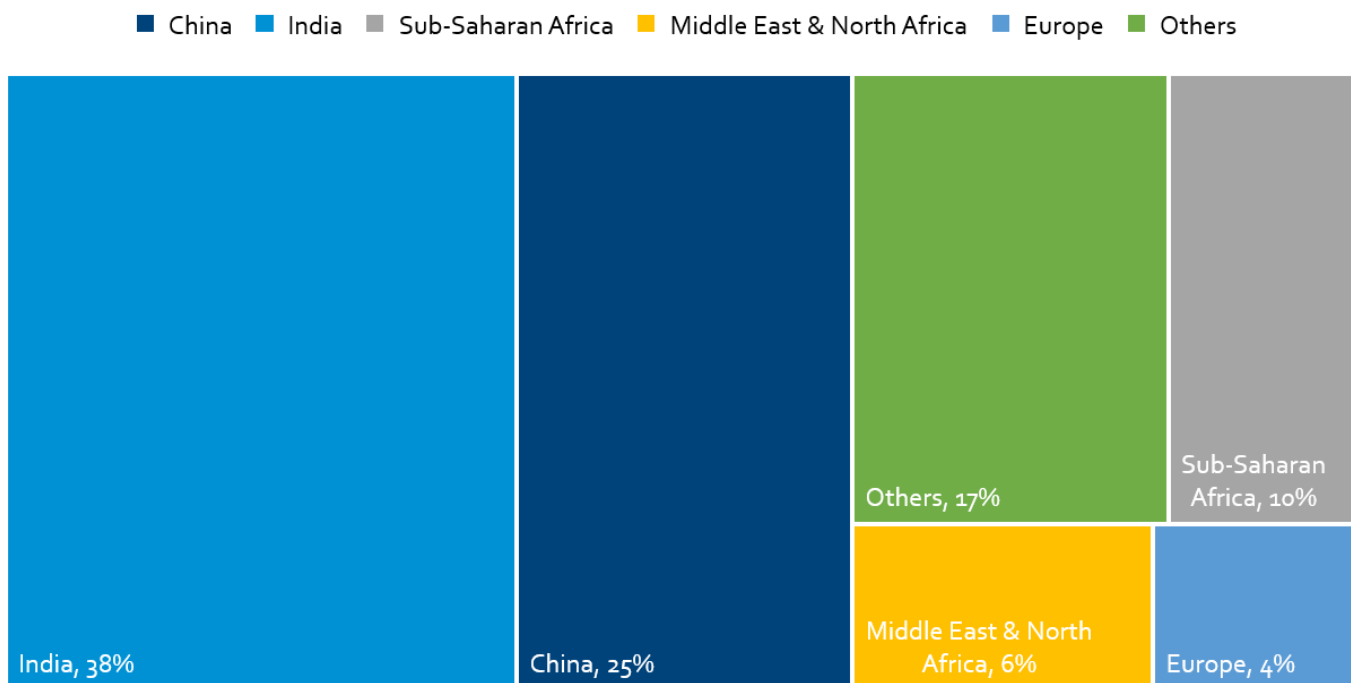
Story #2: International graduate applications increased for the fourth year in a row.

Between Fall 2021 and Fall 2022, the total number of international graduate applications received by U.S. degree-granting institutions participating in the *CGS International Graduate Admissions Survey* increased by 26%, as shown in Table A.1. This increase is significantly larger compared with previous admission cycles (12% for last year’s data) and represents the fourth year in which the number of applications has increased.

Figure 2 below shows that the bulk of international graduate student applications (38%) came from India and 25% were from China. Importantly, 10% of all applicants to CGS and affiliated institutions arrived from Sub-Saharan African countries. The fourth largest group, Middle Eastern and North African graduate students, generated 6% of international applications in Fall 2022.

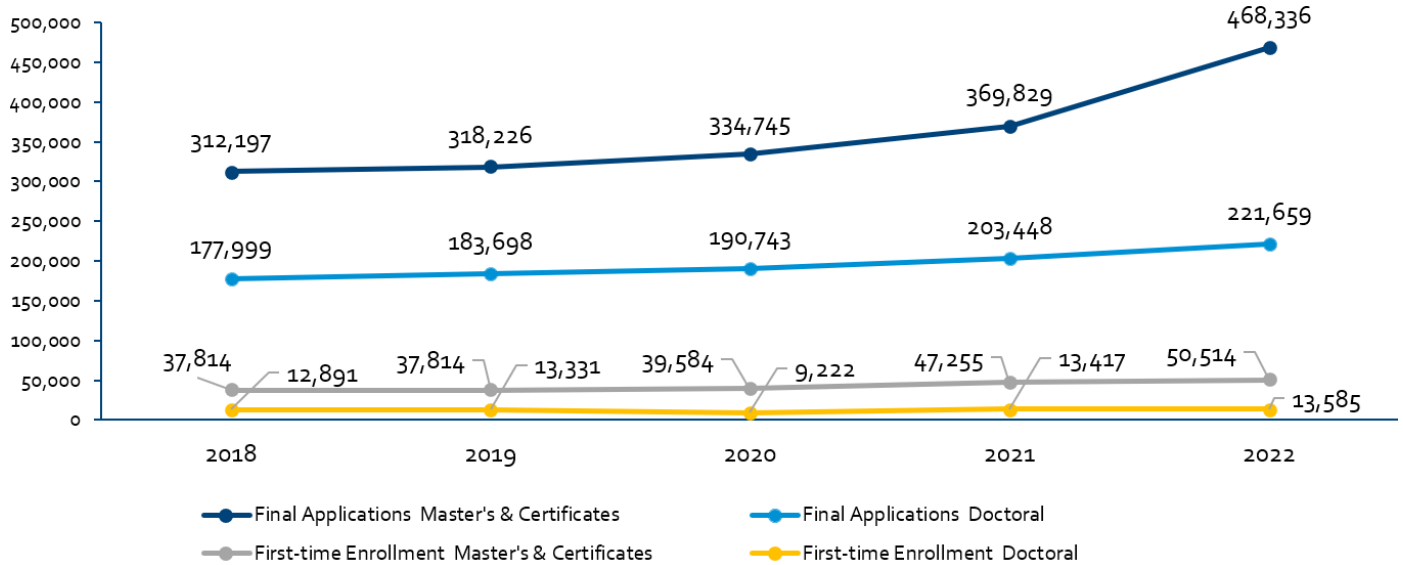
This increase in international graduate applications is driven by the significant increase from Indian nationals (58%), while graduate applications decreased two years in a row from Chinese nationals (-3%). The overall level of growth in applications is occurring regardless of degree objective. The number of applications for master’s and certificate programs for Fall 2022 exceeded that for Fall 2021, the prior record high, and doctoral applications have also increased, as shown in Figure 3. This is the second year in a row that the record high was broken.

Figure 2. International Graduate Applications by Selected Region/Country of Origin, Fall 2022 Admission Cycle



Key Takeaways

Figure 3. Total International Graduate Applications and First-Time Enrollment by Degree Type, 2018-2022



The number of institutions included in the analysis for master's and certificate applications was 182 and, for doctoral applications, 146. The number of institutions included in the analysis for master's first-time enrollment was 169 and, for doctoral first-time enrollment, was 124.

Story #3: The first-time international graduate enrollment rebound continues.

Between Fall 2021 and Fall 2022, the number of students enrolled for the first-time in U.S.-based graduate programs increased by 8%. This stands in contrast to the 92% increase in first-time international graduate enrollment between Fall 2020 and Fall 2021, a combination of new enrollees and individuals who had deferred admission during the height of the COVID-19 pandemic (see Table A.2). Although first-time enrollments did not increase across all countries, regions of origin, fields of study, or degree objectives as they did last year, there was still significant growth in countries and disciplines of note.

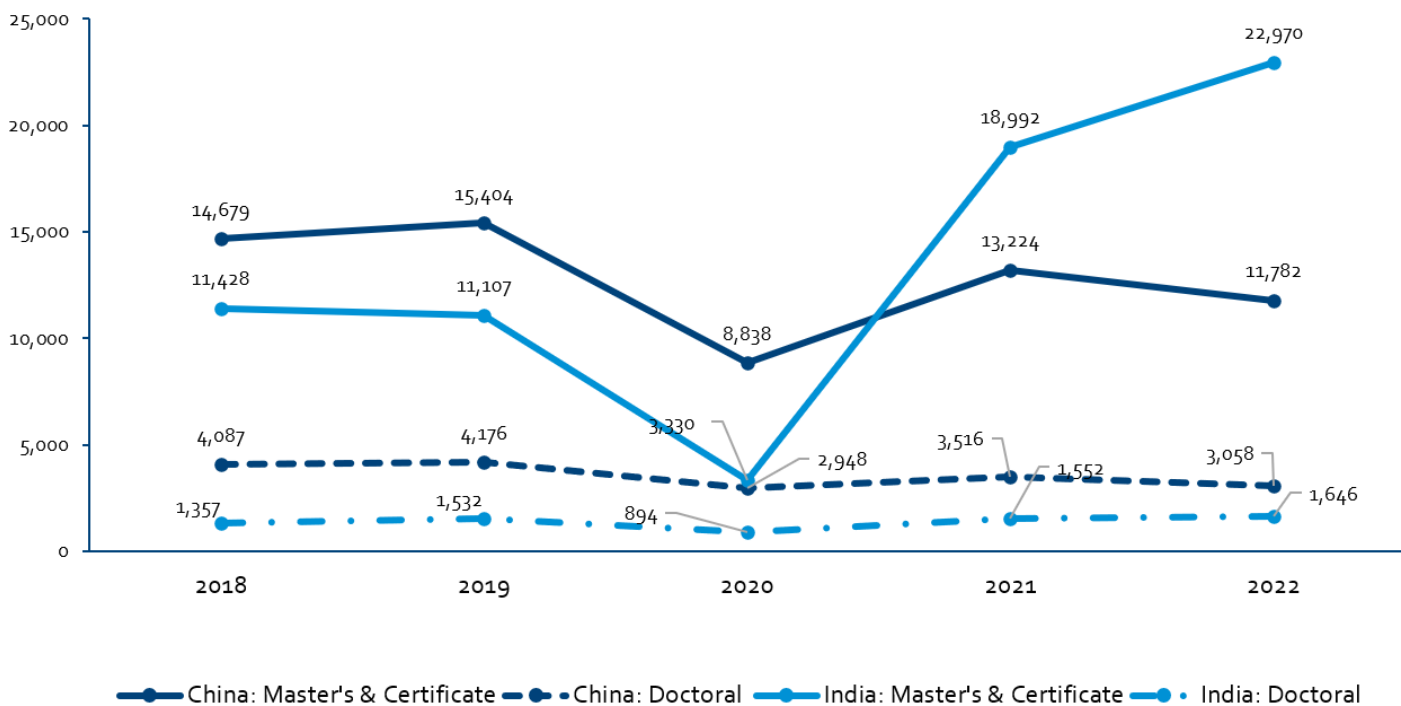
While India and Iran showed growth (22% and 33%, respectively), China and Saudi Arabia saw decreases (-11% and -40%, respectively). Overall, the increase in enrollment was driven largely by a significant increase in master's and certificate first-time enrollment and a very slight increase in doctoral first-time enrollment. After a significant decline during the pandemic, first-time international graduate enrollment in Fall 2022 is now higher than Fall 2018 levels.

By broad field of study, Other Fields, Public Administration and Service, and Arts and Humanities reported the largest one-year growth in first-time international graduate enrollment (35%, 14% and 12% respectively). Notably, Other Fields (which includes disciplines such as Architecture and Environmental Design, Communications and Journalism, and Homeland Security) increased by more than 1,600 first-time enrollees from last Fall. No field suffered a decrease larger than one percentage point in first-time international graduate enrollment over the last year, as shown in Table A.4.

Story #4: India continues to surge in applications and first-time enrollment.

China and India continue to send the largest numbers of international graduate students to the United States. In Fall 2022, India again sent more applications and saw more enrollments than China, as shown in Table A.1 and A.2. This outcome corresponds with the decrease in applications from Chinese nationals (-3%) between Fall 2021 and Fall 2022, and the increase (58%) applications from Indian nationals, as shown in Table A.1.

Figure 4. Graduate First-Time Enrollment from China and India by Degree Type, 2018-2022



The number of institutions included in the China data set: master's first-time enrollment (n=99) and doctoral first-time enrollment (n=87). The number of institutions included in the India data set: master's first-time enrollment (n=111) and doctoral first-time enrollment (n=85).

Key Takeaways

Similarly, first-time enrollment among Chinese nationals decreased by 11% between Fall 2021 and Fall 2022, while first-time enrollment of Indian nationals increased by 22%. This stands in contrast to the previous year, between Fall 2020 and Fall 2021, when first-time enrollment of Chinese nationals and Indian nationals increased by 35% and 430% respectively as shown in Table A.2.

Indian students continue to apply to master's and certificate programs more quickly than doctoral programs, a pattern that mirrors last year's data. India's two incredibly strong back-to-back years of enrollment reverse the largely negative growth between Fall 2016 and Fall 2019 and now exceed pre-COVID levels. China's numbers meanwhile seem to be continuing on a slightly downward trend, as highlighted by the fine blue trendlines in Figure 4. Increasing competition from Chinese institutions of higher learning and the growing geopolitical tension between China and the United States may be contributing to this trend.

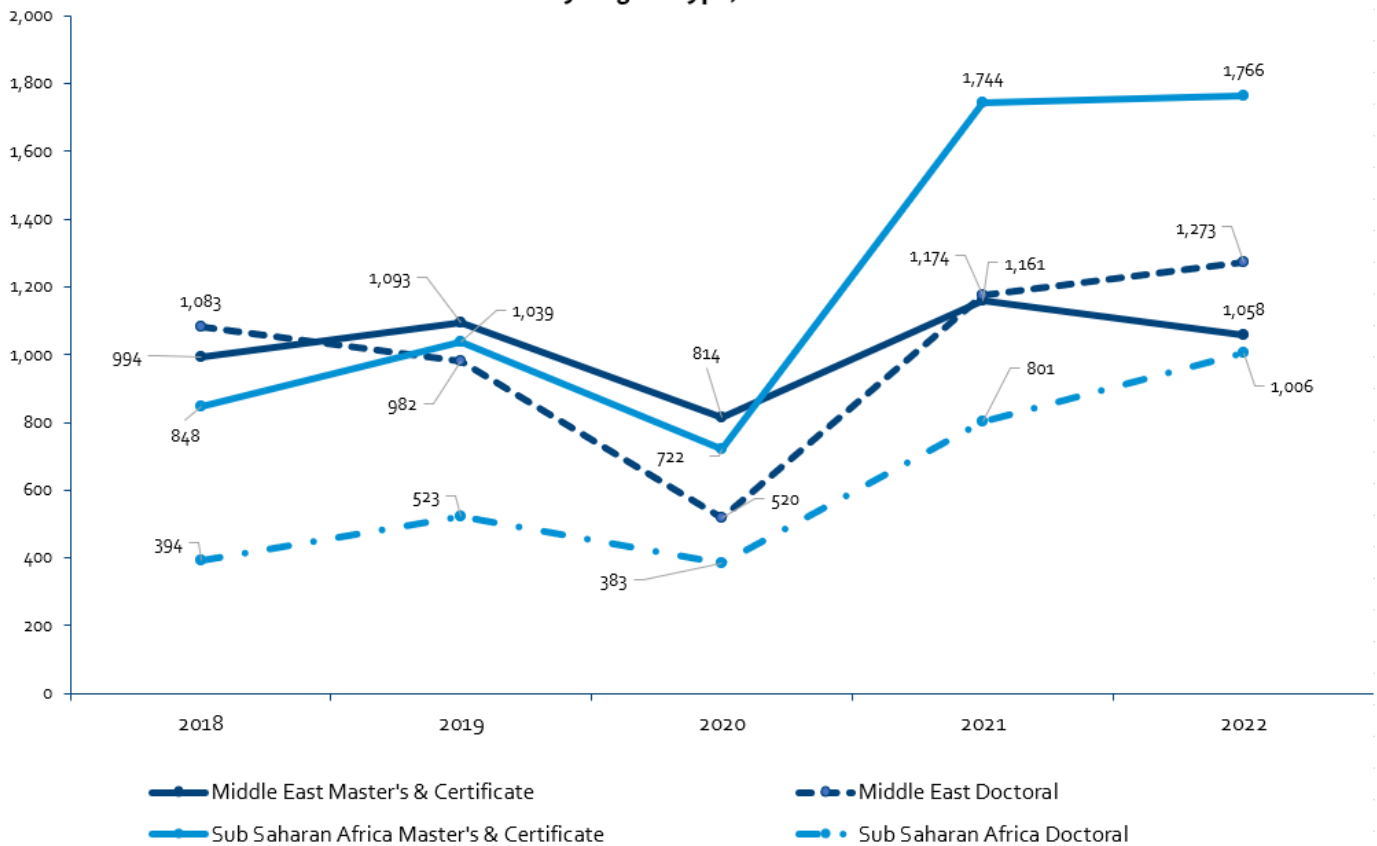


Image credit: creatoroflove

Story #5: Sub-Saharan Africa continues to see a growth in applications and first-time enrollment.

Between Fall 2021 and Fall 2022, applications increased by 83%, up from 64% in Fall 2021, as shown in Table A.1. First-time enrollments for the region also remained positive in Fall 2022, at 13%. Sub-Saharan Africa is the region with the largest percentage increase in first-time enrollments. This sustained growth, as shown in Figure 5, may correspond with the region’s continuous development efforts and economic growth, which would allow more financial support and international mobility.

Figure 5. Graduate First-Time Enrollment from Sub-Saharan Africa and Middle East and North Africa by Degree Type, Fall 2018 to Fall 2022



The number of institutions included in the Middle East data set are: master's first-time enrollment (n=89) and doctoral first-time enrollment (n=89). The number of institutions included in the Sub-Saharan Africa data set are: master's first-time enrollment (n=106) and doctoral first-time enrollment (n=74).

Story #6: A decrease in remote-only delivery mechanisms.

Institutional representatives were asked to provide information on the following course delivery modes:

- **In-person/Hybrid:** Report all enrolled international students who are taking only courses offered in-person or hybrid in Fall 2022.
- **Mix of remote and in-person/hybrid courses:** Report all enrolled international students who are taking both courses offered remotely and in-person/hybrid in Fall 2022.
- **Remote:** Report all enrolled international students who are taking only courses offered only remotely in Fall 2022.

We merged the first two categories into a hybrid/mixed course delivery measure. Next, we contrasted this measure with counts of graduate course enrollments that are only delivered in a remote format. As expected, coming out of the pandemic, our data show that international students are less likely to enroll in exclusively remote graduate courses. At the same time, international enrollments for hybrid/mixed delivery offerings rose from 2020 to 2022. Figure 6 shows that enrollments for master's and certificate programs that deliver hybrid/mixed courses increased from nearly 17,000 in Fall 2020 to more than 52,000 in Fall 2022. Figure 7 displays the rise in hybrid/mixed delivery doctoral course enrollments from nearly 7,000 in Fall 2020 to over 13,000 in Fall 2022.



Image retrieved from Getty Images Signature.

Figure 6. First-Time Enrollment Delivery Methods, Master's and Certificates, Fall 2020 to Fall 2022

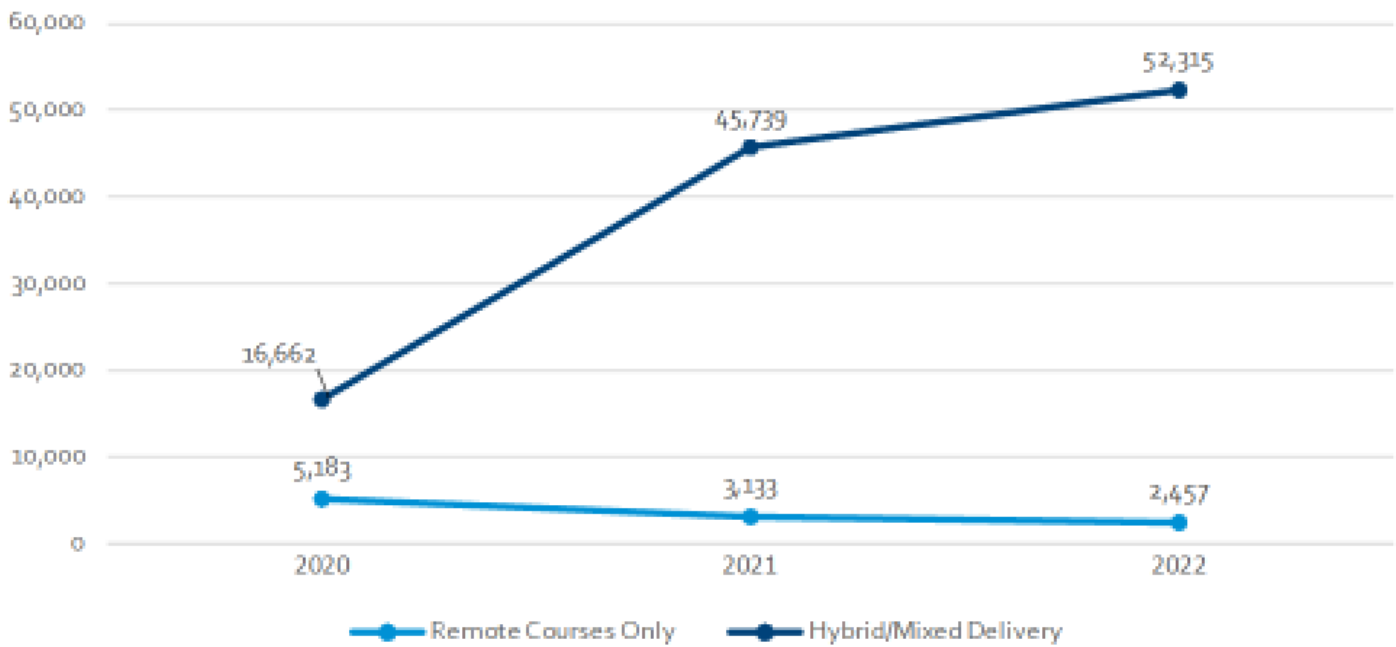
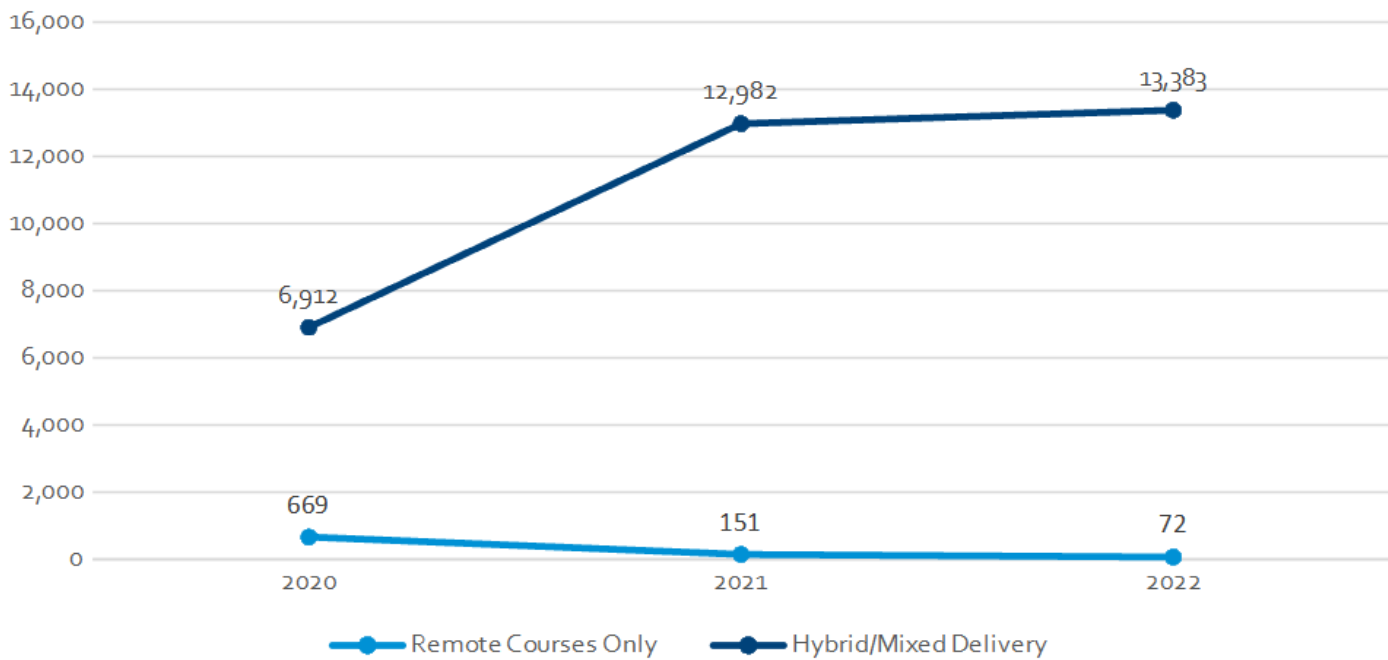


Figure 7. First-Time Enrollment Delivery Methods, Doctorates, Fall 2020 to Fall 2022

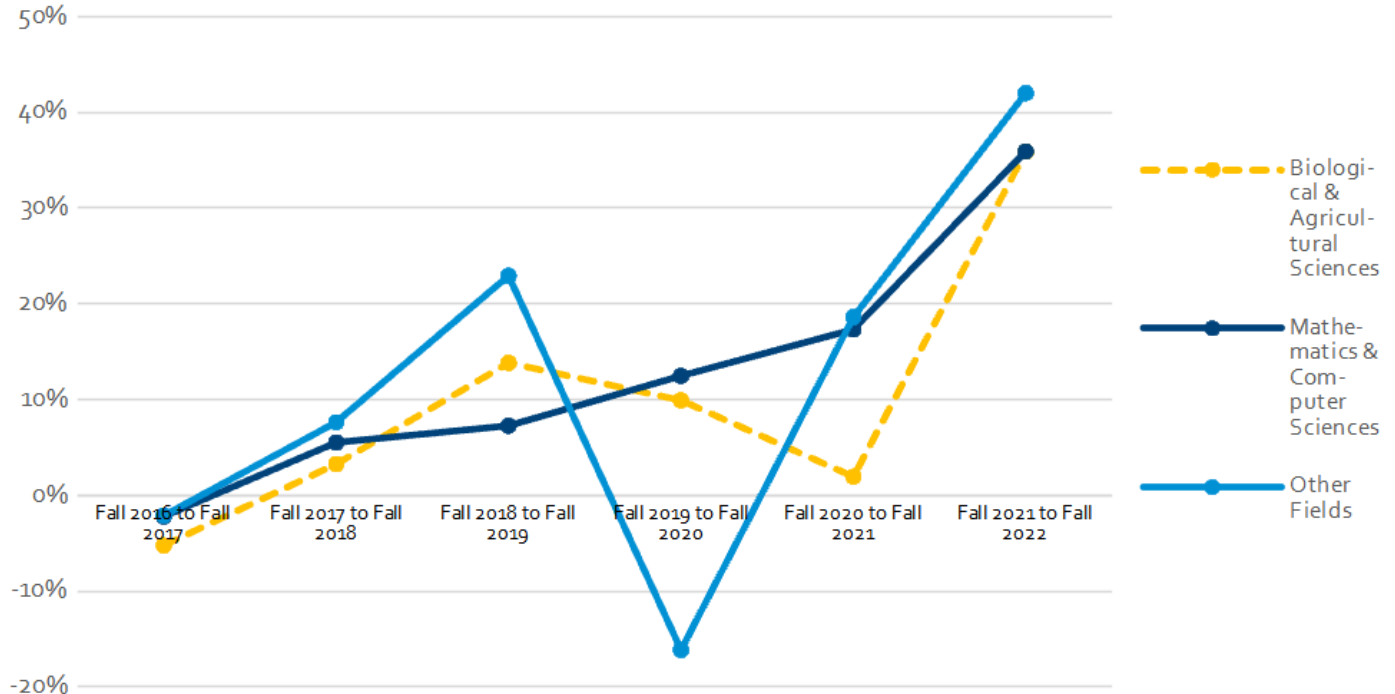


Key Takeaways

Story #7: A growth in interest in “Other Fields.”

Other Fields experienced both the greatest percentage of annual changes in applications and enrollments from Fall 2021 to Fall 2022, seeing a 42% increase for applications and a 35% increase for the enrollments (Table A.3) Other Fields include sub-fields such as Architecture and Environmental Design, Communications and Journalism, Family and Consumer Sciences, Library and Archival Studies, Religion and Theology, Homeland Security, and Military Technologies. While this survey does not measure changes in fields and disciplines, the increase in demand for degrees in smaller, less traditional and in some cases, professionally oriented fields is worth noting.

Figure 8. Annual Changes in Final International Graduate Applications by Select Field of Study, Fall 2016 to Fall 2022 Admission Cycles



Data Tables

As noted in the 2022 report, changes reported from Fall 2020 to Fall 2021 are likely influenced by the delayed matriculation of international students following the peak of the COVID-19 outbreak. In effect, 2021 saw the matriculation of students who had applied in 2021 as well as those who had applied in 2020 and deferred their study by one year.

Annual Changes between Fall 2016 and Fall 2022 Admission Cycles

Between the Fall 2021 and Fall 2022 admission cycles, total applications from prospective international graduate students at responding institutions increased by 26%. Applications from prospective graduate students in the Sub-Saharan Africa (83%), Middle East & North African regions (16%) increased substantially, while Europe instead reversed course and fell by -15%. Additionally, graduate applications from Indian students continued to increase to a large extent (58%). However, Chinese nationals declined in graduate application counts (-3%) between the Fall 2021 and Fall 2022 admission cycles. Graduate applications from prospective students in Japan and Taiwan declined (-26% and -3%, respectively) during the same period as shown in Table A.1.

Table A.1: Annual Changes in Final International Graduate Applications by Region/Country of Origin, Fall 2016 to Fall 2022

	Fall 2016- Fall 2017	Fall 2017- Fall 2018	Fall 2018- Fall 2019	Fall 2019- Fall 2020	Fall 2020- Fall 2021	Fall 2021- Fall 2022
Total	-3%	-4%	3%	3%	12%	26%
Asia	-5%	-3%	3%	5%	5%	28%
<i>China</i>	-1%	0%	3%	6%	-16%	-3%
<i>India</i>	-15%	-12%	0%	5%	36%	58%
<i>Japan</i>	-11%	-6%	13%	-1%	-4%	-26%
<i>South Korea</i>	-8%	0%	-6%	3%	3%	-5%
<i>Taiwan</i>	0%	0%	3%	11%	-2%	-3%
Europe	18%	-13%	0%	-12%	28%	-15%
Latin America & Caribbean	-4%	4%	-3%	-5%	23%	-2%
<i>Brazil</i>	9%	1%	-2%	-12%	20%	-1%
<i>Mexico</i>	-14%	-4%	4%	12%	25%	-12%
Middle East & North Africa	-17%	-14%	-1%	-3%	35%	16%
<i>Iran</i>	-18%	-27%	2%	8%	41%	50%
<i>Saudi Arabia</i>	-21%	-6%	-5%	-21%	25%	-27%
North America (Canada only)	-9%	0%	3%	2%	15%	-7%
Oceania	-7%	-3%	3%	14%	4%	-11%
Sub-Saharan Africa	12%	28%	11%	7%	64%	83%

Data Tables

Compared to Fall 2021, first-time international graduate enrollment in Fall 2022 increased by 8%. Patterns of first-time graduate enrollment across fields of study and countries/regions of origin generally mirror those of final application counts. After last year's substantial increase of 430%, due to pandemic-related deferments, first-time Indian graduate enrollment increased by 22%. This increase is notable compared to a pattern of decreases and plateauing in first-time graduate enrollment between Fall 2017 and Fall 2019 admission cycles.. There was a notable decrease in first-time graduate enrollment for Chinese nationals (-11%). The regions of Sub-Saharan Africa (13%) and Latin America & Caribbean (10%) saw continued growth in first-time graduate enrollments. Taiwan (-11%) reported a drop in first-time graduate enrollment. Another notable finding is that first-time graduate enrollment for students hailing from the Middle East & North Africa plateaued at a 2% increase, with Iranian first-time graduate enrollment increasing by 33% between Fall 2021 and Fall 2022 compared to the 158% of last year as shown in Tables A.2.

Table A.2: Annual Changes in First-time International Graduate Enrollment by Region/Country of Origin, Fall 2016 to Fall 2022

	Fall 2016- Fall 2017	Fall 2017- Fall 2018	Fall 2018- Fall 2019	Fall 2019- Fall 2020	Fall 2020- Fall 2021	Fall 2021- Fall 2022
Total	-1%	-1%	4%	-39%	92%	8%
Asia	-2%	0%	6%	-47%	115%	9%
<i>China</i>	5%	0%	3%	-37%	35%	-11%
<i>India</i>	-13%	-2%	1%	-66%	430%	22%
<i>Japan</i>	3%	-15%	8%	-20%	29%	1%
<i>South Korea</i>	-12%	-4%	1%	-11%	11%	-2%
<i>Taiwan</i>	10%	1%	5%	-35%	84%	-11%
Europe	1%	-3%	-3%	-26%	46%	-3%
Latin America & Caribbean	-10%	5%	0%	-20%	45%	10%
<i>Brazil</i>	18%	-3%	-7%	-33%	77%	-17%
<i>Mexico</i>	-10%	-1%	10%	-6%	41%	-9%
Middle East & North Africa	-5%	-12%	0%	-36%	63%	2%
<i>Iran</i>	-16%	-8%	-7%	-56%	158%	33%
<i>Saudi Arabia</i>	-2%	-21%	1%	-36%	62%	-40%
North America (Canada only)	-7%	6%	6%	-5%	17%	-6%
Oceania	-6%	-10%	7%	5%	15%	-9%
Sub-Saharan Africa	27%	5%	22%	-28%	103%	13%

Table A.3: Annual Changes in Final International Graduate Applications by Field of Study, Fall 2016 to Fall 2022 Admission Cycles

	Fall 2016- Fall 2017	Fall 2017- Fall 2018	Fall 2018- Fall 2019	Fall 2019- Fall 2020	Fall 2020- Fall 2021	Fall 2021- Fall 2022
Total	-3%	-4%	3%	3%	12%	26%
Arts and Humanities	-9%	1%	6%	-1%	-1%	25%
Biological and Agricultural Sciences	-5%	3%	14%	10%	2%	36%
Business	-3%	-8%	-3%	-1%	17%	26%
Education	-11%	4%	2%	-4%	25%	26%
Engineering	-10%	-16%	-2%	0%	4%	18%
Health Sciences	-11%	5%	7%	2%	22%	15%
Mathematics and Computer Sciences	-2%	6%	7%	12%	17%	36%
Physical and Earth Sciences	-6%	-9%	2%	17%	12%	20%
Public Administration and Services	-15%	-1%	1%	-12%	43%	23%
Social and Behavioral Sciences	-1%	3%	3%	6%	12%	7%
Other Fields	-2%	8%	23%	-16%	19%	42%

Driven by the increase in master's and certificate applications, Other Fields (42%), Business (26%), Education (26%), Public Administration and Services (23%), and Health Sciences (15%) all saw increases in the total number of applications by international students as shown in Table A.3. There was a marked increase in Biological and Agricultural Sciences (36%) most likely driven by subfields that deal with disease prevention and control. Mathematics and computer sciences (36%) also experienced a sizable increase from last year. Engineering (18%) and Social and Behavioral Fields (7%) experienced the smallest increases, though Engineering fared better than last year (4%).

Data Tables

In terms of first-time international graduate enrollment by field of study, the Other Fields category reported a positive increase of 35% compared to last year's 58% as shown in Table A.4. Although lower, it is the largest figure reported this year and is a sign of universities offering more non-traditional paths of study. Public Administration and Services rose by 14%, the second-highest increase this year, compared to 71% the year before. The biggest change belongs to Mathematics and Computer Science, whose annual change in first-time enrollment fell from 189% to 11% between this and the previous application cycle.

Table A.4: Annual Changes in First-time International Graduate Enrollment by Field of Study, Fall 2016 to Fall 2022 Admission Cycles

	Fall 2016- Fall 2017	Fall 2017- Fall 2018	Fall 2018- Fall 2019	Fall 2019- Fall 2020	Fall 2020- Fall 2021	Fall 2021- Fall 2022
Total	-1%	-1%	4%	-39%	92%	8%
Arts and Humanities	-12%	0%	0%	-32%	41%	12%
Biological and Agricultural Sciences	-1%	-2%	10%	-35%	80%	8%
Business	-11%	1%	-2%	-41%	58%	8%
Education	-16%	-4%	9%	-33%	38%	-1%
Engineering	-10%	-10%	1%	-52%	129%	2%
Health Sciences	3%	3%	8%	-38%	58%	-1%
Mathematics and Computer Sciences	2%	6%	11%	-53%	189%	11%
Physical and Earth Sciences	-1%	-13%	6%	-33%	81%	6%
Public Administration and Services	4%	-27%	8%	-51%	71%	14%
Social and Behavioral Sciences	0%	0%	11%	-28%	28%	1%
Other Fields	4%	6%	9%	-46%	58%	35%

Fall 2022 International Graduate Admissions Data by Region/Country of Origin

Prospective Chinese and Indian students accounted for 63% of the 983,385 international graduate applications received by institutions responding to the 2022 CGS International Graduate Admissions Survey, with graduate applications submitted by Indian nationals accounting for 38% of all international applications. Prospective Indian graduate students were the source of almost half of the total international master's and certificate applications (48%) during the Fall 2022 admission cycle, topping China (24%) for the second year in a row. Indian nationals increased their share of master's and certificate applications by eight percentage points compared to last year, while the share of Chinese nationals' master's and certificate applications declined by ten percentage points from the prior year as shown in Table B.1.

Table B.1 Final International Graduate Applications by Region/Country of Origin, Fall 2022 Admission Cycle

	% Shares by Region/ Country of Origin			% Shares by Degree Objective	
	Total	Master's and Certificate	Doctorates	Master's and Certificate	Doctorates
Total	983,385	687,936	295,449	70%	30%
Asia	77%	83%	61%	76%	24%
<i>China</i>	25%	24%	25%	69%	31%
<i>India</i>	38%	48%	14%	89%	11%
<i>Japan</i>	0%	0%	0%	41%	59%
<i>South Korea</i>	2%	1%	5%	31%	69%
<i>Taiwan</i>	2%	2%	2%	63%	37%
Europe	4%	2%	8%	37%	63%
Latin America & Caribbean	3%	2%	4%	50%	50%
<i>Brazil</i>	1%	0%	1%	36%	64%
<i>Mexico</i>	0%	0%	1%	47%	53%
Middle East & North Africa	6%	3%	12%	34%	66%
<i>Iran</i>	3%	1%	8%	24%	76%
<i>Saudi Arabia</i>	1%	1%	1%	55%	45%
North America (Canada only)	1%	1%	2%	49%	51%
Oceania	0%	0%	0%	45%	55%
Sub-Saharan Africa	10%	9%	12%	63%	37%

Data Tables

For those applicants whose degree levels were reported, overall, almost three-quarters (70%) submitted applications for master's and certificate programs, and 30% submitted applications for doctoral degree programs. Most graduate applications from Indian nationals (89%) continue to be for master's and certificate programs. In contrast, a large majority of applications from Iran (76%) and South Korea (69%) were for doctoral programs. Similarly, 66% of applications from the Middle East & North Africa were also for doctoral programs as shown in Table B.1.

More than eight in ten (85%) offers of admission made to prospective international graduate students during the Fall 2022 admission cycle were for master's and certificate programs. Compared to applications, proportionally more offers of admissions were made to master's and certificate programs than to doctoral programs, as shown in Table B.2.

Table B.2 Offers of Admission to International Graduate Applicants by Region/Country of Origin, Fall 2022 Admission Cycle

	% Shares by Region/ Country of Origin			% Shares by Degree Objective	
	Total	Master's and Certificate	Doctorates	Master's and Certificate	Doctorates
Total	328,260	279,827	48,433	85%	15%
Asia	80%	84%	60%	89%	11%
<i>China</i>	23%	23%	24%	85%	15%
<i>India</i>	41%	46%	12%	96%	4%
<i>Japan</i>	0%	0%	1%	78%	22%
<i>South Korea</i>	2%	1%	5%	54%	46%
<i>Taiwan</i>	2%	2%	2%	81%	19%
Europe	3%	2%	7%	65%	35%
Latin America & Caribbean	3%	2%	6%	69%	31%
<i>Brazil</i>	1%	0%	2%	57%	43%
<i>Mexico</i>	1%	0%	1%	69%	31%
Middle East & North Africa	4%	3%	15%	53%	47%
<i>Iran</i>	2%	1%	10%	43%	57%
<i>Saudi Arabia</i>	1%	1%	2%	65%	35%
North America (Canada only)	1%	1%	2%	75%	25%
Oceania	0%	0%	0%	71%	29%
Sub-Saharan Africa	8%	8%	9%	83%	17%

Of the reported first-time international graduate students enrolled in U.S. institutions in the Fall of 2022, approximately three quarters (78%) were from Asia, including Indian nationals (43%), Chinese nationals (22%), South Korean nationals (2%), and Taiwanese nationals (2%), and Japanese nationals (0.5%). The representation of Asian international students remains substantial in master's and certificate programs, accounting for 82% of all first-time international students, with China and India claiming 21% and 50% of the shares, respectively. China's share of first-time doctoral students (23%) is larger than that of India (13%), the Middle East & North Africa region (11%), Europe (9%) and Sub-Saharan Africa (9%).

In terms of degree objectives of international graduate students, first-time Indian graduate students were predominantly (94%) enrolled in master's and certificate programs. Like the international graduate applications data, three-quarters (74%) of first-time graduate enrollment of Iranian nationals were in doctoral programs. In contrast, 67% of first-time Saudi Arabian graduate students in Fall 2021 were enrolled in master's and certificate programs, as shown in Table B.3.

Table B.3 First-time International Graduate Enrollment by Region/Country of Origin, Fall 2022 Admission Cycle

	% Shares by Region/ Country of Origin			% Shares by Degree Objective	
	Total	Master's and Certificate	Doctorates	Master's and Certificate	Doctorates
Total	112,705	91,144	21,561	81%	19%
Asia	78%	82%	60%	86%	14%
<i>China</i>	22%	21%	23%	80%	20%
<i>India</i>	43%	50%	13%	94%	6%
<i>Japan</i>	0%	0%	1%	77%	23%
<i>South Korea</i>	2%	1%	5%	53%	47%
<i>Taiwan</i>	2%	2%	2%	76%	24%
Europe	5%	5%	9%	67%	33%
Latin America & Caribbean	5%	5%	8%	72%	28%
<i>Brazil</i>	1%	1%	2%	57%	43%
<i>Mexico</i>	1%	1%	1%	72%	28%
Middle East & North Africa	4%	2%	11%	47%	53%
<i>Iran</i>	2%	1%	6%	26%	74%
<i>Saudi Arabia</i>	1%	1%	1%	67%	33%
North America (Canada only)	2%	1%	2%	76%	24%
Oceania	0%	0%	1%	67%	33%
Sub-Saharan Africa	5%	4%	9%	67%	33%

Data Tables

Indian nationals constitute the largest share (35%) of international graduate students with a total of 326,632 students enrolled in Fall 2022. In addition, Chinese graduate students make up the largest percentage (29%) of international doctoral students. However, India again exceeds China in terms of the percentage of international master's and certificate students (47%).

Table B.4 Total International Graduate Enrollment by Region/Country of Origin, Fall 2022 Admission Cycle

	% Shares by Region/ Country of Origin			% Shares by Degree Objective	
	Total	Master's and Certificate	Doctorates	Master's and Certificate	Doctorates
Total	326,632	209,281	117,351	69%	36%
Asia	75%	81%	64%	69%	31%
<i>China</i>	25%	22%	29%	58%	42%
<i>India</i>	35%	47%	14%	85%	15%
<i>Japan</i>	1%	0%	1%	61%	39%
<i>South Korea</i>	3%	2%	5%	34%	66%
<i>Taiwan</i>	2%	2%	2%	58%	42%
Europe	7%	5%	10%	46%	54%
Latin America & Caribbean	6%	5%	7%	57%	43%
<i>Brazil</i>	1%	1%	2%	45%	55%
<i>Mexico</i>	1%	1%	1%	58%	42%
Middle East & North Africa	5%	3%	10%	34%	66%
<i>Iran</i>	2%	1%	4%	19%	81%
<i>Saudi Arabia</i>	1%	1%	2%	43%	57%
North America (Canada only)	2%	2%	2%	62%	38%
Oceania	0%	0%	1%	50%	50%
Sub-Saharan Africa	5%	4%	6%	56%	44%

Fall 2022 International Graduate Admissions Data by Field of Study

Table C.1 shows that by field of study, Mathematics & Computer Sciences continued to receive the most applications from international students across master's and certificate and doctoral programs (31%). The remaining fields held very close if not identical shares to last year's data.

Table C.1 Final International Graduate Applications by Field of Study, Fall 2022 Admission Cycle

	% Shares by Field of Study			% Shares by Degree Objective	
	Total	Master's and Certificate	Doctorates	Master's and Certificate	Doctorates
Total	112,705	91,144	21,561	81%	19%
Arts and Humanities	4%	2%	7%	45%	55%
Biological and Agricultural Sciences	7%	3%	15%	35%	65%
Business	13%	17%	5%	89%	11%
Education	1%	1%	2%	56%	44%
Engineering	22%	22%	23%	69%	31%
Health Sciences	3%	3%	4%	62%	38%
Mathematics and Computer Sciences	31%	38%	14%	87%	13%
Physical and Earth Sciences	4%	1%	13%	15%	85%
Public Administration and Services	1%	1%	1%	77%	23%
Social and Behavioral Sciences	8%	5%	14%	45%	55%
Other Fields	6%	7%	4%	83%	17%

Master's applications were again concentrated in three fields: Mathematics & Computer Science (38%), an increase of ten points from last year, Engineering (22%), and Business (17%). The top fields of study for international doctoral applicants are Engineering (23%), Biological & Agricultural Sciences (15%), Mathematics & Computer Sciences (14%), Social & Behavioral Sciences (14%), and Physical & Earth Sciences (13%).

For those applicants whose degree objective levels were reported, most applications for master's and certificate programs were in the fields of Business (89%), Mathematics & Computer Sciences (87%), Public Administration & Services (77%), Engineering (69%), and Education (56%). In contrast, applications for basic science fields, such as Physical & Earth Sciences (85%), Biological & Agricultural Sciences (65%), and Social & Behavioral Sciences (55%) were more likely for doctoral programs, as shown in Table C.1.

Data Tables

In Fall 2022, Mathematics & Computer Sciences led the other fields with 32% of the total offers of admission. Engineering was second with 25%, followed by Business at 15%. Of those three fields, Mathematics & Computer Sciences and Business had more master's and certificates than doctoral level offers (34% to 15% and 17% to 3% respectively), while Engineering had the opposite trend, seeing 25% of master's and certificate offers versus 30% doctoral-level offers.

Table C.2 Offers of Admission to International Graduate Applicants by Field of Study, Fall 2022 Admission Cycle

	% Shares by Field of Study			% Shares by Degree Objective	
	Total	Master's and Certificate	Doctorates	Master's and Certificate	Doctorates
Total	328,260	279,827	48,433	85%	15%
Arts and Humanities	3%	2%	6%	66%	34%
Biological and Agricultural Sciences	4%	3%	11%	62%	38%
Business	15%	17%	3%	97%	3%
Education	2%	1%	4%	69%	31%
Engineering	25%	25%	30%	82%	18%
Health Sciences	3%	3%	3%	84%	16%
Mathematics and Computer Sciences	32%	34%	15%	93%	7%
Physical and Earth Sciences	3%	1%	12%	28%	72%
Public Administration and Services	1%	1%	1%	86%	14%
Social and Behavioral Sciences	6%	5%	10%	73%	27%
Other Fields	7%	8%	4%	93%	7%

Table C.3 shows that of first-time international graduate enrollment, the fields of Business (96%), Mathematics & Computer Sciences (92%), and Public Administration & Services (83%) had the highest concentrations of master's and certificate programs in the Fall of 2022. In contrast, Physical & Earth Sciences and Biological & Agricultural Sciences students accounted for 69% and 49% respectively of first-time international doctoral students graduate students.

While nearly three-quarters of first-time master's and certificate students were in the fields of Mathematics & Computer Sciences (36%), Engineering (21%), and Business (18%), doctoral students were spread across a more diverse range of disciplines. Engineering (27%) continues to be the field of choice for first-time doctoral enrollment. However, four fields, Biological & Agricultural Sciences (14%), Mathematics & Computer Sciences (13%), Physical & Earth Sciences (13%), and Social & Behavioral Sciences (10%) also have sizable enrollments of first-time doctoral students.

Table C.3 First-time International Graduate Enrollment by Field of Study, Fall 2022 Admission Cycle

	% Shares by Field of Study			% Shares by Degree Objective	
	Total	Master's and Certificate	Doctorates	Master's and Certificate	Doctorates
Total	112,705	91,144	21,561	81%	19%
Arts and Humanities	3%	3%	7%	61%	39%
Biological and Agricultural Sciences	6%	3%	14%	51%	49%
Business	16%	18%	3%	96%	4%
Education	2%	2%	3%	67%	33%
Engineering	22%	21%	27%	76%	24%
Health Sciences	3%	3%	4%	74%	26%
Mathematics and Computer Sciences	32%	36%	13%	92%	8%
Physical and Earth Sciences	3%	1%	13%	31%	69%
Public Administration and Services	1%	1%	1%	83%	17%
Social and Behavioral Sciences	6%	5%	10%	66%	34%
Other Fields	7%	7%	4%	89%	11%

Data Tables

Table C.4 shows that both Engineering and Mathematics & Computer Sciences enrollments constitute more than half of all international graduate student enrollments. Business majors constitute 12% of total international graduate students. This figure is composed largely of master's and certificate students.

Table C.4 Total International Graduate Enrollment by Field of Study, Fall 2022 Admission Cycle

	% Shares by Field of Study			% Shares by Degree Objective	
	Total	Master's and Certificate	Doctorates	Master's and Certificate	Doctorates
Total	326,632	209,281	117,351	69%	36%
Arts and Humanities	4%	3%	7%	40%	60%
Biological and Agricultural Sciences	7%	4%	13%	33%	67%
Business	12%	17%	3%	91%	9%
Education	2%	2%	3%	46%	54%
Engineering	24%	21%	30%	56%	44%
Health Sciences	3%	3%	4%	60%	40%
Mathematics and Computer Sciences	28%	37%	14%	83%	17%
Physical and Earth Sciences	5%	1%	12%	17%	83%
Public Administration and Services	1%	1%	1%	71%	29%
Social and Behavioral Sciences	6%	4%	10%	45%	55%
Other Fields	6%	7%	4%	77%	23%

Notes and Definitions

The CGS International Graduate Admissions Survey

In 2004, the Council of Graduate Schools (CGS) launched an annual empirical examination of international graduate applications, admission, and enrollment trends in response to member institutions' interest in changes in the enrollment of students from abroad seeking master's and doctoral degrees from U.S. colleges and universities. The survey is designed to capture information about application counts and offers of admission, as well as first-time and total graduate enrollment of international students for each fall admission cycle. For this survey, an international student is defined as a person who is not a citizen, national, or permanent resident of the United States and is in this country on a student visa, or for a temporary basis, and does not have the legal right to remain indefinitely. Undocumented students, individuals with deferred action status, and refugees are not included in this definition of international students.

Beginning in the Fall 2016 admission cycle, the survey was redesigned to collect data by degree objective (master's and graduate certificate versus doctorate), and for all seven regions of origin, eight countries of origin, and all 11 broad fields of study. Additionally, beginning this survey cycle, the respondent pool was expanded to include institutions that were not CGS members but were members of the Conference of Southern Graduate Schools (CSGS), the Midwestern Association of Graduate Schools (MAGS), the Northeastern Association of Graduate Schools (NAGS), or the Western Association of Graduate Schools (WAGS). These changes were made to make the results more comprehensive and to make them consistent with the CGS/GRE Survey of Graduate Enrollment and Degrees.

Data Collection

The 2022 CGS International Graduate Admissions Survey was sent to 759 U.S. colleges and universities, which were CGS members as of January 2022, and other institutions which were members of CSGS, MAGS, NAGS, or WAGS. Institutions were asked to report the number of final applications from and offers of admission to prospective international graduate students, as well as first-time and total international graduate enrollment for Fall 2022. The 2022 survey was administered between September 30, 2022, and November 16, 2022. A total of 370 institutions, or 48.7%, responded to the survey. The data collection instrument and survey instructions are available on the project website. Each completed data collection instrument submitted by participating institutions was then exported into four databases: final applications, offers of admission, first-time enrollment, and total enrollment.

Data Analysis Methods

Valid respondents for data analysis

Institutions providing data for the overall total count for international graduate students (i.e., sums of master’s and certificate international students and doctoral international students) in respective sections of the survey (i.e., final applications, offers of admission, first-time enrollment, and total enrollment) were included in data analysis. This equated to 341 institutions for the final applications section with a reported total of 983,385 applications, 342 institutions for the offers of admission section with a reported total of 328,260 offers of admission, 361 institutions for the first-time enrollment section with a reported total of 112,705 first-time enrollments, and 362 institutions for the total enrollment section with the reported total of 326,632 total enrollments.

The summary of institutional control, region, and Carnegie Classification of institutions with valid responses for the first-time enrollment in Fall 2022 (N=343) is shown in Table D.1. Overall, almost three-quarters (71%) of responding institutions were public universities. Over one-third (33%) were master’s focused and all other institutions, while the majority (57%) were research universities. Similarly, the summary of institutional control, region, and Carnegie Classification of institutions with valid responses for the first-time enrollment in both Fall 2021 and Fall 2022 (N=270) is shown in Table D.2.

Table D.1 Characteristics of Institutions with Valid Responses for Fall 2022 First-time Enrollment

	Institutional Control					Region			
	Total	Public	Private, not-for-profit	Private, for-profit	Midwest	Northeast	West	South	
All Institutions	100%	343	71%	29%	0%	19%	23%	19%	40%
<i>Doctoral Universities:</i>									
<i>Very High Research Activity</i>	33%	113	74%	26%	0%	30%	19%	13%	37%
<i>Doctoral Universities:</i>									
<i>High Research Activity</i>	24%	83	75%	25%	0%	17%	26%	17%	40%
<i>Doctoral/Professional Universities</i>	10%	35	51%	49%	0%	24%	26%	16%	34%
<i>Master's-focused Institutions</i>	27%	93	72%	28%	0%	16%	26%	0%	58%
<i>All Other Institutions</i>	6%	19	68%	32%	0%	22%	23%	15%	39%

Table D.2 Characteristics of Institutions with Valid Responses for Fall 2021 and Fall 2022 First-time Enrollment

	Total	Institutional Control			Region				
		Public	Private, not-for-profit	Private, for-profit	Midwest	Northeast	West	South	
All Institutions	100%	270	72%	28%	0%	18%	23%	17%	42%
<i>Doctoral Universities: Very High Research Activity</i>	35%	95	73%	27%	0%	27%	16%	13%	44%
<i>Doctoral Universities: High Research Activity</i>	23%	63	86%	14%	0%	19%	29%	16%	35%
<i>Doctoral/Professional Universities</i>	11%	31	52%	48%	0%	28%	19%	17%	36%
<i>Master's-focused Institutions</i>	24%	64	70%	30%	0%	18%	24%	0%	59%
<i>All Other Institutions</i>	6%	17	65%	35%	0%	23%	21%	15%	41%

Additional data exclusion rules were applied for computations of percentage distributions of international students by regions/countries of origin and by fields of study, as well as by degree levels within specific regions/countries of origin or fields of study.

Percentage distributions of international students by regions/countries of origin

For each section of the survey, percentage distributions of master's degree and certificate students, doctoral students, and all students by regions/countries of origin were reported. The computations were based on the disaggregated data reported in regions/countries of origin sections of the data collection instrument, and only those institutions reporting complete data for the respective section were included in the computation. The sum of all six regions and Canada in this section served as the denominator, or 100%. Only institutions with the reported total counts in master's and certificates and doctorates columns matched with calculated totals of all six regions and Canada respectively were included in this calculation. Due to missing values, these sums may be smaller than the total counts reported as the totals of valid respondents noted earlier.

Notes and Definitions

Percentage distributions of international students by fields of study

For each section of the survey, percentage distributions of master's degree and certificate students, doctoral students, and all students by fields of study were reported. The computations were based on the disaggregated data reported in the fields of study section of the data collection instrument, and only those institutions that reported complete data for the section were included in the computation. The sum of all 11 fields of study in this section served as the denominator, or 100%. Only institutions with the reported total counts in master's and certificates and doctorates columns matched with calculated totals for all 11 fields of study were included in this calculation. Due to missing values, these sums may be smaller than the total counts reported as the totals of valid respondents noted earlier.

Percentage distributions of international students by degree-levels within particular regions/countries of origin

Percentage distributions of international students by degree levels (i.e., master's and certificate students versus doctoral students) were computed for each region/country of origin. Calculated sums for master's & certificate students and doctoral students to each category (e.g., Asia, India, etc.) served as the denominator, or 100%. Due to missing values, these sums may be smaller than the total counts reported as the totals of valid respondents noted earlier.

Percentage distributions of international students by degree-levels within particular fields of study

Percentage distributions of international students by degree levels (i.e., master's and certificate students versus doctoral students) were computed for each field of study. Calculated sums for master's and certificate students and doctoral students for each category (e.g., Business, Engineering, etc.) served as the denominator, or 100%. Due to missing values, these sums may be smaller than the total counts reported as the totals of valid respondents noted earlier.

Changes between Fall 2021 and Fall 2022

Changes between Fall 2021 and Fall 2022 are expressed as percentage differences, and only those institutions reporting valid data for both admission cycles were included in the computation. Fall 2021 data was drawn from the CGS International Graduate Admissions Survey.

Countries and Regions of Origin

The survey collected data on eight countries of origin, including: Brazil, Canada, China, India, Mexico, Saudi Arabia, the Republic of Korea (South Korea), and Taiwan. These eight countries were selected because they represent the top countries of origin for international graduate students in the United States or for other geopolitical reasons. The survey also collected data from all seven regions of the world: Asia, Europe, Latin America & Caribbean, Middle East & North Africa, North America (for this study, North America includes only Canada), Oceania, and Sub-Saharan Africa. Specific definitions are listed on the next two pages.

Asia

Asia includes: Afghanistan, Bangladesh, Bhutan, Brunei, Burma (Myanmar), Cambodia, China, East Timor, Hong Kong, India, Indonesia, Japan, Kazakhstan, Kyrgyzstan, Laos, Macau, Malaysia, Maldives, Mongolia, Nepal, Pakistan, People's Democratic Republic of Korea (North Korea), Philippines, Republic of Korea (South Korea), Singapore, Sri Lanka, Taiwan, Tajikistan, Thailand, Turkmenistan, Uzbekistan, and Vietnam.

For this survey, China refers to the People's Republic of China and excludes Hong Kong, Macau, and Taiwan.

Europe

Europe includes: Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Gibraltar, Greece, Hungary, Iceland, Ireland, Italy, Kosovo, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, and Vatican City (Holy See).

Latin America & Caribbean

Latin America & Caribbean includes: Anguilla, Antigua and Barbuda, Argentina, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Brazil, British Virgin Islands, Cayman Islands, Chile, Colombia, Costa Rica, Cuba, Curacao, Dominica, Dominican Republic, Ecuador, El Salvador, Falkland Islands, French Guiana, Grenada, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, Mexico, Montserrat, Netherlands Antilles, Nicaragua, Panama, Paraguay, Peru, Sint Maarten, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad & Tobago, Turks and Caicos Islands, Uruguay, and Venezuela.

Middle East & North Africa

Middle East & North Africa includes: Algeria, Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestinian Territories, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, and Yemen.

Oceania

Oceania includes: Australia, Cook Islands, Fiji, French Polynesia, Kiribati, Marshall Islands, Micronesia, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, and Wallis & Futuna.

Notes and Definitions

Sub-Saharan Africa

Sub-Saharan Africa includes: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Cote d'Ivoire (Ivory Coast), Democratic Republic of Congo (Kinshasa, Republic of Congo), Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea- Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Republic of the Congo (Brazzaville), Rwanda, Saint Helena, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, and Zimbabwe.

Taxonomy

The survey collected data for all 11 broad fields of study, including: Arts & Humanities, Biological & Agricultural Sciences, Business, Education, Engineering, Health Sciences, Mathematics & Computer Sciences, Physical & Earth Sciences, Public Administration & Services, Social & Behavioral Sciences, and Other Fields. These are the same fields of study as used by the CGS/GRE Survey of Graduate Enrollment & Degrees.

About CGS:

For six decades, the Council of Graduate Schools (CGS) has been the national voice for the graduate dean community. CGS is the only national organization in the United States that is dedicated solely to the advancement of graduate education and research.

CGS accomplishes its mission through advocacy in the policy arena, innovative research, and the development and dissemination of best practices. CGS also acts as a convening authority, organizing major events that bring together graduate deans and other stakeholders to discuss and take action on a broad range of issues affecting graduate education today.

