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Deutscher Akademischer Austauschdienst
German Academic Exchange Service

Wissenschaft weltoffen

Facts and Figures on the International Nature of Studies and Research in Germany and Worldwide

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DZHW German Centre for Higher Education Research and Science Studies

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2024

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FOREWORD

The internationalisation of studies and research in Germany and around the world is making dynamic progress, with numbers of internationally mobile students and researchers growing apace. It is encouraging to note, firstly, that Germany is now firmly established as the most important non-English speaking host country for international students and, secondly, that mobility among international academics and researchers from and to Germany continues to rise. In June 2024, the Federal Government and the state governments proposed a new internationalisation strategy for German universities – a clear testament to the significance of internationalisation for Germany as a location of research, business and innovation.

Data and facts are indispensable in evaluating the status of the internationalisation process. The publication series *Wissenschaft weltoffen* has been providing these findings for more than 20 years. The data basis of *Wissenschaft weltoffen* is now the **standard, central source of information on student, academic and researcher mobility** in Germany and other major host countries and countries of origin. Building on this foundation, the publication facilitates the continuous monitoring of relevant aspects of internationalisation and is thus an essential framework for formulating and implementing measures at the level of the universities, research institutes and politics.

Given the highly dynamic nature of internationalisation processes, it is crucial that the concept and data basis of *Wissenschaft weltoffen* be kept up to date at all times, thereby ensuring the contents are adjusted flexibly in response to current events. In this 24th edition, therefore, the *Wissenschaft weltoffen* data basis has been substantially extended once again: the new Chapter F also analyses **the structural aspects of internationalising universities and research facilities in Germany.** For example, this includes data on international academic collaboration and international research funding. We aim to gradually develop this new chapter in future.

Moreover, this edition is accompanied by a number of **new features** on the *Wissenschaft weltoffen* website, which can be found as usual at **www.wissenschaft-weltoffen.de/en**. Here, all images in the publication can be downloaded as graphic files or data tables and used for your own purposes (based on a CC licence). Also, the website now includes additional interactive diagrams on international student mobility, showing flows to Germany and all over the world. We are delighted that researchers, universities, the media and political organisations make intensive use of the data published in *Wissenschaft weltoffen*.

As of this issue, there is an **important change in the *Wissenschaft weltoffen* editorial team:** Dr. Ulrich Heublein, who previously headed this project at the DZHW, is now enjoying his well-deserved retirement. As the longest-serving member of the editorial team, his sound analysis, numerous suggestions for further developing and improving the data, and boundless enthusiasm for the subject have been instrumental in shaping this project over the last two decades. We hereby extend our sincerest thanks for his dedication over many years and wish him all the best for the future.

As ever, the DAAD and the DZHW would like to thank Christiane Zay and wbv Media for the graphic design and realisation. Special thanks also go to the Management Board of the Association of Directors of Studienkollegs at German Universities, the Federal Statistical Office, the scientific community and funding organisations, non-university research institutes and other agencies who provided information and data for *Wissenschaft weltoffen 2024*, along with the Federal Foreign Office and the Federal Ministry of Education and Research, who helped fund this publication.

Dr. Kai Sicks
DAAD Secretary General

Prof. Dr. Monika Jungbauer-Gans
Scientific Director of the DZHW

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To accompany this publication, further information is available online under the following address: **https://www.wissenschaft-weltoffen.de/en**.

In the "Data" section, you can download all figures (as PNG files) and the corresponding data tables (as Excel files) for the current issue as well as additional data tables. In the "Publication" section, you will find all previous issues of *Wissenschaft weltoffen* as linked PDF files. You can download the corresponding data tables (as Excel files) for the various figures by clicking on the download symbol.

D INTERNATIONAL ACADEMICS AND RESEARCHERS IN GERMANY

E GERMAN ACADEMICS AND RESEARCHERS ABROAD

F STRUCTURAL ASPECTS OF INTERNATIONALISATION

APPENDIX

In addition, the DZHW maintains a service point, which advises parties on evaluating this data pool according to their individual requirements and also carries out such evaluations on request. This service is free of charge for universities, academics and researchers.

Enquiries should be sent to: **wissenschaft-weltoffen@dzhw.eu**

SUMMARY: DEVELOPMENT OF THE INTERNATIONAL NATURE OF STUDIES AND RESEARCH IN GERMANY AND WORLDWIDE

International academic mobility (Chapter A)

According to UNESCO, around 6.4 million students were enrolled outside their home country in 2021. The impact of the pandemic became glaringly apparent that year, when the number of internationally mobile students rose year-on-year by a mere 11,000 or so (compared to the development from 2019 to 2020: +261,000). Since 2011, the number of internationally mobile students has surged by roughly 2.4 million or 59%. The US is way out in front as the key host country for international students. The effects of Covid-19 are clearly noticeable here, too. Approximately 833,000 overseas students were enrolled in the US in 2021, compared to around 957,000 the year before. The largest flows of international student mobility lead from China, the most important country of origin by a clear margin, to the US, but also to Australia and the United Kingdom as host countries.

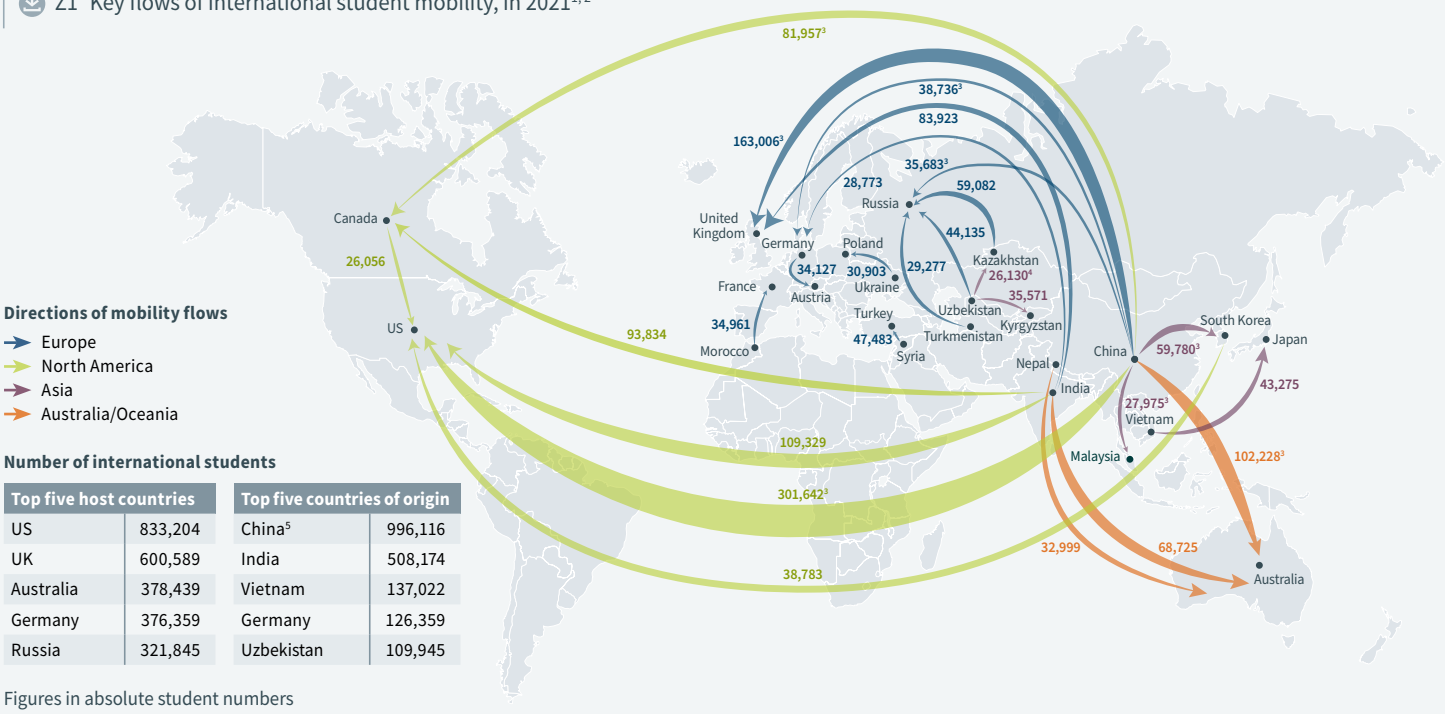
In 2021, a total of around 996,000 students from China were enrolled at universities abroad (2020: 1.1 million); the downturn due to the pandemic is thus similar to that reported by the host country US.

The data situation on internationally mobile academics and researchers at the respective host universities abroad is significantly less conclusive than that relating to internationally mobile students. To date, there are no internationally comparable UNESCO or OECD statistics on this subject similar to those on global student mobility. Looking at the 14 host countries for which data were collected as part of *Wissenschaft weltoffen* 2024, the US leads the field as the key host country in the 2020/21 academic year, with around 86,000 international academics and researchers at US universities. Nonetheless, the impact of the pandemic can also be observed here; the corresponding figure for the 2019/20 academic year was in the region of 124,000. For the first time, with roughly 75,000 international academics and researchers, Germany nudges into second place in the host country ranking, ahead of the United Kingdom (71,000), followed by Switzerland (32,000), France (17,000) and Austria, where roughly 14,000 foreign academics and researchers were employed at universities.

> “For the first time, with roughly 75,000 international academics and researchers, Germany nudges into second place in the host country ranking, ahead of the United Kingdom (71,000).

The **Spotlight in Chapter A** takes a closer look at **“Student mobility between the United States and Europe: development and status”**, whereby Europe is understood to be the current 27 EU countries as well as Switzerland and the United Kingdom. The associated analyses found that the number of US students in Europe has almost doubled since 2000, from around 23,000 to 43,000 (+86%), while the number of European students in the US has tumbled by almost one third over the same period, from roughly 60,000 to 43,000 (–28%). Despite the dramatic increase in the number of US students, Europe is of diminishing relevance as a host region for US students. In 2000, more than half (51%) of all internationally mobile students from the US were enrolled in one of the European countries here under review; however, this share dropped to just over 42% in 2021.

Z1 Key flows of international student mobility, in 2021[1, 2]



Number of international students

Top five host countries		Top five countries of origin	
US	833,204	China[5]	996,116
UK	600,589	India	508,174
Australia	378,439	Vietnam	137,022
Germany	376,359	Germany	126,359
Russia	321,845	Uzbekistan	109,945

Figures in absolute student numbers

Source: UNESCO, student statistics; country-specific reporting periods; DAAD calculations

Z2 International students in Germany, by type of university and key countries of origin, since the 2013/14 winter semester[7]

Source: Federal Statistical Office, student statistics

International students in Germany (Chapter B)

The number of international students at German universities continued to rise in the 2023/24 winter semester, with approximately 379,900 international students enrolled in Germany during this time, a year-on-year increase of around 3%. They made up 13.2% of all students, with 14.3% at universities and 10% at the universities of applied sciences (UAS). In the 2022 academic year, roughly 114,700 international first-year students,[6] more students from abroad than ever before, embarked on their first degree programme at a German university.

> “ In the 2023/24 winter semester, 13.2% of all students at German universities are international students.

In the 2023/24 winter semester, Asia and Pacific is the key region of origin for international students with a share of 33%, followed by students from North Africa and Middle East with 19% and Western Europe with 15%. The number of students from these two regions has increased at a similar pace, by 36% and 37% respectively, over the last five years. However, the number of students from North Africa and Middle East only rose by 3% in the last year. Furthermore, mounting numbers of students from Eastern Europe and Central Asia have been recorded over the last two years, up by 16%. This is primarily due to the increased enrolment of Ukrainian students. For two years, India has been the key country of origin. The number of Indian students has risen by roughly 138% to some 49,000 in the last five years, up 15% year-on-year alone, representing 13% of all international students. Students from China are in second place in the rankings. Since winter semester 2018/19, their number has dropped by 3% to roughly 38,700.

In the 2022/23 winter semester, the overwhelming majority of 93% of international students were pursuing a degree at a German university; just 25,500, or 7%, were visiting or exchange students. As a result, their number is back to the pre-pandemic level of the 2019/20 winter semester. 39% of international students intending to graduate are aiming for a bachelor’s and 47% for a master’s degree. International students represent a share of roughly 25% of all master’s students, while 8% of those in bachelor’s programmes are from abroad. Some 27% of doctoral students are international junior researchers.

SUMMARY: DEVELOPMENT OF THE INTERNATIONAL NATURE OF STUDIES AND RESEARCH IN GERMANY AND WORLDWIDE

The largest group of international students, as many as 43%, are enrolled in engineering study programmes, whereas 25% are studying law, economics and social sciences. In addition to engineering, in which a share of 20% of international students intend to graduate, above-average proportions are found in the subject groups of art and art history at 17% and mathematics and natural sciences at 13%.

The **Spotlight in Chapter B** outlines the **"Reasons given by international students to study in Germany and their study satisfaction"** on the basis of the latest Student Survey in Germany. International students gave four main reasons for their decision to study at a university in Germany: 65% felt that the high quality of life in Germany played an important role. Of equal weight were their intention to take up employment after graduating in Germany, the economic situation in Germany and their personal interest in Germany.

Although 71% of international students were satisfied with their visit in Germany, the share of those satisfied with the subject knowledge gained was even higher at 74%. For the most part, the studying conditions were rated positively. Roughly two thirds regarded the studying conditions as satisfactory overall. The vast majority of 78% of international students indicated that they would recommend that their friends or acquaintances pursue a degree at a German university.

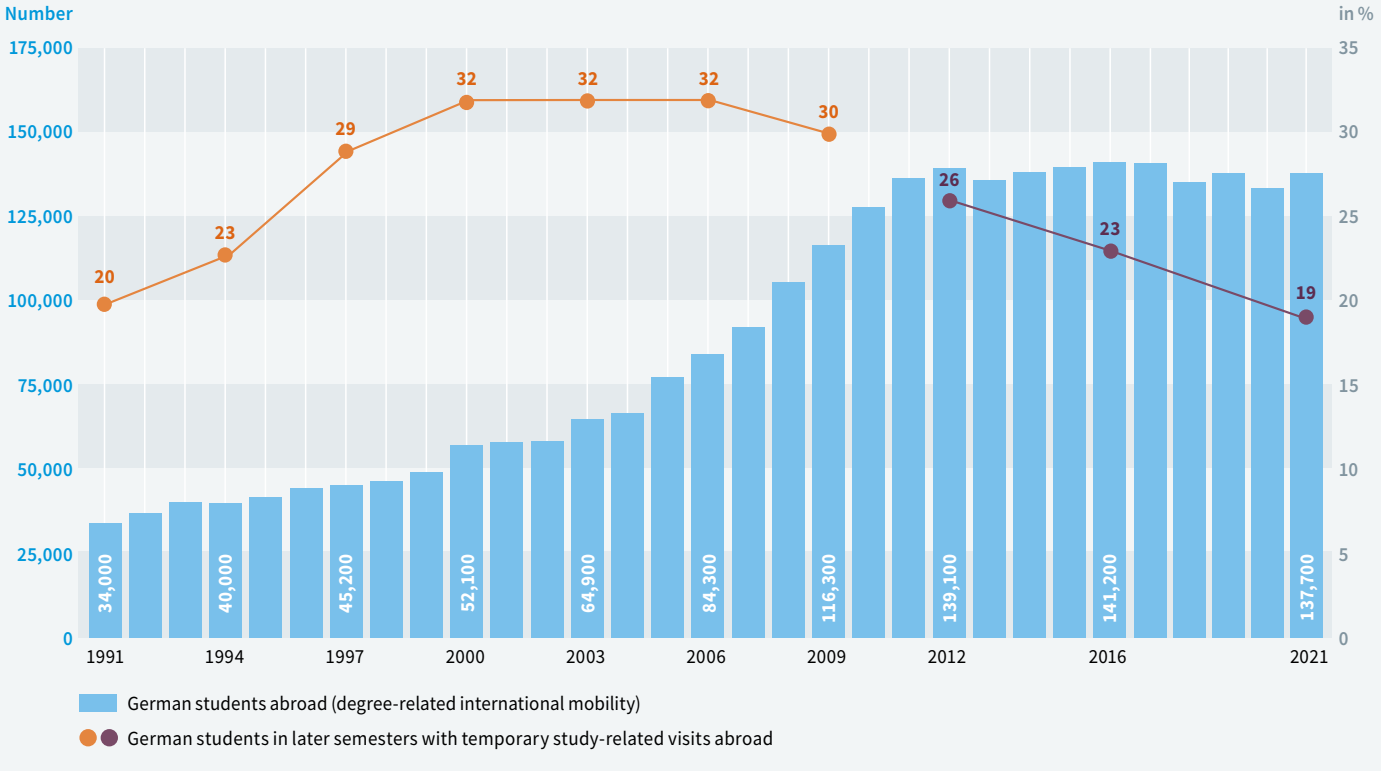
German students abroad (Chapter C)

In 2021, around 137,700 German nationals were studying abroad; this figure has thus dwindled by roughly 2% (around 141,000) since 2016. Nonetheless, from a broader perspective, the number of internationally mobile German students has quadrupled since 1991 and more than doubled since 2000. These students are predominantly, but not exclusively, seeking a degree abroad. The most popular host countries are Austria (around 36,000 students or 26% of all students abroad), the Netherlands (24,000 or 18%), Switzerland (12,000 or 9%) and the United Kingdom (11,000 or 8%). Strikingly, while the number of German students in the first three countries has gone up since 2018, it has plummeted in the United Kingdom (–27%).

> "The number of German students in the United Kingdom dropped from around 15,000 to around 11,000 (–27%) between 2018 and 2021.

A closer look at the trend in overall figures shows that, in the period between 2002 and 2010, in other words, during the introduction of

Z3 Degree-related and temporary study-related international mobility of German students, since 1991[8]



Sources: Federal Statistical Office, "Deutsche Studierende im Ausland" survey; country-specific reporting periods; DSW/DZHW, Social Surveys 1991–2016; DZHW, The Student Survey in Germany 2021

the new, tiered study system, above-average growth rates of 10% and more were achieved in one year. During this period, the proportion of internationally mobile students in relation to the total number of German students rose from 3.3% to 5.6%. This suggests that many students have taken – and are still taking – advantage of the option provided by the new study system of following a bachelor's programme in Germany with a master's programme abroad. Since the new types of degree were introduced, the absolute number of internationally mobile German students has not continued to rise, however. Their share of all German students has even fallen slightly to currently 5.0% due to the steady growth in the number of students in Germany up to 2015.

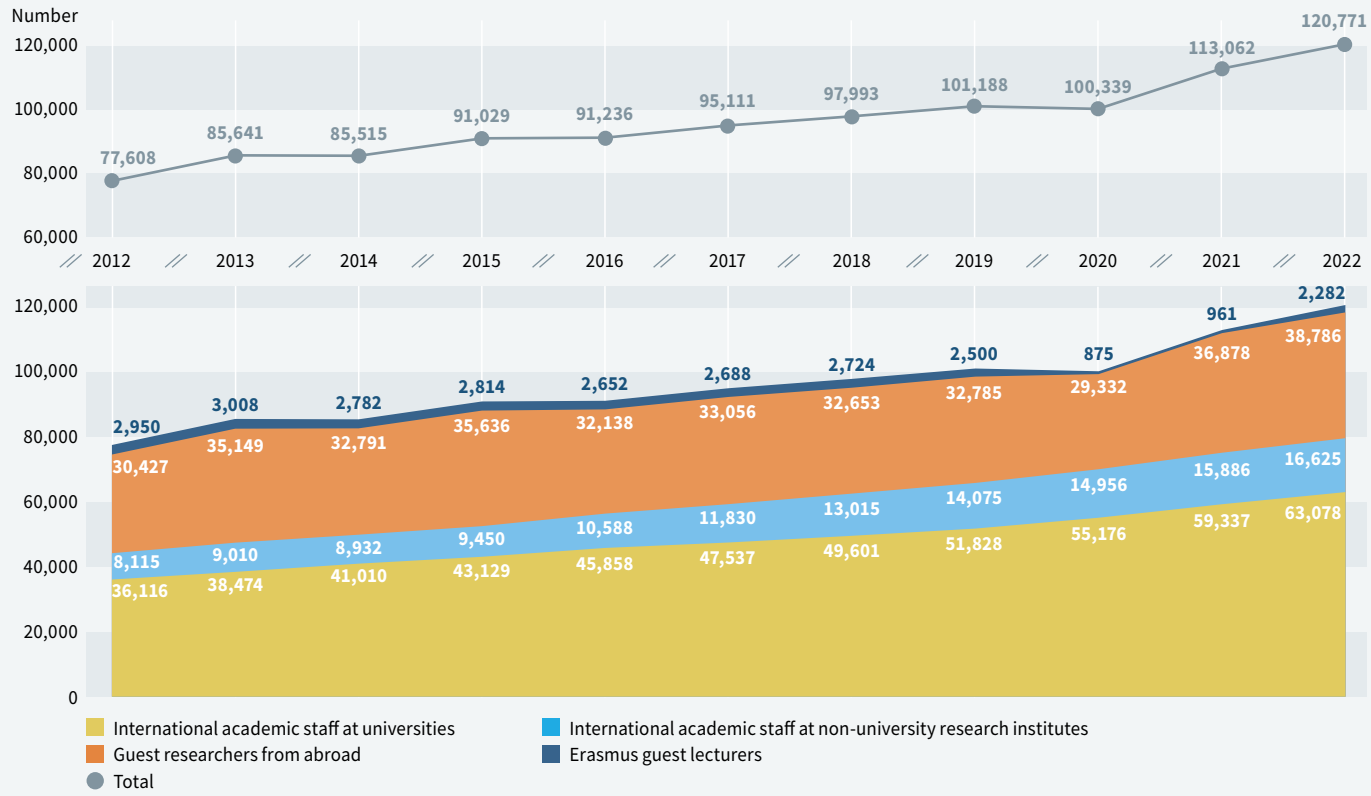
The situation is similar for temporary study-related visits abroad undertaken by German students. Between 1991 and 2000, the share of students (in later semesters) with temporary visits abroad shot up from 20% to 32%, stabilising at this level until 2006. Since then, however, this percentage has steadily fallen, scoring 19% in the most recent survey in 2021.[8] In contrast to degree-related international mobility, the introduction of the two-cycle study system of bachelor's and master's programmes was thus not accompanied by an increase in temporary study-related mobility. In fact, temporary student mobility even declined to a certain extent during this period and continued to do so after the introduction of the bachelor's/master's system. Other striking contrasts to degree-related international mobility can be observed in terms of the host countries favoured. The most popular host country is the United Kingdom (10%), followed by France (9%), Spain (8%) and the US (6%).

International academics and researchers in Germany (Chapter D)

In 2022, around 63,100 academic and artistic staff of foreign nationalities were employed at German universities, including roughly 3,900 international professors. Thus, international personnel accounted for 14.7% of the entire academic staff, while the corresponding percentage of professors was just 7.7%. For more than a decade, the number of all international academic staff at German universities has continued to grow, up by 33% in the last five years alone. Among

> "Approximately 3,900 international professors are teaching at German universities.

Z4 International academics and researchers by type of mobility in Germany, since 2012[9]



Sources: Federal Statistical Office, university staff statistics; statistics on non-university research institutes; data provided by funding organisations; DAAD, Erasmus statistics

international professors, this increase was 22% over the same period. Western Europe is the key region of origin for international academic staff. 30% of the entire international staff and a remarkable 62% of international professors come from Western European countries. The key countries of origin are India, Italy, China and Austria. Most international professors hail from the two German-speaking countries of Austria (19%) and Switzerland (8%).

In 2022, roughly 16,600 academics and researchers of foreign nationalities were contractually employed by the four largest non-university research institutes (NURI). Their number has more than doubled since 2012 (+105%), with about 30% of all academics and researchers coming from abroad in 2022. EU countries account for 35% of foreign academics and researchers, the remaining European countries for 15%. The key countries of origin here are India, China (10% each) and Italy (8%). Around two thirds of international academic staff are engaged in the field of mathematics and natural sciences, with one sixth in engineering. Besides contractually employed international academics and researchers, international guest researchers also work and teach in Germany, their visits funded by domestic and foreign organisations. This constituted 30,100 visits or thereabouts in 2022. Their number has hardly changed year-on-year and is almost back to the pre-pandemic level. Of these guest visits, 49% were funded by the DFG and 36% by the DAAD alone. With shares of 21% each, Western Europe and Asia and Pacific are the key regions of origin for international guest researchers, whereas India (8%), China (7%) and Italy (6%) are the three key countries of origin. Moreover, NURI also sponsor visits by international guest researchers. Together, the Max Planck Society and the Helmholtz and Leibniz Associations funded the visits of around 8,700 international guest researchers, 26% more than in the previous year.

Two Spotlights in Chapter D present **"The research and working conditions of international academics and researchers at German universities"** and **"International academics at German universities: from postdoc to professorship".** International academics and researchers in Germany particularly appreciate the academic freedom and autonomy of the German research system, but also its social relevance and innovative capacity. Over 70% of respondents highlighted these aspects. Nevertheless, despite the international relevance they give research in their field (62%), they attest to the extreme competition between colleagues (62%), the excessive requirement to obtain third-party funding (56%) and the enormous pressure to publish (44%). The vast majority (70%) have not experienced any discrimination in Germany during the last 24 months. Cases of discrimination were mainly on account of ethnic origin and sex. On the whole, they are satisfied with the different aspects of their professional activity. The relationship with colleagues and the research work itself were rated positively. International academics and researchers in positions below the level of professor are more likely than their German counterparts to aim for a long-term career in academia. International academics experience the transition from the postdoc phase to professorship very differently. Information and advisory services, research support, the social, educational and health system, personal environment and quality of life were consistently given favourable reviews. They report both positive and negative experiences with regard to the support available to their life partner, family-friendly services, social and academic integration and the culture of welcome. By contrast, the main problems were related to the non-transparent appointment procedure, the lack of multi-lingualism at the university and in everyday life, inadequate accommodation and processes at the immigration office.

German academics and researchers abroad (Chapter E)

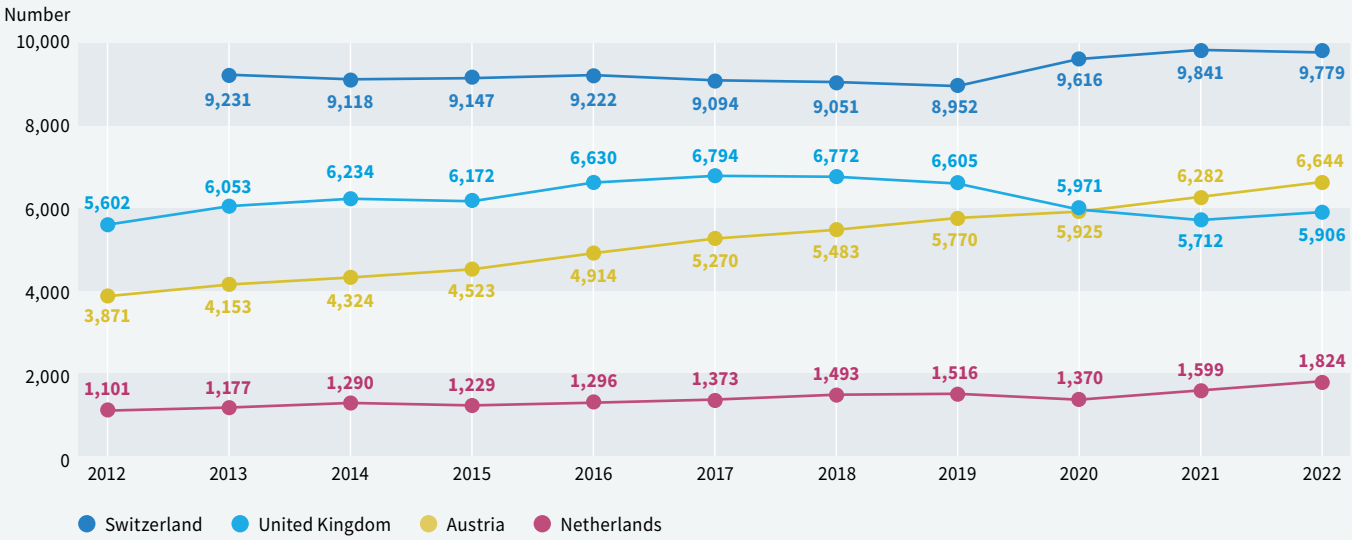
Only very few countries currently record the number, origin and status of academics and re-searchers employed at their universities. Data of this kind are only available for the Netherlands, Austria, Switzerland and, to some extent, the United Kingdom. Most German academics and researchers are employed in Switzerland (around 9,400), Austria (around 6,300) and the United Kingdom (around 5,200). This corresponds to the number of German professors; here again, Switzerland leads the field with 1,300, followed by Austria with approximately 970 German professors. In these countries, the proportion of German professors of all international professors is higher than the share of German academics and researchers of all international academics and researchers. German professors make up the highest share of all international professors in Austria, at 70%, and 42% in Switzerland.

> "In 2021/22, approximately 14,200 German nationals were enrolled in doctoral studies at foreign universities.

In 2021/22, some 14,200 German junior researchers were enrolled in doctoral studies at foreign universities. The vast majority, namely 79%, obtain their doctorate in Western Europe. Most German doctoral students conduct research in Switzerland (24%), Austria (17%), the United Kingdom (12%) and the US (9%). Moreover, temporary visits abroad are an important element of their doctoral studies for a fair number of junior researchers working on their doctorate in Germany. 31% of doctorate holders who were awarded a doctorate between 2020 and 2023 completed at least one doctoral-related temporary visit abroad while studying for their doctorate. 46% of the visits were to Western Europe. Nonetheless, the key host country was the US (16%), followed by the United Kingdom (8%) and France (6%).

These and other temporary visits abroad undertaken by academics and researchers from German universities were funded by domestic and foreign organisations. This was the case for roughly 8,300 visits in 2022. Thus, although the number of guest researchers abroad increased by 2,500 visits or 44% year-on-year, it still only reached 61% of the figure for the pre-pandemic year 2019. Some two thirds of visits were sponsored by the DAAD. Western Europe is the key host region for academics and researchers from German universities (30%).

Z5 Academics and researchers from Germany in selected countries, in 2022 and overall since 2012[11]



Sources: National data provided by the respective statistical offices; data provided by funding organisations; DAAD, Erasmus statistics; DZHW calculations

Other major host regions are North America (19%) and Central and South Eastern Europe (14%). By a clear margin, the key host country was the US (16%), followed by the United Kingdom (7%) and France (6%). As non-university research institutes, the Helmholtz and Leibniz Associations also provide data on the funding of temporary research visits. Together, they sponsored some 1,900 visits in 2022, a hike of 152% compared to 2021.

In a S**potlight in Chapter E**, experts analyse **"International mobility in the German science and innovation system".** Based on publication and patent data, the latest Report on Research, Innovation and Technological Performance in Germany found that more publishing researchers are currently coming to Germany than are departing. Nonetheless, those who leave Germany are more highly published than those who are immigrating. Non-mobile authors are the least productive, however. The trend is reversed in the case of patent-active inventors; the average net outward flow has been significantly lower in recent years than before. One especially positive development is that the percentage of internationally mobile researchers in top positions in the science system is above average. International collaboration also figures prominently. It turns out that publications by international teams are more likely to appear in prestigious academic journals than those by purely national teams or individual authors. In the case of co-authorships, authors from the US, the United Kingdom, China, France and Switzerland are particularly relevant for German academics and researchers.

When it comes to funding international mobility in the German science system, there is considerable room for improvement in terms of administrative processes. A digital platform is expected to accelerate and streamline the processing by integrating all the immigration sub-processes into one overall process, thereby connecting all those involved.

Structural aspects of internationalisation (Chapter F)

The internationalisation of studies and research at German universities relies on structures that provide the framework for international mobility and for universities' internationalisation potential as a whole. It may generally be assumed that the different structural aspects are divided into three main groups: organisational, personnel and financial aspects. *Wissenschaft weltoffen 2024* charts the developments relating to selected structural aspects of internationalisation.

Virtually all public universities in Germany have an International Office.[12] A total of 2,775 staff are employed in the International Offices at public universities, UAS, colleges of art and music and colleges of education. 66% of these internationalisation staff work at universities, 29% at UAS, 3% at colleges of art and music and 1% at colleges of education. Depending on the size of the university and the remit of its International Office, the teams range in size from one to 70 employees. On average, 30 employees work in the International Offices at technical universities and 35 at large universities. By contrast, the average at large and small UAS is ten and five employees respectively.

Agreements between German universities and universities in other countries form the basis for the mobility and exchange of students, academics and researchers. As of June 2024, German universities were associated with roughly 35,800 international partnerships, approximately 22,000 at universities and 11,000 at UAS. Around 42% of all agreements were concluded with universities in Western European countries, followed by universities in Central and South Eastern Europe (19%) plus Asia and Pacific (15%). The key countries are France, Spain and the United States.

The acquisition of international research and teaching funding is paramount for universities in Germany. In 2021, German universities raised an impressive total of 825 million euros of third-party funding from the EU. Another roughly 32 million euros in funding came from

Footnotes

1 For the sake of clarity, only mobility flows with at least 25,000 internationally mobile students are shown.

2 Excluding the number of international students in Mainland China and Singapore, as well as that of Chinese students in Japan, as no current data are available or such data are non-existent.

3 Including students from Hong Kong and Macao.

4 Data on incoming students from 2020, as UNESCO data for 2021 were not (yet) published at the time of writing.

5 Including Hong Kong and Macao. Mobility between Hong Kong and Macao, as well as from Mainland China to Hong Kong and Macao, has been excluded. As no country-specific data on incoming students are available for Mainland China, students moving from Hong Kong and Macao to Mainland China are however still included.

6 First-year students are students in their first university semester, including doctoral students in their first study programme.

7 Figures for universities, including colleges of art, music, education and theology.

8 As part of the new DZHW Student Survey in Germany 2021 the mobility rate for students in later semesters was adjusted by redefining "later semesters". As a result, the recalculated figures after 2012 can no longer be compared with those from previous Social Surveys carried out between 1991 and 2009 but are slightly lower overall. The decline between 2009 and 2012 could thus be purely statistical, at least in part.

9 From 2020, the number of guest researchers from abroad includes the guest researchers funded by the Max Planck Society and the Helmholtz and Leibniz Associations.

10 Switzerland has not been a programme country in the Erasmus+ programme since 2014.

11 From 2022, including data pertaining to guest researchers from Germany, whose visits abroad were funded by the Helmholtz and Leibniz Associations.

12 For the sake of simplicity and readability, the term "International Office" is used here for these organisational units, which are given very different names at universities.

other international organisations. This third-party funding represents 9% of all third-party funding at German universities. EU third-party funding snowballed by 49% between 2010 and 2021. In terms of third-party funding from other international organisations, German universities raised 41% less funding overall in 2021 than in 2010. However, an upward trend can be observed once again since 2015.

> “As of 2024, 414 of 427 German universities now offer as many as 2,200 study programmes with English as the primary language of instruction.

Transnational education (TNE) is the name given to a sub-area of internationalisation in which universities from one country bear academic responsibility for study programmes offered in another country that have been set up for prospective students from that country. German universities are represented worldwide with transnational education projects at 44 locations in 29 countries and with 316 study programmes. Around 37,300 students are currently enrolled in German TNE projects, an increase of 30% over 2015. The regional focus of the German TNE projects is on North Africa and the Middle East (Egypt, Jordan, Oman) and the Asia and Pacific region (China, Vietnam, Singapore).

A **Spotlight in Chapter F** presents **“English-language study programmes in Germany and around the world: development, status and significance from the perspective of international students”.** Outside the Big Four host countries of the United States, the United Kingdom, Canada and Australia, just under 41,000 English-language, on-campus study programmes are available for bachelor’s and master’s degrees. This number has tripled over the last decade, almost doubling in the past five years.

In July 2024, a total of 2,175 study programmes with English as the primary language of instruction were offered in Germany, accounting for almost 10% of all study programmes. There has been a more than fivefold increase in the number of English-language study programmes at German universities over the last 15 years. The vast majority of 414 of 427 German universities now offer degree programmes in English. The three subject groups of business, administration and law (26%), mathematics and natural sciences (26%) plus engineering (18%) represent 70% of these study programmes. According to initial estimates, half (50%) of international students at German universities are enrolled in exclusively English-language programmes, a further 19% in programmes with classes in both German and English and just 31% in exclusively German-language programmes.

1.1 Mobility trends and mobility flows

According to UNESCO, approximately 6.4 million students were once again enrolled outside their home country in 2021. The impact of the pandemic became glaringly apparent in 2021, when the number of internationally mobile students rose year-on-year by a mere 11,000 or so (compared to the development from 2019 to 2020: +261,000). For example, major host countries such as Russia, Australia and the US saw significant declines in 2021 (–30%, –17% and –13% respectively). Nonetheless, the number of internationally mobile students has rocketed by roughly 2.4 million, or 59%, overall since 2011, only about half of which can be explained by the parallel increase in the number of all students worldwide during the same period (+30%). The reasons for this marked upswing can be roughly divided into push and pull factors. Push factors are understood to be problems in the respective countries of origin that act as a motive for mobility. They include, in particular, political and economic instability, often paired with insufficient capacities in the higher education system, poor quality teaching, the lack of reputation of universities and research, and limited employment opportunities. Inadequate capacities at domestic universities often go hand in hand with a growing population. Pull factors, on the other hand, are certain characteristics of the various host countries. Most of these factors are virtually a mirror image of the push factors: political and economic stability, combined with well-developed capacities in the higher education system, high quality teaching, worldwide renown for higher education and research, and good employment opportunities.

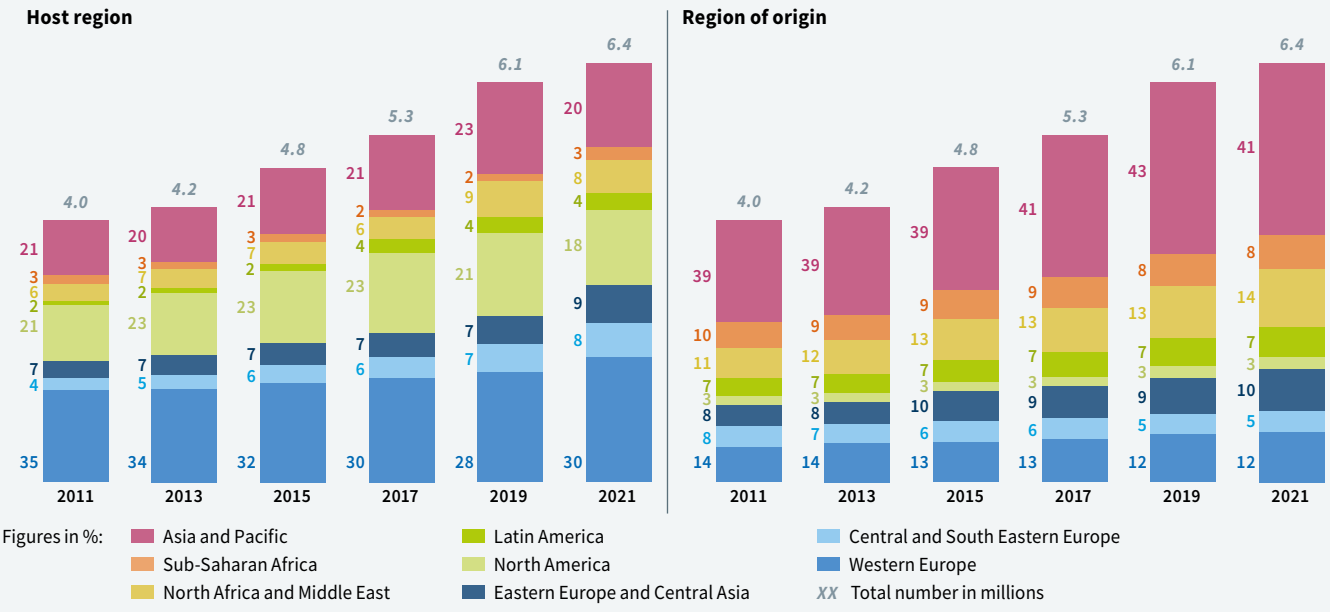
The importance of most host regions and regions of origin of international students fluctuated only slightly between 2011 and 2021. Western Europe continues to dominate the host regions (30%), followed by Asia and Pacific (20%) and North America (18%). However, Western

Methodology

The basis for the collection and processing of data is the *International Standard Classification of Education* (ISCED) of 2011, which ensures the international comparability of national data. This may result in deviations from national figures, including the data on the number of international students in Germany by countries of origin, illustrated in chapter B.

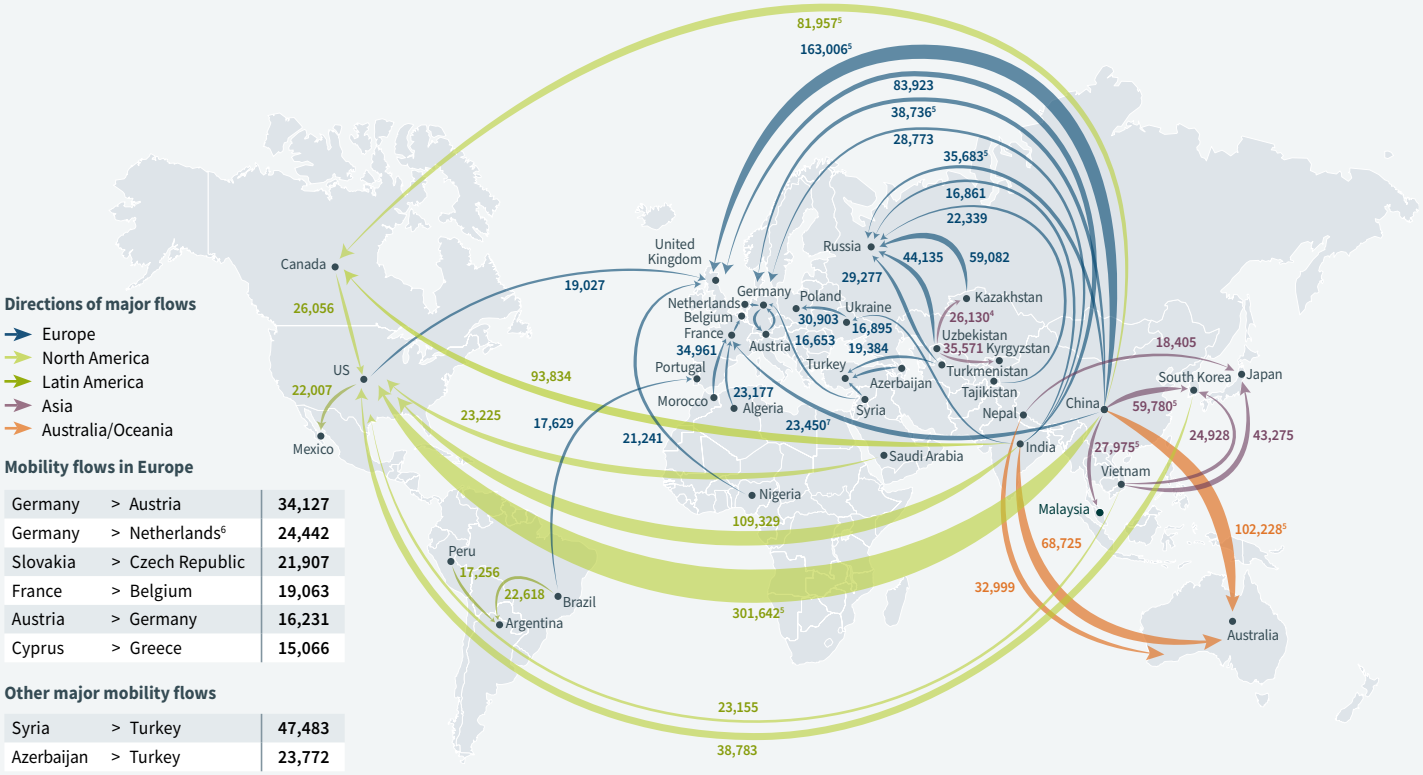
When interpreting the data presented here, it should also be noted that the vast majority of cases of student mobility recorded by UNESCO involve degree-related international mobility (degree mobility) and only a very small proportion are temporary study-related mobility (credit mobility). Moreover, the UNESCO statistics are not taken from a complete survey of all mobile students worldwide but are merely the best possible calculation of these statistics, based on the available data. Missing data are estimated. The availability and informative value of the data largely depend on the development of education statistics in the respective countries. To date, some countries, particularly in South and Central America and Africa, have been unable to provide any data on international students at their universities. Even China, now a major host country, has not yet provided UNESCO with any data on the origin of international students in China. This inevitably leads to the importance of certain host countries and countries or regions of origin being underestimated.

A1.1 International students worldwide, by host region and region of origin, since 2011[1, 2]



Source: UNESCO, student statistics; country-specific reporting periods; DAAD calculations

A1.2 Major flows of international student mobility, in 2021[2, 3]



Mobility flows in Europe

Germany	> Austria	**34,127**
Germany	> Netherlands[6]	**24,442**
Slovakia	> Czech Republic	**21,907**
France	> Belgium	**19,063**
Austria	> Germany	**16,231**
Cyprus	> Greece	**15,066**

Other major mobility flows

Syria	> Turkey	**47,483**
Azerbaijan	> Turkey	**23,772**

Figures in absolute student numbers

Sources: UNESCO, student statistics; Federal Statistical Office, "Deutsche Studierende im Ausland" survey; country-specific reporting periods; DAAD calculations

Europe's share has fallen by five percentage points since 2011. Among the regions of origin, Asia and Pacific has for years represented by far the largest share of internationally mobile students (41%), followed by North Africa and Middle East (14%), and Western Europe (12%).

Footnotes

1 Deviations in comparison with previous issues of *Wissenschaft weltoffen* and *Wissenschaft weltoffen kompakt* are due to updates of the UNESCO database.

2 Excluding the number of international students in Mainland China and Singapore, as well as that of Chinese students in Japan, as no current data are available or such data are non-existent.

3 For the sake of clarity, only mobility flows with at least 15,000 internationally mobile students are shown.

4 Data on incoming students from 2020, as UNESCO data for 2021 were not (yet) published at the time of writing.

5 Including students from Hong Kong and Macao.

6 Data from the Federal Statistical Office for 2021, as UNESCO data for 2021 were not (yet) published at the time of writing.

7 Unclear whether students from Hong Kong and Macao are included.

8 Including Hong Kong and Macao. Mobility between Hong Kong and Macao, as well as from Mainland China to Hong Kong and Macao, has been excluded. As no country-specific data on incoming students are available for Mainland China, students moving from Hong Kong and Macao to Mainland China are however still included.

The largest flows of international student mobility lead from China, by a clear margin the most important country of origin, to the US and the United Kingdom as host countries, along with India to the US. In 2021, a rough total of 996,100 students from China were enrolled at universities abroad.[8] Despite accounting by itself for 16% of all internationally mobile students worldwide, this figure has fallen by 7% compared to the previous year. This also affects the increase in the percentage of internationally mobile Chinese students over the last ten years, which is now lower than in previous decades (+52%). Somewhat in excess of 301,600 Chinese students were enrolled at universities in the US in the 2021 academic year, representing 5% of global student mobility. This figure decreased by 14% year-on-year. For 2021, UNESCO lists around 163,000 Chinese students in the United Kingdom (+1%) and around 109,300 Indian students in the US (–15%). Other notable student mobility flows are from China to Australia (roughly 102,200, –26% year-on-year), from India to Canada (93,800, –1%), from India to the United Kingdom (83,900, +52%) and from China to Canada (82,000, –1%).

Within Europe, the principal student flows are from Germany to Austria (approximately 34,100, +12%) and the Netherlands (24,400, +/–0%), from Ukraine to Poland (30,900, +14%), from Slovakia to the Czech Republic (21,900, +1%), from France to Belgium (19,100, +5%), from Austria to Germany (16,200, +12%) and, lastly, from Cyprus to Greece (15,100, +9%).

1.2 Major host countries

With regard to the host countries of international students, it is crucial to distinguish between countries with the highest absolute number and countries with the largest percentage of international students. For example, in 2021, the number of international students in the US – by far the most important host country – was in the region of 833,200.

> “Countries of origin are considerably more diverse in Germany than in Australia, Canada and the US.

However, a closer look at the US share of all students shows that the figure is only around 5%. On the other hand, a mere 15,400 international students were studying in Qatar in the same year, yet the share of all students here is 38%. Other countries with high percentages of international students are Singapore (29%), Kyrgyzstan (23%), Australia and Cyprus (22% each). By contrast, China, ranked eighth among the key host countries, has a mere 0.4%, and in Norway, which hosts a similar number of international students to Qatar, the figure is just 4%.

A1.3 Host countries with the highest number and the highest share of international students, in 2021[1, 2]

Host country	Number of international students
US	833,204
United Kingdom	600,589
Australia	378,439
Germany	376,359
Russia	321,845
Canada	312,630
France	252,856
China[3]	229,459
Turkey	224,048
Japan	216,241

Host country[4]	Share of international students in %
Qatar	37.6
Singapore	28.6
Kyrgyzstan	23.0
Australia	21.9
Cyprus	21.8
United Kingdom	20.1
Austria	18.7
Switzerland	18.4
Canada	17.4
Czech Republic	15.6

Source: UNESCO, student statistics; country-specific reporting periods; DAAD calculations

International Education Hubs: Qatar’s Education City[7, 8]

The high percentage of international students in Qatar may also be explained by the fact that a large part of the population are immigrants (without Qatari citizenship). Another plausible reason is the government’s investment in the higher education sector since the late 1990s, with the goal of establishing Qatar as an “education hub” within the region. While Qatar only had one university until 2001, six branch campuses of universities from the US and one from France are now located on a campus known as Education City. To meet the needs of Qatar and the region, emphasis was placed on the areas of medicine, engineering, economics and information technologies when selecting these branch campuses. Qatar is thus an attractive academic destination, not just for domestic students but also for students from neighbouring countries.

Depending on the host country, the percentages of the key countries of origin vary in relation to the respective total number of international students: with the highest number of international students, China and India are the two key countries of origin for the top five host countries US, the United Kingdom, Australia, Germany and Canada. While these two countries alone account for approximately half of all international students in Australia (45%), the US (49%) and Canada (56%), their share is considerably lower in Germany (18%). The countries of origin are thus noticeably more diverse in Germany than in Australia, Canada or the US. A comparatively low level of diversity can also be observed in the United Kingdom, where Chinese and Indian students make up

Footnotes

1 Excluding the number of international students in Mainland China and Singapore, as well as that of Chinese students in Japan, as no current data are available or such data are non-existent.

2 International doctoral students in Germany including Bildungsinlaender: UNESCO statistics include the results of the Federal Statistical Office’s survey of doctoral students, which – unlike the student statistics compiled by the Federal Statistical Office – include doctoral students who were not enrolled. However, until now, it has not been possible to distinguish between international students and Bildungsinlaender in these data.

3 Including Hong Kong and Macao. Mobility between Hong Kong and Macao, as well as from Mainland China to Hong Kong and Macao, has been excluded. As no country-specific data on incoming students are available for Mainland China, students moving from Hong Kong and Macao to Mainland China are however still included.

4 Only countries with at least 10,000 international students.

5 Including Hong Kong and Macao.

6 See Preiss (2012).

7 See Ibnouf et al. (2014).

8 See Qatar’s Education City website: https://www.qf.org.qa/education/education-city (retrieved on 17 April 2024).

41% of all international students. For the US, Australia, Canada and the United Kingdom, this means that the enrolment figures for international students largely depend on just one or two countries of origin. Particularly in these four countries, this dependency is further exacerbated by the fact that international students pay significantly higher tuition fees than domestic students and therefore contribute a large proportion of university funding. Sudden drops in inbound mobility from China and India can soon cause tremendous problems for the entire university funding in these countries. One example is the conspicuous decline in the number of Indian students in Australia between 2007 and 2011, from over 30,000 students to fewer than 10,000 students.[6]

Apart from China and India, the key countries of origin of international students in Canada notably include France, which is closely linked to Canada by virtue of its language and culture. In the case of Germany, the relatively high number of students from Austria and Turkey can certainly also be attributed in part to strong economic relations, cultural links and family ties. With 64% and 22% of all internationally mobile students from Austria and Turkey respectively, Germany is also their key host country.

In Russia, moreover, the profile of origin of international students is strongly influenced by regional factors. The four key countries of origin – Kazakhstan, Uzbekistan, Turkmenistan and Tajikistan – currently account for almost half of all international students. Meanwhile, China has moved up into third place in Russia's key countries of origin and, together with India, the sixth key country of origin, represents some 16%. A similarly strong regional profile of origin of international students can be seen in Australia, where the five key countries of origin are all located in the same region (Asia and Pacific).

A1.4 Key countries of origin of international students in the key host countries, in 2021

Host country: US

Other countries 40.1%

Country of origin	Number	In %
China[5]	301,642	36.2
India	109,329	13.1
South Korea	38,783	4.7
Canada	26,056	3.1
Saudi Arabia	23,225	2.8

Host country: Germany

Other countries 70.2%

Country of origin	Number	In %
China[5]	38,736	10.3
India	28,773	7.6
Syria	16,653	4.4
Austria	16,231	4.3
Turkey	11,588	3.1

Host country: United Kingdom

Other countries 49.8%

Country of origin	Number	In %
China[5]	163,006	27.1
India	83,923	14.0
Nigeria	21,241	3.5
US	19,027	3.2
Italy	14,452	2.4

Host country: Russia

Other countries 40.8%

Country of origin	Number	In %
Kazakhstan	59,082	18.4
Uzbekistan	44,135	13.7
China[5]	35,683	11.1
Turkmenistan	29,277	9.1
Tajikistan	22,339	6.9

Host country: Australia

Other countries 39.3%

Country of origin	Number	In %
China[5]	102,228	27.0
India	68,725	18.2
Nepal	32,999	8.7
Vietnam	14,111	3.7
Indonesia	11,683	3.1

Host country: Canada

Other countries 33,8%

Country of origin	Number	In %
India	93,834	30.0
China[5]	81,957	26.2
France	13,155	4.2
Iran	9,075	2.9
Vietnam	8,943	2.9

Source: UNESCO, student statistics; country-specific reporting periods; DAAD calculations

1.3 Major countries of origin

In 2021, the two key countries of origin of internationally mobile students are China, with around 996,100, and India, with around 508,200 internationally mobile students. Lagging well behind are Vietnam (roughly 137,000), Germany (126,400) and Uzbekistan (109,900), although Uzbekistan was in twelfth place the previous year. It should, however, be noted that these statistics do not include any data on international students in Mainland China and Singapore nor on Chinese students in Japan as none have yet been made available to UNESCO. The numbers of international students in China used in the last edition of *Wissenschaft weltoffen* referred to reporting year 2018 and were provided by China's Ministry of Education (MOE). They have not been updated since. With regard to the countries of origin, it is crucial to distinguish between countries with the highest absolute number and countries with the largest percentage of internationally mobile students. Although China was by far the most important country of origin in 2021, with some 996,100 internationally mobile students, they account for just 2% of all Chinese students. In India, the second key country of origin, the share of internationally mobile students is a mere 1%. By contrast, several other countries report markedly higher proportions of internationally mobile students in relation to the total number of students. In particular, they include countries with limited study capacities or, in some cases, an underdeveloped higher education system by global standards: Luxembourg (63%), Turkmenistan (46%), Cyprus (33%), Slovakia (18%),

> "40% of internationally mobile students from India are enrolled in North America, while just 16% remain in the Asia and Pacific region.

A1.5 Countries of origin with the highest number and the highest share of internationally mobile students, in 2021[2]

Country of origin	Number of internationally mobile students
China[3]	996,116
India	508,174
Vietnam	137,022
Germany	126,359
Uzbekistan	109,945
France	105,790
US	102,691
Syria	99,050
Kazakhstan	91,860
South Korea	90,196

Country of origin[4]	Share of internationally mobile students in %
Luxembourg	63.1
Turkmenistan	46.4
Cyprus	33.3
Slovakia	18.1
Moldova	17.2
Kuwait	16.5
Azerbaijan	16.2
Uzbekistan	16.1
Nepal	16.0
Bosnia and Herzegovina	15.4

Source: UNESCO, student statistics; country-specific reporting periods; DAAD calculations

Footnotes

1 This ratio should be understood as the share of German students studying abroad for a degree in relation to the total number of German students. It is substantially lower than the ratio of students on temporary study-related visits abroad (see Chapter C2).

2 Excluding the number of international students in Mainland China and Singapore, as well as that of Chinese students in Japan, as no current data are available or such data are non-existent.

3 Including Hong Kong and Macao. Mobility between Hong Kong and Macao, as well as from Mainland China to Hong Kong and Macao, has been excluded. As no country-specific data on incoming students are available for Mainland China, students moving from Hong Kong and Macao to Mainland China are however still included.

4 Only countries with at least 10,000 internationally mobile students.

5 Data from the Federal Statistical Office for 2021, as UNESCO data for 2021 were not (yet) published at the time of writing.

6 See also Barnett et al. (2016), Didelon/Richard (2012), Shields (2013), Shields (2016).

7 It should, however, be noted that, the larger the size and number of countries within a region, the greater the likelihood of a high proportion of intraregional mobility, which is therefore strongly influenced by the regional classification used. This is clearly illustrated, for example, by comparing North America with the Asia and Pacific region.

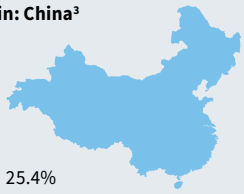
Moldova and Kuwait (17% each), Azerbaijan, Uzbekistan and Nepal (16% each), plus Bosnia and Herzegovina (15%). According to UNESCO statistics, the share of internationally mobile students in Germany is around 4% of all students.[1]

Looking at both the countries of origin with the highest share and those with the greatest increase in the number of internationally mobile students recorded by UNESCO, it is striking that smaller countries, as well as countries that do not yet have an internationally renowned higher education system, achieve particularly high percentages and/or growth rates. On the other hand, the mobility rates and growth rates are much lower by comparison in countries such as Germany, the US and the United Kingdom. This is partly explained by the fact that UNESCO statistics primarily record degree-related student mobility (see the methodology info box on p. 14). Students' motives for this form of mobility differ fundamentally from those for temporary study-related mobility. While degree-related international mobility generally stems from the individual's endeavour to improve their life and career prospects by graduating from a foreign university, temporary study-related mobility tends to be characterised by motives such as broadening horizons, honing language skills and career promotion.

Historical, linguistic, economic and political factors lead to clear preferences among the host countries favoured by internationally mobile students.[6] In some countries of origin, this may create a strongly regional orientation of student mobility.[7] By way of illustration, 61% of German and 69% of French students remain within Western Europe when studying abroad, while 75% of internationally mobile students from Uzbekistan stay in Eastern Europe and Central Asia. Moreover, the majority of Vietnamese students (61%) spend their study period abroad within the Asia and Pacific region. By contrast, a significantly lower proportion of intraregional mobility is evident among Chinese and Indian students, only 20% and 16% respectively of whom choose a host country in the Asia and Pacific region, while 39% and 40% respectively opt to study in North America.

A1.6 Preferred host countries of internationally mobile students from the key countries of origin, in 2021[2]

Country of origin: China[3]



Other countries 25.4%

Host country	Number	In %
US	301,642	30.3
United Kingdom	163,006	16.4
Australia	102,228	10.3
Canada	81,957	8.2
South Korea	59,780	6.0

Country of origin: Germany

Other countries 30.7%

Host country	Number	In %
Austria	34,127	27.0
Netherlands[5]	24,442	19.3
United Kingdom	12,013	9.5
Switzerland	11,623	9.2
US	5,361	4.2

Country of origin: India

Other countries 24.3%

Host country	Number	In %
US	109,329	21.5
Canada	93,834	18.5
United Kingdom	83,923	16.5
Australia	68,725	13.5
Germany	28,773	5.7

Country of origin: Uzbekistan

Other countries 16.8%

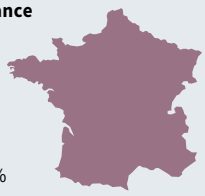
Host country	Number	In %
Russia	44,135	40.1
Kyrgyzstan	35,571	32.4
South Korea	7,641	6.9
Turkey	2,423	2.2
Latvia	1,710	1.6

Country of origin: Vietnam

Other countries 16.5%

Host country	Number	In %
Japan	43,275	31.6
South Korea	24,928	18.2
US	23,155	16.9
Australia	14,111	10.3
Canada	8,943	6.5

Country of origin: France



Other countries 34.9%

Host country	Number	In %
Belgium	19,063	18.0
United Kingdom	14,042	13.3
Canada	13,155	12.4
Switzerland	12,267	11.6
Spain	10,336	9.8

Sources: UNESCO, student statistics; Federal Statistical Office, "Deutsche Studierende im Ausland" survey; country-specific reporting periods; DAAD calculations

1.4 Student mobility in Europe

One of the central objectives of European higher education policy is to increase student mobility in the European Higher Education Area (EHEA). A specific mobility goal was set for all EU countries in 2011 in the "Council conclusions on a benchmark for learning mobility" and subsequently adopted for all EHEA countries one year later in the Bucharest Communiqué, as part of the Bologna Process. According to this, by 2020 at least 20% of any cohort of university graduates in the EU or EHEA countries should have obtained a degree abroad or gained temporary study-related mobility experience. Temporary study-related mobility is defined as recognised study visits and placements of at least three months' duration or with at least 15 ECTS credits obtained abroad. Corresponding data have so far only been published for the EU countries. With 9.1% temporary study-related mobility (credit mobility) and 4.3% degree-related international mobility (degree mobility) in the target year 2020, not only was the EU mobility goal not met, but the figures had plummeted year-on-year, presumably on account of the pandemic.[1] The following year, credit mobility was up to 9.8%[2] and degree mobility down to 3.3%.[3]

A comparison between the individual EU countries reveals noticeable differences with regard to international student mobility. Within the EU, Luxembourgish students are in first place, both in terms of temporary study-related visits abroad (26%) and degree-related international mobility (63%). Runners up in temporary mobility are France (26%), the Netherlands (14%), Austria and Sweden (12% each). By contrast, degree-related international mobility is particularly popular among students from Cyprus (33%), Slovakia (18%), Bulgaria (10%) and Lithuania (9%). Accordingly, there are often very different preferences for the two types of mobility, depending on the country of origin. For example, temporary study-related mobility plays a very minor role in Cyprus and Slovakia. Conversely, just 4% of French and 2% of Dutch students are mobile in relation to their degree. Similar proportions of both types of mobility can be observed in Poland and Estonia, however. With 4% degree-related and 11% temporary study-related mobility, Germany is slightly above the EU average for both types.

As of 2021, the key student mobility flows within the EHEA go from Kazakhstan to Russia, with 59,100 students, from Germany to Austria and

A1.7 Mobility rates of graduates in the EU with temporary study-related visits abroad, by countries of origin, in 2021[1,2]

Country of origin	Share of all internationally mobile graduates in %
Luxembourg	25.9
France	25.6
Netherlands	14.1
Austria	12.4
Sweden	11.7
Germany	11.2
Spain	9.8
Latvia	8.2
Estonia	8.0
Finland	7.3
Czech Republic	6.9
Lithuania	6.9
Denmark	6.6
Belgium	5.0
Portugal	4.6
Malta	4.4
Hungary	3.2
Croatia	2.8
Italy	2.6
Slovenia	2.0
Poland	1.9
Bulgaria	1.7
Greece	1.7
Cyprus	1.3
Romania	1.3
Slovakia	0.7
Total EU	9.8

Source: European Commission, Education and Training Monitor 2023

A1.8 Mobility rates of students in the EU with degree-related visits abroad, by countries of origin, in 2021[3]

Country of origin	Share of internationally mobile students in %
Luxembourg	63.1
Cyprus	33.3
Slovakia	18.1
Bulgaria	10.1
Lithuania	8.6
Estonia	7.2
Latvia	6.1
Croatia	6.1
Ireland	6.0
Malta	6.0
Romania	5.8
Portugal	5.6
Austria	5.5
Greece	4.6
Hungary	4.6
Italy	3.9
Germany	3.6
France	3.6
Czech Republic	3.6
Slovenia	3.6
Finland	3.3
Belgium	3.1
Sweden	2.8
Spain	2.0
Poland	2.0
Denmark	1.9
Netherlands	1.8
Total EU	3.3

Source: UNESCO, student statistics; country-specific reporting periods; DAAD calculations

Footnotes

1 It should be noted here that the Council of the European Union published a Council Recommendation in May 2024 that sets new mobility targets by 2030 (Council of the EU, 2024). Accordingly, the target is now defined as 23% of internationally mobile graduates; however, short and hybrid visits with at least 3 ECTS credits are also taken into account. Data on these new targets are not yet available.

2 The deviations compared to the previous year are due to a change in the method of calculation.

3 The European Commission has not published any calculations for the degree-related mobility rates of graduates (of ISCED 2011 levels 6 and 7) in the EU for the reporting year 2021. The student statistics of the UNESCO database were therefore used to calculate the data for *Wissenschaft weltoffen*. As they are based on data for current students in ISCED 2011 levels 5 to 8, this has led to some significant deviations from the data of the European Commission for the reporting year 2020 in the last edition of *Wissenschaft weltoffen*.

4 For the sake of clarity, only mobility flows with at least 5,000 students are shown.

5 The UNESCO statistics were combined with data from the Federal Statistical Office on the number of German students in the Netherlands in 2021 as UNESCO data for 2021 were not (yet) published at the time of writing.

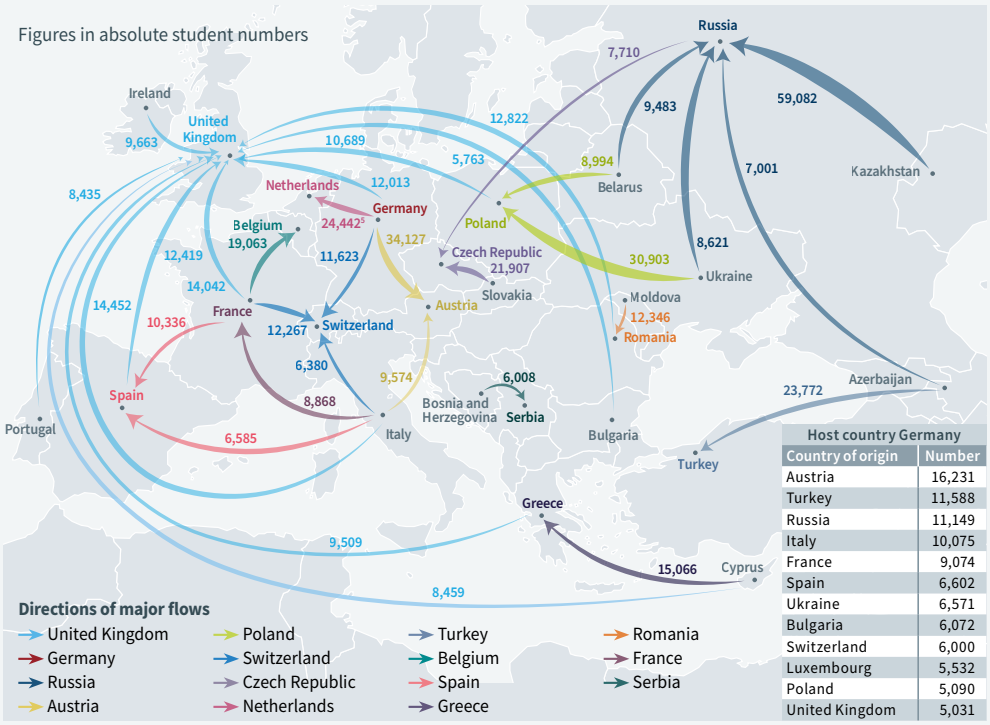
6 Data on the Netherlands as a host country from 2019 and on the other host countries of Egypt, Brunei Darussalam, Costa Rica, Ecuador, Iran, Kazakhstan, Laos, Mauritania and Namibia from 2020 as UNESCO data for 2021 were not (yet) published at the time of writing.

from Ukraine to Poland, with over 30,000 students each. The key host country for students from the EHEA is the United Kingdom with around 170,900 international students from other EHEA countries, followed by Germany (137,400), Russia (95,900) and Austria (70,700). The key country of origin of students from the EHEA is Germany, with roughly 119,100 internationally mobile students in other EHEA countries, ahead of France (81,300), Italy (74,800), Kazakhstan (72,100) and Ukraine (68,000).

Looking at the 20 key host countries of the EHEA, it is clear that the EHEA plays a very different role as a region of origin for international students in these countries. The countries with the highest shares of students from EHEA countries are Austria (88%), the Czech Republic (85%), Denmark (80%), Switzerland and Poland (75% each). Comparatively low proportions of international students from EHEA countries are found in Belarus (15%), Portugal (16%) and France (17%), for example.

By the same token, there are also considerable differences within the EHEA with regard to the 20 key countries of origin. Moldova, at 99%, Cyprus, Slovakia and Belarus, at 98% each, all report the highest shares of internationally mobile students in other EHEA countries. Conversely, the proportion of host countries outside the EHEA does not exceed 40% in any country. The highest shares are observed in the United Kingdom (37%), Turkey (24%), Spain and France (22% each). Although most internationally mobile students from many EHEA countries appear to be studying in other EHEA countries, this does not mean that they represent the majority of international students in these countries. Students from non-EHEA countries dominate particularly in the United Kingdom and Germany, the two key host countries of the EHEA.

A1.9 Major flows of student mobility within the European Higher Education Area, in 2021[4]



Host country Germany

Country of origin	Number
Austria	16,231
Turkey	11,588
Russia	11,149
Italy	10,075
France	9,074
Spain	6,602
Ukraine	6,571
Bulgaria	6,072
Switzerland	6,000
Luxembourg	5,532
Poland	5,090
United Kingdom	5,031

Sources: UNESCO, student statistics; Federal Statistical Office, "Deutsche Studierende im Ausland" survey

A1.10 Key host countries of the European Higher Education Area, by shares of incoming students from EHEA and non-EHEA countries, in 2021

	Number of incoming students				
		From EHEA countries		From non-EHEA countries	
Host country	Number	Ratio in %		Ratio in %	Number
Austria	70,693	88		12	9,420
Czech Republic	43,273	85		15	7,769
Denmark	24,669	80		20	6,118
Switzerland	43,953	75		25	14,504
Poland	53,713	75		25	18,324
Romania	24,632	73		27	9,141
Belgium	32,255	69		31	14,673
Sweden	12,235	49		51	12,791
Hungary	18,233	48		52	19,690
Germany	137,413	40		60	210,260
Italy	25,421	39		61	39,351
Spain	31,189	39		61	49,296
Russia	95,883	30		70	223,657
United Kingdom	170,879	28		72	429,651
Ireland	6,358	28		72	16,623
Turkey	48,847	22		78	174,766
Ukraine	13,048	19		81	55,585
France	42,604	17		83	206,565
Portugal	7,570	16		84	39,486
Belarus	3,299	15		85	19,064

Source: UNESCO, student statistics; DAAD calculations

A1.11 Key countries of origin of the European Higher Education Area, by shares of outgoing students to EHEA and non-EHEA countries, in 2021[6]

	Number of outgoing students				
		To EHEA countries		To non-EHEA countries	
Country of origin	Number	Ratio in %		Ratio in %	Number
Moldova	19,851	99		1	200
Cyprus	26,281	98		2	428
Slovakia	30,479	98		2	655
Belarus	23,859	98		2	573
Azerbaijan	42,892	97		3	1,120
Bulgaria	24,680	97		3	841
Romania	33,046	97		3	1,183
Austria	24,134	95		5	1,180
Ukraine	67,973	95		5	3,555
Greece	37,937	94		6	2,590
Germany[5]	119,056	93		7	9,524
Poland	25,106	92		8	2,120
Kazakhstan	72,066	91		9	6,717
Portugal	16,776	90		10	1,928
Italy	74,786	89		11	9,632
Russia	48,636	81		19	11,377
France	81,263	78		22	22,986
Spain	36,088	78		22	10,359
Turkey	39,510	76		24	12,683
United Kingdom	23,978	63		37	14,221

Sources: UNESCO, student statistics; Federal Statistical Office, "Deutsche Studierende im Ausland" survey; DAAD calculations

SPOTLIGHT

Student mobility between the United States and Europe: development and status

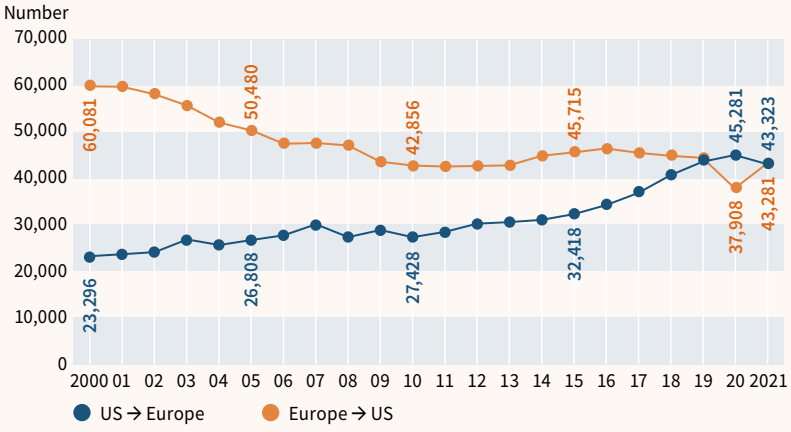
Academic mobility between the US and Europe is a major aspect of transatlantic university relations. The extent thereof is an important indicator of the intensity and quality of academic exchange. The following therefore examines the development and current scale of student mobility between the United States and Europe, whereby Europe is understood to be the current 27 EU countries as well as Switzerland and the United Kingdom. The UNESCO student statistics, which record degree mobility, served as the data basis.[4, 5]

Considering first the development in absolute numbers of US students in Europe and European students in the US between 2000 and 2021, two central findings become apparent: while the number of US students in Europe has almost doubled, from roughly 23,000 to 43,000 (+86%), the number of European students in the US tumbled by almost one third over the same period, from roughly 60,000 to 43,000 (–28%). At the beginning of the period under review, almost three times as many European students were enrolled in the US than US students in Europe; for 2021, however, the mobility balance is balanced. A closer look at the development of the figures reveals that the decline in student mobility from Europe to the US primarily occurred between 2001 and 2009 (–27%), while the strongest increase in student mobility from the US to Europe was recorded in the period from 2010 to 2020 (+65%).

The development in absolute mobility numbers also leads to changes in the relative significance of transatlantic student mobility in the context of overall student mobility in the US and Europe. An initial glance at the inbound mobility of students to the US shows that the share of European students of all international students in the US between 2000 and 2021 has halved, from almost 12% to a mere 6%. Moreover, an analysis of the inbound mobility of students to Europe during the same period demonstrates that the share of US students of all international students in Europe has also fallen by about one third, from just under 3% to 2%, despite the significant rise in the absolute number of US students in Europe. This development is a consequence of the growing number of international students from other countries (+176%), which increased more than twice as much as the number of US students in Europe over the same period (+86%).

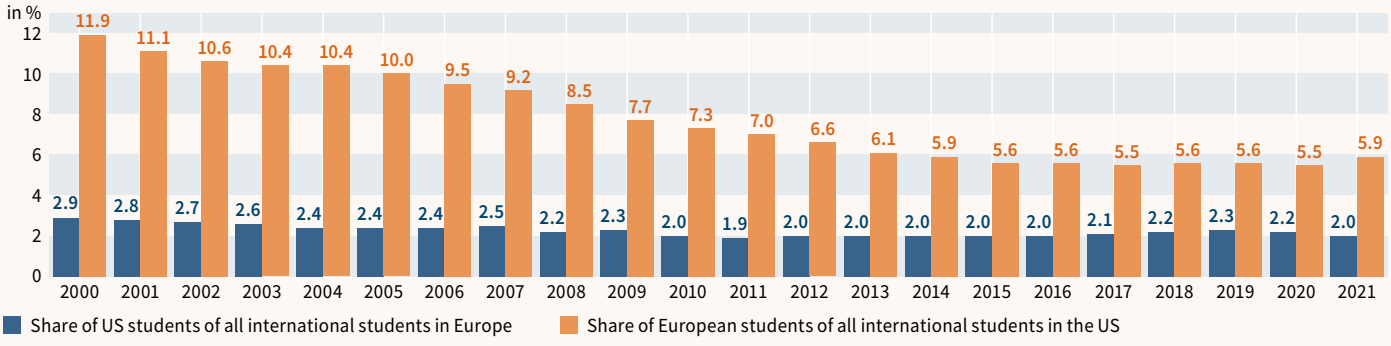
The relative importance of the US as a host country for European students also dropped sharply by slightly over half, from over 13% to just 5%, between 2000 and 2021. Despite the dramatic increase in the number of US students in Europe between 2000 and 2021, Europe also suffered a relative loss of importance as a host region for US students during this period. Nonetheless, this is at a markedly higher level than the opposite direction: in 2000, more than half (51%) of all internationally mobile students from the US were enrolled in one of the European countries here under review. By 2021, this proportion had fallen to 42%.

AS1 Student degree mobility between Europe and the US, 2000–2021[1, 2, 3, 4, 5]



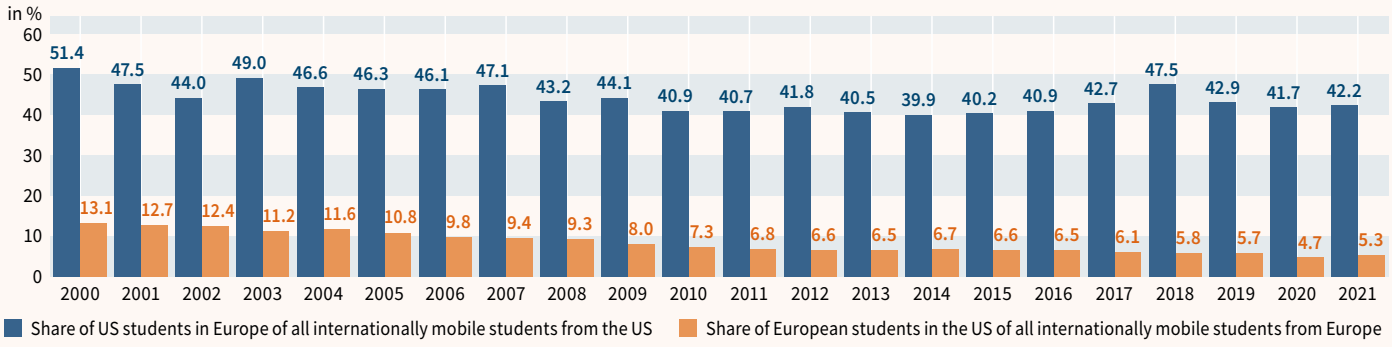
Sources: UNESCO, student statistics; Federal Statistical Office, student statistics; Institute of International Education (IIE), Open Doors Report on International Educational Exchange; Nuffic, student statistics; country-specific reporting periods

AS2 Share of US students in Europe and European students in the US of all international students in the US and Europe respectively, 2000–2021[1, 2, 3, 4, 5, 6, 7]



Sources: UNESCO, student statistics; Federal Statistical Office, student statistics; Institute of International Education (IIE), Open Doors Report on International Educational Exchange; Nuffic, student statistics; country-specific reporting periods; DAAD calculations

AS3 Share of US students in Europe and European students in the US of all internationally mobile students from the US and Europe respectively, 2000–2021[1, 2, 3, 4, 5]



Sources: UNESCO, student statistics; Federal Statistical Office, student statistics; Institute of International Education (IIE), Open Doors Report on International Educational Exchange; Nuffic, student statistics; country-specific reporting periods; DAAD calculations

To conclude, the relevance of the US as a host country and country of origin will be presented from the perspective of the individual European countries considered here. To evaluate the importance of the US as a host country, the percentage of students in the US of all internationally mobile students from the respective European country of origin was first calculated. The results range from 0.4% in the case of Luxembourg to over 20% for the United Kingdom. For five of the 29 European countries analysed, the share of the US as host country is 10% or above, whereas for 18 countries it is less than 5%. By contrast, the differences between the European countries studied here are somewhat smaller when considering the relevance of the US as a country of origin. The share of US students of all international students in the respective host countries ranges from 0.3% in Slovakia and Cyprus to just under 10% in Ireland. Even a country like the United Kingdom, with its multifaceted transatlantic relations, only reports a share of 3% of US students among its international students. For Germany, the figure is just under 2%.

AS4 Relevance of the US as host country and country of origin for the individual European countries of origin and host countries, in 2021[1, 4]

Host country	Number of US students	Share of US students of all international students in the respective host country in %
Ireland	2,293	9.9
UK	19,027	3.2
Denmark	795	2.6
Finland	629	2.6
Estonia	120	2.3
Malta	68	2.3
Spain	1,800	2.2
Switzerland	1,319	2.2
Croatia	86	2.0
Sweden	636	2.0
Lithuania	145	1.9
Germany	6,988	1.9
Italy	1,062	1.5
Netherlands	1,558	1.1
France	2,876	1.1
Austria	914	1.1
Luxembourg	42	1.1
Poland	763	1.0
Belgium	538	1.0
Czech Republic	428	0.8
Bulgaria	142	0.8
Portugal	340	0.7
Latvia	70	0.7
Hungary	261	0.7
Romania	189	0.6
Greece	130	0.5
Slovenia	28	0.4
Cyprus	37	0.3
Slovakia	39	0.3

Country of origin	Number of students in the US	Share of students in the US of all internationally mobile students from the respective country of origin in %
UK	8,072	20.4
Sweden	2,074	14.7
Spain	5,669	12.1
Denmark	642	11.0
Netherlands	1,863	10.1
Slovenia	204	6.6
Italy	4,806	5.7
Ireland	892	5.6
Greece	2,091	5.2
Czech Republic	629	5.1
Switzerland	950	5.1
Poland	1,339	4.9
Estonia	168	4.8
Finland	492	4.8
France	4,963	4.7
Hungary	636	4.6
Latvia	235	4.6
Belgium	745	4.3
Germany	5,361	4.2
Malta	47	4.0
Croatia	420	4.0
Portugal	794	3.3
Lithuania	284	2.9
Austria	666	2.6
Romania	827	2.4
Bulgaria	563	2.2
Cyprus	374	1.4
Slovakia	278	0.9
Luxembourg	56	0.4

Sources: UNESCO, student statistics; Nuffic, student statistics; country-specific reporting periods; DAAD calculations

Footnotes

1 Europe: EU countries plus Switzerland and the United Kingdom.

2 The number of US students in Germany was provided by the Federal Statistical Office as no complete time series was available in the UNESCO database at the time of writing.

3 The few missing numbers in the UNESCO time series were supplemented by the previous year's figures.

4 The numbers of US students in the Netherlands in 2020 and 2021 have been combined with data from Nuffic as they were not available in the UNESCO database at the time of writing.

5 The number of European students in the US was taken from the "Open Doors" database published by the Institute of International Education (IIE) as no complete time series was available in the UNESCO database at the time of writing.

6 Not including all numbers of international students in Luxembourg between 2000 and 2005 as they were not available in the UNESCO database at the time of writing.

7 The number of all international students in Germany was provided by the Federal Statistical Office as no complete time series was available in the UNESCO database at the time of writing.

2.1 Mobility trends and mobility flows

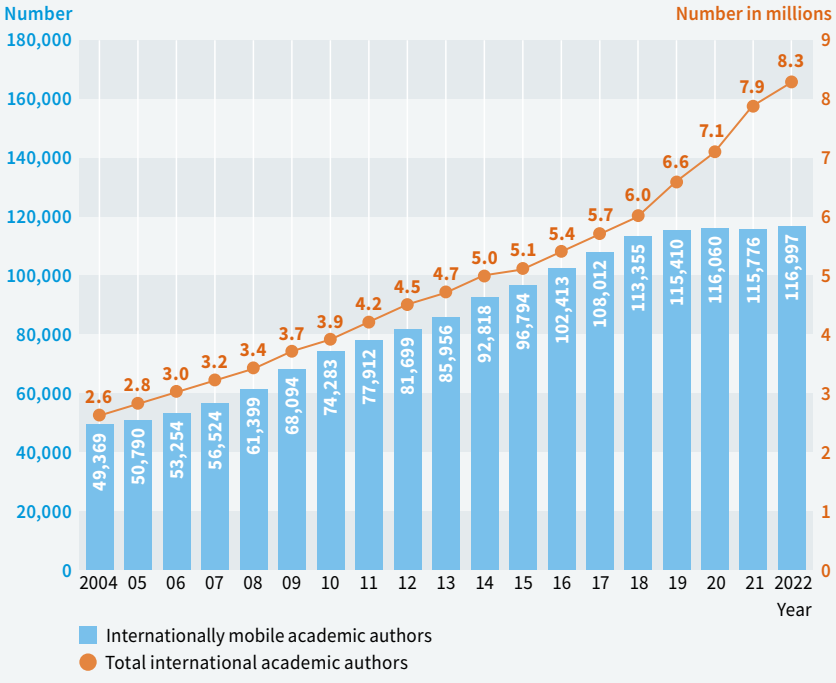
A bibliometric analysis carried out for *Wissenschaft weltoffen* on the basis of Scopus data found approximately 117,000 internationally mobile academic authors around the world for 2022 (see the methodology info box). This corresponds to a slight increase of around 1% year-on-year (roughly 115,800), meaning that the current figure is slightly above the pre-pandemic level. Since 2012, the number of internationally mobile academics and researchers has shot up by 43%. However, the uptick in internationally mobile academics and researchers between 2004 and 2019 shown here may be primarily attributed to the fact that the number of academics and researchers worldwide who contribute to academic journals continues to rise and not to a growing propensity for mobility among these academics and researchers. From the beginning of the survey in 2004 until 2018, the percentage of internationally mobile academics and researchers of all academics and researchers polled worldwide remained constant at between 1.8% and 1.9%; this figure fell to 1.7% in 2019 before dwindling steadily to 1.4% in 2022.[1]

The US is the destination country or country of origin in nine of the ten most significant international mobility flows of academics and researchers (i.e. the country pairings with the most mobile academics and researchers during the period 2020–2022).[2,3] The highest numbers of mobile academics and researchers can be found in both directions between the US and China, India, Canada and the United Kingdom. As in the previous year, the two mobility flows between China and

Methodology

The international publication and citation database Scopus (Elsevier) is used as a data basis for bibliometric analyses of the mobility of academics and researchers presented here. This database documents the respective country of location of the author's institution for every publication. By this means, these databases can also be used to analyse the international mobility of academics and researchers since a comparison of the country of location of different articles submitted by an author allows conclusions to be drawn about their "mobility biography". However, at least two documented publications during the period under review are required to determine mobility. Accordingly, junior researchers who have no or only one academic journal article to show for the period under review are excluded from the analysis, along with researchers whose publications are not documented as Scopus mainly includes journal articles written in English. By the same token, if an academic or researcher is mobile without publishing an article in their respective country of residence, this is not taken into account in the bibliometric analysis. Therefore, when interpreting the data, it is important to bear in mind that this analysis only provides an incomplete picture of the international mobility of academics and researchers (see also pp. 139 ff.). Nonetheless, this measurement is currently the best, most comprehensive method of calculating the international mobility of academics and researchers in a way that facilitates continuous monitoring.

A2.1 Number of internationally mobile academic authors and total number of academic authors worldwide, since 2004[1]



Source: Elsevier, Scopus database; DZHW calculations

Footnotes

1 In the meantime, recalculations have produced more precise figures in terms of the numbers of mobile academic authors for 2021 and earlier, compared to the representation in *Wissenschaft weltoffen 2023*.

2 Owing to the associated low case figures, the period under review has been extended to three-year periods when analysing the mobility flows between individual countries in order to make the measurement less susceptible to short term developments (outliers) in individual years.

3 The term "host country" has been deliberately avoided in the following as the bibliometric analysis of academics and researchers' mobility cannot establish with certainty whether the country in question is actually hosting the academics and researchers or constitutes their home country, to which they returned after their visit abroad.

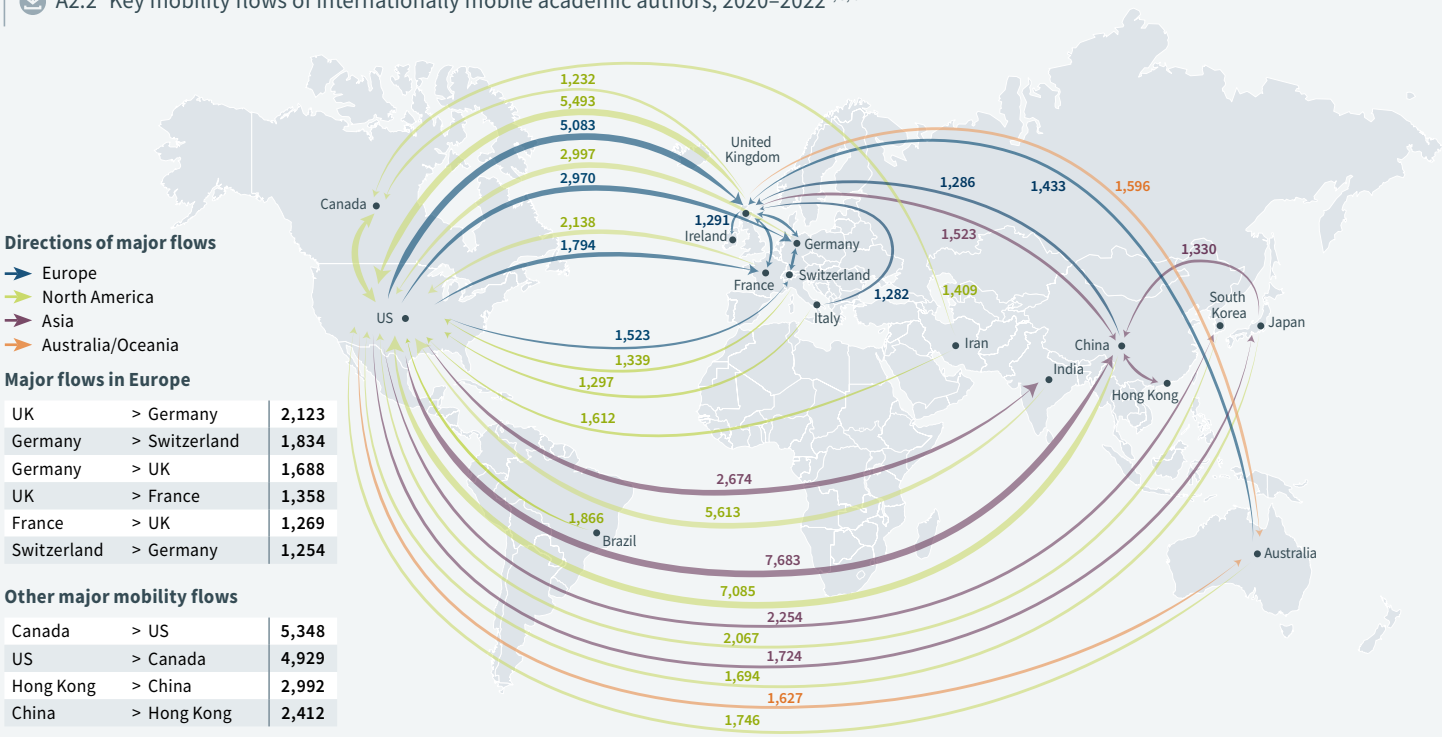
4 Please refer to the data table for Fig. A2.2 for information on the most important mobility flows during the period 2017–2019.

5 The Scopus database lists the Chinese special administrative region Hong Kong separately. For the purposes of comparison, this has also been adopted in *Wissenschaft weltoffen*.

6 For the sake of clarity, only the 40 most important mobility flows worldwide are shown.

7 Only countries with at least 5,000 incoming and outgoing academic authors in total.

A2.2 Key mobility flows of internationally mobile academic authors, 2020–2022[4, 5, 6]



Major flows in Europe

UK	> Germany	**2,123**
Germany	> Switzerland	**1,834**
Germany	> UK	**1,688**
UK	> France	**1,358**
France	> UK	**1,269**
Switzerland	> Germany	**1,254**

Other major mobility flows

Canada	> US	**5,348**
US	> Canada	**4,929**
Hong Kong	> China	**2,992**
China	> Hong Kong	**2,412**

Figures in absolute numbers of internationally mobile academic authors

Source: Elsevier, Scopus database; DZHW calculations

the US (and vice versa) are those with the most mobile researchers. The largest increases by far compared to the period 2017–20194 can be observed in the mobility flows from Iran to Canada (+49%), from Hong Kong to China (+45%) and vice versa (+42%), from China to the United Kingdom (+39%) and from the United Kingdom to Ireland (+35%).[5] By contrast, substantial declines are revealed in the flows from Italy (–27%), France (–22%), Japan (–21%) and Germany (–17%) to the US, from Italy to the United Kingdom (–24%) and from the US to France (–18%).

The international mobility flows of academics and researchers presented here indicate differing mobility parity in the various destination countries and countries of origin. While mobility parity in Germany and Belgium was evenly balanced last year, a slight rise in incoming academics and researchers is now apparent. In the case of other major destination countries and countries of origin, greater trends are emerging in one direction: while inbound mobility clearly predominates in Sweden, Switzerland, Canada and China, outgoing mobility is equally pronounced in France, the United Kingdom, Japan, Hong Kong, Italy and South Korea. This disparity is even more noticeable in countries such as Saudi Arabia, India, Brazil and Iran.

A2.3 Mobility parity regarding internationally mobile academic authors in selected destination countries and countries of origin, 2020–2022[7]

		Internationally mobile academic authors				
		Incoming		Outgoing		
Country	Number	Share in %				Number
Saudi Arabia	5,134	65			35	2,817
Sweden	5,590	59			41	3,892
Switzerland	10,272	59			41	7,215
Canada	15,798	54			46	13,413
China	24,979	54			46	21,705
Netherlands	8,034	53			47	7,027
US	61,279	53			47	54,030
Belgium	4,796	53			47	4,335
Germany	20,319	52			48	18,791
Australia	10,695	52			48	9,900
Spain	8,221	48			52	8,894
France	13,166	47			53	14,824
United Kingdom	26,707	47			53	30,098
Japan	6,524	46			54	7,592
Hong Kong[5]	3,728	45			55	4,506
Italy	7,855	45			55	9,506
South Korea	4,904	45			55	5,965
India	7,925	34			66	15,456
Brazil	3,453	33			67	6,911
Iran	1,610	18			82	7,138

Source: Elsevier, Scopus database; DZHW calculations

2.2 Major destination countries and the profiles of their countries of origin

Just as with international student mobility, internationally mobile academics and researchers have different preferences in terms of their destination countries. It is striking that the twelve destination countries around the world that each represent at least 2% of all internationally mobile academic authors primarily include European and Anglo-American countries. The sole exceptions are China and India.

Between 2020 and 2022, the US was by far the most important destination country for internationally mobile academic authors. The bibliometric analysis found that the United States alone accounted for 18% of the total inbound mobility, with the United Kingdom (8%), China (7%) and Germany (6%) trailing far behind.[1] Compared to the previous period 2017–2019, shares were up slightly in almost all major destination countries, declining only in the US (–2.4 percentage points), the United Kingdom (–0.6 percentage points), France and Australia (–0.2 percentage points each). In Germany, the shares remained the same in both periods, whereas they rose between 0.1 and 0.3 percentage points in the other countries. China alone reported a greater increase of 1.2 percentage points. As in the previous year, China remains in third place, again ahead of Germany.

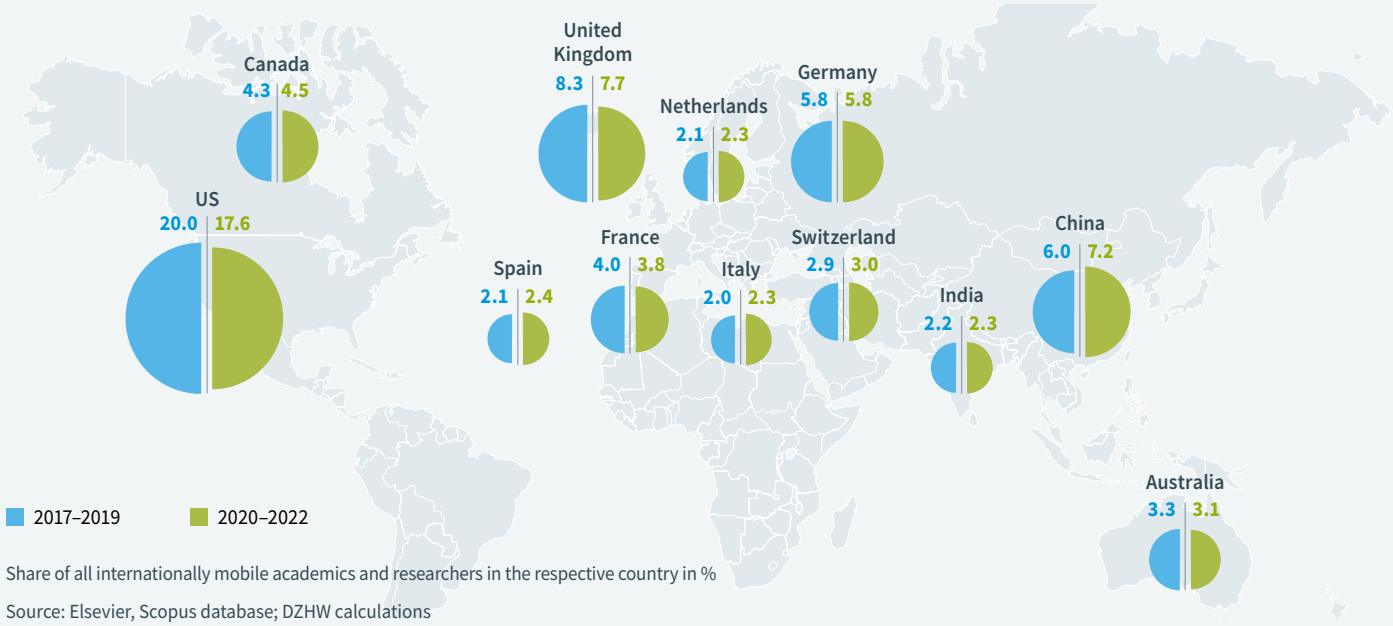
> “In 2022, the United Arab Emirates had the highest proportion of incoming academic authors, namely 14%.

In 2022, the proportion of incoming authors (including returnees) of all academic authors in the 30 key destination countries is highest in the United Arab Emirates and Hong Kong (14% and 13% respectively)[2], followed by Switzerland, Saudi Arabia and Ireland (9% each), then Singapore (8%). With a share of around 4%, Germany is in 16th place, behind the United Kingdom and the Netherlands (5% each), yet ahead of France and the US (3% each), Japan and China (1% each).

International academics and researchers in the US, the top destination country, have a highly diverse profile of origin. The three key countries of origin – China, India and the United Kingdom – collectively represent just approximately 30% of incoming academics and researchers, while the proportion is appreciably higher in destination countries like Canada (48%; countries of origin: US, Iran, UK) and China (42%; countries of origin: US, UK, Japan) in particular. In both cases, this is mainly due to the US' remarkably high share as a country of origin. Switzerland as the third and Austria as the sixth key country of origin of incoming academics and researchers in Germany present special regional characteristics in their profiles as countries of origin, along with Italy as the fourth key country of origin of incoming academics and researchers in France, and Japan as the fourth key country of origin of incoming academics and researchers in China. With the exception of Canada, Germany ranks among the top five countries of origin in all destination countries. Furthermore, a glance at the key destination countries and countries of origin of mobile academics and researchers from or in China (see also p. 29) clearly shows a lively academic exchange between Hong Kong and Mainland China.

Comparing the periods 2017–2019 and 2020–2022, downward trends emerge more frequently in the percentages of the ten key countries of origin in the destination countries under review. Conversely, the share of the other countries of origin rose relatively significantly, attesting to

A2.4 Share of internationally mobile academic authors of all internationally mobile academic authors worldwide, by key destination countries, 2017–2019 and 2020–2022[3]



Share of all internationally mobile academics and researchers in the respective country in %

Source: Elsevier, Scopus database; DZHW calculations

A2.5 Key countries of origin of internationally mobile academic authors in the six key destination countries, 2017–2019 and 2020–2022

Destination country: US

Origin: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
China	7,535	11.3	7,085	11.6
India	4,850	7.2	5,613	9.2
UK	6,380	9.5	5,493	9.0
Canada	6,401	9.6	5,348	8.7
Germany	3,598	5.4	2,997	4.9
France	2,722	4.1	2,138	3.5
South Korea	2,020	3.0	2,067	3.4
Brazil	1,664	2.5	1,866	3.0
Australia	1,938	2.9	1,746	2.8
Japan	2,147	3.2	1,694	2.8
Other	**27,643**	**41.3**	**25,232**	**41.2**

Destination country: United Kingdom

Origin: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
US	5,883	21.2	5,083	19.0
Germany	1,928	7.0	1,688	6.3
Australia	1,542	5.6	1,433	5.4
China	925	3.3	1,286	4.8
Italy	1,679	6.1	1,282	4.8
France	1,429	5.2	1,269	4.8
Canada	1,123	4.1	1,102	4.1
Ireland	885	3.2	1,080	4.0
India	709	2.6	1,040	3.9
Spain	1,286	4.6	976	3.7
Other	**10,324**	**37.3**	**10,468**	**39.2**

Destination country: Germany

Origin: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
US	3,148	16.3	2,970	14.6
UK	1,847	9.6	2,123	10.4
Switzerland	1,214	6.3	1,254	6.2
China	944	4.9	1,087	5.3
France	1,084	5.6	1,062	5.2
Austria	993	5.1	914	4.5
Netherlands	883	4.6	912	4.5
Italy	886	4.6	904	4.4
India	569	2.9	713	3.5
Spain	737	3.8	648	3.2
Other	**7,027**	**36.3**	**7,731**	**38.1**

Destination country: China

Origin: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
US	6,400	31.6	7,683	30.8
Hong Kong[2]	2,060	10.2	2,992	12.0
UK	1,281	6.3	1,523	6.1
Japan	1,317	6.5	1,330	5.3
Germany	875	4.3	1,194	4.8
Singapore	924	4.6	1,125	4.5
Australia	749	3.7	1,112	4.5
Canada	702	3.5	905	3.6
Taiwan	829	4.1	747	3.0
Pakistan	640	3.2	707	2.8
Other	**4,447**	**22.0**	**5,661**	**22.7**

Destination country: Canada

Origin: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
US	4,871	33.8	4,929	31.2
Iran	947	6.6	1,409	8.9
UK	1,115	7.7	1,232	7.8
France	949	6.6	857	5.4
China	700	4.9	776	4.9
India	483	3.4	643	4.1
Brazil	304	2.1	510	3.2
Australia	439	3.0	458	2.9
Germany	450	3.1	458	2.9
Switzerland	222	1.5	217	1.4
Other	**3,916**	**27.2**	**4,309**	**27.3**

Destination country: France

Origin: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
US	2,197	16.2	1,794	13.6
UK	1,178	8.7	1,358	10.3
Germany	915	6.8	883	6.7
Italy	1,006	7.4	877	6.7
Canada	679	5.0	682	5.2
Switzerland	629	4.6	604	4.6
Spain	763	5.6	576	4.4
Belgium	573	4.2	547	4.2
China	398	2.9	392	3.0
Brazil	357	2.6	347	2.6
Other	**4,846**	**35.8**	**5,106**	**38.8**

Source: Elsevier, Scopus database; DZHW calculations

the ongoing diversification of the countries of origin among international academics and researchers in the key destination countries. The greatest increases in the shares of other countries of origin can be seen in France (+3 percentage points), Germany and the United Kingdom (roughly +2 percentage points each).

Finally, it is remarkable that, compared to the period 2017–2019, the significance of the US as a country of origin dwindled in all destination countries under review, but especially in France (–3 percentage points). Iran came to the fore in Canada as a country of origin, gaining two percentage points over the period 2020–2022. China played a slightly more significant role in all destination countries under review, with the exception of Canada, where there was no change. Meanwhile, Japan's share as a country of origin in China fell between the two periods under review.

A2.6 Share of incoming academic authors of all academic authors by key destination countries, in 2022[4]

Destinations	Incoming academic authors in %	Destinations	Incoming academic authors in %
United Arab Emirates	14.0	Germany	3.7
Hong Kong[2]	13.2	Pakistan	3.7
Switzerland	9.4	Israel	3.5
Saudi Arabia	9.2	France	3.4
Ireland	8.7	Portugal	2.7
Singapore	7.5	US	2.5
Austria	5.9	Spain	2.4
Belgium	5.9	Italy	1.9
Sweden	5.4	Taiwan	1.8
Canada	5.3	South Korea	1.7
United Kingdom	5.1	Japan	1.2
Denmark	5.0	India	1.2
Netherlands	4.8	Turkey	1.2
Norway	4.7	Brazil	0.8
Australia	3.9	China	0.7

Source: Elsevier, Scopus database; DZHW calculations

Footnotes

1 It may be assumed, however, that the restriction of using English-language publications as a database results in systematic under-reporting.

2 The Scopus database lists the Chinese special administrative region Hong Kong separately. For the purposes of comparison, this has also been adopted in *Wissenschaft weltoffen.*

3 Only destination countries with at least a 2% share of all internationally mobile academics and researchers worldwide.

4 The 30 destination countries (including China's special administrative region Hong Kong) with the highest numbers of incoming academic authors worldwide in 2022 were taken into consideration.

2.3 Major countries of origin and their destination country profiles

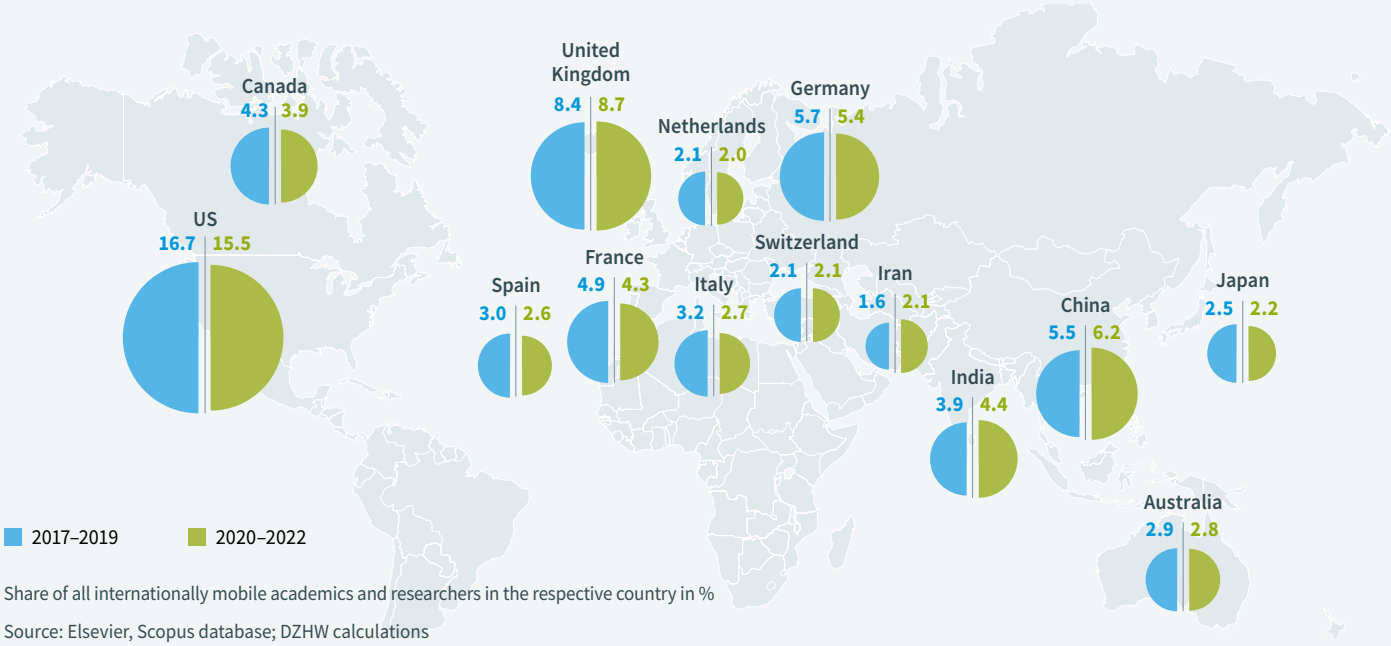
Despite losing ground during the periods under review, 2017–2019 and 2020–2022, the US remains the key destination country and the key country of origin for internationally mobile academic authors. In the period 2020–2022, academics and researchers from the US accounted for approximately 16% of the global outgoing mobility in this analysis. It is important to bear in mind, however, that the mobile academics and researchers under consideration here are not necessarily citizens of the respective country of origin but – based on the bibliometric survey method – constitute all academics and researchers whose first article was published during the reference period (in this case: from 2004) in the relevant country of origin.[1] In all probability, therefore, a (currently non-quantifiable) number of the academics and researchers leaving the US do not actually come from the United States but had arrived there prior to having their first article published (according to the bibliometric data), for example, international doctoral students in the US. Further down the ranks, yet trailing some way behind are the United Kingdom (9%), China (6%), Germany (5%), India and France (4% each). Compared to the previous period, 2017–2019, an increase can be observed (up to 1 percentage point) in four countries of origin: the United Kingdom, China, India and Iran. Nevertheless, all others indicate declining numbers, particularly the US (–1.2 percentage points), as well as France and Italy (–0.6 and –0.5 percentage points respectively).

> “More than half of internationally mobile academic authors from Canada are spread over just three destination countries: the US, the United Kingdom and China.

With regard to the share of outgoing authors of all academics and researchers in the key countries of origin, Asian countries report the highest mobility rates, as is the case with incoming authors (see pp. 26/27). Scoring around 14%, Hong Kong has by far the greatest proportion of outgoing academics and researchers, followed by Singapore (9%), Ireland and Switzerland (7% each), then the United Kingdom (6%).[3] Placing sixth to tenth are Belgium, Saudi Arabia, Austria and South Africa (5% each), plus Pakistan (4%). With a share of 3%, Germany is in 18th place, behind the Netherlands and France (roughly 4% each), yet ahead of the US (2%), Japan and China (1% each).

Similar to its country of origin profile (see p. 27), the US' destination country profile has a comparatively high level of diversity. As key destination countries, China, the United Kingdom and Canada together only account for approximately 33% of all outgoing academics and researchers from the US. By comparison, the proportion of the three key destination countries of academics and researchers from China (44%; destination countries: the US, the UK, Germany) and especially Canada (55%; destination countries: the US, the UK, China) is substantially higher. Special regional characteristics in terms of the key destination countries can be found among academics and researchers from Germany, for example, who show a striking preference for the German-speaking countries of Austria and Switzerland, as well as for the European area as a whole. The Asian countries or territories of

A2.7 Share of internationally mobile academic authors of all internationally mobile academic authors worldwide, by key countries of origin, 2017–2019 and 2020–2022[2]



Share of all internationally mobile academics and researchers in the respective country in %

Source: Elsevier, Scopus database; DZHW calculations

A2.8 Key destination countries of internationally mobile academic authors from the six key countries of origin, 2017–2019 and 2020–2022

Country of origin: US

Destinations: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
China	6,400	11.4	7,683	14.2
UK	5,883	10.5	5,083	9.4
Canada	4,871	8.7	4,929	9.1
Germany	3,148	5.6	2,970	5.5
India	2,709	4.8	2,674	4.9
South Korea	2,254	4.0	1,927	3.6
France	2,197	3.9	1,794	3.3
Japan	2,062	3.7	1,724	3.2
Australia	1,808	3.2	1,627	3.0
Switzerland	1,528	2.7	1,523	2.8
Other	**23,277**	**41.5**	**22,096**	**40.9**

Country of origin: United Kingdom

Destinations: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
US	6,380	22.7	5,493	18.3
Germany	1,847	6.6	2,123	7.1
Australia	1,717	6.1	1,596	5.3
China	1,281	4.6	1,523	5.1
France	1,178	4.2	1,358	4.5
Ireland	954	3.4	1,291	4.3
Canada	1,115	4.0	1,232	4.1
Italy	823	2.9	1,107	3.7
Spain	787	2.8	1,033	3.4
Netherlands	806	2.9	1,016	3.4
Other	**11,189**	**39.9**	**12,325**	**41.0**

Country of origin: Germany

Destinations: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
US	3,598	18.9	2,997	15.9
Switzerland	1,782	9.4	1,834	9.8
UK	1,928	10.2	1,688	9.0
China	875	4.6	1,194	6.4
Austria	1,098	5.8	1,132	6.0
Netherlands	779	4.1	991	5.3
France	915	4.8	883	4.7
Italy	553	2.9	698	3.7
Spain	482	2.5	546	2.9
Sweden	489	2.6	542	2.9
Other	**6,493**	**34.2**	**6,286**	**33.5**

Country of origin: China

Destinations: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
US	7,535	40.6	7,085	32.6
Hong Kong[3]	1,703	9.2	2,412	11.1
UK	925	5.0	1,286	5.9
Germany	944	5.1	1,087	5.0
Japan	783	4.2	942	4.3
Australia	964	5.2	897	4.1
Canada	700	3.8	776	3.6
Singapore	641	3.5	753	3.5
Pakistan	434	2.3	747	3.4
Taiwan	415	2.2	556	2.6
Other	**3,515**	**18.9**	**5,164**	**23.8**

Country of origin: Canada

Destinations: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
US	6,401	44.9	5,348	39.9
UK	1,123	7.9	1,102	8.2
China	702	4.9	905	6.7
France	679	4.8	682	5.1
Australia	514	3.6	453	3.4
Saudi Arabia	326	2.3	423	3.2
Germany	413	2.9	410	3.1
Switzerland	252	1.8	316	2.4
India	266	1.9	270	2.0
Iran	207	1.5	198	1.5
Other	**3,365**	**23.6**	**3,305**	**24.6**

Country of origin: France

Destinations: top 10	2017–2019		2020–2022	
	Number	In %	Number	In %
US	2,722	16.7	2,138	14.4
UK	1,429	8.8	1,269	8.6
Switzerland	1,067	6.6	1,085	7.3
Germany	1,084	6.7	1,062	7.2
Canada	949	5.8	857	5.8
Italy	688	4.2	730	4.9
Belgium	637	3.9	635	4.3
China	542	3.3	614	4.1
Spain	538	3.3	593	4.0
Netherlands	346	2.1	325	2.2
Other	**7,314**	**38.5**	**5,516**	**37.2**

Source: Elsevier, Scopus database; DZHW calculations

Hong Kong, Japan, Singapore and Taiwan are exceptionally popular destinations for academics and researchers from China.

Furthermore, a glance at the key destination countries and countries of origin of mobile academics and researchers from or in China (see also pp. 26/27) clearly shows a lively academic exchange between Hong Kong and Mainland China. Lastly, compared to the previous period 2017–2019, China in particular continues to figure more prominently as a destination country. This applies to all countries of origin under review here, but most notably to the United States, Canada and Germany. By contrast, despite consistently topping the destination country ranking for all countries of origin considered here, the US has suffered a decline, especially in China and Canada.

A2.9 Share of outgoing academic authors of all academic authors, by key countries of origin, in 2022[4]

Origin	Outgoing academic authors in %	Origin	Outgoing academic authors in %
Hong Kong[3]	14.3	France	3.7
Singapore	8.9	Iran	3.5
Ireland	6.9	Germany	3.4
Switzerland	6.6	Mexico	2.6
UK	5.9	US	2.3
Belgium	5.3	Spain	2.3
Saudi Arabia	5.3	India	2.2
Austria	5.0	Taiwan	2.0
South Africa	4.9	Italy	2.0
Pakistan	4.4	South Korea	1.8
Canada	4.2	Turkey	1.8
Netherlands	4.2	Brazil	1.8
Australia	4.0	Japan	1.4
Malaysia	3.9	Russia	1.0
Sweden	3.9	China	0.6

Source: Elsevier, Scopus database; DZHW calculations

Footnotes

1 Bibliometric analyses of academics and researchers' mobility define the institution's country of location of the first publication during the reference period as the country of origin. It is therefore conceivable that previous mobility may not be excluded and that the presumed country of origin is actually a destination country (see also the methodology info box on p. 24).

2 Only countries of origin with at least a 2% share of all internationally mobile academics and researchers worldwide.

3 The Scopus database lists the Chinese special administrative region Hong Kong separately. For the purposes of comparison, this has also been adopted in *Wissenschaft weltoffen*.

4 The 30 countries of origin with the highest numbers of incoming academic authors worldwide in 2022 were taken into consideration.

2.4 International academics and researchers at public universities and research institutes

The data situation on international academics and researchers at the respective host universities abroad is significantly less conclusive than that relating to international students. To date, there are no internationally comparable UNESCO or OECD statistics on this subject similar to those on global student mobility. This may chiefly be explained by the fact that, in many countries, data on international university staff are not sufficiently differentiated (e.g. with respect to their countries of origin). The only exception are international doctoral students as they are included in the student statistics of most countries.

The US is easily the key host country for international doctoral students. In 2021, around 165,800 junior researchers from abroad were intending to gain a doctorate at US universities, as opposed to those in the United Kingdom (46,600), Germany (43,200), France (24,200) and Canada (20,900). However, it should be noted that no figures are yet available on international doctoral students in countries such as China, India or South Africa.

As with the key host countries for international students, it is also possible to differentiate between host countries with the highest absolute number of international doctoral students and those with the largest percentage of international doctoral students. Particularly high shares can be observed in Luxembourg (91%), Switzerland (57%), the Netherlands and the US (48% each). The first three small and medium-sized countries plainly excel, not only with universities that are highly research-oriented but also by offering attractive doctoral programmes for international doctoral students.

A2.10 Host countries with the highest number and the highest share of international doctoral students, in 2021[4, 5, 6]

Host country	Number of intl. doctoral students
US	165,824
United Kingdom	46,598
Germany	43,230
France	24,176
Canada	20,853
Spain	18,646
Japan	17,312
Australia	17,281
Switzerland	15,179
South Korea	14,252

Host country	Share of intl. doctoral students in %
Luxembourg	90.6
Switzerland	56.9
Netherlands	48.3
US	48.2
New Zealand	47.0
United Kingdom	40.9
Austria	39.0
Ireland	37.5
France	37.1
Denmark	36.3

Sources: OECD, student statistics; US Department of Homeland Security, SEVIS data; country-specific reporting periods; DAAD calculations

Footnotes

1 Major host countries were defined as those with more than 4,000 international doctoral students according to the OECD or more than 100,000 international students according to UNESCO in 2021. Corresponding national data were collected for 14 of the 23 countries meeting this definition; however, this was not possible for Argentina, Australia, Belgium, Canada, China, the Czech Republic, Mexico, New Zealand and Russia.

2 Many of the available national statistics are unclear as to which groups of persons or from what career level academics and researchers are included in the statistics on academic staff. For example, whether student assistants or guest researchers on temporary visits are considered part of the academic staff may significantly affect the respective statistics. For this reason, these two groups have been excluded from the data presented here wherever possible.

3 The following groups were recorded in the countries in question (number of persons in each case, no full-time equivalents): US: foreign research and teaching staff without immigrant visas at research universities in 2020/21; United Kingdom: foreign academic staff at universities in 2020/21; Germany: full-time foreign academic staff at universities and non-university research institutes in 2021; Switzerland: foreign academic staff in 2021; France: foreign and contractually employed teaching and research staff at public universities and non-university research institutes in 2020 (including foreign doctoral students); Japan: foreign academic staff at universities in 2021; Netherlands: foreign academic staff at universities in 2021; Austria: foreign academics and researchers at universities in 2021; South Korea: foreign professors, academics and researchers in 2021; Spain: foreign teaching and research staff at public universities in 2020/21; Turkey: foreign teaching staff at universities in 2020/21; Finland, Portugal, Sweden: foreign academic staff in 2021 ("foreign academic staff" according to the ETER definition).

4 Only countries with at least 500 international doctoral students (Fig. A2.10) and internationally mobile doctoral students (Fig. A2.11).

5 International doctoral students in the US: as OECD statistics do not contain any data on international doctoral students in the US, they were supplemented by US data from the database of the Student and Exchange Visitor Information System (SEVIS) (survey date: October 2021).

6 International doctoral students in Germany including Bildungsinlaender: OECD statistics are based on the results of the Federal Statistical Office's survey of doctoral students, which – unlike the student statistics compiled by the Federal Statistical Office – include doctoral students who were not enrolled. However, until now, it has not been possible to distinguish between international students and Bildungsinlaender in these data.

7 Including data on international doctoral students in the US from the SEVIS statistics (see footnote 5).

8 Including Hong Kong and Macao.

9 Data on the number of domestic doctoral students from 2020, as UNESCO data for 2021 were not (yet) published at the time of writing.

As the key country of origin for internationally mobile doctoral students, China is well ahead of all other countries. Around 108,400 Chinese doctoral students conducted research at universities abroad in 2021, with India (39,700), Iran (20,900) and Italy (15,500) trailing behind. With around 8,400 doctoral students, the US ranks tenth. The proportion of internationally mobile doctoral students in relation to all doctoral students in the respective country shows that this group accounts for a comparatively small share in Germany, namely 7%. This share is substantially higher in some developing and emerging countries, especially in Afghanistan (98%), Ecuador (92%), Kuwait (91%), Nepal (72%) and the Palestinian territories (62%). The conspicuously high percentages in Afghanistan, Ecuador and Kuwait may be attributed to the very limited doctoral opportunities in these countries and the small number of universities that are entitled to confer doctorates. In Afghanistan, for example, it was only possible to obtain a doctorate in linguistics at Kabul University in 2020.

To obtain a more comprehensive picture of the mobility of academics and researchers than is possible with the data on international doctoral students worldwide alone, research was conducted on (contractually employed) international academic staff at public universities and research institutes in major host countries as part of the *Wissenschaft weltoffen* project.[1] When comparing these national data, it should be noted that the definitions of academic staff and/or that of the universities and research institutes concerned differ from country to country.[2] As far as possible, the aim of this data collection was to document contractually employed, full-time, international academic staff.[3]

Looking at the 14 host countries for which data were collected, the US turns out to be well ahead of the field as the key host country, with around 85,500 international academics and researchers at US universities. It is followed by Germany (75,200), which thereby overtakes the United Kingdom (71,500), with Switzerland (32,400), France (16,900) and Austria (14,300) bringing up the rear. Particularly striking here is the low number of international researchers in France by direct comparison with Germany, although here – as in Germany – academic staff at non-university research institutes were also included. The language may represent a higher obstacle for recruiting international academic staff in France than in Germany and other countries where, for example, English is the dominant working language in several disciplines.

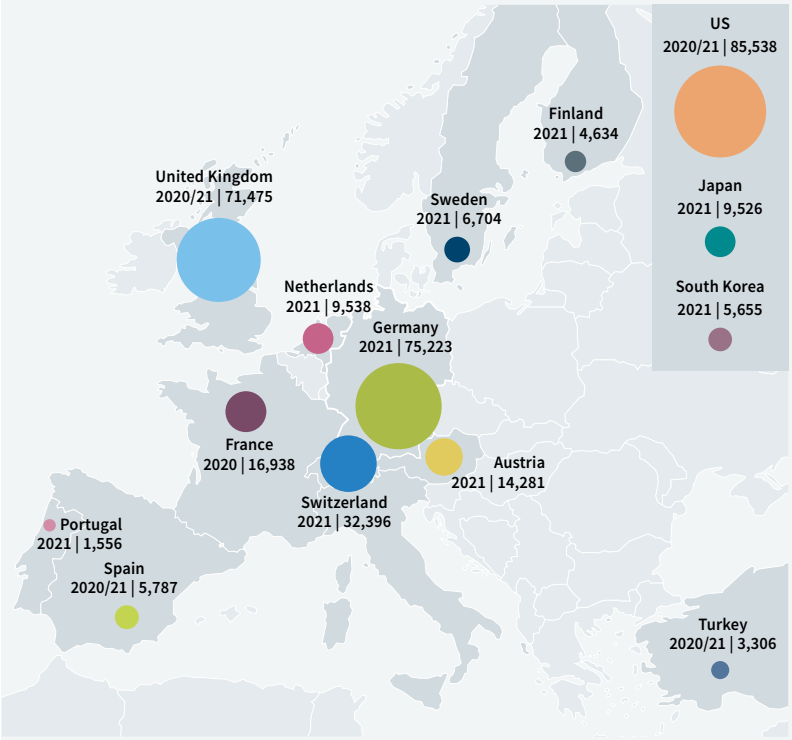
A2.11 Countries of origin with the highest number and the highest share of internationally mobile doctoral students, in 2021[4, 7]

Country of origin	Number of internationally mobile doctoral students
China[8]	108,378
India	39,704
Iran	20,925
Italy	15,472
Germany	14,437
South Korea	13,389
Brazil	11,518
Bangladesh	9,533
France	8,456
US	8,354

Country of origin	Share of internationally mobile doctoral students in %
Afghanistan[9]	98.3
Ecuador[9]	91.6
Kuwait	90.5
Nepal	71.7
Palestinian territories	62.2
Colombia	51.0
Ghana	48.4
Bangladesh[9]	44.1
Sri Lanka	42.7
Saudi Arabia	39.9

Sources: OECD/UNESCO, student statistics; US Department of Homeland Security, SEVIS data; country-specific reporting periods; DAAD calculations

A2.12 International academics and researchers at public universities and research institutes in major host countries[3]



Sources: Statistical offices and/or science organisations in the respective countries; ETER database (Finland, Portugal, Sweden); country-specific reporting periods and staff definitions

2.5 European academic collaboration in the EU Research Framework Programme Horizon Europe

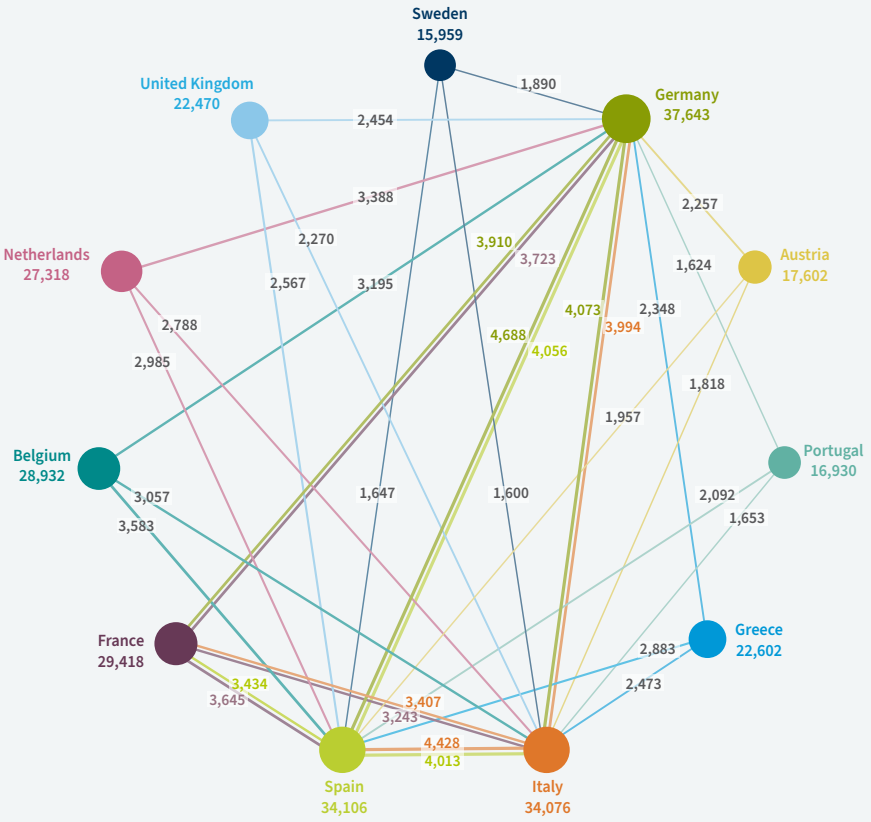
The European Union's Framework Programme for Research and Innovation "Horizon Europe" (FP9) is proving to be an important instrument for promoting the internationalisation of science and research in the countries involved. In addition to academic excellence, a prerequisite for FP9 projects is usually the initiation of an international consortium of cooperating institutions. These consortia, in which companies as well as universities and non-university research institutes may participate, must each include three independent legal entities established in three different EU Member States or associated countries.[1] Implementing an EU research project therefore requires substantial collaboration with stakeholders in other countries and is thus a further indication of the networking between the participating countries.

> "The number of international cooperation links within the framework of Horizon Europe ranges from around 16,000 in the case of Sweden to 37,600 in the case of Germany.

However, this potential for internationalisation was lacking in previous EU Research Framework Programmes (FPs) from the outset; the programmes have evolved fundamentally over time with the development of research systems and their funding, but also with the process of European integration as a whole.[2] In addition to the changes in the thematic focus of the FPs, their funding volume has continued to grow since the first programme. While the funding volume for the first period was 3.3 billion euros, this went up to 56 billion euros in FP7 and increased again to 80 billion euros for Horizon 2020, whereas around 96 billion euros have been earmarked for Horizon Europe (HEU).

The internationalisation effects for HEU arise from the networking of the consortium partners. The international collaboration or, to be more precise, a country's international cooperation links with other partner countries in the context of HEU research funding are taken into consideration for this analysis. An international cooperation link is the collaboration with a foreign partner (for

A2.13 Cooperation links of the eleven key countries in the EU Framework Programme for Research and Innovation Horizon Europe (2021–2027)[3]



Total number of all cooperation links of a specific country and cooperation links to that country's three key cooperation partners

Source: EU office of the BMBF, calculation taken from Horizon Europe eCORDA contract database (as of 15 April 2024)

Footnotes

1 The following countries are currently associated to the Horizon Europe programme: Albania, Armenia, Bosnia and Herzegovina, Faroe Islands, Georgia, Iceland, Israel, Kosovo, Moldova, Montenegro, New Zealand, North Macedonia, Norway, Serbia, Tunisia, Turkey, Ukraine and the United Kingdom. An association agreement was signed with Canada in 2023, which is expected to enter into force in 2024. Association agreements are currently being negotiated with Switzerland and Morocco.

2 See Gaul/David (2009).

3 A cooperation link is the connection between two participating consortium partners from different countries in an EU-funded research project.

4 The number of funded collaborative projects ranges from approximately 900 in Sweden to approximately 2,800 in Germany.

5 The comparatively limited relevance of the United Kingdom as a cooperation partner is evidently a Brexit effect. From 2016 onwards, the involvement of UK research institutes in H2020 projects – and now in the current HEU programme – declined steadily. Until 2016, UK participation had been at a level comparable to that of German research institutes. See also Scientists for EU (2021).

A2.14 Top ten partner countries of the six key countries in the EU Framework Programme for Research and Innovation Horizon Europe (2021–2027), by number of cooperation links

Germany

Partner country	Number	Share in %
Spain	4,688	12.5
Italy	4,073	10.8
France	3,910	10.4
Netherlands	2,713	7.2
Belgium	2,522	6.7
Greece	2,165	5.8
United Kingdom	1,907	5.1
Austria	1,382	3.7
Sweden	1,143	3.0
Switzerland	1,106	2.9
Other	12,034	32.0

Spain

Partner country	Number	Share in %
Germany	4,056	11.9
Italy	4,013	11.8
France	3,434	10.1
Belgium	2,377	7.0
Greece	2,242	6.6
Netherlands	2,201	6.5
United Kingdom	1,683	4.9
Portugal	1,197	3.5
Austria	1,158	3.4
Switzerland	931	2.7
Other	10,814	31.7

Italy

Partner country	Number	Share in %
Spain	4,428	13.0
Germany	3,994	11.7
France	3,407	10.0
Belgium	2,338	6.9
Netherlands	2,254	6.6
Greece	2,132	6.3
United Kingdom	1,674	4.9
Austria	1,193	3.5
Portugal	1,092	3.2
Switzerland	944	2.8
Other	10,620	31.2

France

Partner country	Number	Share in %
Germany	3,723	12.7
Spain	3,645	12.4
Italy	3,243	11.0
Belgium	2,079	7.1
Netherlands	1,991	6.8
Greece	1,625	5.5
United Kingdom	1,438	4.9
Austria	957	3.3
Portugal	899	3.1
Switzerland	851	2.9
Other	8,967	30.5

Belgium

Partner country	Number	Share in %
Spain	3,583	12.4
Germany	3,195	11.0
Italy	3,057	10.6
France	2,783	9.6
Netherlands	1,986	6.9
Greece	1,647	5.7
United Kingdom	1,344	4.6
Austria	912	3.2
Portugal	903	3.1
Switzerland	735	2.5
Other	8,787	30.4

Netherlands

Partner country	Number	Share in %
Germany	3,388	12.4
Spain	2,985	10.9
Italy	2,788	10.2
France	2,576	9.4
Belgium	1,969	7.2
United Kingdom	1,432	5.2
Greece	1,390	5.1
Austria	945	3.5
Sweden	812	3.0
Switzerland	795	2.9
Other	8,238	30.2

Source: EU office of the BMBF, calculation taken from Horizon Europe eCORDA contract database (as of 15 April 2024)

example, a chair at a university abroad) within a HEU-funded research project. In other words, the more partners and countries are involved in these research projects, the more cooperation links will be created. For example, if a collaborative project consists of one Italian, one French and two German partners, the project will result in two international cooperation links for Germany and three each for Italy and France.

The networking between the eleven countries that have been most successful in procuring HEU collaborative projects is reviewed in the following.[4] This section reveals the enormous momentum that HEU is creating for the internationalisation of research in Europe. The number of international cooperation links ranges from around 16,000 for Sweden to 37,600 for Germany (as of 15 April 2024). In each case, the most important European cooperation partner of the eleven countries considered here accounts for around 1,900 cooperation links (Sweden/Germany) up to 4,700 (Germany/Spain). For the sake of clarity, for all eleven countries under review, Figure A2.13 only lists the associations with their three main cooperation partners, in other words, the countries with which they have the most cooperation links. Germany, Spain, Italy and France are among the top three cooperation partners in most of or even – in the case of Germany – all other countries considered here. Figure A2.13 therefore shows not just links to their three main cooperation partners but also to all other countries where, by the same token, they are one of the top three cooperation partners.[5]

Lastly, when focusing on the six countries with the most collaborative projects funded under Horizon Europe and their ten main cooperation partners in FP9, a similar picture emerges regarding the selection and ranking of the cooperation partners in all countries: generally speaking, the three most important cooperation partners are Germany, Spain, France or Italy, while the United Kingdom usually comes in sixth or seventh place.[5] Other key partner countries are Austria, Belgium, Greece, the Netherlands, Portugal, Sweden and Switzerland. The shares of the ten most important cooperation partners in HEU range from around 3% to 13% in all countries under review. Moreover, the ten most important cooperation partners account for almost the same total share, over two thirds (69%), of research collaboration in all eleven countries.

1.1 Mobility trends, first-year students and federal states

In the 2022/23 winter semester, approximately 458,200 students with foreign citizenship were studying in Germany. Around 367,600 or 80% of these foreign students were international students[1] who obtained their university entrance certificate abroad and came to Germany afterwards to study. Their number rose by roughly 18,100 or 5% compared to the 2021/22 winter semester and by approximately 15% compared to the 2019/20 winter semester, the winter semester before Covid-19 made its presence felt. During the three years of the pandemic, the number of international students at German universities grew steadily. Although this hike was initially due to students extending their period of study, the upswing since the winter semester 2021/22 is again the result of increased immigration. However, to some extent, even in winter semester 2022/23, this could also be deferred mobility, in other words, realising study objectives that had originally been postponed due to the pandemic. This growth is evidence that the positive trend seen among international students for over ten years is continuing; compared to the 2012/13 winter semester, their number has shot up by 80%. This development also persisted in the 2023 summer semester as the number of international students went up by 13,400 to 353,200[2], or 4% higher than in 2022. According to the latest preliminary data of the Federal Statistical Office, there was a further significant rise in the 2023/24 winter semester. The number of international students increased by roughly 12,400 or 3.4% to 379,900, compared to the 2022/23 winter semester.

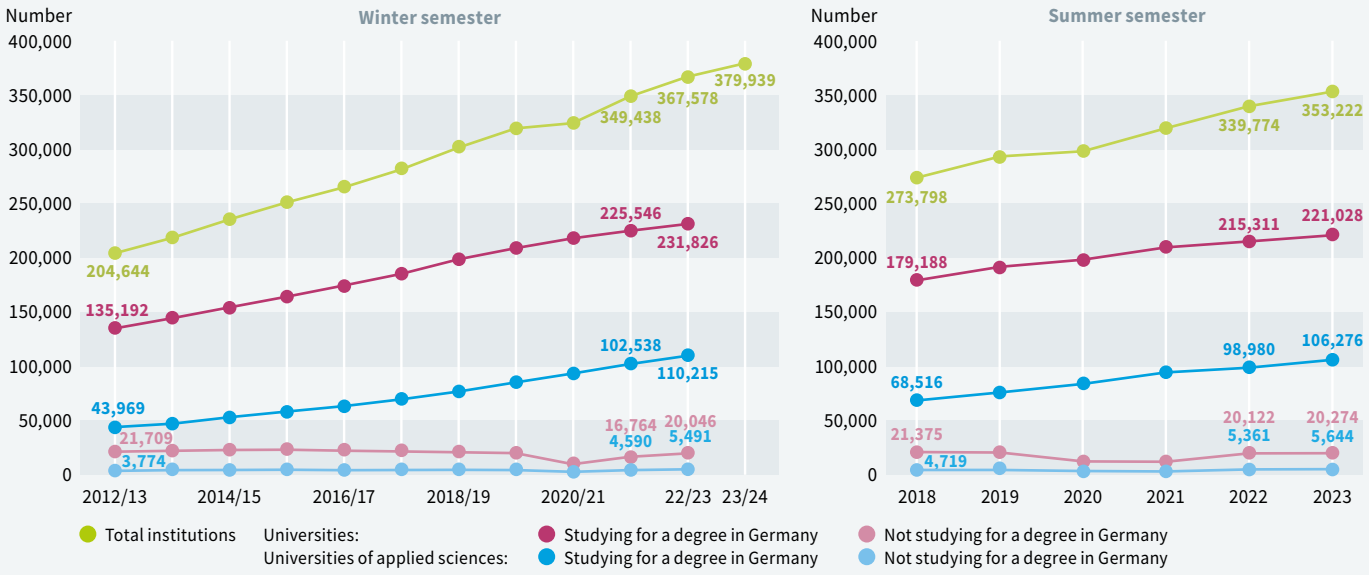
In the 2022/23 winter semester, the overwhelming majority of 93% of international students were intending to graduate from a German university; just 25,500, or 7%, were visiting students on a temporary study visit. As a result, their number is back to the pre-pandemic level of the 2019/20 winter semester. At both universities and universities of applied sciences (UAS) it rose by 20% compared to the previous year.

The majority of international students in Germany, namely 251,900 or around 69%[3], were enrolled at a university in the 2022/23 winter semester. By contrast, the proportion of German students was in the region of 60%. Whilst the number of international students at universities only increased by 4% over one year, it went up by 8% at UAS. Although only about 40,000 or 11% of international students were enrolled at private universities, their number shot up by 14% in one year and by 445% since the 2012/13 winter semester.[4]

In the 2022 academic year[5], roughly 114,700 international first-year students[6, 7] embarked on their first degree programme at a German university, 12% more than the previous year. This not only offsets the sharp decline in 2020, but sees the number of first-year students reaching a new high in 2022, namely 3% above that of 2019. This rise is the result of developments at UAS. While universities returned to the 2019 levels, there was a 13% uptick at UAS.

The positive development in international students, combined with a downshift in German students, drove the share of international students among all students to a new all-time record of 12.6% in the 2022/23 winter semester. This figure was 14.3% at universities and 10.0% at UAS. Even at private universities, the percentage rose to 10.1%, slightly above that at UAS. The highest rates were reported by public colleges of art and music at 29.3% and private universities at 27.0%. According to the latest data of the Federal Statistical Office, the share of international students of all students in winter semester 2023/24 set a new record of 13.2%.

B1.1 International students, by intention to graduate and type of university, since the 2012/13 winter semester and the 2018 summer semester[2, 3]



Source: Federal Statistical Office, student statistics

Differences – some of them considerable – can be observed between the various federal states. Measured in absolute numbers, around half of all international students were studying in North Rhine-Westphalia, Bavaria and Berlin alone. Nonetheless, in terms of their shares of all students, Berlin (21%), Brandenburg (19%), Saxony and Saxony-Anhalt (16% each) are top of the league. The greatest increases over five years were registered by the universities in Thuringia (+199%)[8] and Bavaria (+59%). The number of international students has only fallen in Baden-Württemberg (–4%).

Footnotes

1 This designation follows the standard international use of terms. Official statistics still refer to these students as "Bildungsauslaender", whereas "international students" applies to all students holding a foreign university entrance certificate, including the corresponding German students.

2 The student numbers for the summer and winter semesters cannot be compared directly. Variations in the figures for first-year and formerly enrolled students lead to systematic differences. Higher figures can be observed for all student groups in the winter semester than in the summer semester.

3 Figures for universities, including colleges of art, music, education and theology.

4 Figures for private universities, including church-run universities.

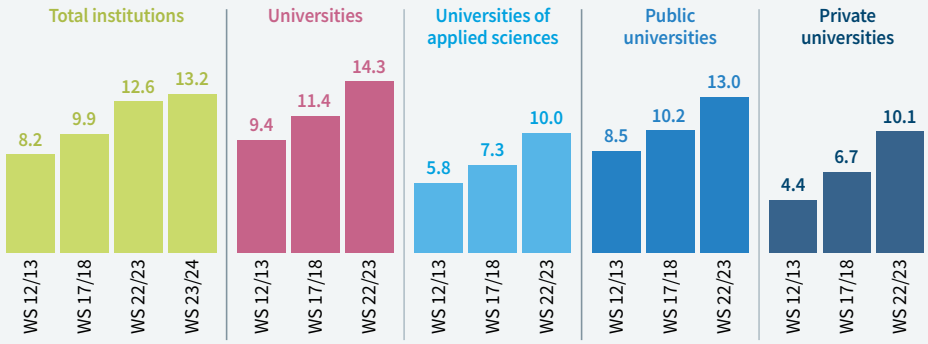
5 The information for international first-year students refers to one academic year and includes one summer semester and the following winter semester. 2022 academic year = summer semester 2022 + winter semester 2022/23.

6 First-year students are students in their first university semester.

7 Including doctoral students in their first study programme.

8 The strong growth in the number of international students at Thuringian universities may be attributed first and foremost to the registered office of the private International University of Applied Sciences moving to Erfurt in 2019.

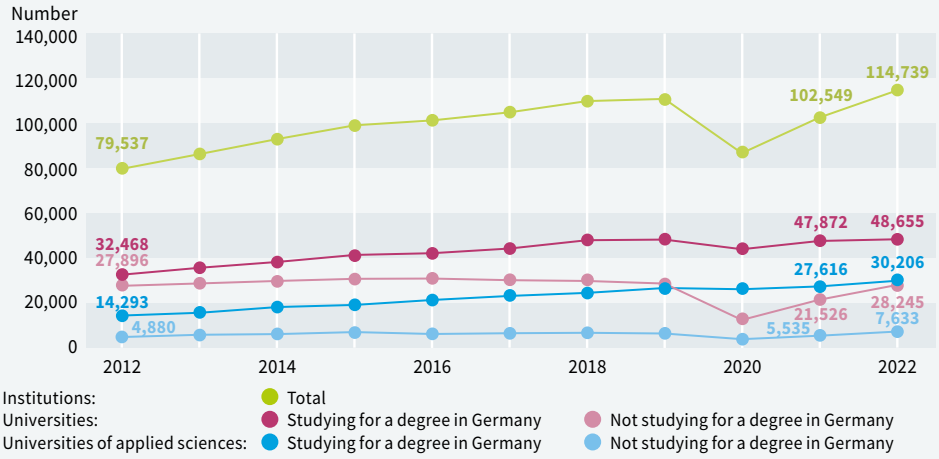
B1.2 Share of international students of all students, by type of university and funding body, in the 2012/13, 2017/18, 2022/23 and 2023/24 winter semesters[3, 4]



Share in % of all students

Source: Federal Statistical Office, student statistics; DZHW calculations

B1.3 International first-year students in Germany, by intention to graduate and type of university, since 2012[3, 5, 6, 7]



Institutions: Total

Universities: Studying for a degree in Germany; Not studying for a degree in Germany

Universities of applied sciences: Studying for a degree in Germany; Not studying for a degree in Germany

Source: Federal Statistical Office, student statistics

B1.4 International students, by federal state, in the 2022/23 winter semester, plus the development from the 2017/18 to the 2022/23 winter semester

	WS 2022/23		Development WS 2017/18–WS 2022/23
Federal states	**Number**	**Share in %**	**in %**
Baden-Württemberg	35,846	10.1	–4
Bavaria	61,379	15.2	+59
Berlin	40,825	20.5	+31
Brandenburg	9,644	19.1	+46
Bremen	5,752	15.3	+28
Hamburg	12,955	10.8	+39
Hesse	29,458	11.5	+25
Lower Saxony	21,235	10.8	+20
Mecklenburg-Western Pomerania	3,632	9.5	+15
North Rhine-Westphalia	78,543	10.5	+22
Rhineland-Palatinate	13,947	11.9	+37
Saarland	4,211	13.6	+16
Saxony	17,125	16.3	+13
Saxony-Anhalt	9,476	16.2	+46
Schleswig-Holstein	4,553	6.9	+20
Thuringia[8]	18,997	14.0	+199
States total (D)	**367,578**	**12.6**	**+30**

Number and share in % of all students

Source: Federal Statistical Office, student statistics; DZHW calculations

1.2 Regions and countries of origin

According to the latest preliminary data of the Federal Statistical Office for the 2023/24 winter semester, Asia and Pacific is the key region of origin for international students at German universities by a clear margin, representing 33% of all international students. Since the 2018/19 winter semester, the number of students originating from this region has seen steady, above-average growth of 36%. With a share of 19%, students from North Africa and Middle East are in second place. They show similarly strong gains within five years, namely 37%. Compared to the 2022/23 winter semester, however, their number only climbed by 3%. Students from Western Europe are in third place. Although their number has risen by 10% since the winter semester 2018/19, there have been no changes in the last three years. They make up 15%. However, following consistent enrolment figures, there has been an increase in students from Central and South Eastern Europe, especially in recent years. Compared to winter semester 2020/21, some 19% more students from this region have enrolled at German universities, constituting 13% of all international students. Furthermore, mounting numbers of students from Eastern Europe and Central Asia have been recorded over the last two years, up by 16%, with a share of 8%. Lastly, Sub-Saharan Africa and Latin America account for shares of 5% each. In the last five years, the number of students from these regions has soared by 27% and 13% respectively. Nonetheless, enrolment figures have been stagnant for three years for Sub-Saharan Africa and, since last year, in the case of Latin America too. Students from North America are the smallest group, at 2%. After a sharp decline in the 2020/21 winter semester, their numbers climbed back up by 19% the following year, yet still remain below pre-pandemic levels and have barely fluctuated since then.

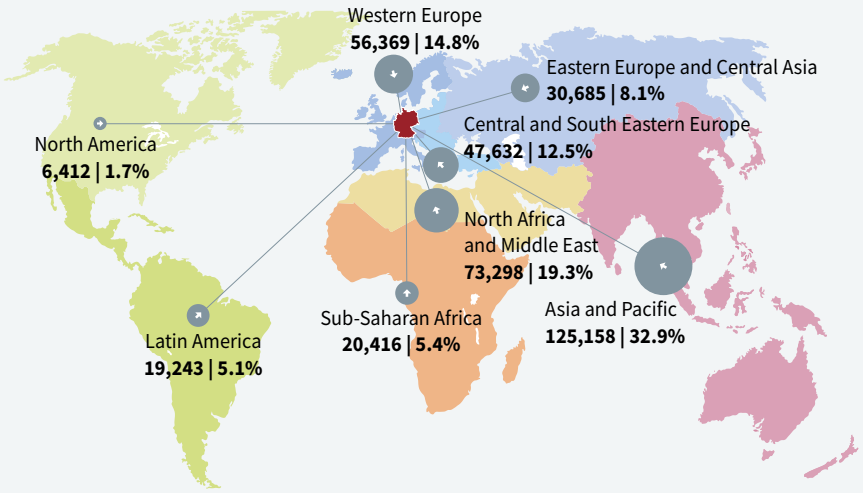
> “With 18,100 students, Turkey ranks third on the list of countries of origin for the first time.

As before, the enormous relevance of students from Asian-Pacific countries of origin coincides with corresponding developments in global student mobility (see pp. 14/15). Students from this region constitute 41% of all internationally mobile students. This can be explained firstly by demographic factors: 51% of the world’s population live in these countries, while a mere 6%[1] live in Western Europe. Secondly, many countries in this region, such as China, India, Vietnam, South Korea and Indonesia, are emerging economies in transition. This has led both to a demand for well-educated academic staff in these countries and to the emergence of a middle class that places emphasis on a university education for their children. At the same time, however, relatively few universities in these countries enjoy international renown. This situation continues to generate a keen interest in studying abroad.

The large number of Western, Central and South Eastern European students at German universities compared to other countries is not just an indication of German universities’ attractiveness in Europe but also results from the intensive student exchange between the countries in a specific region. The common denominator for all regions of the world is that an above-average share of mobility takes place within students’ region of origin.

Regional developments in international student mobility are also reflected in the ranking of countries of origin. Students from India have been in first place since the previous year, knocking students from China off the top spot for the first time in over twenty years. With a share of approximately 13%, they account for more than one in ten international students. Their number has risen by roughly 138% to some 49,000 in the last five years, up 15% year-on-year alone. Students from China are in second place in the rankings. Since winter semester 2018/19, their number has dropped by 3% (to roughly 38,700). Furthermore, compared to the previous year, considerably lower enrolment figures can be observed for students from Syria, declining by 14% or approximately 2,200 students within one year. Around 13,400 Syrian students were enrolled in Germany in the 2023/24 winter semester, corresponding more or less to the level of five years ago. As a

B1.5 International students, by region of origin, in the 2023/24 winter semester[2]



Total international students at German universities 379,939
(including 524 stateless students and 202 students who cannot be assigned to any region of origin)
Number and share in % of all international students at German universities

Source: Federal Statistical Office, student statistics; DZHW calculations

result, Syria is no longer in third place in the list of countries but has dropped to sixth.

The key Western European countries of origin are Austria (around 15,400 students), Italy (around 10,200 students) and France (around 6,800 students). While Austria and Italy have seen hikes of 34% and 10% respectively in the last five years, the number of French students has decreased by 4%. In the Eastern Europe and Central Asia region, Russia is out in front (around 10,600 students), with this number up by just 1%. By contrast, the number of students from Ukraine (approximately 9,900) has jumped by 43% since the 2018/19 winter semester and, indeed, by 9% just in the last year. Turkey is the most important country in Central and South Eastern Europe, with some 18,100 students; this figure has skyrocketed by 114% since the 2018/19 winter semester, up by 23% year-on-year alone. Finally, in the North Africa and Middle East region, following a 78% increase within five years, most students here come from Iran (around 15,200 students). Although the key country of origin in Sub-Saharan Africa is Cameroon, the number has fallen by 8% year-on-year, to roughly 6,800 students.

Nevertheless, the greatest surge between the winter semesters 2020/21 and 2023/24, thus during and after the pandemic, can be observed for students from Guyana (+832%) and Myanmar (+202%), followed by Honduras (+137%), Gambia (+102%) and Sri Lanka (+98%). On the other hand, the largest downturns in this period are found in North Korea (–88%), Cyprus (–23%) and Syria and the Palestinian territories (–21% each).

Footnotes

1 Data on the world population are taken from the Federal Statistical Office.

2 Unlike previous editions of *Wissenschaft weltoffen*, the countries of origin Greece and Cyprus have been included in the region of origin of Central and South Eastern Europe and not Western Europe as before.

3 Including Hong Kong and Macao.

4 Only countries with at least 100 international students in winter semester 2023/24 (increase) and/or winter semester 2020/21 (decrease).

B1.6 Key countries of origin, by share of international students, in the 2023/24 winter semester and the development from the 2018/19 to the 2023/24 winter semester

Countries of origin	Number WS 2023/24	Share in %	Development WS 2018/19–WS 2023/24 in %
India	49,008	12.9	+138
China[3]	38,687	10.2	–3
Turkey	18,084	4.8	+114
Austria	15,379	4.0	+34
Iran	15,159	4.0	+78
Syria	13,379	3.5	+3
Russia	10,593	2.8	+1
Italy	10,154	2.7	+10
Ukraine	9,914	2.6	+43
Pakistan	9,873	2.6	+72
Egypt	8,060	2.1	+147
Morocco	7,398	1.9	+33
Tunisia	6,852	1.8	+13
Cameroon	6,789	1.8	–6
France	6,759	1.8	–4

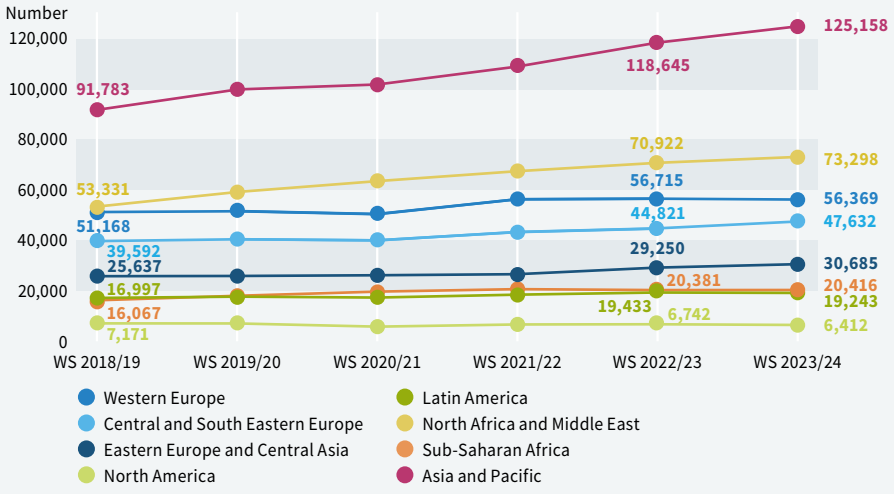
Source: Federal Statistical Office, student statistics; DZHW calculations

B1.7 Countries of origin with the greatest increase and decrease in percentages of international students, from the 2020/21 winter semester to the 2023/24 winter semester[4]

Countries of origin	Number WS 2023/24	Development WS 2020/21–WS 2023/24 in %
Guyana	177	+832
Myanmar	320	+202
Honduras	325	+137
Gambia	105	+102
Sri Lanka	982	+98
Bulgaria	4,853	–16
Palestinian territories	1,319	–21
Syria	13,379	–21
Cyprus	559	–23
North Korea	22	–88

Source: Federal Statistical Office, student statistics; DZHW calculations

B1.8 International students, by region of origin, since the 2018/19 winter semester[2]



Source: Federal Statistical Office, student statistics; DZHW calculations

2.1 Mobility trends and types of degree

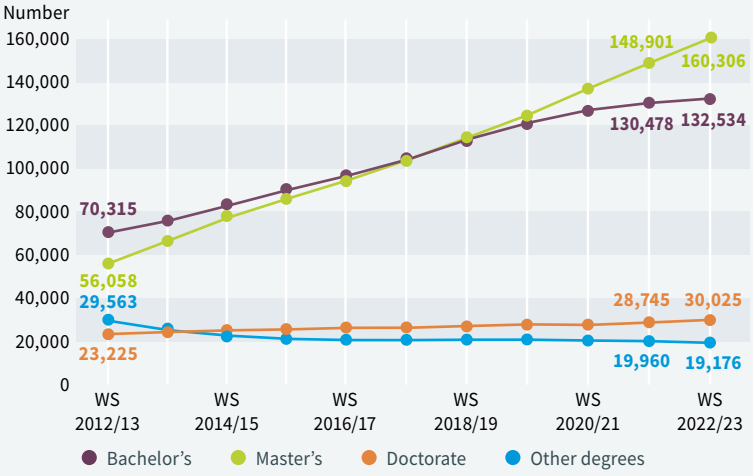
Approximately 342,000 international students were aiming to graduate from German universities in the 2022/23 winter semester. Their number has skyrocketed by 91% over the past ten years, and by 4% since the 2021/22 winter semester alone. Unlike temporary study-related mobility (see pp. 58/59), degree-related mobility thus continued to rise without any slowdown during the pandemic. Universities of applied sciences (UAS) have seen particularly strong growth, where the number of international students intending to graduate has shot up by 151% since the 2012/13 winter semester. The rate at universities is only about half that figure, namely 71%. Nevertheless, the majority (68%) of international students seeking a degree are still enrolled at universities. As a consequence of these developments, 11.8% of all students at German universities are now international students intending to graduate. This share is 13.3% at universities and 9.6% at UAS.

At the same time, interest in master's degrees is booming, up by 54% in five years. This is significantly higher than the figure for bachelor's degrees: the number of international students intending to complete their studies with a bachelor's degree has climbed by just 27%. Approximately 30,000 international students are aiming for a doctorate,[1] an increase of 14% over the 2017/18 winter semester. The lower growth rates in doctoral studies can be explained by the limited number of available doctoral positions, the admission requirements for a doctorate and the strong global competition for particularly well-qualified applicants. However, the fact that the share of international students in doctoral studies is higher than that of other types of study should not be overlooked.

Moreover, the uptick in the number of international first-year students embarking on their first degree in Germany reflects the appeal of master's programmes at German universities for international students intending to graduate.[2] In the 2022[3] academic year, following a slight drop in 2020, the first year of Covid-19 (–5%), master's programmes recorded a new peak of around 42,600 international first-year students, roughly 10% more than in 2021 and 21% more than in 2019. This represents an increase of 41% over 2017. Taking into account not just those international first-year students who enrolled at a German university for the first time in a master's programme, but also those who continued with a master's programme in Germany after completing their German bachelor's programme, the corresponding number of international first-year master's students in 2022 was an impressive 55,500. This is also 7% more than in 2021. Doctoral studies also show a similar development. Again, 2022 saw a further high of roughly 3,800 international first-year students, 3% above the 2021 figure and 9% above that of 2019, admittedly after a more noticeable drop in 2020 (–21%). The number of new doctoral students is significantly increased as it also allows for doctoral students who have already obtained a degree in Germany. In 2022, there were approximately 6,100 newcomers, 2% above the previous year's figure. Around 29,200 international first-year students were enrolled in bachelor's programmes in 2022, 3% more than in 2021, but still 11% below the figure for 2019. However, owing to the large influx in master's programmes, the total number of international first-year students[4] has developed favourably and, in 2022, is approximately 5% or 3,500 first-year students above the 2019 figure. There was an increase of 14% compared to 2017. Given the still significantly different developments in students embarking on bachelor's and master's programmes, it may be assumed that, in particular, the number of international students in master's programmes will continue to rise.

Of the international students intending to graduate in Germany in the 2022/23 winter semester, a total of 47% were aiming for a master's degree, 39% for a bachelor's degree and 9% for a doctorate, while 6% planned to complete their studies with a state examination or other type

B2.1 International students intending to graduate, by type of degree, since 2012/13[1]



Source: Federal Statistical Office, student statistics

Footnotes

1 The figures for international students and/or international first-year students seeking a doctorate refer exclusively to international doctoral students who are enrolled at a university. As it may be assumed that – like German doctoral students – some international doctoral candidates are not enrolled at a university, the figure of around 30,000 underestimates the actual total of international doctoral students. Overall, the doctoral statistics published by the Federal Statistical Office for 2022 indicate as many as 48,100 foreign doctoral students, in other words international doctoral students and Bildungsinlaender. Basing this number on the ratio between international students and Bildungsinlaender, the total number of international doctoral candidates in Germany, both enrolled and not enrolled, is 38,200.

2 First-year students are students in their first university semester.

3 The information for international first-year students refers to one academic year and includes one summer semester and the following winter semester. 2022 academic year = summer semester 2022 + winter semester 2022/23.

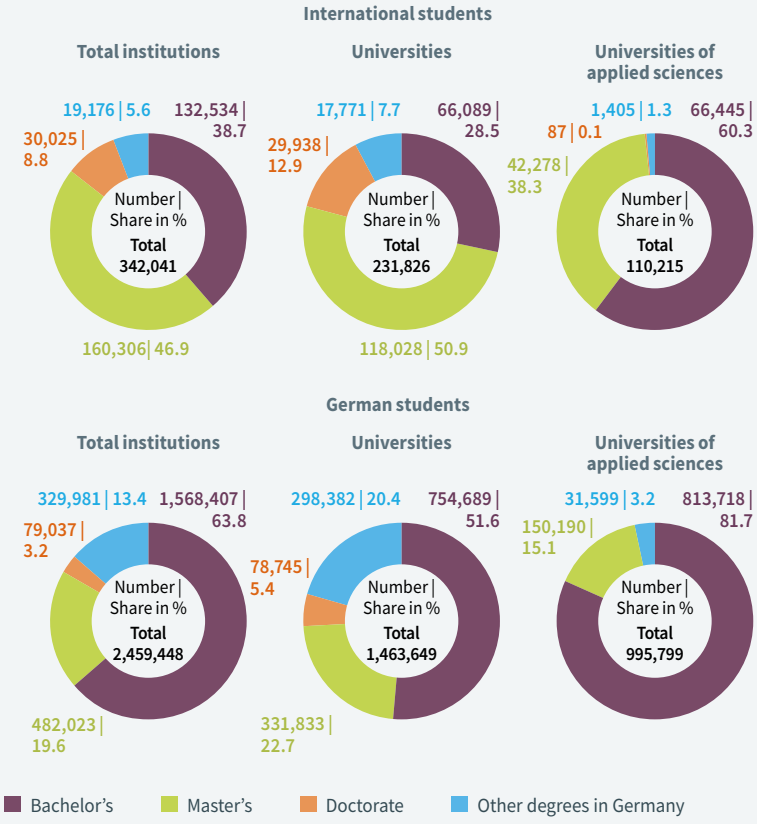
4 Including doctoral students in their first study programme.

5 Not including 87 international and 292 German doctoral students at UAS.

of degree. By comparison, the relations between bachelor's and master's programmes are reversed among German students, with 64% intending to gain a bachelor's degree and 20% a master's degree. Doctoral students accounted for 3%. At universities, the predominance of the master's degree among international students is even more marked: 51% of the students concerned are enrolled in master's and 29% in bachelor's programmes, while 13% aim to achieve a doctorate. By contrast, 52% of their German fellow students are enrolled in a bachelor's programme, just 23% in a master's programme, while 5% intend to obtain a doctorate. At UAS, bachelor's degrees also predominate among international students: 60% are aiming for a bachelor's degree and 38% for a master's degree. Among German students, these percentages are 82% and 15% respectively. While 50% of all international students hoping to achieve a bachelor's degree are studying at UAS, this is only true for 26% of those working towards a master's degree. The figures are similar for German students, where 52% of bachelor's and 31% of master's students are enrolled at universities of applied sciences.

International students' keen interest in master's degrees is also reflected in the fact that they account for a quarter (25%) of all those enrolled in a master's programme. This figure is 26% at universities and 22% at UAS. The share of international doctoral students is even higher, at approximately 27%. In addition, with a share of 23%, international students are well-represented among the doctoral students now becoming established at UAS. By contrast, international students with the intention of obtaining bachelor's degrees account for roughly 8% (universities 8%, UAS 7%).

B2.2 International and German students intending to graduate, by type of university and degree, in the 2022/23 winter semester[5]



Source: Federal Statistical Office, student statistics; DZHW calculations

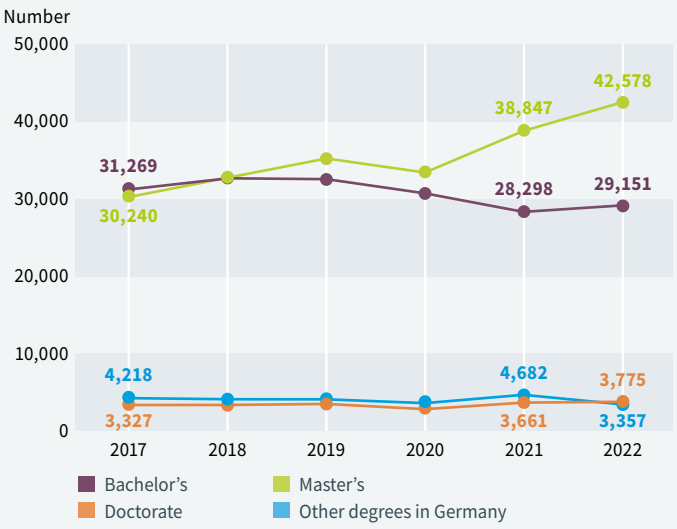
B2.3 Share of international students intending to graduate of all students, by type of university and degree, in the 2022/23 winter semester

International students	Share of all students in %
Total institutions	7.5
	24.5
	27.2
	5.4
	11.8
Universities	7.8
	25.7
	27.3
	5.5
	13.3
Universities of applied sciences	7.2
	21.5
	22.7
	4.2
	9.6

Bachelor's · Master's · Doctorate · Other degrees in Germany · Total

Source: Federal Statistical Office, student statistics; DZHW calculations

B2.4 International first-year students intending to graduate, by type of degree, since the 2017 academic year[2, 3]



Source: Federal Statistical Office, student statistics

2.2 Regions and countries of origin

Most international students seeking a degree in Germany come from the Asia and Pacific region, which has a share of 33%. Students from North Africa and Middle East are in second place with 20%, followed by Western Europe (14%), Central and South Eastern Europe (12%), plus Eastern Europe and Central Asia (8%). Sub-Saharan Africa and Latin America account for 6% and 5% respectively and North America for 2% of international students intending to achieve a degree.

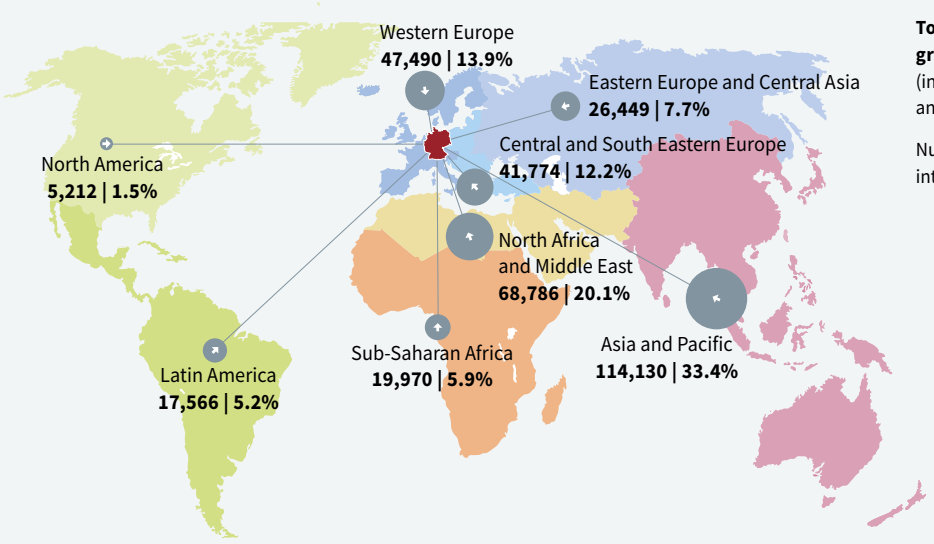
Depending on their region of origin, international students prefer different types of degrees. Approximately half of all students from European regions aim to obtain a bachelor's and about one third a master's degree. This ratio is reversed in the case of North and Latin America, and Asia and Pacific, whereby more than half of students want to complete their studies with a master's and only about one quarter and one fifth respectively with a bachelor's degree. Equal shares of students from Sub-Saharan Africa, North Africa and Middle East intend to graduate with a bachelor's or master's degree. A relatively high proportion of doctoral students, at 14% each, hail from North and Latin America.

Since the 2017/18 winter semester, three regions in particular report above-average growth in their student numbers: North Africa and Middle East (+59%), Asia and Pacific (+49%) and Sub-Saharan Africa (+36%). Below-average increases in student numbers can be seen first and foremost in North America (+3%), Eastern Europe and Central Asia (+7%) and Western Europe (+15%). A comparison of winter semesters 2021/22 and 2022/23 reveals a downshift in the numbers of students from North America (–6%) and Sub-Saharan Africa (–2%), while those from Asia and Pacific rose by 8%. As a result of these developments, the significance of European regions of origin in particular has declined over the last five years. While, in the 2017/18 winter semester, they accounted for 39% of all international students intending to graduate, this has now fallen to 34%. Demographic reasons likely play a role in this regard. Over the same period, the share of the regions North Africa and Middle East, Asia and Pacific increased from 47% to 54%.

> "The number of Indian students intending to graduate has risen by 150% in the last five years.

While most international students came from China in the 2021/22 winter semester, India topped the list one year later. In total, 42,100 Indian students were intending to graduate in Germany in the 2022/23 winter semester, accounting for 12% of all international students. This figure rose by 150% compared to winter semester 2017/18. By contrast, the number of Chinese students, now relegated to second place, only climbed by 8% to 37,600 during this period, a decrease of 4% year-on-year. The situation is similar among students from Syria. Although their number has increased by 89% since the 2017/18 winter semester, it is 7% below the level of the previous year. These countries of origin are followed in the ranking by Austria, Turkey and Iran, with the two latter countries listed in tenth and sixth place respectively five years ago. Since the 2017/18 winter semester, the number of Austrian students has jumped by 33%, with Turkish students up by 108% and Iranian students by 77%. Other major countries of origin are Russia, Pakistan, Italy and Cameroon.

B2.5 International students intending to graduate, by region of origin, in the 2022/23 winter semester[1]



Total international students intending to graduate from German universities 342,041
(including 664 students who cannot be assigned to any region of origin)

Number and share in % of all international students intending to graduate at German universities

Source: Federal Statistical Office, student statistics; DZHW calculations

Footnotes

1 Unlike previous editions of *Wissenschaft weltoffen*, the countries of origin Greece and Cyprus have been included in the region of origin of Central and South Eastern Europe and not Western Europe as before.

2 Including Hong Kong and Macao.

3 Only countries with at least 100 international students intending to graduate, in winter semester 2022/23 (increase) and winter semester 2019/20 (decrease).

B2.6 International students intending to graduate, by key countries of origin, in the 2017/18 and 2022/23 winter semester

	Winter semester 2017/18		Winter semester 2022/23		
Countries of origin	Number	Share in %	Countries of origin	Number	Share in %
China[2]	34,763	13.6	India	42,117	12.3
India	16,869	6.6	China[2]	37,580	11.0
Austria	10,990	4.3	Syria	15,503	4.5
Russia	10,143	4.0	Austria	14,649	4.3
Syria	8,218	3.2	Turkey	13,792	4.0
Iran	7,380	2.9	Iran	13,070	3.8
Cameroon	7,302	2.9	Russia	10,243	3.0
Ukraine	6,719	2.6	Pakistan	8,128	2.4
Italy	6,627	2.6	Italy	8,058	2.4
Turkey	6,623	2.6	Cameroon	7,298	2.1
Bulgaria	6,345	2.5	Egypt	7,150	2.1
Tunisia	5,386	2.1	Morocco	6,953	2.0
France	5,200	2.0	Ukraine	6,832	2.0
Morocco	5,198	2.0	Tunisia	6,465	1.9
Indonesia	4,873	1.9	Bangladesh	6,422	1.9
South Korea	4,870	1.9	Vietnam	5,727	1.7
Pakistan	4,857	1.9	Indonesia	5,399	1.6
Vietnam	4,699	1.8	South Korea	5,317	1.6
Luxembourg	4,291	1.7	France	5,208	1.5
Poland	4,252	1.7	Bulgaria	5,118	1.5

Source: Federal Statistical Office, student statistics; DZHW calculations

During the pandemic, between the winter semesters 2019/20 and 2022/23, the number of students from Guyana (+5,567%) Myanmar (+207%) and Honduras (+92%) skyrocketed in particular. Furthermore, countries of origin such as Sri Lanka (+77%), India (+72%) and Uganda (+71%) also reported substantial gains over these years. Conversely, student numbers plummeted during the same period for Cyprus (–21%), Senegal (–20%), Saudi Arabia and Estonia (–16% each).[3]

Although specific reasons can be given for the development of student numbers in each country, certain overarching regional trends are striking: in particular, the number of internationally mobile students from Asia and Pacific is on the rise, while the number of those from European, especially Eastern European regions, along with several African and Asian countries, is increasing less steeply, even stagnating or declining. In addition to political, humanitarian, economic and demographic issues in these countries of origin, the respective levels of development of the higher education and science systems in both the countries of origin and the host countries also influence international mobility.

B2.7 Countries of origin with the greatest increase and decrease in percentages of international students intending to graduate, from the 2019/20 winter semester to the 2022/23 winter semester[3]

Countries of origin	WS 2022/23 Number	Development WS 2019/20–WS 2022/23 in %
Guyana	170	+5,567
Myanmar	224	+207
Honduras	251	+92
Sri Lanka	727	+77
India	42,117	+72
Uganda	376	+71
Turkey	13,792	+64
Algeria	541	+62
Bangladesh	6,422	+60
South Africa	541	+60
Palestinian territories	1,497	–9
Australia	432	–11
Singapore	266	–11
Finland	438	–12
Bulgaria	5,118	–13
Moldova	341	–14
Estonia	289	–16
Saudi Arabia	341	–16
Senegal	120	–20
Cyprus	617	–21

Source: Federal Statistical Office, student statistics; DZHW calculations

2.3 Subject groups

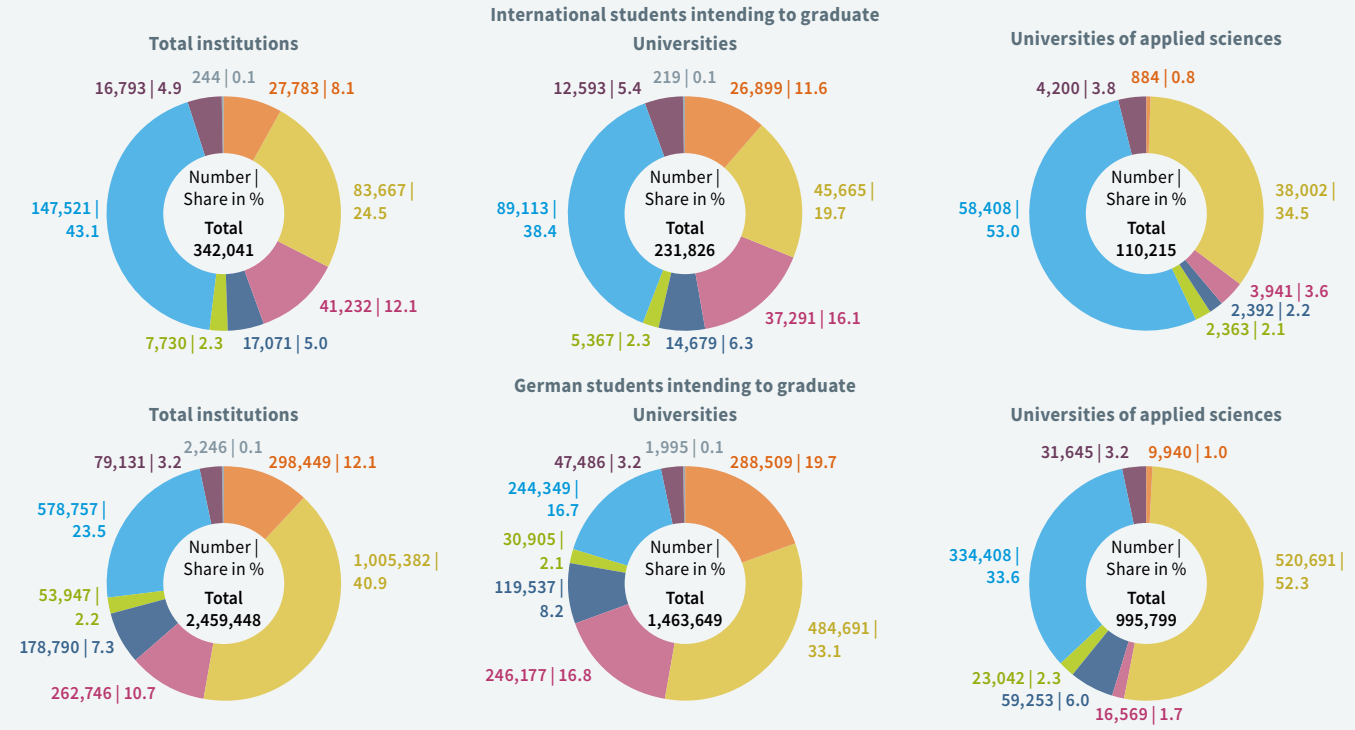
In the 2022/23 winter semester, the majority of international students intending to graduate were enrolled in engineering (43%) and in law, economics and social sciences (25%). This applies to both universities and universities of applied sciences (UAS); however, the shares of international students in these two subject groups at UAS (53% and 35% respectively) are considerably larger than at universities (38% and 20% respectively). On the other hand, the humanities (universities 12%, UAS 1%) and mathematics and natural sciences (universities 16%, UAS 4%) figure much more prominently at universities. In addition, 5% each of international students were studying for a degree in medicine and health sciences or art and art history, with another 2% in agricultural, forestry and food sciences, and veterinary medicine. Greater differences between types of university in these subject groups can only be observed with regard to medicine and health sciences (universities 6%, UAS 2%). Engineering and law, economics and social sciences are also the most important subjects for German students, although the ratio here is reversed compared to their international fellow students: law, economics and social sciences are in first place with 41%, followed by engineering with 24%.

> “The number of international students intending to graduate in mathematics and natural sciences has increased by 47% since the 2017/18 winter semester.

Mathematics and natural sciences has shown the biggest growth in the number of international students intending to graduate, up by 47% since the 2017/18 winter semester. By contrast, a downturn of 6% can be observed among German students in the same period. With an increase in enrolment figures of 44% (German students –8%), engineering study programmes show a similarly robust rise in interest among international students. The corresponding number of students has risen by 31% in law, economics and social sciences and by 29% in agricultural, forestry and food sciences, and veterinary medicine. Meanwhile, the growth rate in the humanities is below-average, at just 5%. Student numbers have stagnated in this subject group in recent years.

The above-average upswing in the number of international students intending to graduate in engineering and in mathematics and natural sciences may also be attributed to the increased immigration of students from Asia and Pacific, North Africa and Middle East, and their preference for engineering degree programmes. More than half of the students in question opt to study one of these subjects. On the other

B2.8 International and German students intending to graduate, by type of university and subject group, in the 2022/23 winter semester[1, 2]



Source: Federal Statistical Office, student statistics; DZHW calculations

hand, students from European regions, whose number has only increased to a lesser extent in the last five years, are more likely than average to be interested in law, economics and social sciences. About one third each decide to study subjects in this group.

> “The share of international students intending to graduate in engineering at universities is 26%.

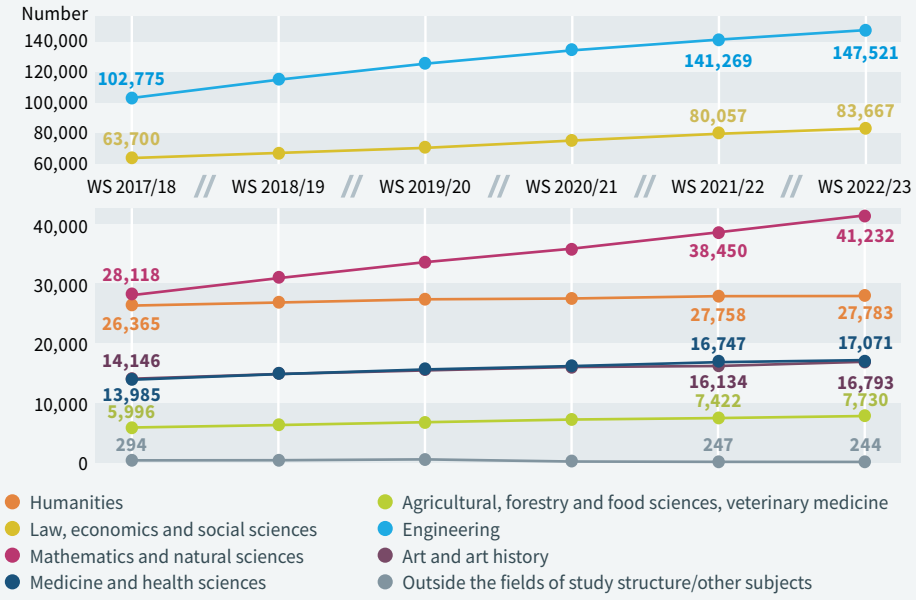
The differing growth rates, depending on the subject group, in international students' interest in graduating from German universities has meant that, at universities with a share of 20% in engineering, one in five students hoping to obtain a degree now comes from abroad. In art and art history programmes, international students represent 17% of all students. In mathematics and natural sciences, agricultural, forestry and food sciences, and veterinary medicine, they make up a quota of 13 and 12% respectively. By contrast, the lowest percentages of international students are recorded in medicine and health sciences (9%), plus the humanities, law, economics and social sciences (8% each). At universities, particularly high rates can be observed in engineering subjects with 26%, as well as in art and art history with 20%. At universities of applied sciences, the largest shares are found in mathematics and natural sciences (18%) and engineering (14%). By comparison, medicine and health sciences (4%) and law, economics and social sciences (7%) report lower percentages.

Footnotes

1 Deviations from 100% are due to rounding.

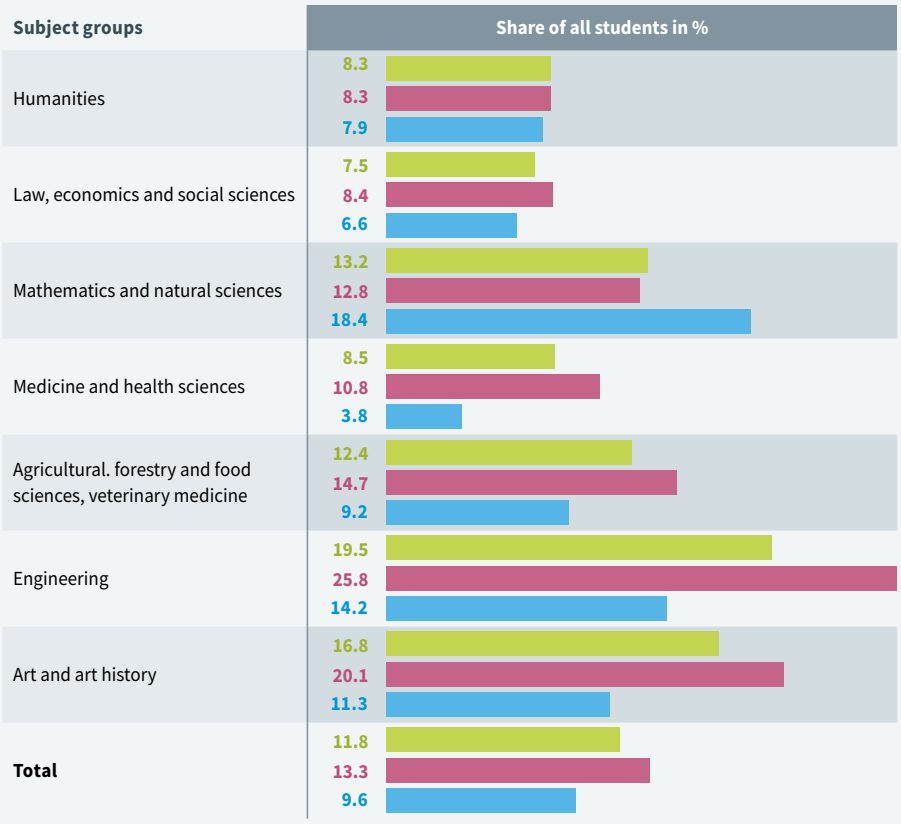
2 Not including 25 international and 251 German students at UAS, who are enrolled in other subjects and/or subjects outside the fields of study structure.

B2.9 International students intending to graduate, by subject group, since the 2017/18 winter semester



Source: Federal Statistical Office, student statistics

B2.10 Share of international students intending to graduate of all students, by type of university and subject group, in the 2022/23 winter semester



Source: Federal Statistical Office, student statistics; DZHW calculations

2.4 Applicants

Around two thirds of all international students in Germany are enrolled at universities that are members of uni-assist. Data on international applicants can be collated for these universities. In 2023, approximately 6,600 more candidates than the previous year applied for admission to a university in Germany via uni-assist. After 2021, the second year of the pandemic, the number of applicants increased by 21%[1] in 2023. Compared to 2021, the 20 key countries of origin have remained largely unchanged, except that Azerbaijan and Ghana have since replaced Italy and Jordan. Again in 2023, most applicants came from India (20%), followed by Turkey (9%), Iran, Pakistan (7% each) and China (5%). In five of the 20 key countries of origin, the number of applicants has fallen off compared to 2021: they are Bangladesh (–8%), Indonesia (–14%), the US (–15%), China (–21%), and Syria (–26%). Particularly striking here is the further marked decline in applicants from China, already down 30% in the previous year. In other words, even a year after pandemic-related travel restrictions were lifted, the number of applicants continued to drop sharply. Meanwhile, in the 15 remaining countries of the 20 key countries of origin, applicant numbers have developed positively, with increases of between 1% (South Korea) and 126% (Pakistan).

What is uni-assist?

uni-assist is a registered association that all state universities in Germany can join. Currently, 148 universities make use of uni-assist's services. The core task of uni-assist is to evaluate international certificates. On behalf of the member universities and according to the guidelines of the Central Office for Foreign Education (ZAB), uni-assist checks whether the certificates submitted are equivalent to German school-leaving certificates or university degrees and are sufficient to qualify students to study in Germany. If the check is positive, uni-assist forwards the application electronically to the respective universities.

There are also clear differences between the key countries of origin of applicants in terms of their success rates in the formal application process through uni-assist. Only applications that meet all formal criteria are forwarded by uni-assist to the university in question for the final (and, above all, subject-based) decision on student admission. On average, 86% of applications were forwarded in 2023. Among the countries with the highest forwarding rates were Taiwan (94%), Bangladesh (93%) and Indonesia (92%), while the lowest forwarding rates were found in applicants from the Philippines (48%), Zimbabwe (67%) and Mongolia (69%).

The main reasons for uni-assist rejecting an application are incomplete documents (19%), insufficient German language proficiency (16%), falling below a specified minimum grade (9%) and exceeding deadlines (8%).

However, the significance of the reasons for rejection varies somewhat, depending on the

B2.11 Key countries of origin of international applicants via uni-assist, in 2021, 2022 and 2023, plus development from 2021 to 2023[1]

Country of origin	Number			Development in %, 2021–2023
	2021	2022	2023	
India	13,785	19,049	18,414	+33.6
Turkey	5,053	6,563	8,694	+72.1
Iran	3,489	5,207	6,546	+87.6
Pakistan	2,713	4,197	6,118	+125.5
China	5,575	4,163	4,432	–20.5
Russia	2,424	2,329	2,684	+10.7
Bangladesh	2,782	2,973	2,573	–7.5
Egypt	1,942	2,299	2,501	+28.8
Ukraine	1,164	1,961	2,361	+102.8
Syria	3,131	2,464	2,325	–25.7
Morocco	1,954	2,495	2,285	+16.9
Nigeria	1,786	1,859	1,953	+9.4
Tunisia	1,204	1,382	1,733	+43.9
Cameroon	1,426	1,551	1,479	+3.7
Ghana	830	1,118	1,379	+66.1
US	1,326	1,082	1,129	–14.9
Vietnam	853	918	1,034	+21.2
Indonesia	1,189	1,061	1,021	–14.1
South Korea	955	938	962	+0.7
Azerbaijan	603	770	835	+38.5
Other countries	**23,416**	**22,818**	**23,353**	**–0.3**
All countries	**77,600**	**87,197**	**93,811**	**+20.9**

Source: uni-assist; DAAD calculations

Footnotes

1 An academic year always includes the summer semester and the following winter semester. Accordingly, the 2023 academic year includes applications for summer semester 2023 and winter semester 2023/24.

2 Countries of origin with at least 100 applicants in the 2023 academic year.

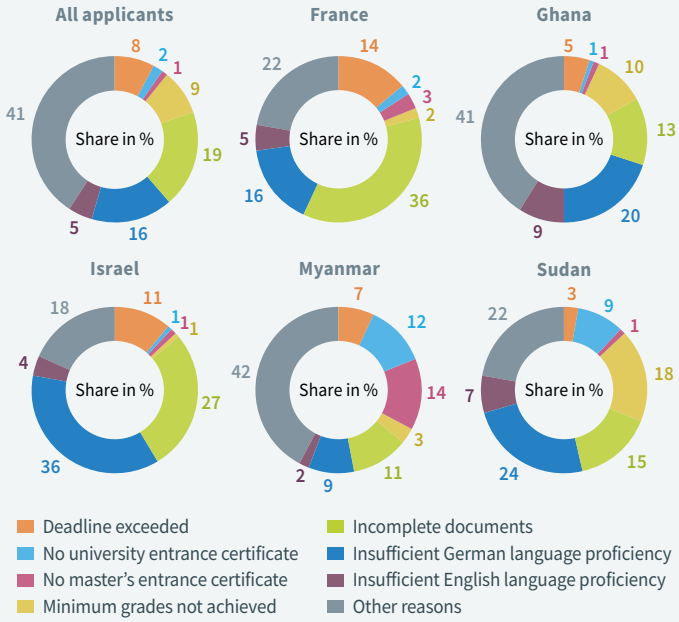
3 Deviations from 100% are due to rounding.

B2.12 Forwarding rate of international applications via uni-assist, by selected countries of origin, in 2023[1, 2]

Country of origin	Forwarding rate in %
Taiwan	94
Bangladesh	93
Indonesia	92
Turkey	91
Russia	90
Pakistan	88
India	87
South Korea	86
Ukraine	84
Egypt	83
Syria	82
Ghana	81
Sri Lanka	79
US	77
Libya	76
Nigeria	75
France	71
Mongolia	69
Zimbabwe	67
Philippines	48
Total	**86**

Source: uni-assist; DAAD calculations

B2.13 Major formal reasons for rejection of international applications via uni-assist overall and by selected countries of origin, in 2023[1, 3]

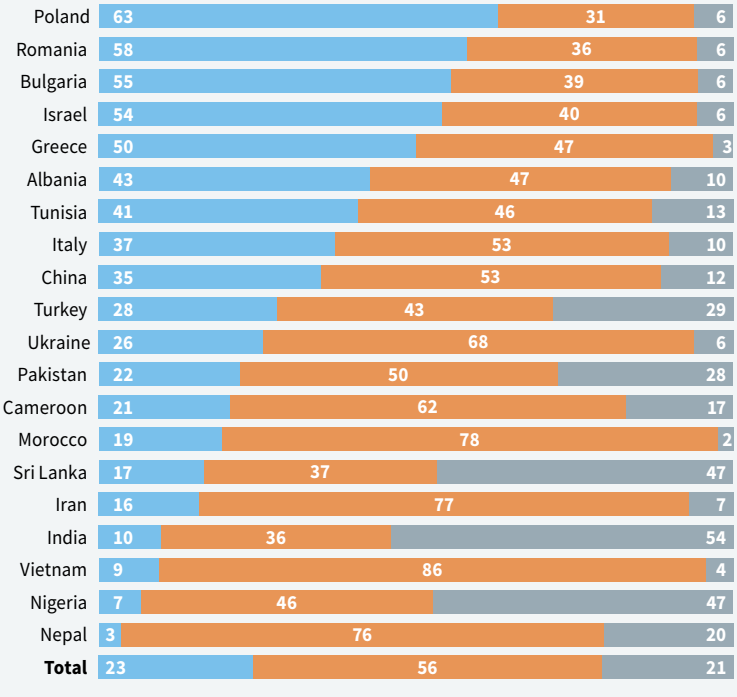


Source: uni-assist; DAAD calculations

country of origin. In 2023, incomplete documents were more likely than average to lead to the rejection of applications from France (36%) and Israel (27%). The same applies to insufficient German language skills in the case of applicants from Israel (36%), Sudan (24%) and Ghana (20%). Applications from Sudan and Ghana were more likely than average to be rejected for not having achieved the minimum grade (18% and 10% respectively) or due to candidates' inadequate command of English (7% and 9% respectively). Other frequent reasons for rejection in the key countries of origin are not holding a university entrance certificate, especially true of applicants from Myanmar (12%) and Sudan (9%) and lacking a master's entrance certificate in the case of Myanmar (14%) and France (3%).

Pronounced differences between the countries of origin can also be observed with regard to the German language skills verified in the uni-assist application process, which must be supported by appropriate certificates. The highest shares of applicants who are proficient users of the language, (C1/C2) according to the Common European Framework of Reference for Languages (CEFR), in the 2023 academic year are found in Poland (63%), Romania (58%) and Bulgaria (55%). High percentages of applicants who are independent users (B1/B2) come mainly from Vietnam (86%), Morocco (78%) and Iran (77%). Finally, the highest proportion of applicants from India (54%), Nigeria and Sri Lanka (47% each) only have a basic command of the language (A1/A2).

B2.14 German language proficiency of international applicants via uni-assist, by selected countries of origin, in 2023[1, 2, 3]



Proficiency level according to the Common European Framework of Reference for Languages (CEFR):
A1/A2: Basic user
B1/B2: Independent user
C1/C2: Proficient user

Source: uni-assist; DAAD calculations

2.5 Studienkollegs (preparatory colleges for university admission)

Attending a Studienkolleg and passing an assessment test (FSP), which is considered equivalent to a German university entrance certificate (HZB), entitles those applicants who do not already hold an HZB to enrol for an undergraduate degree in Germany.[1] As a general rule, the HZB that is obtained by this route is tied to a specific subject. Depending on the intended study programme, teaching at the Studienkollegs is divided into G courses (humanities), M courses (medicine, biology, pharmacy), S courses (languages and law), T courses (mathematics, natural sciences, engineering) and W courses (economics and social sciences).

Overall, in the 2023/24 winter semester, approximately 3,700 participants had signed up for preparatory courses at the 22 state-run Studienkollegs. A total of 42% were attending T courses, with 22% in W courses, 17% in M courses and 15% in G/S courses. Some 156 students were enrolled at special Kollegs, the majority in T courses (63%) with lower shares in G/S courses (23%) and W courses (14%). 314 participants, a similar number to the previous winter semester, were registered at church-run Kollegs, mostly in T (47%) and M courses (38%).[2] The private Studienkollegs listed had a total of 917 attendees in their preparatory courses in winter semester 2023/24.[3, 4] Here again, T courses (60%) were most popular, ahead of W (23%) and M courses (16%).

Data basis

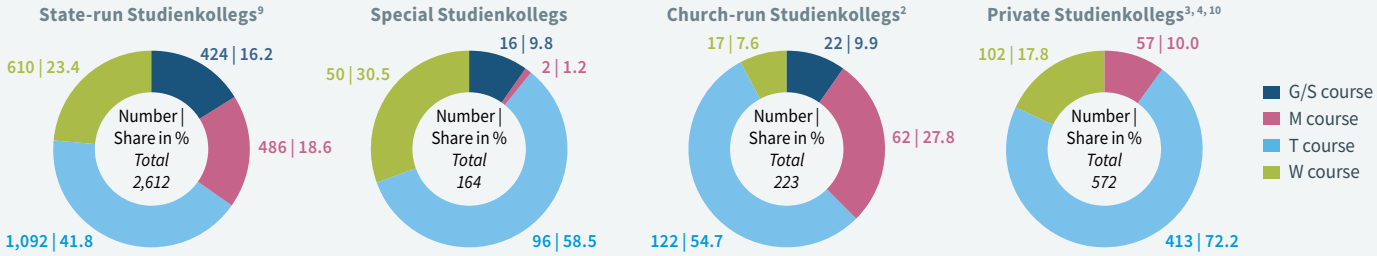
The data presented here are based on surveys conducted by *Wissenschaft weltoffen* on the Studienkollegs, or preparatory colleges for university admission, in Germany. These include state-run Studienkollegs, which are either affiliated to public universities or directly subordinate to a science ministry. They offer courses free of charge and, on passing the "Feststellungsprüfung" (FSP, assessment test), award a university entrance certificate (HZB) that is valid nationwide. Of the 22 state-run Studienkollegs, 21 participated in the surveys, at least in part. Studienkollegs for specific federal states also offer their courses free of charge and are part of the public higher education system.[5] However, the HZB thereby awarded only entitles the holder to apply to universities in the respective federal state. All special Studienkollegs took part in the survey. Church-run Studienkollegs are those sponsored by the church. Their final examination is state accredited and results in an HZB that is valid throughout Germany. Only one church-run Studienkolleg participated in the survey; the responses for the other were estimated. Private Studienkollegs offer fee-based preparation for the assessment test. Some are state accredited and the examinations can be taken directly at the institution. For other private Studienkollegs, the FSP must be administered by state-run Studienkollegs or as part of examinations held by the official educational administration. Several private Studienkollegs are affiliated to certain private or state universities and, in some cases, only prepare candidates for admittance to these universities.[6] The number of private Studienkollegs is currently estimated at 30 to 35. Eleven private Studienkollegs participated in the survey. Therefore, the responses provided by private Studienkollegs should be interpreted as trend values.

B2.15 Participants, by type of Studienkolleg and core course, in the 2023/24 winter semester[7]

Type of Studienkolleg	Total	G/S course		M course		T course		W course		Not specified	
	Number	Number	Share in %	Number	Share in %	Number	Share in %	Number	Share in %	Number	Share in %
State-run Studienkollegs[8]	3,694	551	14.9	616	16.7	1,553	42.0	818	22.1	156	4.2
Special Studienkollegs	156	36	23.1	–	–	98	62.8	22	14.1	–	–
Church-run Studienkollegs[2]	314	22	7	118	37.6	148	47.1	26	8.3	–	–
Private Studienkollegs[3, 4]	917	–	–	144	15.7	559	60.1	214	23.3	–	–

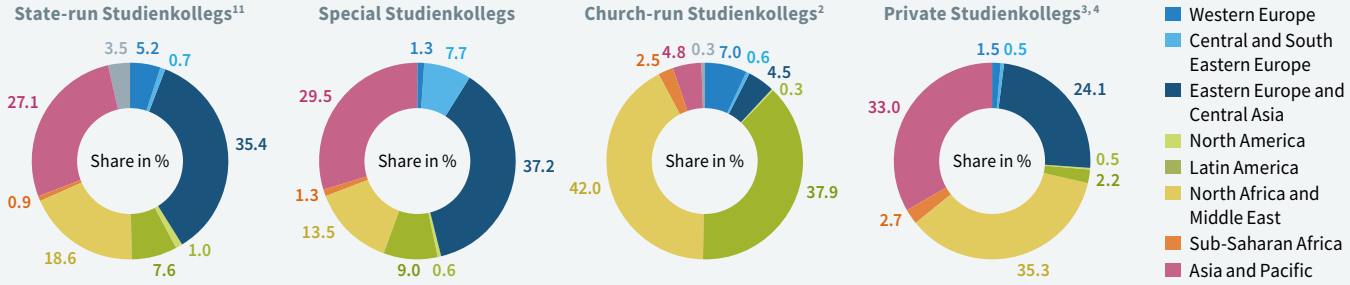
Source: DZHW survey, data provided by Studienkollegs

B2.16 Studienkolleg graduates, by type of Studienkolleg and core course, in the 2023 graduation year[7]



Source: DZHW survey, data provided by Studienkollegs

B2.17 Participants, by type of Studienkolleg, region of origin and key countries of origin, in the 2023/24 winter semester[7]



Key countries of origin	in %
1. Ukraine	17.6
2. Vietnam	10.1
3. Iran	8.8
4. Russia	8.2
5. Indonesia	5.2

Key countries of origin	in %
1. Ukraine	21.8
2. Tajikistan	7.1

Key countries of origin	in %
1. Iran	20.4
2. Brazil	6.7
3. Ecuador	6.7
4. Yemen	6.7
5. Morocco	6.4

Key countries of origin	in %
1. China	18.9
2. Ukraine	14.2
3. Morocco	12.9
4. Iran	11.5
5. India	5.3

Source: DZHW survey, data provided by Studienkollegs

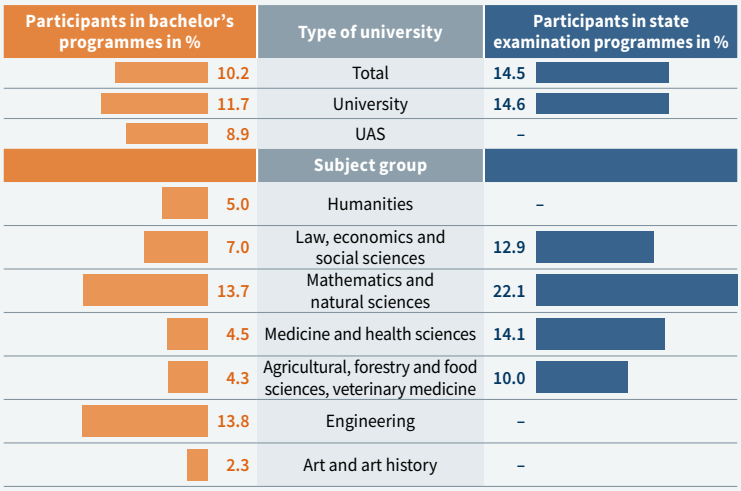
Students at the state-run, special and private Studienkollegs share a similar profile of origin, with most coming from the regions of Eastern Europe and Central Asia, North Africa and Middle East plus Asia and Pacific. The percentages from other regions of origin are far lower. It is characteristic of the two church-run Studienkollegs that, in addition to those from North Africa and Middle East (42%), attendees from Latin America (38%) dominate the student body. Accordingly, Iran, Brazil, Ecuador and Yemen are the key countries of origin for these Studienkollegs. Ukraine is invariably one of the two key countries of origin for all other Studienkollegs. Moreover, Vietnam, Iran and Russia also figure prominently as countries of origin (at state-run Kollegs), along with Tajikistan (at special Kollegs) and China, Morocco and Iran (at private Kollegs). In 2023, a total of 3,571 students at all documented Studienkollegs passed the FSP and were awarded an HZB. Most graduates received the HZB for mathematics, natural sciences and engineering study programmes (48%).

Overall, roughly 10% of the international first-year students in 2022 embarked on their bachelor's programme with an HZB awarded by a Studienkolleg, 12% at universities and 9% at universities of applied sciences (UAS). The figure was a remarkable 15% for state examination programmes. Exceptionally high percentages can be found among the international first-year students in bachelor's programmes, who were enrolled in engineering or mathematics and natural sciences (14% each).

Footnotes

1 The Central Office for Foreign Education (ZAB) of the Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder is responsible for assessing foreign qualifications.
2 Estimated figures for Studienkolleg Bochum.
3 Non-representative sample at private Studienkollegs.
4 Estimated figures for Studienkolleg Glauchau.
5 Only the preparatory courses at the Studienkolleg :prime at the Academy for Higher Education Access Development in Bremen are fee-based.
6 Fee-based, private Studienkollegs also include institutions at state universities in Dresden, Freiberg, Jena, Mittweida and Paderborn, whose assessment tests are state accredited.
7 Deviations from 100% are due to rounding.
8 Estimated figures for the Studienkollegs Kaiserslautern and Mittelhessen; no data on attendance figures for Studienkolleg Mainz.
9 No data for the Studienkollegs in Frankfurt am Main, Kaiserslautern, Kiel and Mainz.
10 No data for the private Studienkollegs FHM Bielefeld and Duisburg-Essen. Courses at the TUDIAS Studienkolleg at the TU Bergakademie Freiberg only commenced in the 2023/24 winter semester, therefore no students passed the FSP in 2023.
11 No data for Studienkolleg Kaiserslautern; estimated figures for Studienkolleg Mittelhessen.

B2.18 Share of Studienkolleg participants of international first-year students in bachelor's and state examination programmes, by type of university and subject group, in 2022



Source: Federal Statistical Office, student statistics; DZHW calculations

2.6 Dropouts and graduates

Dropout rates in study progress statistics

By establishing and gradually developing study progress statistics, the Federal Statistical Office is able to determine the scale of dropouts by purely statistical means, without having to rely on estimates.[1] The calculations presented for the first time this year refer exclusively to dropout rates in the first three university semesters among first-year students enrolled in undergraduate degree programmes in the cohorts 2018 and 2019. Dropouts are defined as any first-year students in these cohorts who were de-registered at their own request during the first three semesters and who neither subsequently re-enrolled over the following three semesters nor passed a final examination. The calculations include first-year students in all undergraduate study programmes who were pursuing a degree at a German university.

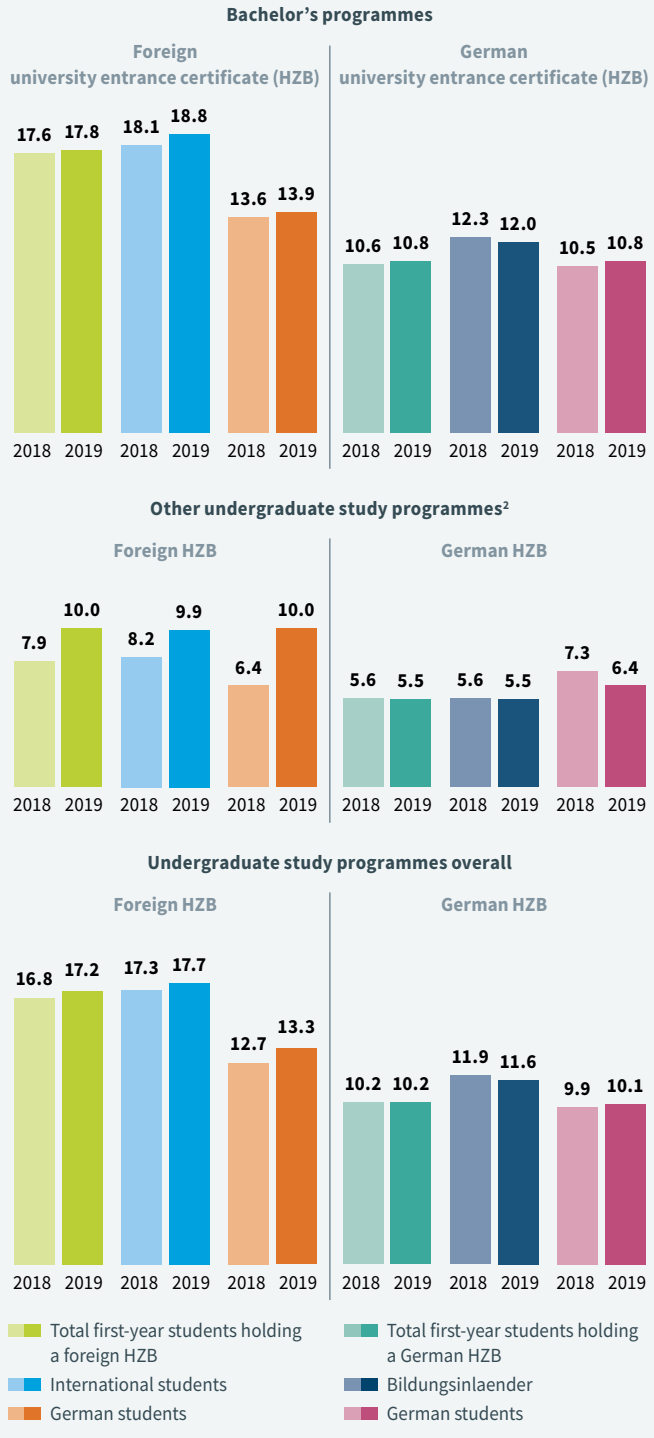
The dropout rate for international bachelor's students of the 2018 cohort within the first three university semesters is 18.1%, significantly higher than the corresponding rate of German students holding a German university entrance certificate (HZB), at 10.5%. The rate for German students with a foreign HZB stands at 13.6%. Their dropout rate is thus below that for international students, yet above that for German students holding a German HZB. On the one hand, this finding suggests that students holding a foreign HZB are more likely than those with a German HZB to encounter certain adjustment issues in terms of the gap between the skills acquired at school and the demands of a degree programme at a German university. On the other hand, however, the differences between German and international students with a foreign HZB indicate that other factors also come into play in explaining the higher dropout rate of international students.

These trends can also be seen in the dropout rate in other undergraduate degree programmes[2] outside bachelor's programmes. Nonetheless, the dropout rate is much lower here and the differences between the groups of students are smaller. Thus, the dropout rate during the first three semesters for international first-year students in these study programmes in 2018 is 8.2%, as opposed to 7.3% among German students holding a German HZB.

There are no major differences in the dropout rates between first-year students in the cohorts 2018 and 2019; only a slight increase can be observed in the dropout rates for international students.

The number of international graduates at German universities shot up by 36% between 2017 and 2022.[3] Despite the restrictions that were still in place due to Covid-19, 2022 saw an all-time high of 56,600 international graduates, 6% more than in the previous year and 17% more than in 2019. At the same time, the number of international graduates has risen dramatically in both bachelor's and master's programmes. The growth rate is 46% for bachelor's degrees and 41% for master's programmes. In line with the sluggish development in the number of students engaging

B2.19 Share of first-year students in undergraduate programmes in 2018 and 2019 dropping out in the first three study semesters, by university entrance certificate (HZB) and citizenship



Share in %

Source: Federal Statistical Office, study progress statistics

in doctoral studies (see pp. 38/39), the number of doctorates awarded to international students has increased by a mere 10%.

Among graduates, master's degrees predominate to a similar extent as in international first-year students seeking a degree (see p. 39). Over half, or 57%, of international students who were awarded a degree in 2022 graduated with a master's degree. Bachelor's degrees accounted for 29% and doctorates for 10%. The situation is reversed for German graduates in the same graduation year, with the share of master's degrees at 29%, while bachelor's degrees make up 55%. 5% of German graduates completed their studies with a doctorate.

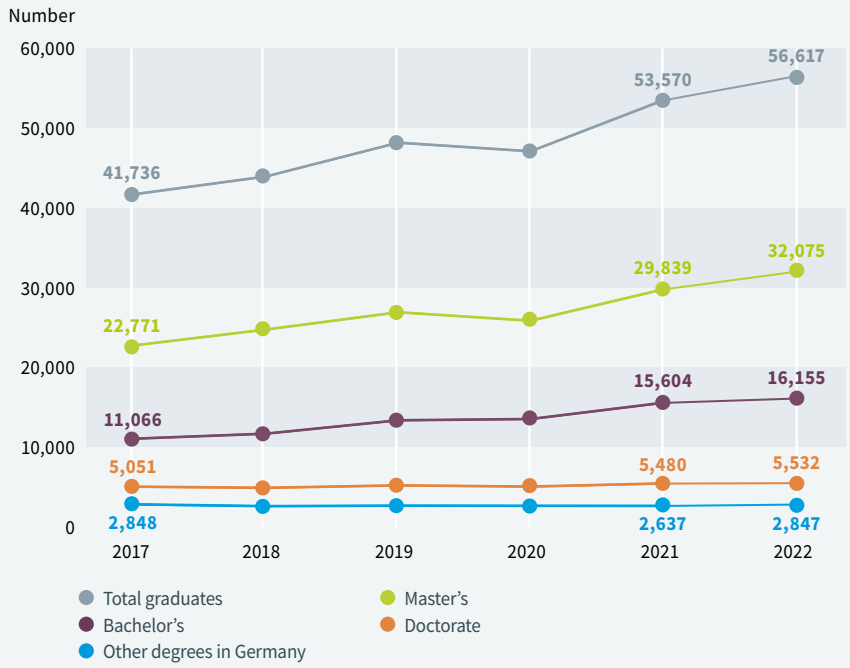
At 11.2%, the share of international graduates of all graduates in 2022 is 0.9 percentage points above that of 2021. This increase is due both to the growing number of international graduates and to the 3% drop in German graduates year-on-year. This applies to a particularly large share, namely 20.0%, of students who were awarded a doctorate. The percentage of international graduates of master's programmes was comparable at 19.6%. For bachelor's degrees, this figure is 6.1%.

Over the last five years, the number of international graduates in engineering (+51%), medicine and health sciences (+48%) as well as mathematics and natural sciences (+41%) has seen above-average growth. This is in contrast to the humanities, which register a rise of just 8%. The situation is somewhat different with regard to the proportion of international graduates of all graduates in the various subject groups. The highest percentage can be observed in art and art history with 21%, followed by 18% in engineering. By contrast, below-average shares are found in law, economics and social sciences (7%), medicine and health sciences plus the humanities (8% each).

Footnotes

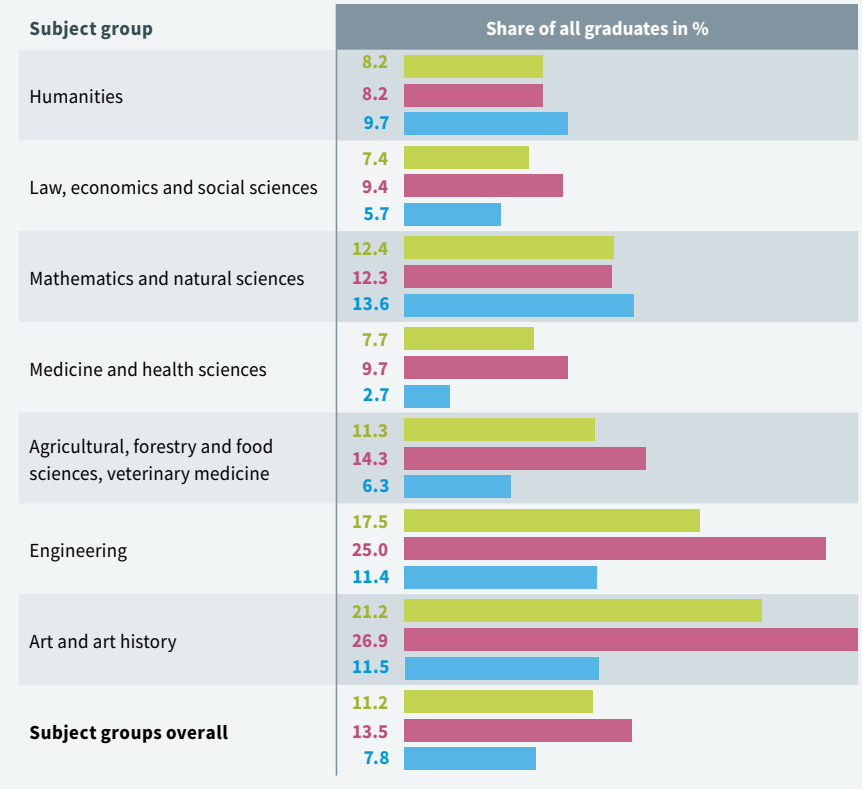
1 Federal Statistical Office (2024), study progress statistics 2023.
2 Mainly including study programmes leading to a state examination or German "Diploma" degree.
3 A graduation year includes the graduates in the winter semester and the following summer semester. Graduation year 2022 = winter semester 2021/22 + summer semester 2022.

B2.20 International graduates by type of degree, since 2017[3]



Source: Federal Statistical Office, examination statistics

B2.21 Share of international graduates of all graduates, by subject group, in 2022[3]



Source: Federal Statistical Office, examination statistics; DZHW calculations

2.7 Stay intentions and stay rates

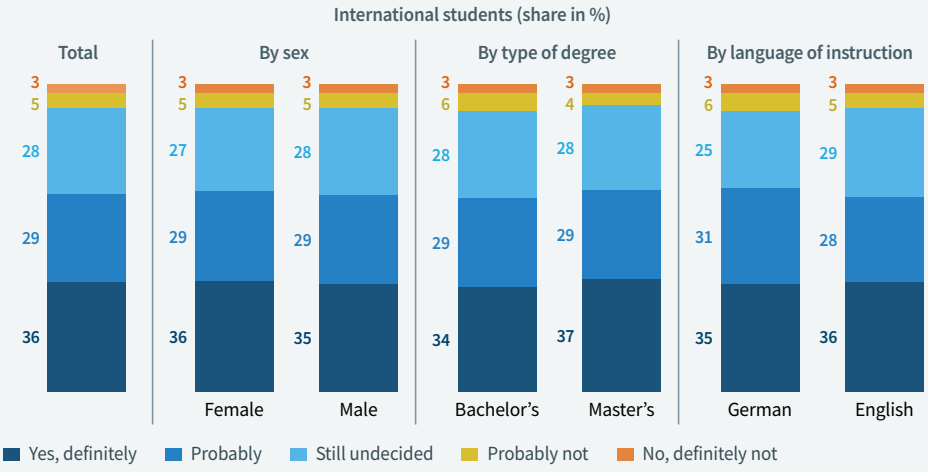
Many international students want to stay in Germany after completing their degree. A DAAD survey of approximately 20,000 international students and doctoral students in winter semester 2023/24, as part of the "Benchmark internationale Hochschule" (BintHo)[1] project, found that almost two thirds (65%) of the respondents who were pursuing a degree in Germany planned to remain in the country after graduating, with a good third (36%) having already made the decision. Just 8% of the respondents considered it likely or certain they would leave Germany after completing their studies, while the remaining students (28%) were still undecided on the matter at the time of the survey. This finding is also consistent with the reasons given by international students for embarking on a degree programme in Germany (see pp. 52/53).

A closer look at the respondents reveals that their stay intentions vary in particular according to their region or country of origin. Students from Eastern Europe and Central Asia (75%) and Latin America (71%) were especially likely to hope to stay after graduating, as opposed to students from Western Europe (43%). Comparing the responses of the students surveyed from individual countries of origin on their intent to remain, Russian (82%), Ukrainian (74%) and Egyptian (72%) students most frequently indicated that they were planning to stay in Germany after graduating. By contrast, students from Bangladesh (55%), China (54%) and Italy (47%) were much less likely to do so.

An analysis of the respondents in the various subject groups shows relatively minor differences in the intentions of these students. Almost without exception, the share of respondents who thought it likely or expected to stay in Germany after their studies is around two thirds. The only notable exception was medicine and health sciences, with a corresponding share of 59%. Meanwhile, the highest percentages of students intending to remain in Germany were found in economics, engineering and information technology, with each subject scoring 66%.

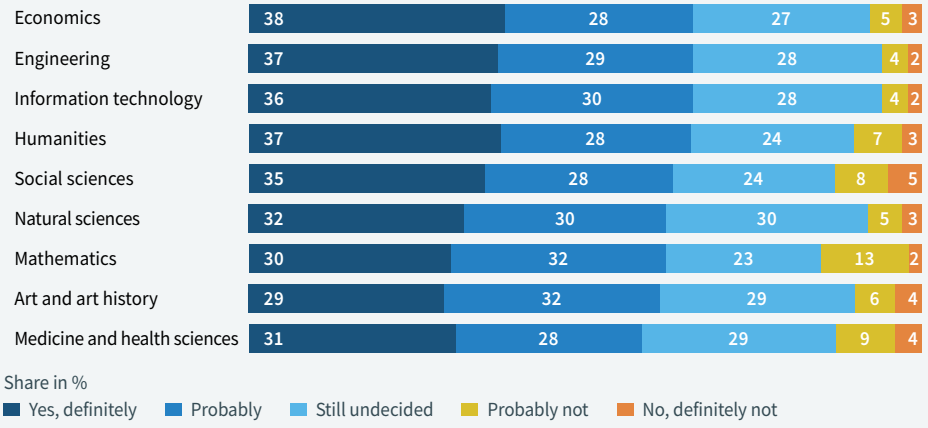
Lastly, there were hardly any differences between the intentions of male and female students from abroad: in both groups, about two thirds of the respondents planned to stay after graduating. A similar finding emerges when looking at the two most important types of degrees and languages of instruction at German universities: roughly two thirds of bachelor's and master's students, and of students enrolled on programmes in German and English, indicated that they intend to stay after completing their studies.

B2.22 Stay intentions among international students seeking a degree in Germany, by sex, type of degree and language of instruction, in the 2023/24 winter semester[3]



Source: DAAD, BintHo Survey 2023/24, weighted figures

B2.23 Stay intentions among international students seeking a degree in Germany, by selected subject groups, in the 2023/24 winter semester[3]



Source: DAAD, BintHo Survey 2023/24, weighted figures

Footnotes

1 See also the info box on p. 70 and www.daad.de/bintho.

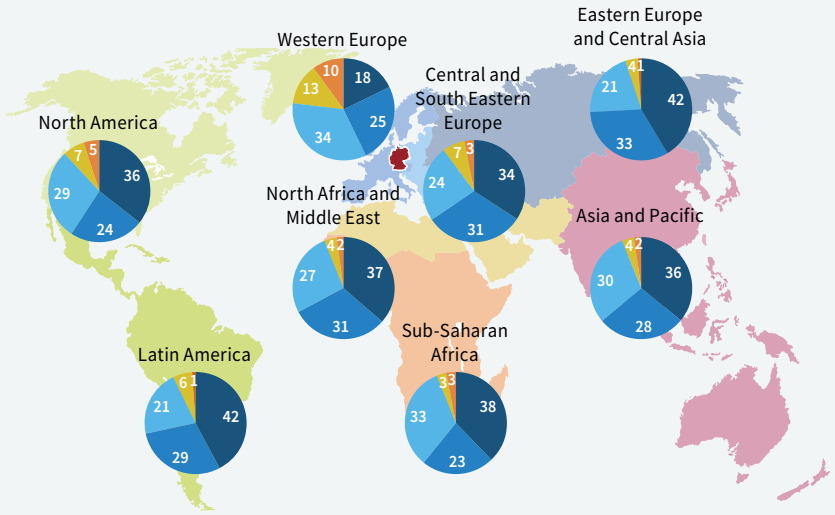
2 See Weißmann/Eberle (2023).

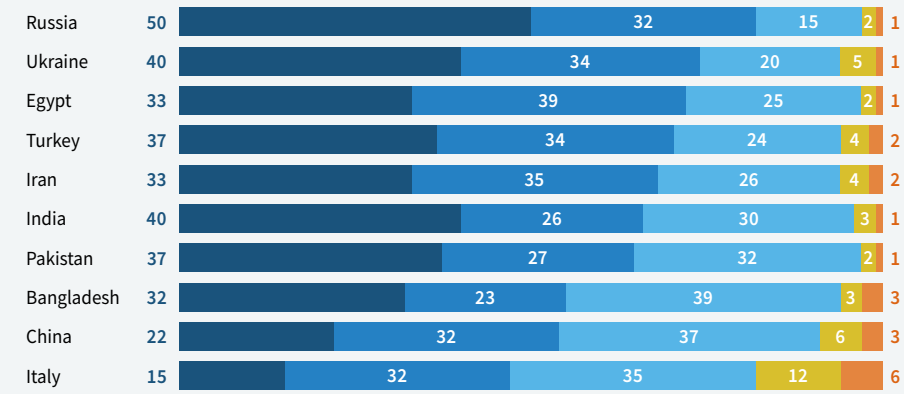
3 Deviations from 100% are due to rounding.

4 Only students from non-EU countries of origin.

Actual retention rates can only be established for first-year students from non-EU countries as they – unlike those from EU countries – require a residence permit in order to study in Germany and are thus recorded in the Central Register of Foreigners (AZR). Based on this, a recent calculation by the Federal Statistical Office[2] found that, of the students registered in the AZR who embarked on a degree in Germany between 2006 and 2012, 55% were still in Germany five years after starting their studies and 46% ten years after starting their studies. Almost a third (30%) of those who were still in Germany ten years after embarking on their degree had since been granted a permanent settlement permit, while just under a quarter (24%) had acquired German citizenship. Another third (33%) held a temporary residence permit for the purpose of gainful employment (13%), for study-related (11%) or for family reasons (9%). Moreover, the analysis of the Federal Statistical Office highlights a clear trend in the retention rates of international first-year students in the period under review: to begin with, the retention rate was relatively stable ten years after commencing their studies, between 43% and 45% (first-year cohorts of 2006 to 2010), before rising to 48% (first-year cohort of 2011) and ultimately to 51% (first-year cohort of 2012).

B2.24 Stay intentions among international students seeking a degree in Germany, by region of origin and selected countries of origin, in the 2023/24 winter semester[3]





Source: DAAD, BintHo Survey 2023/24, weighted figures

B2.25 Stay rates for international first-year students in cohorts 2006–2012, five and ten years after starting their studies[4]

International first-year students in the years 2006–2012, share in %

Source: Federal Statistical Office, Weißmann/Eberle (2023)

SPOTLIGHT

Reasons given by international students to study in Germany and their study satisfaction

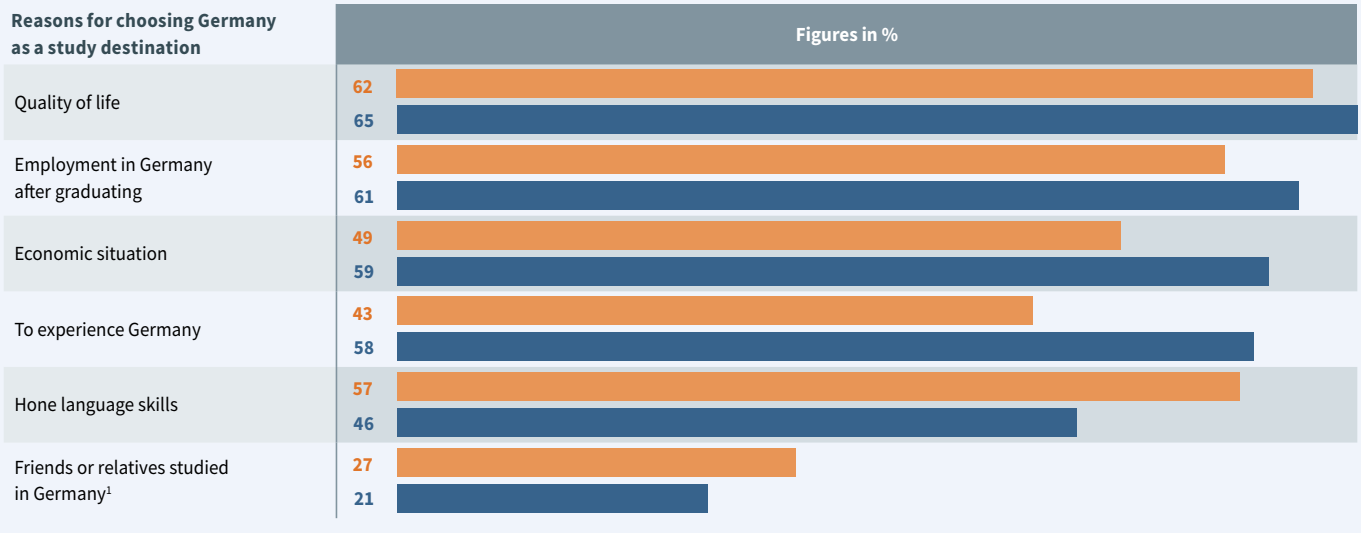
A country's attractiveness as a study destination for internationally mobile students depends on a variety of aspects. In addition to reasons directly related to the university, subject and study programme, the politics, economy, culture and conditions in the respective study destination also influence students' decisions. "The Student Survey in Germany", which is conducted nationwide, asked respondents to indicate significant country-related reasons for studying in Germany. The following percentages and explanations refer exclusively to the international students who were pursuing a degree at a German university in summer semester 2021. International visiting students who were in Germany on temporary study-related visits were not taken into consideration on account of their special study situation.

The international students' decision to study at a university in Germany was based on four main reasons: 65% felt that the high quality of life in Germany played a (very) important role. The importance of quality of life in choosing where to study is not a new finding: in the 21st Social Survey 2016, a remarkable 62% of international students regarded this aspect as important. Of equal weight for the study choice was their intention to take up employment after graduating in Germany. This objective was (very) important in determining the choice of host country for 61% of international students. The corresponding figure for 2016 was 56%, which means that the potential of international students who can see themselves working in academia in Germany has increased. Another aspect should be noted in connection with these two motives: some 59% of international students opted to come to Germany on account of the economic situation here, a rise of ten percentage points over 2016. These developments show, firstly, that economic issues are becoming increasingly pivotal to international student mobility and, secondly, that Germany was perceived by students – at least at the time of the 2021 survey – as an economically stable country. Moreover, students' interest in Germany itself also looms ever larger in their choice of host country. 58% of international students indicated that they were studying here because they wished to experience Germany. In 2016, just 43% of

Database

The Student Survey in Germany represents an amalgamation into a single study of three major, previously independently conducted, long-term studies on the definition and analysis of higher education and students at German universities – the Social Survey, the Student Survey of the University of Konstanz and "best – Studying with disabilities and chronic illnesses". The first wave of this new study, which will be repeated every four years, took place in the 2021 summer semester. The survey addressed a nationwide representative sample of all students at German universities apart from those at colleges of public administration. In total, approximately 188,000 students at 250 universities responded, including 11,100 international students. See also www.die-studierendenbefragung.de/en/the-student-survey.

BS1 Selected reasons given by international students for choosing Germany as a study destination, in 2016 and 2021



Values 4 + 5, on a scale from 1 = I strongly disagree to 5 = I totally agree.

Source: DZHW, The Student Survey in Germany 2021, 21st Social Survey

BS2 Selected reasons given by international students for choosing Germany as a study destination, by region of origin, in 2021

Reasons for choosing Germany as a study destination	Western Europe	Central and South Eastern Europe	Eastern Europe and Central Asia	North America	Latin America	North Africa and Middle East	Sub-Saharan Africa	Asia and Pacific
	Figures in %							
Quality of life	38	72	78	77	78	73	68	67
Employment in Germany after graduating	32	62	74	54	73	75	66	64
Economic situation	30	68	67	46	69	72	65	62
To experience Germany	29	54	63	70	66	61	57	72
Hone language skills	29	51	52	52	59	39	41	52
Friends or relatives studied in Germany[1]	18	18	26	12	31	32	38	28

Values 4+5, on a scale from 1 = I strongly disagree to 5 = I totally agree.

Source: DZHW, The Student Survey in Germany 2021

respondents cited this aspect. Although the motive may be based on very different reasoning, the increased interest probably corresponds to considerations regarding a professional future in Germany.

However, their interest in Germany does not necessarily imply that students' also wish to acquire the relevant language skills: 46% of international students embarked on a degree programme in Germany to hone their language skills, compared to 57% in the 2016 survey. Thus, some of the students who enrolled at a German university in order to be able to work in Germany afterwards did not grant equal importance to gaining appropriate proficiency in German, at least when embarking on their degree. Lastly, 21% of international students decided to study in Germany because friends or relatives[1] had already studied here. Studying in Germany had clearly been communicated to them as a positive experience. In some cases, these friends or relatives were still in Germany and the students were thus – quite reasonably – hoping that they would help them gain a foothold at university and in society. In 2016, this share was even higher, at 27%. Nonetheless, the currently lower figure also illustrates the potential of international alumni associations.

Varying motives are mainly observed among students from different regions of origin. For students from Central, South Eastern and Eastern Europe, the quality of life, the economic situation and learning the language were of above-average significance. Eastern European students were most likely to indicate that embarking on a degree was connected to their intention to pursue employment in Germany. They evidently believe that studying here will open doors for a professional career in Germany. This aspect played a somewhat less major role for students from Central and South Eastern Europe, possibly because the EU membership of most of these countries, and the associated freedom of movement, means that moving to Germany is always an option. While all aspects under review were of exceptional importance for students from Latin America in choosing a host country, North American students made their decision first and foremost with regard to the high quality of life, their interest in Germany and learning the language. The economic situation and taking up employment in Germany were less significant for them. Just roughly one in ten stated that their decision was influenced by the study experience of friends or relatives. Students from North Africa and Middle East were particularly strongly guided by the quality of life, economic situation and career prospects when deciding to enrol in Germany. This also applies to a somewhat lesser extent to students from Sub-Saharan Africa, for whom the reference to friends and relatives having studied in Germany is especially typical. The sizeable group of students from Asia and Pacific is characterised by the fact that their choice of host country is particularly likely to be determined by their interest in Germany and also in learning the language. By contrast, it is striking that students from Western Europe seldom cited any of the motives listed in the survey. This indicates a comparatively high proportion of students, for whom only one or two of the reasons presented were decisive in choosing to study in Germany.

SPOTLIGHT

Reasons given by international students to study in Germany and their study satisfaction

One aspect that is likely to be crucial for respondents' motivation and study satisfaction is being able to feel safe as an international student in Germany. The vast majority of 81% of international students felt (very) safe in Germany in the 2021 summer semester, despite the pandemic. It may be assumed that, for quite a few international students, this aspect is one of the reasons for choosing Germany as a study destination. There were no major differences between the various regions of origin in this regard. Students from North America (94%), Latin America (93%) and Western Europe (87%) felt particularly safe, whereas students from Asia and Pacific (76%) and North Africa and Middle East (77%) were slightly less so.

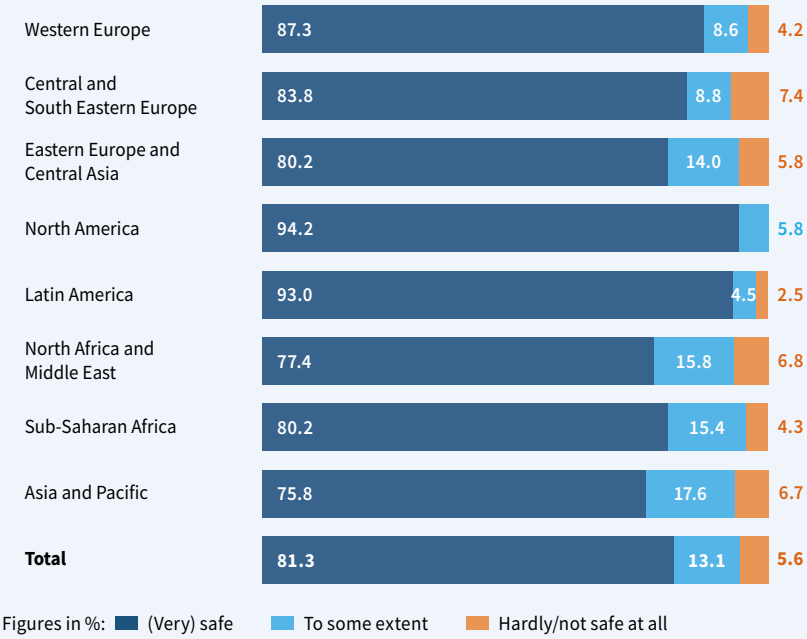
Feeling accepted in Germany is another major requirement for consistently strong motivation among international students. Here again, with a score of 58%, the majority of international students felt (very) welcome. 27% had to make concessions and 15% felt hardly or not at all welcome. As with the other findings on study motivation and study satisfaction, it may be assumed that these assessments were heavily influenced by the exceptional conditions that were dictated by the pandemic at the time of the survey, in the summer semester 2021. The limited study programme and the reduced opportunities for personal encounters and direct exchanges will certainly have affected the lifestyle and well-being of some international students.

Without doubt, a high level of study satisfaction is crucial for academic success. At the same time, 74% of international students declared that they were (very) satisfied with the subject knowledge gained in the 2021 summer semester. 18% only agreed to some extent, while 7% were slightly or very dissatisfied with their increased knowledge and skills. Fewer differences can be observed between students in early and late study phases than between students from different regions of origin. Whereas those from Latin America (83%) and Western Europe (82%) were more likely than average to be satisfied, the figure was lower for students from North America (65%), Asia and Pacific (69%) as well as North Africa and Middle East (70%). Besides academic achievements, this assessment is obviously also influenced by students' expectations and requirements, based on the educational experience in their countries of origin.

The overall satisfaction expressed by international students with regard to their visit to Germany was at a similar level. 71% claimed to be (very) satisfied, 21% were partially satisfied and 8% were slightly or very dissatisfied. Above-average levels of satisfaction were found among students from Eastern Europe and Central Asia (82%), Latin America (81%) and Western Europe (77%). Conversely, lower satisfaction scores were given by students from North America (64%), North Africa and Middle East plus Asia and Pacific (67% each).

In addition to general study satisfaction, many individual study aspects were sometimes rated very differently. Respondents reported a very high level of satisfaction with regard to the specialist expertise of the teaching staff. 85% of international students were (very) satisfied. Although most respondents also rated other aspects positively, they were somewhat more restrained in comparison to subject expertise. 67% were satisfied with the preparation and teaching of the curriculum, 60% each with the

BS3 International students feeling safe in Germany, by region of origin, in 2021[2]



Values 4 + 5, 3 and 1 + 2 on a scale from 1 = not safe at all to 5 = very safe.

Source: DZHW, The Student Survey in Germany 2021

Footnotes

1 In the 2016 survey, this reason was worded as "Friends/acquaintances have studied in Germany".

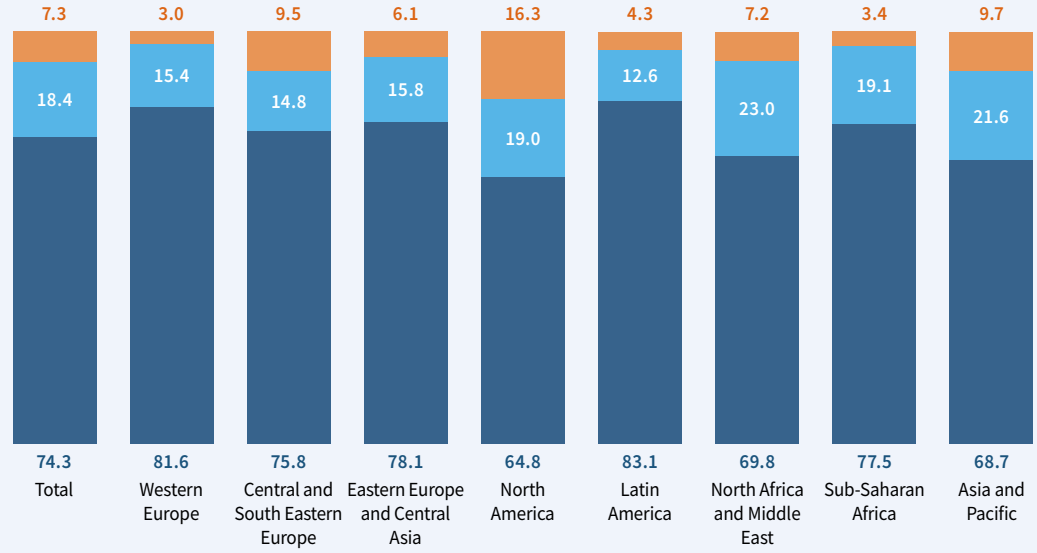
2 Deviations from 100% are due to rounding.

3 Domestic students refer to students holding German citizenship and Bildungsinlaender.

support and advice provided by the teaching staff as well as the climate and atmosphere in the study programmes, and 59% in terms of the organisation and structure of the study programmes. Moreover, 64% of students took a favourable view of the overall studying conditions, compared to 61% of their domestic fellow students[3]. With regard to individual aspects, they are more critical of the organisation and structure of the study programmes (55%), the teaching of the curriculum (53%), plus the support and advice provided by the teaching staff (48%). On the other hand, they viewed the specialist expertise (87%) and the climate and atmosphere in the study programmes (67%) somewhat more positively. It should be noted with regard to the satisfaction scores for both international and German students that they are affected, in part at least, by their experience during the pandemic.

There are marked contrasts between the study programmes leading to different types of degrees. For example, some international students in master's programmes were a great deal more satisfied with the teaching of the curriculum (72% vs. 59%), the support (64% vs. 53%) and the climate in the study programmes (62% vs. 57%) than their fellow students in bachelor's programmes. For degree programmes leading to a state examination, this applies above all to assessments of the overall studying conditions, with 70% of international students expressing their satisfaction.

BS4 Satisfaction with subject knowledge gained among international students, by region of origin, in 2021[2]

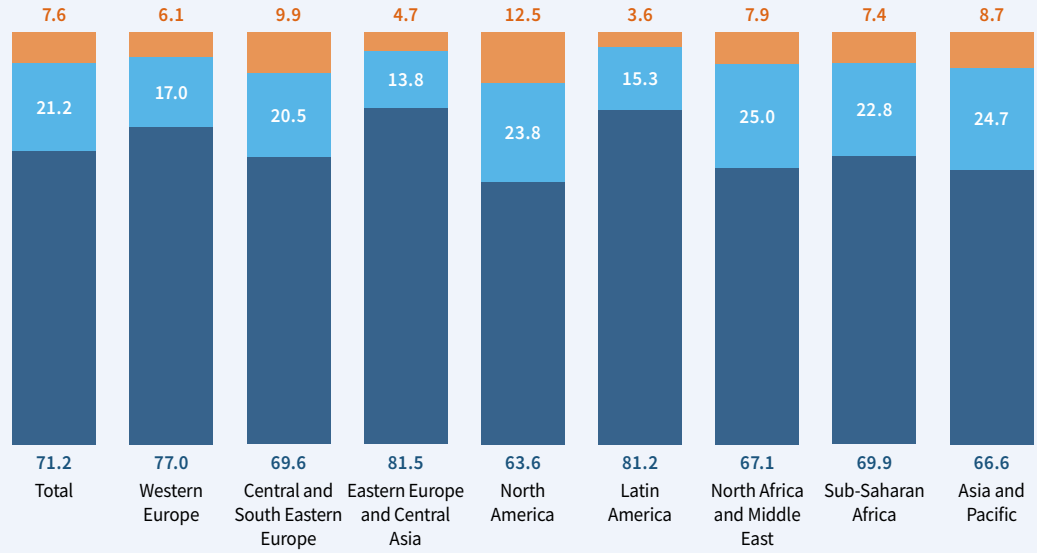


Figures in %: (Very) satisfied | To some extent | Slightly/very dissatisfied

Values 4 + 5, 3 and 1 + 2 on a scale from 1 = very dissatisfied to 5 = very satisfied.

Source: DZHW, The Student Survey in Germany 2021

BS5 Overall satisfaction with their visit in Germany among international students, by region of origin, in 2021[2]



Figures in %: (Very) satisfied | To some extent | Slightly/very dissatisfied

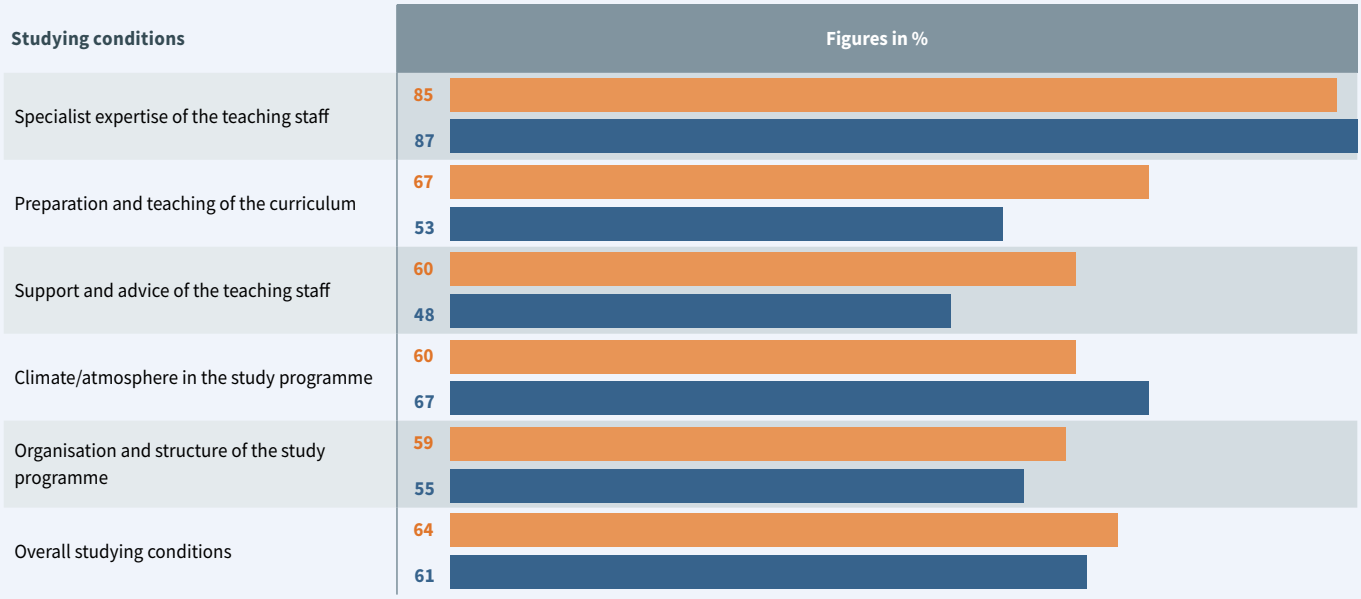
Values 4 + 5, 3 and 1 + 2 on a scale from 1 = very dissatisfied to 5 = very satisfied.

Source: DZHW, The Student Survey in Germany 2021

SPOTLIGHT

Reasons given by international students to study in Germany and their study satisfaction

BS6 High level of satisfaction with selected studying conditions among international and domestic students, in 2021[3]



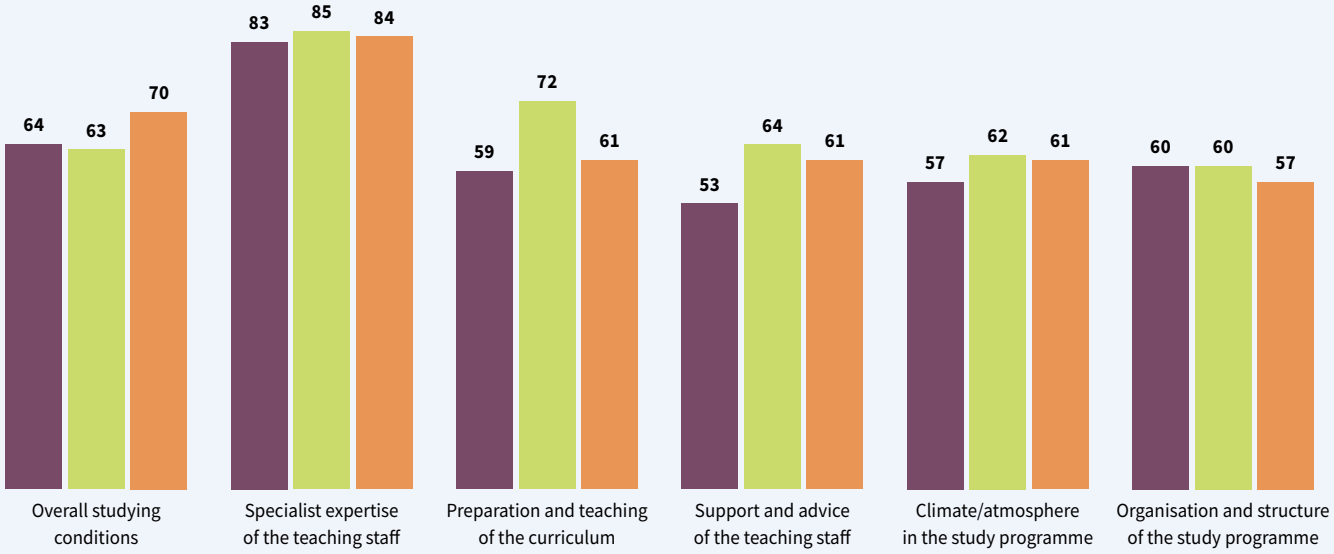
Values 4 + 5 on a scale from 1 = very dissatisfied to 5 = very satisfied.

Source: DZHW, The Student Survey in Germany 2021

The varying study experiences of international students are the decisive factor as to whether, and to what extent, they would recommend studying in Germany to their friends and acquaintances. In summer semester 2021, 78% – the overwhelming majority – stated that they would recommend pursuing a degree at a German university. A remarkable 49% had no reservations whatsoever, answering "definitely". 16% were undecided and 6% found it unlikely or could not imagine making such a recommendation under any circumstances. Thus, in summer semester 2021, the number of international students who would recommend Germany as a study destination was higher than the number of those who were satisfied with their visit or with the overall study conditions. Other country-related aspects obviously figure prominently in terms of a recommendation. However, it should not be overlooked that dissatisfaction with the studying conditions clearly decreases the proportion of international students who would recommend Germany as a study destination. Students from North America (68%) and Asia and Pacific (73%), whose satisfaction with certain aspects was lower, were more reluctant to give such a recommendation. By contrast, students from Western Europe (82%), Central and South Eastern Europe (83%) plus Latin America (88%), whose satisfaction scores tended to be high, were also more likely than average to believe they would recommend Germany as a study destination.

A summary of the findings shows that Germany is highly regarded as a study destination by the majority of international students. The high quality of life, good economic situation and the option of taking up employment after graduating in Germany are key factors in the country's attractiveness. Students felt very safe in Germany during the summer semester 2021 and expressed a high degree of study satisfaction. Nevertheless, considerable variations can be observed between students from different regions of origin. Above all, students from the two key regions of origin for Germany, North Africa and Middle East plus Asia and Pacific, were less satisfied with the conditions of their visit and studying in Germany.

BS7 Satisfaction with selected studying conditions among international students, by type of degree, in 2021



Values 4 + 5 on a scale from 1 = very dissatisfied to 5 = very satisfied.

Source: DZHW, The Student Survey in Germany 2021

BS8 Share of international students who would recommend Germany as a study destination to their friends and acquaintances, by region of origin, in 2021[2]

Values 4 + 5, 3 and 1 + 2 on a scale from 1 = definitely not to 5 = definitely.

Source: DZHW, The Student Survey in Germany 2021

3.1 Mobility trends and subject groups

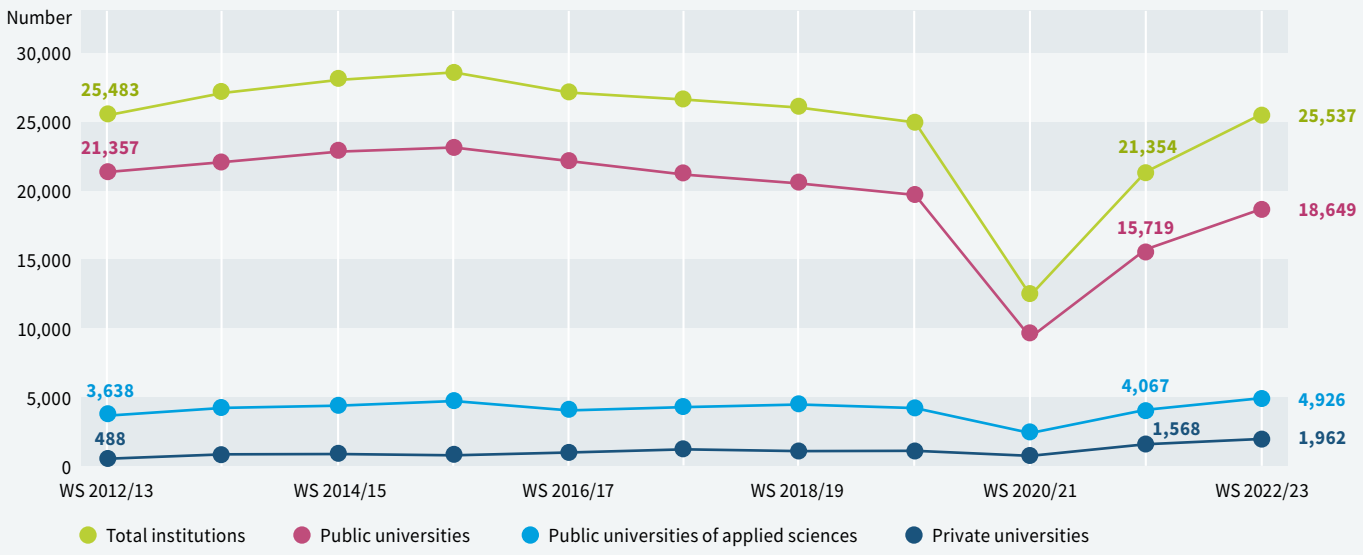
In the 2022/23 winter semester, approximately 25,500 international students were enrolled at a German university on a temporary visit, representing roughly 7% of all international students. However, this figure underestimates the total number of students who came to Germany for a temporary study visit in the 2022 academic year. It does not include those students who enrol for a visit of this kind in the summer semester and stay at the university for one semester only, which is the case for many visiting and exchange students. Around 11,900 attended the 2022 summer semester, which means that the total number of temporary visiting and exchange students enrolled at German universities during the 2022 academic year was in the region of 37,400, around 25% more than in the 2021 academic year. The number of temporary study-related visits abroad is thus back to the level of 2019, the academic year prior to the pandemic.

> “Numbers of international visiting and exchange students are back to pre-pandemic levels.

On the one hand, the rapid increase in temporary study visits within two years of the dramatic plummet in 2020 shows that universities and students soon found adequate ways of realising study-related guest visits in Germany, despite the mobility restrictions that were more or less still in place. On the other hand, this development also reflects the continued interest of international students in guest visits in Germany. At 80%, the overwhelming majority of international visiting and exchange students in the 2022/23 winter semester were enrolled in their first university semester. A mere 14% were in their second semester, 4% in their third or fourth and 2% in a later semester. On the whole, these percentages have barely fluctuated over several years. It is therefore safe to assume that, for the vast majority of these students, their temporary study visit is for one semester only. Nearly three quarters of international students (73%) were enrolled at a public university[1] during their temporary visit. 19% of these students spent their temporary stay abroad at a public university of applied sciences (UAS) and 8% at a private university.[2] However, while public universities saw a 5% dip in visiting and exchange students in the 2022/23 winter semester compared to the 2019/20 winter semester, public UAS and private universities both set new records of approximately 4,900 and 2,000 international visiting and exchange students respectively, above the corresponding figures for the 2019/20 winter semester. While this meant an increase of 17% at UAS, the numbers at private universities have almost doubled (+82%).

International students undertaking a brief study visit at a German university were particularly likely to enrol in law, economics and social sciences (37%) and the humanities (22%). By contrast, 21% opted for engineering, while 6% studied mathematics and natural sciences; art and art history accounted for 4%, followed by medicine and health sciences with 3%. It is interesting to note that the number of international visiting students clearly exceeds that of the 2019/20 winter semester in agricultural, forestry and food sciences (+53%), art

B3.1 International students on temporary study-related visits, by type of university and funding body, since the 2012/13 winter semester[1, 2]



Source: Federal Statistical Office, student statistics

and art history (+25%), but also in law, economics and social sciences (+20%) and engineering (+19%). Only the humanities still indicate an ongoing, marked difference of –23%. Despite this trend, the high proportion of temporary visits in the humanities and the low proportion in engineering are particularly striking when compared to international students pursuing a degree in Germany. The same state of affairs applies to German students. International students evidently have different subject-related intentions when it comes to temporary study visits as opposed to a full course of study. The high share of short-term registrations in the humanities can be primarily explained by the keen interest of international students of German in a visit to a German university. They regard it as a way of improving their German language skills, conducting research on specific subject areas and experiencing the culture and language of a German-speaking country. On the other hand, international engineering students appear to be much less interested in a temporary visit of this kind to a German university than in a full course of study.

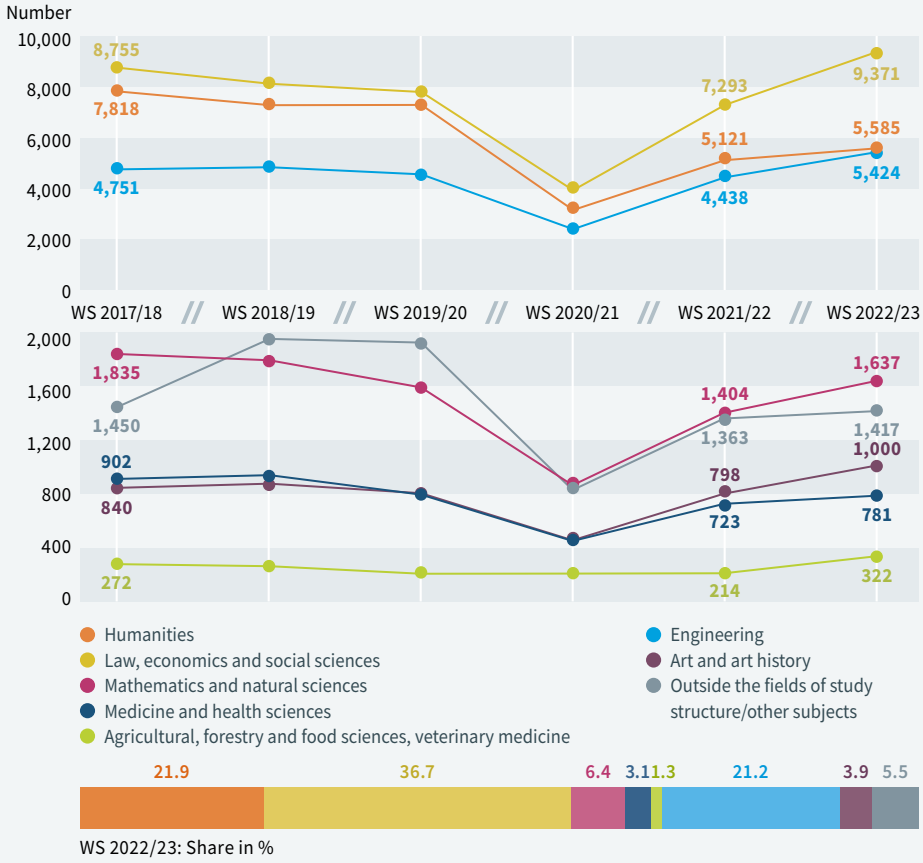
In line with the relatively high intake for German and cultural studies, students on temporary visits also represented the largest share of all international students in the humanities. One in six or 17% of international students in this subject group thus only remain at the university for a limited period. A comparatively high share (10%) is also found in law, economics and social sciences. This figure was below average in all other subject groups and lowest in engineering, at less than 4%.

Footnotes

1 Figures for public universities, including colleges of art, music and education.

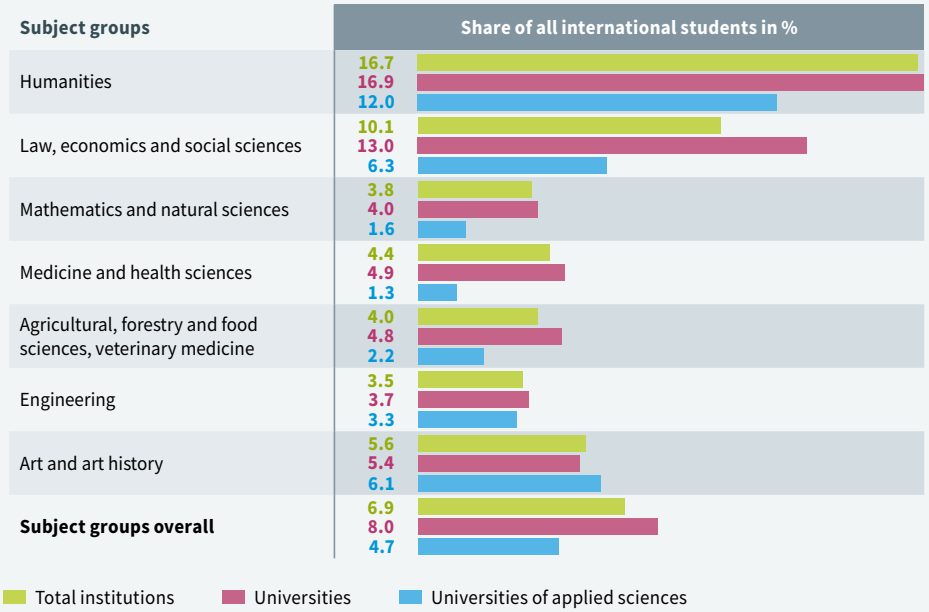
2 Figures for private universities, including church-run universities.

B3.2 Number and share of international students on temporary study-related visits, by subject group, since the 2017/18 winter semester



Source: Federal Statistical Office, student statistics; DZHW calculations

B3.3 Share of international students on temporary study-related visits of all international students, by subject group and type of university, in the 2022/23 winter semester



Source: Federal Statistical Office, student statistics; DZHW calculations

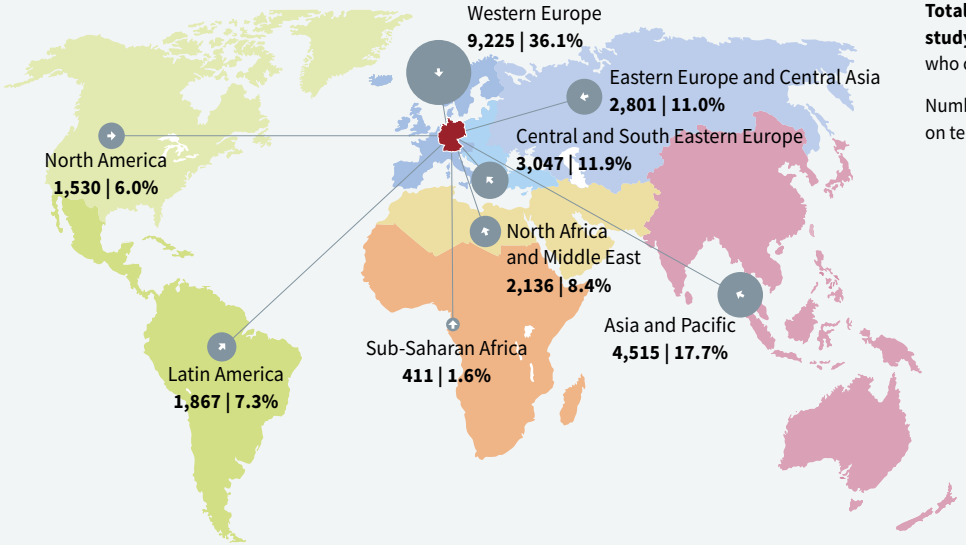
3.2 Regions and countries of origin

In the 2022/23 winter semester, most international students on temporary study visits at German universities came from Western Europe, accounting for a total of 36% of these students. 12% of temporary visits were each undertaken by students from Central and South Eastern Europe. This means that almost half of the mobile students who did not pursue a degree in Germany originated in one of these two European regions. Furthermore, some 18% of visiting and exchange students came from Asia and Pacific. By comparison, the other regions of origin played a much less significant role: 11% of international students on temporary study visits in Germany came from Eastern Europe and Central Asia, 8% were from North Africa and Middle East, 7% from Latin America, 6% from North America and a mere 2% from Sub-Saharan Africa. Compared to winter semester 2019/20, the number of visiting and exchange students from Western Europe and Latin America had virtually returned to pre-pandemic levels. Meanwhile, record highs were observed in Eastern Europe and Central Asia (+128%), North Africa and Middle East (+77%) and Sub-Saharan Africa (+26%). Notably, however, the numbers of students from the regions of origin Asia and Pacific (–26%), North America (–17%) and Central and South Eastern Europe (–12%) lag considerably behind figures reported in the 2019/20 winter semester. It may be concluded that the reasons for this development are linked to the differing mobility restrictions in the various regions of origin in the 2022 academic year due to political constraints but also to Covid-19.

> “The number of students on temporary study visits from Ukraine soared by 751% in one year.

Compared to international students seeking a German university degree, it is striking that a higher percentage of visiting and exchange students are from Western Europe, Eastern Europe and Central Asia, as well as North America. At the same time, they are much less likely to come from the regions of Asia and Pacific, North Africa and Middle East or Sub-Saharan Africa. Even when allowing for the developments brought about by the pandemic, the findings attest to the success of European higher education policy in fostering the European Higher Education Area and the Erasmus programme. The associated funding and support structures have been instrumental, not just in generating a keen interest in temporary mobility in Europe, but also in ensuring that students were able to take advantage of it, even during the pandemic. Given the regional background of the students involved, however, it is more difficult, especially for students from countries with lower average incomes, to undertake temporary study visits in Germany without this support and aid in the form of well-funded programmes. Naturally, this applies above all to temporary visits during the pandemic. Apart from the time-consuming organisational challenges of arranging a visit with no structural framework, the greatest challenge generally faced by these students is affording the costs of living and studying without financial support. Their comparatively brief visits, lasting just a few months, and often weaker German language skills mean they do not have the same opportunities of earning sufficient additional income in Germany through gainful

B3.4 International students on temporary study-related visits, by region of origin, in the 2022/23 winter semester[1]



Total international students on temporary study-related visits 25,537 (including 5 students who cannot be assigned to any region of origin)

Number and share in % of all international students on temporary study-related visits

Source: Federal Statistical Office, student statistics; DZHW calculations

Footnotes

1 Unlike previous editions of *Wissenschaft weltoffen*, the countries of origin Greece and Cyprus have been included in the region of origin of Central and South Eastern Europe and not Western Europe as before.

2 Including Hong Kong and Macao.

3 Only countries with at least 50 international students on temporary visits in winter semester 2022/23 (increase) and/or winter semester 2019/20 (decrease).

employment as their fellow students who complete all their studies in Germany.

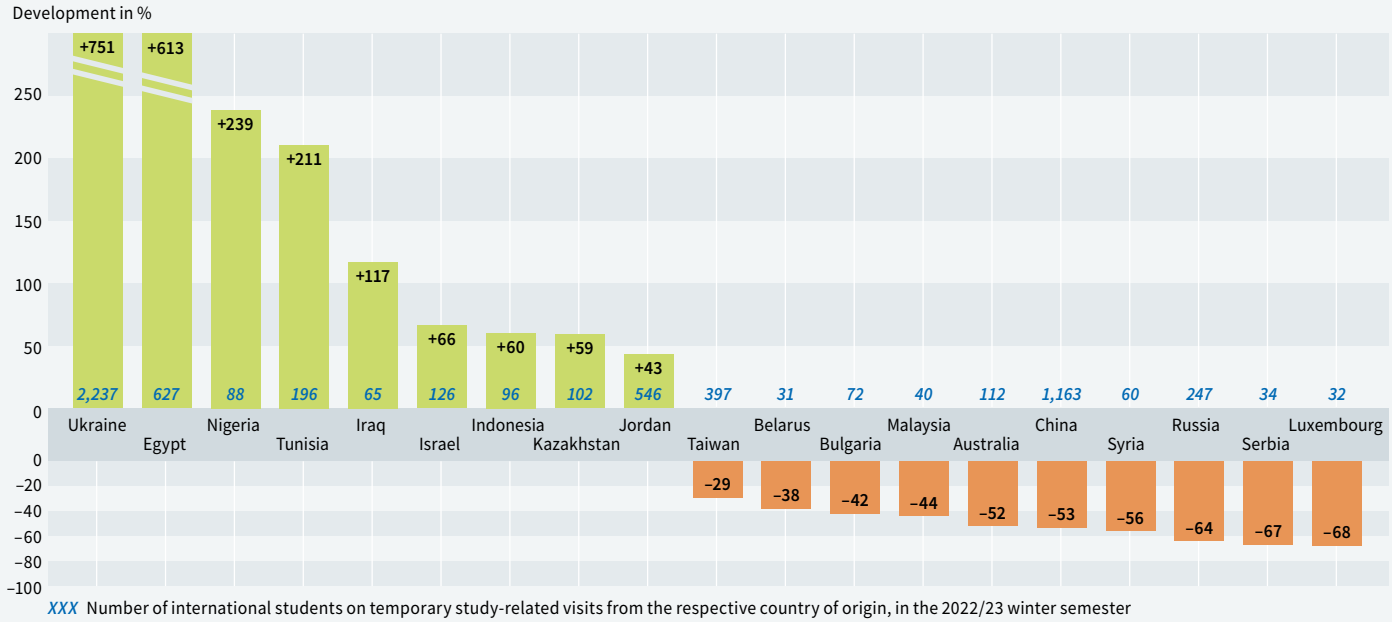
As in previous years, the Erasmus countries Spain and Italy, each with a share of 9%, plus France, with 7% of the temporarily mobile students, figure prominently in the ranking of countries of origin. Nonetheless, this group of key countries now also includes visiting students from Ukraine, who also account for 9%. The year before, Ukraine did not make the list of the 20 key countries of origin for students on temporary study-related visits abroad. Within one year, Russia's war of aggression evidently led to numerous Ukrainian students enrolling as visitors at German universities. Accordingly, visiting students from Ukraine produced the greatest increase of all (+751%), compared to the winter semester 2019/20. In addition, the number of temporary students from Egypt (+613%), Nigeria (+239%) and Tunisia (+211%) saw particularly strong growth. By contrast, the sharpest drops during this period can be discerned in students from Luxembourg (–68%), Serbia (–67%) and Russia (–64%).[3]

B3.5 International students on temporary study-related visits, by key countries of origin, in the 2017/18 and 2022/23 winter semesters

	WS 2017/18			WS 2022/23	
Country of origin	Number	Share in %	Country of origin	Number	Share in %
China[2]	2,335	8.8	Spain	2,378	9.3
Italy	2,281	8.6	Ukraine	2,237	8.8
Spain	2,087	7.8	Italy	2,189	8.6
France	2,002	7.5	France	1,789	7.0
US	1,916	7.2	US	1,350	5.3
Turkey	1,010	3.8	South Korea	1,187	4.6
South Korea	973	3.7	China[2]	1,163	4.6
Poland	754	2.8	Turkey	940	3.7
United Kingdom	738	2.8	Japan	664	2.6
Japan	701	2.6	Egypt	627	2.5
Brazil	664	2.5	Mexico	602	2.4
Russia	652	2.4	Brazil	587	2.3
Mexico	493	1.9	Jordan	546	2.1
Jordan	478	1.8	United Kingdom	542	2.1
Taiwan	440	1.7	Poland	535	2.1
India	425	1.6	India	461	1.8
Switzerland	420	1.6	Taiwan	397	1.6
Syria	400	1.5	Switzerland	388	1.5
Czech Republic	355	1.3	Ireland	312	1.2
Belgium	338	1.3	Portugal	311	1.2

Source: Federal Statistical Office, student statistics; DZHW calculations

B3.6 Countries of origin with the greatest increase and decrease in percentages of international students on temporary study-related visits, from the 2019/20 winter semester to the 2022/23 winter semester[3]



XXX Number of international students on temporary study-related visits from the respective country of origin, in the 2022/23 winter semester

Source: Federal Statistical Office, student statistics; DZHW calculations

3.3 Erasmus visits

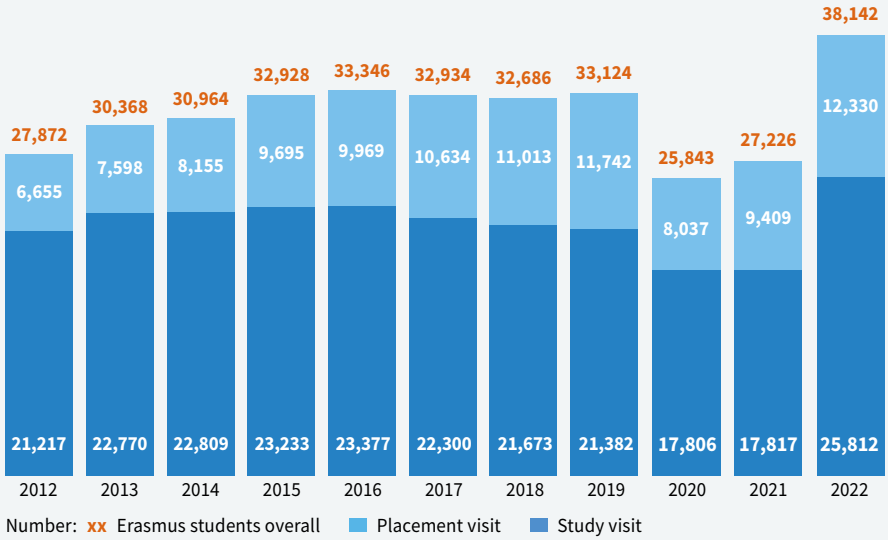
Despite ongoing mobility restrictions to some degree in the 2022 academic year, the number of international students on temporary study-related visits in Germany showed positive development, rising by 25% year-on-year (see pp. 58/59). This also generated a dramatic upsurge in the number of students from other countries coming to Germany for an Erasmus placement. During the 2022 funding period,[1] roughly 38,100 Erasmus students took part in a study-related visit in Germany,[2] thereby setting a new all-time record. This figure is up by approximately 15%, or 5,000 students, compared to 2019. With respect to the 2020 funding period, which was particularly affected by the pandemic, this increase is a remarkable 48% or 12,300 students. The spike in Erasmus mobility over the last two years is thus considerably higher than the development for all students completing a temporary study visit in Germany. The increase in the number of Erasmus students cannot be explained solely by deferred mobility – Erasmus stays could not be carried out in 2020 and 2021, the first two years of Covid-19 – nor by a funding period that was extended once by two months; it is therefore also due to heightened interest in undertaking an Erasmus placement in Germany. This development is similar to that found for study and placement visits. Compared to 2020, the number of students coming to Germany for a placement visit shot up by 53% and the number of Erasmus participants enrolled at universities by 44%. Overall, roughly 32% of all Erasmus students completed a placement and 68% a study visit in Germany in 2022.

Once again, France, Spain, Italy and Turkey were the key countries of origin in the 2022 funding period, jointly accounting for 54% of all Erasmus students in Germany alone. Other major countries are Poland, the Netherlands, Austria and the United Kingdom, which together represented a further 17% of Erasmus participants. While the number of Erasmus students from Turkey (+155%), Portugal (+110%), Greece (+80%) and Spain (+61%) notably saw above-average growth compared to 2020, there was only a moderate increase in the number of students from Austria (+8%) and the Netherlands (+14%). Meanwhile, the downshift in Erasmus participants from the United Kingdom appears to have halted. Year-on-year, approximately 200 or 13% more Erasmus students from the United Kingdom made their way to Germany. Nonetheless, this figure is still 41% below the peak in 2019.

Database

The data illustrated here refer exclusively to study visits and placements undertaken as part of the EU's Erasmus+ mobility programme. The basis for these data are the Erasmus statistics prepared by the DAAD. 33 countries are currently associated to the Erasmus+ programme. Since the introduction of the new programme cycle (2021–2027), there are also third countries in which Erasmus placements are possible in addition to fully participating countries. Thus, the United Kingdom, formerly associated to the programme, is now a partner country. International students wishing to be considered for an Erasmus placement in Germany must be enrolled at a university in their home country and have completed the first year of their studies. Their university must participate in Erasmus+ and have concluded an Erasmus cooperation agreement with the German host university. Therefore, Erasmus students coming to Germany from other countries may hold a citizenship other than that of their actual country of study.

B3.7 Erasmus students from other countries in Germany, by type of visit, since 2012[1, 2]



Source: DAAD, Erasmus statistics

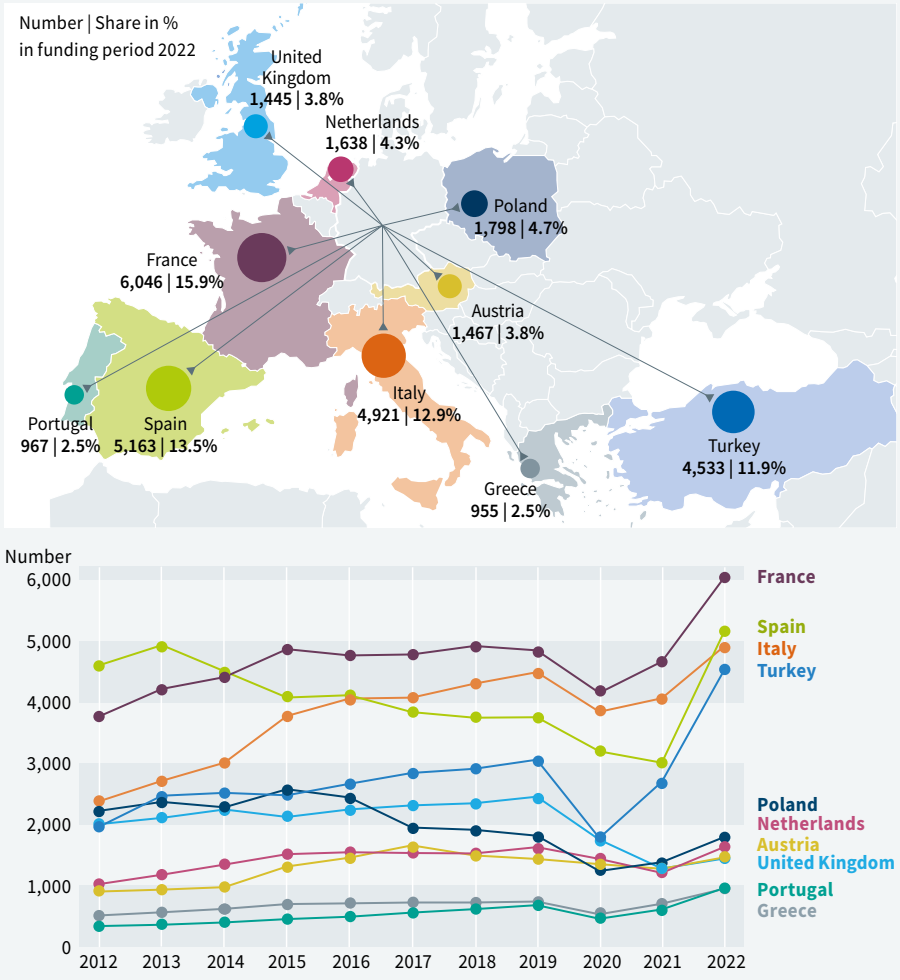
Footnotes

1 Erasmus statistics until 2014: the respective funding period starts in the winter semester and ends in the summer semester of the following year (e.g. 2014 = WS 2013/14 and SS 2014). Erasmus+ statistics from 2015 to 2021: the funding period starts on 1 June of the previous year and ends on 31 May of the following year (e.g. 2021 = 1 June 2020 to 31 May 2022). New Erasmus+ statistics from 2022: due to a restructuring of the programme, the funding period is 26 months and starts on 1 June of the previous year and ends on 31 July of the following year. However, the start of the first funding period after the programme restructuring was delayed, therefore the visits in the period from 1 September 2021 until 31 October 2023 are shown here in the 2022 funding period.

2 Since June 2020, Erasmus figures have also included hybrid visits, in other words, a combination of physical and virtual visits. Visits that were purely virtual or not actually undertaken were not included.

Three subject groups figured prominently among Erasmus students in Germany in 2022: arts and humanities alone accounted for 22% of all participants, with business, administration and law at 21% and engineering, manufacturing and construction at 18%. A comparison with all international students at German universities reveals that Erasmus students are particularly over-represented in the subject groups of arts and humanities plus social sciences, journalism and information. Conversely, they are largely under-represented in engineering, manufacturing and construction as well as information and communication technologies. To some extent, the different subject preferences can be attributed to the regional background of Erasmus students by contrast with all international students. It turns out that Asian students, who make up a high proportion of international students in Germany, tend to favour engineering subjects. On the other hand, Erasmus students come exclusively from European countries; typically, European internationally mobile students are also more likely than average to be interested in the humanities and social sciences and in business, administration and law when seeking a university degree in Germany.

B3.8 Erasmus students from other countries in Germany, by key countries of origin, since 2012[1, 2]



Source: DAAD, Erasmus statistics; DZHW calculations

B3.9 Erasmus students from other countries in Germany and all international students in Germany, by subject group, in 2022

Share of International students in Germany in %	Subject groups	Share of Erasmus students in Germany in %
1.9	Education	2.5
12.6	Arts and humanities	22.2
5.9	Social sciences, journalism and information	10.9
18.6	Business, administration and law	20.8
10.7	Natural sciences, mathematics and statistics	8.4
11.7	Information and communication technologies	4.3
28.8	Engineering, manufacturing and construction	17.7
1.6	Agriculture, forestry, fisheries and veterinary	1.5
5.7	Health and welfare	9.2
2.1	Services	2.6

Sources: DAAD, Erasmus statistics; Federal Statistical Office, student statistics; DZHW calculations

1.1 Mobility trends and major host countries

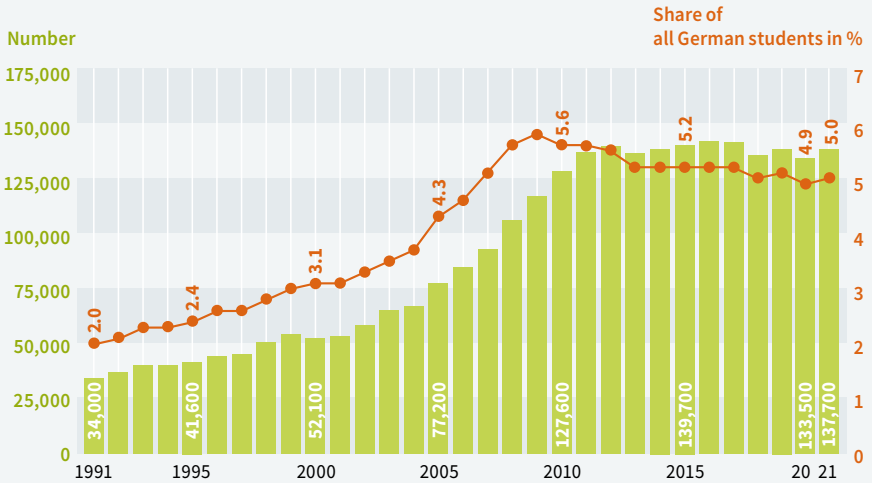
In 2021, around 137,700 German nationals were studying abroad. Whereas the number in the previous year (approximately 133,500)[1] was in decline, it has now recovered slightly. Nonetheless, from a broader perspective, the number of internationally mobile German students has quadrupled since 1991 and more than doubled since 2000. A closer look at this development shows that, in the period between 2002 and 2010, in other words, during the introduction of the new, tiered study system, above-average growth rates of 10% and more were achieved per year. During this period, the proportion of internationally mobile students in relation to the total number of German students rose from 3.3% to 5.6%. This suggests that the international comparability of degrees that is now in place has given rise to significant momentum in terms of mobility. Above all, the option provided by the new study system of following a bachelor's programme in Germany with a master's programme abroad undoubtedly played an important role here. Nevertheless, since the introduction of the new types of degrees, this expansion in mobility can be regarded as having largely come to an end. Since then, the absolute number of internationally mobile German students has hardly increased at all; meanwhile, due to the strong growth in the number of students in Germany up to 2015, their share of all German students has even fallen slightly since 2011, amounting to 5.0% in 2021. The downturn in student mobility from Germany from 2019 to 2020 is easily explained by the mobility restrictions due to the pandemic, which were more or less draconian depending on the region or country.

The majority of German nationals studying abroad recorded by official statistics also aim to obtain a degree abroad (see information regarding the database). The motives for this form of mobility differ fundamentally from those for temporary study-related mobility (see Chapter C2). While degree-related international mobility generally stems from the individual's endeavour to complete specific study programmes abroad or to improve their life and career prospects by graduating from a foreign university, temporary study-related mobility tends to be characterised by motives such as broadening horizons, honing language skills and personal development. The motives for mobility also strongly influence the choice of the respective host country or host university. Over three quarters of all German students abroad are in Western European countries (77%). The regions of Central and South Eastern Europe (12%), North America (7%) and Asia and Pacific (3%) follow at a considerable distance. The other regions of the world are virtually immaterial in the degree-related

Database

The data on German students abroad presented on pages 64–67 were mainly provided by the Federal Statistical Office. The Federal Statistical Office conducts an annual survey of the institutions responsible for education statistics in around 40 major host countries of German students. The Federal Statistical Office also supplements the survey with UNESCO and Eurostat data on other host countries, in which at least 125 German students were registered in the current year. These students are predominantly, but not exclusively, seeking a degree abroad. The data for some countries include Erasmus students and other students on temporary study-related visits. Nonetheless, not all of these countries are able to quantify the exact number or proportion of these temporarily mobile students. However, as the majority of students abroad are registered for a degree, the data presented here can primarily be interpreted as data on degree-related student mobility.

C1.1 German students abroad, since 1991[1, 2, 3]



Source: Federal Statistical Office, "Deutsche Studierende im Ausland" survey; country-specific reporting periods

Footnotes

1 Deviations in the total figures compared with previous issues of *Wissenschaft weltoffen* are due to recalculations by the Federal Statistical Office.

2 From 2010, including numbers of doctoral students from the Federal Statistical Office's Doctoral Survey; from 2019, including doctoral statistics.

3 2021: 2,589,286 German students in Germany.

4 In addition to the host countries covered by the Federal Statistical Office, this includes those countries in which, according to UNESCO student statistics, more than ten German students were enrolled in 2020 or 2021.

5 2018: break in the time series due to changes in statistical recording compared to the previous year.

6 Figure from 2020, rather than 2021, as no data are currently available for 2021.

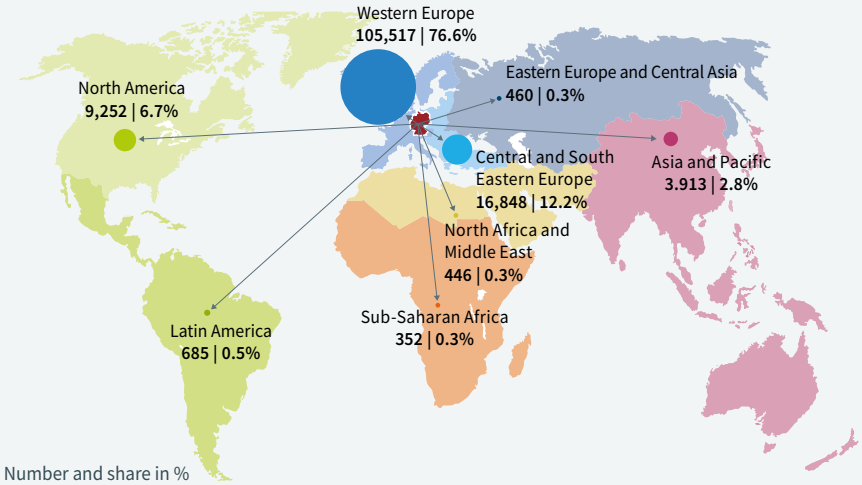
international mobility of German students, with each accounting for less than 1%. By contrast, regions such as Latin America or Sub-Saharan Africa figure somewhat more prominently in temporary study-related international mobility – presumably on account of the different motives for mobility behind these visits (see p. 69).

The four most popular host countries are still Austria, the Netherlands, Switzerland and the United Kingdom. Nevertheless, while the numbers of German students in the United Kingdom (–27%) continue to drop sharply, the numbers for Switzerland (+8%) have risen. By the same token, the numbers for Austria (+24%) and the Netherlands (+15%) have increased further. Among the major host countries reporting an exceptionally noticeable upswing in German students between 2018 and 2021, Portugal (+56%) is at the forefront, along with Central and Eastern European countries such as Romania (+26%), Bulgaria (+24%) and Poland (+19%).

While the number of German students in the host country China (–76%) continued to plunge dramatically between 2018 and 2021, the downward trend tailed off in the host country US (–7%). Moreover, numbers in France recovered somewhat (+8%). Apart from the United Kingdom (–27%), Italy (–11%) also shows a relatively marked fall.

When reviewing the number of first-year students in the ten key host countries that are able to provide these data, opposite developments are emerging in the United Kingdom and Austria. While the United Kingdom saw a significant decrease of 43% in the number of first-year students between 2018 and 2021, the number of first-year students in Austria soared by 33%. There may already be signs of a shift in student mobility from Germany, which can probably be attributed in particular to Brexit, along with the steep rise in tuition fees and the cost of living in the United Kingdom. In addition, Denmark alone reports a negligible slowdown of 3% for first-year students.[6] Apart from Austria, the number of German first-year students also jumped in Portugal (+58%), Turkey (+25%)[6] and Sweden (+23%).

C1.2 German students abroad, by host region, in 2021[4]



Number and share in %

Sources: UNESCO student statistics; Federal Statistical Office, "Deutsche Studierende im Ausland" survey; country-specific reporting periods; DAAD calculations

C1.3 German students abroad, by key host countries, in 2018 and 2021, plus development 2018–2021

Host country	Number		Development 2018–2021 in %
	2018	2021	
Austria	29,053	36,095	+24.2
Netherlands	21,314	24,442	+14.7
Switzerland[5]	11,459	12,375	+8.0
United Kingdom	15,300	11,116	–27.3
US	9,191	8,550	–7.0
France	4,231	4,566	+7.9
Turkey	3,850	4,271	+10.9
Hungary	3,428	3,474	+1.3
Denmark	2,980	3,281	+10.1
Portugal	1,737	2,706	+55.8
Sweden	2,011	2,362	+17.5
Spain	1,878	2,205	+17.4
China	8,079	1,907	–76.4
Romania	1,409	1,775	+26.0
Bulgaria	1,402	1,732	+23.5
Poland	1,221	1,448	+18.6
Italy	1,533	1,361	–11.2
Greece	1,094	1,265	+15.6
Latvia	994	1,001	+0.7
Czech Republic	829	969	+16.9

Source: Federal Statistical Office, "Deutsche Studierende im Ausland" survey; country-specific reporting periods; DAAD calculations

C1.4 German first-year students abroad, by key host countries, in 2018 and 2021, plus development 2018–2021

Host country	Number		Development 2018–2021 in %
	2018	2021	
Austria	8,228	10,909	+32.6
Netherlands	6,397	6,748	+5.5
United Kingdom	9,030	5,136	–43.1
Switzerland	3,232	3,666	+13.4
Portugal	1,405	2,222	+58.1
Turkey[6]	820	1,026	+25.1
Spain	848	916	+8.0
Denmark[6]	918	893	–2.7
Sweden	507	626	+23.5
France	373	406	+8.8

Source: Federal Statistical Office, "Deutsche Studierende im Ausland" survey; country-specific reporting periods; DAAD calculations

1.2 Subject groups and types of degree

The majority of German students abroad are enrolled in the subject groups of business, administration and law (24%), as well as the social sciences, journalism and information (21%),[1] followed by health and welfare (14%), arts and humanities (10%), natural sciences, mathematics and statistics, as well as engineering, manufacturing and construction (9% each). Compared to German students studying in their homeland, the social sciences, journalism and information are thus clearly over-represented among those enrolled abroad, whereas engineering, manufacturing and construction are noticeably under-represented.

> “In Central and South Eastern European countries, such as Bulgaria, Hungary, Latvia, Lithuania, Poland and Romania in particular, more than three quarters of all German students are enrolled in master’s programmes.

A comparison between the individual host countries occasionally shows huge variations in the distribution of subject groups. The subject group of business, administration and law is clearly predominant in Denmark, the Netherlands, Portugal and Spain. The high proportion of health and welfare subjects in the four Eastern European host countries of Bulgaria, the Czech Republic, Hungary and Poland is also striking. This may be a consequence of the admission restrictions for German medical study programmes, which prompt some applicants to look for alternatives abroad. Moreover, countries such as Bulgaria, the Czech Republic, Hungary and Poland also highlight the good reputation of their medical education specifically to attract international students, with degree programmes in English in Bulgaria, the Czech Republic and Poland, while Hungary even offers programmes in German. In addition, the structure of medical studies in these countries is very similar to that in Germany; in the Czech Republic and Hungary, these study programmes also conclude with a state examination.

Slightly less than half of German students abroad (45%) aim for a bachelor’s degree there, over a third (38%) for a master’s degree.[2] A further 11% complete a doctorate abroad, while other types of degree (including type of degree unknown) account for 6% of students. Compared to German students at German universities, master’s students are thus clearly over-represented abroad, whereas bachelor’s students are markedly under-represented.

The distribution of the types of degree in the host countries also shows enormous variation. For example, more than 90% of German students in Greece, almost 80% in Turkey and over 70% in the Netherlands are pursuing a bachelor’s degree. By contrast, in Central and South Eastern European countries, such as Bulgaria, Hungary, Latvia, Lithuania, Poland and Romania in particular, more than three quarters of all German students are enrolled in master’s programmes. Above all, doctoral students in Anglo-Saxon and Scandinavian host countries such as Australia, Canada, Norway and Sweden represent a sizable proportion of German students. This also applies to Slovakia and Switzerland.

> “Compared to German students studying in their homeland, the social sciences, journalism and information are clearly over-represented among those enrolled abroad, whereas engineering, manufacturing and construction are noticeably under-represented.

Footnotes

1 Basis: countries that supply the Federal Statistical Office with differentiated data on German students and doctoral students at their universities, broken down by subject group. These countries account for around 94% of German students abroad. With the exception of China, Italy and Romania, these countries also include all 20 key host countries of internationally mobile German students.

2 Basis: countries for which differentiated data on German students by type of degree are available from the Federal Statistical Office or the OECD. These countries account for around 89% of German students abroad and, with the exception of China and Italy, include all 20 key host countries of internationally mobile German students.

3 Since the 2018 issue of “Deutsche Studierende im Ausland”, the subject groups have been categorised according to ISCED standards and therefore deviate from the Federal Statistical Office’s standard classification system.

4 Deviations from 100% are due to rounding.

5 Double counting is possible as students in Sweden can enrol in more than one subject in an academic year.

6 The data on German students at German universities refer to the 2020/21 winter semester.

7 Not including doctoral students or postdocs as they cannot be broken down according to subjects.

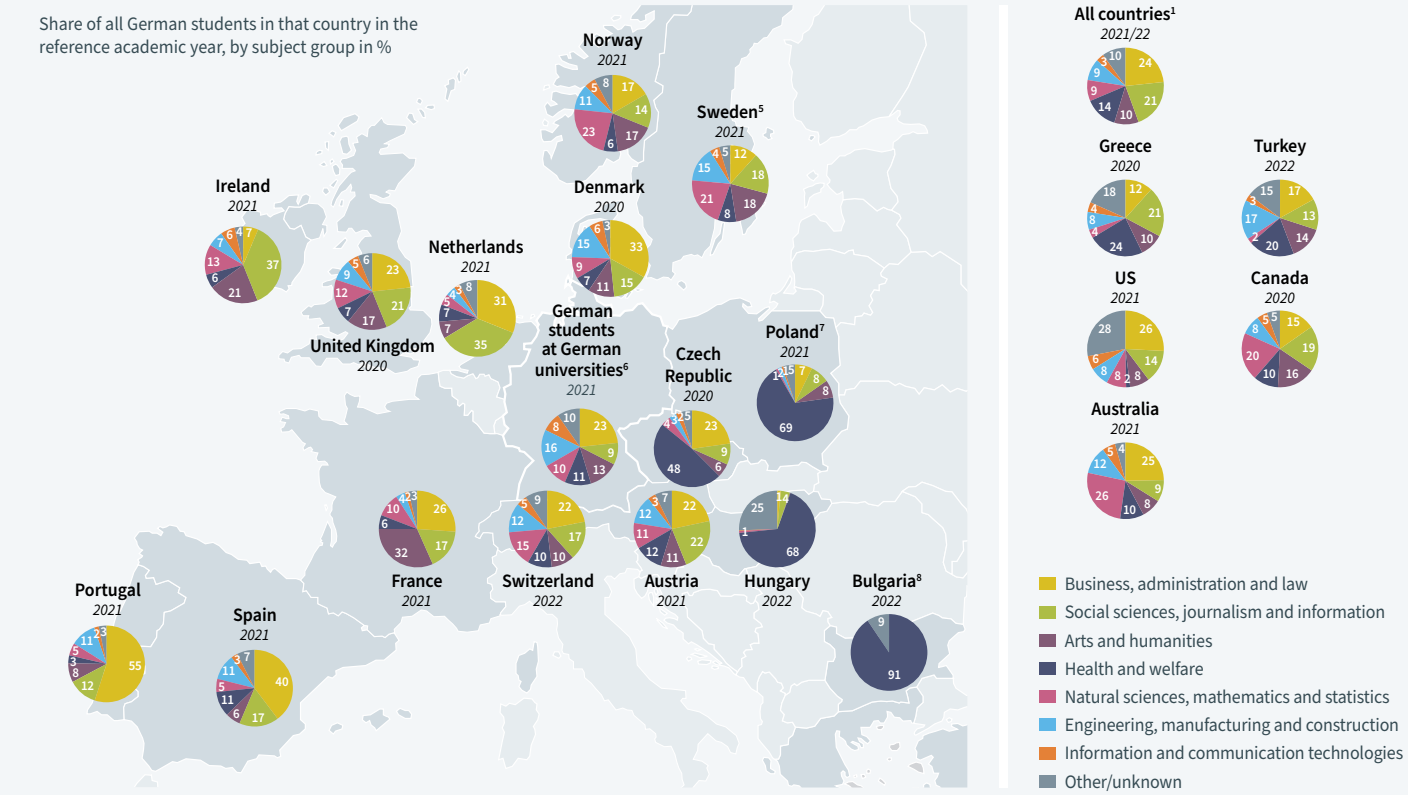
8 No information is available on the subjects of 167 students.

9 OECD data as they are more complete, more up-to-date or more accurate than data from the Federal Statistical Office.

10 OECD data as they are not included in the data from the Federal Statistical Office.

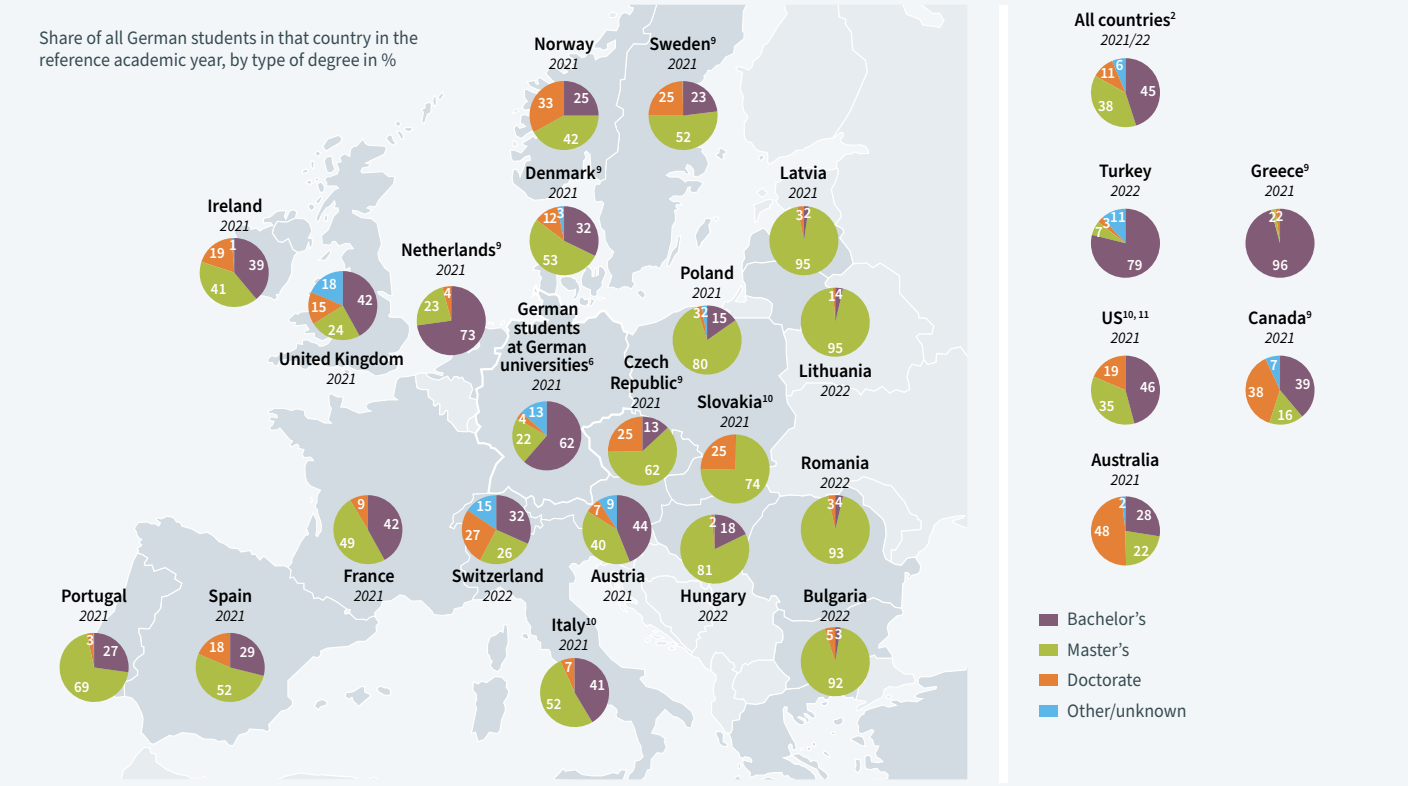
11 Data on doctoral students from the database of the US Student and Exchange Visitor Information System (SEVIS) as they are not included in OECD data.

C1.5 German students in selected host countries, by subject group[1, 3, 4]



Source: Federal Statistical Office, "Deutsche Studierende im Ausland" survey; country-specific reporting periods

C1.6 German students in selected host countries, by type of degree[4]



Sources: Federal Statistical Office, "Deutsche Studierende im Ausland" survey; OECD student statistics; country-specific reporting periods

2.1 Mobility trends, host regions and host countries

The findings of previous Social Surveys conducted by the German National Association for Student Affairs (DSW) show that, between 1991 and 2000, the share of students in later semesters undertaking visits abroad rose sharply (from 20% to 32%), stabilising at this level until 2006[1] before falling to 30% in 2009.

> “Scoring 59%, Western Europe is the most popular host region for study-related visits abroad undertaken by domestic students.

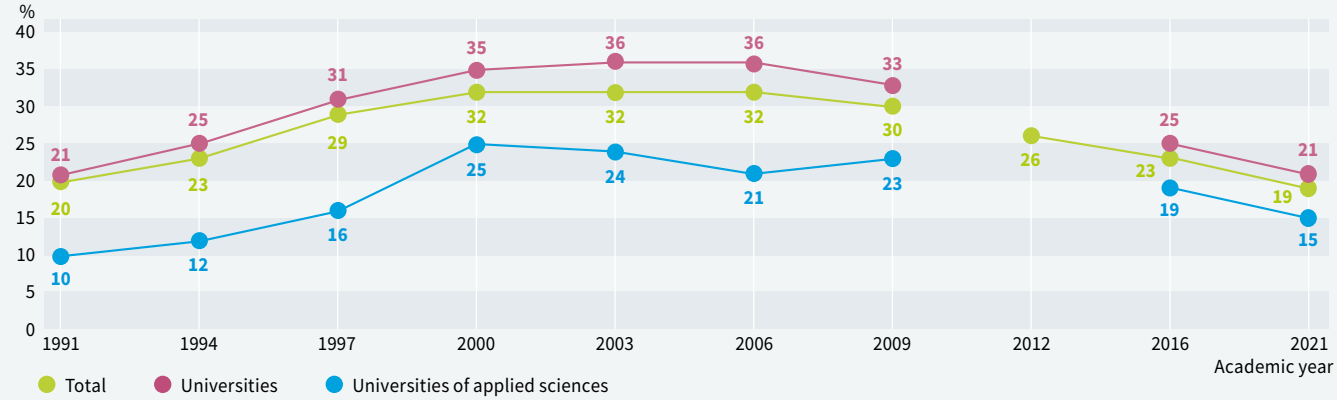
Since 2021, the DZHW has continued the Social Survey with its “Student Survey in Germany” project, for which the mobility rates from 2012 onwards were recalculated. It should be noted that, due to changes in the calculation methodology, these figures are not directly comparable with those of the Social Surveys up to 2009. Consequently, in 2012, domestic students in later semesters accounted for 26% of all domestic students, while the share was even lower in 2016 at 23% and finally dropped further to 19% in 2021. This development can be observed – at varying levels – at both universities and universities of applied sciences (UAS). In contrast to degree-related international mobility (see p. 64), there was therefore no increase in the mobility rate for temporary study-related mobility while the two-cycle study system of bachelor’s and master’s programmes was in the process of being introduced. In fact, temporary student mobility even declined to a certain extent during this period.

Possible reasons for this are the more strongly structured study and examination system, introduced as part of the Bologna reform, and the reduction of standard study periods. From the students’ point of view, both aspects may have led to the fact that the newly introduced study programmes offer less scope for study-related visits abroad during their studies than was previously the case.

Database

The data situation regarding the temporary study-related mobility of students at German universities must be described as unsatisfactory at present, especially by comparison with other countries. It was not until 2017 that the reformed Higher Education Statistics Act introduced the mandatory survey of study-related visits abroad undertaken by students in Germany. This requirement of the new Higher Education Statistics Act still poses major challenges for many universities. Although the Federal Statistical Office now publishes university-specific data on the temporary study-related international mobility of graduates, these figures reveal that a number of universities and universities of applied sciences are not yet in a position to document these mobility data. Furthermore, it should be noted that these data conform to the definition of the EU mobility benchmark (see also pp. 20/21). As a result, mobility rates calculated on this basis will be considerably lower than the mobility rates previously recorded on the basis of survey data. Given the unsatisfactory situation of the official statistics, the data from the Social Surveys conducted by the German Centre for Research on Higher Education and Science Studies (DZHW) until 2016 represented the most reliable source of data for analysing the development over time of temporary study-related mobility of students at German universities. Since 2021, this time series has been continued in the nationwide, representative follow-up study, entitled “The Student Survey in Germany” (SiD), by the DZHW, the DSW and the University of Konstanz.[6] The current data from 2021 form the basis for calculating the quota of international mobility in this edition.

C2.1 Domestic students in later semesters with temporary study-related visits abroad, by type of university, since 1991[1, 2, 3, 4]



Share of all domestic students in later semesters in %

Sources: DSW/DZHW Social Surveys 1991–2016; DZHW, The Student Survey in Germany 2021

Western Europe is the most popular host region for study-related visits abroad undertaken by domestic students, with 59% of all visits taking place there. This is not just a consequence of the study expectations associated with the highly developed higher education and economic systems in Western European countries but also a result of the extremely popular Erasmus+ programme in which all countries in Western Europe were involved during the period under review. Moreover, the proximity of neighbouring countries, plus students' experience of them on holiday trips and their familiarity with the local language, to some extent at least, are likely to also be deciding factors. Another 12% of study-related visits abroad were to Asia and Pacific and 9% to Central and South Eastern Europe. 8% of students flew to North America for their visits abroad. By contrast, visits to Latin America (5%), Sub-Saharan Africa, North Africa and Middle East (3% each) plus Eastern Europe and Central Asia (2%) were much less common. These findings suggest that the majority of host countries that are particularly relevant for the international mobility of students from Germany are in Western Europe. Thus, 10% of visits abroad saw students travel to the United Kingdom, 9% to France, 8% to Spain, 5% to Italy and 4% to Sweden. With a share of 6%, the US is the only non-Western European country ranking among the ten most important host countries.

Footnotes

1 The mobility rate of students in later semesters or at the end of their respective studies provides a rough estimate of study-related international mobility over the course of an entire degree programme. It is thus more conclusive than mobility rates in relation to all students, which also include first-year students. Students in later semesters from 1991 to 1994 are: students from the eighth university semester (university) or sixth university semester (UAS) (1991: West Germany only); 1997 to 2009: students from the ninth to fourteenth university semesters (university) or seventh to eleventh university semester (UAS); from 2012: students from the sixth university semester.

2 Reference group: 1991–2009: German nationals and Bildungsinlaender; from 2012: German nationals and Bildungsinlaender, not including students in part-time, distance learning and on-the-job degree programmes.

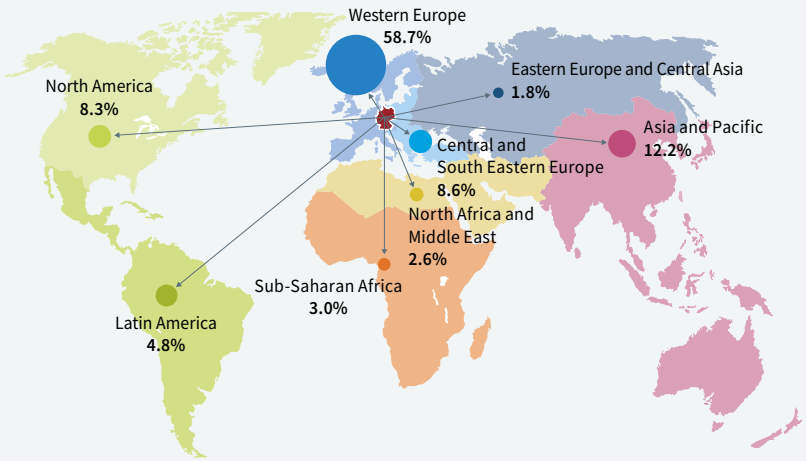
3 Surveys in 2016 and 2021, including students who were undertaking a temporary study-related visit abroad at the time of the survey.

4 For 2012, no separate rates could be calculated for universities and UAS for statistical reasons.

5 Reference group: German nationals and Bildungsinlaender, not including students in part-time, distance learning and on-the-job degree programmes.

6 See also the project website at www.die-studierendenbefragung.de/en/the-student-survey.

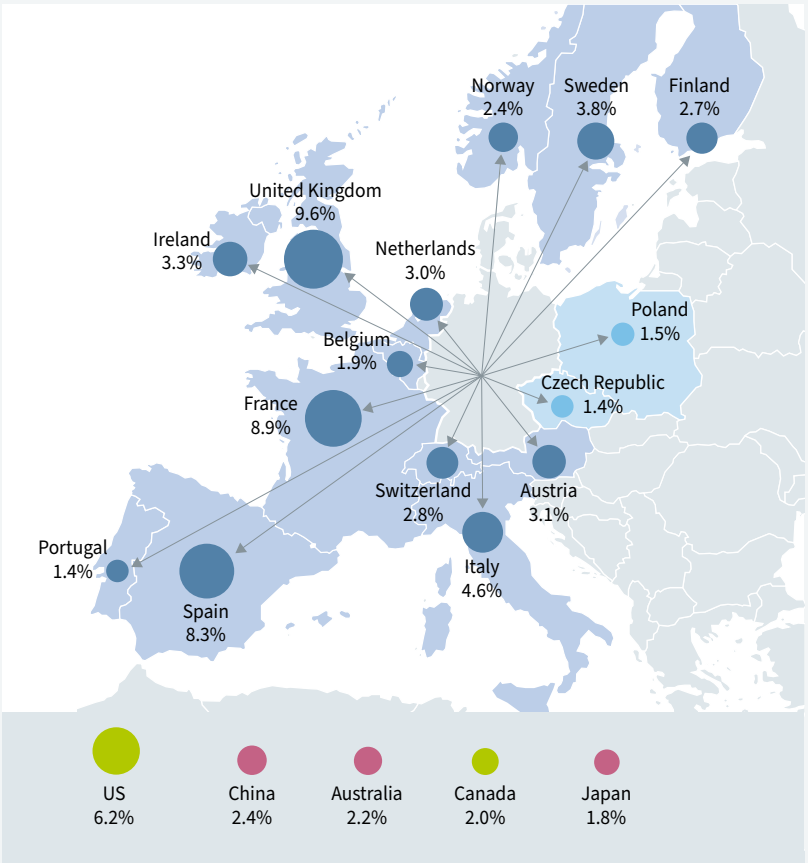
C2.2 Study-related temporary visits abroad undertaken by domestic students, by host region, in 2021[5]



Share of all study-related visits abroad undertaken by domestic students in %

Source: DZHW, The Student Survey in Germany 2021

C2.3 Study-related temporary visits abroad undertaken by domestic students, by key host countries, in 2021[5]



Share of all study-related visits abroad undertaken by domestic students in %

Source: DZHW, The Student Survey in Germany 2021

2.2 Mobility motives and mobilisation factors

From the students' point of view, what are the most important reasons for undertaking study-related visits abroad? This question was part of the 2015 DAAD/DZHW mobility study.[1] As this showed, the motives for mobility can be assigned to six dimensions or areas: personal development, experience, honing language skills, academic education, career promotion and social recognition. The three dimensions of personal development, experience and honing their language skills proved particularly relevant to the respondents' mobility aspirations.

These findings were corroborated by the DAAD's "Benchmark internationale Hochschule" (BintHo) project, in which roughly 95,000 domestic[2] students were questioned about their study-related international mobility during the second survey round in winter semester 2023/24.[3] Respondents were asked to select up to three aspects from a predefined list that, in their opinion, represented the greatest advantages of a study-related visit abroad. The four aspects that were most frequently selected by internationally mobile students can all be assigned to one of the three areas presented above: personal development (71%), improving language skills (52%), gaining exciting, interesting experience in the host country outside university walls (50%) and cultural interest (31%). Five other mobility motives that were rated as particularly important much less frequently can be attributed to the two dimensions of academic education and career development: improved prospects on the labour market (22%), establishing contacts and extending my network (22%), discovering another higher education system and other teaching methods (18%), gaining practical experience (12%), plus acquiring specialised expertise or artistic development (7%). According to the self-assessment of the internationally mobile students, all other aspects, and thus especially the area of social recognition, did not figure prominently as reasons for study-related visits abroad.

Benchmark internationale Hochschule (BintHo)

In the 2023/24 winter semester, the DAAD invited all state-recognised universities to take part in the "Benchmark internationale Hochschule" (BintHo) project for the second time.[3] The 132 participating universities included 64 universities of applied sciences (UAS), 52 universities (including twelve technical universities), twelve colleges of art and music and four colleges of education from all 16 federal states. Most of these universities invited all students to take part in the online survey via email and/or other communication channels (individual universities only sent invitations to selected groups of students). The field phase of the survey ran from 1 December 2023 to 15 February 2024. All in all, just under 100,000 domestic students and doctoral candidates (German nationals and Bildungsinlaender) and at least 20,000 international students and doctoral candidates took part in the survey. To enhance the informative value and representativeness of the findings presented here, the data were weighted according to relevant characteristics used in official student statistics (e.g. types of degree, subject groups).

C2.4 Reasons for study-related visits abroad undertaken by domestic students, by mobility experience, in the 2023/24 winter semester[2, 4]

Reasons for study-related visits abroad	Internationally mobile students	Not internationally mobile students
	Share in %	
Personal development		
Personal development (e.g. in terms of self-confidence or independence)	71	58
Exploring family/linguistic roots	2	3
Experience		
Gaining exciting, interesting experience in the host country outside university walls	50	44
Cultural interest	31	35
Learning a language		
Improving language skills	52	50
Career promotion		
Establishing contacts and extending my network	22	26
Improved prospects on the labour market (e.g. signal for employers in my CV)	22	24
Gaining practical experience	12	19
Academic education		
Discovering another higher education system and other teaching methods	18	20
Acquiring specialised expertise or artistic development	7	8
Specific teaching staff or teaching programmes at the host university	4	4
Social recognition		
Advice from others/expectations of others	1	2

Source: DAAD, BintHo Survey 2023/24, weighted figures

The BintHo Survey carried out by the DAAD asked not just internationally mobile students about possible reasons for their study-related visits abroad, but also students who had not yet completed a study-related visit abroad. The findings were relatively similar: by a clear margin, they also indicated that personal development was an important aspect (58%), followed by improving language skills (50%), gaining exciting, interesting experience outside university walls (44%) and cultural interest (35%). The greatest differences between internationally mobile and non-mobile

Footnotes

1 See also Woisch/Willige (2015), p. 70 ff, plus DAAD/DZHW (2016), p. 50/51.

2 Reference group: German nationals and Bildungsinlaender.

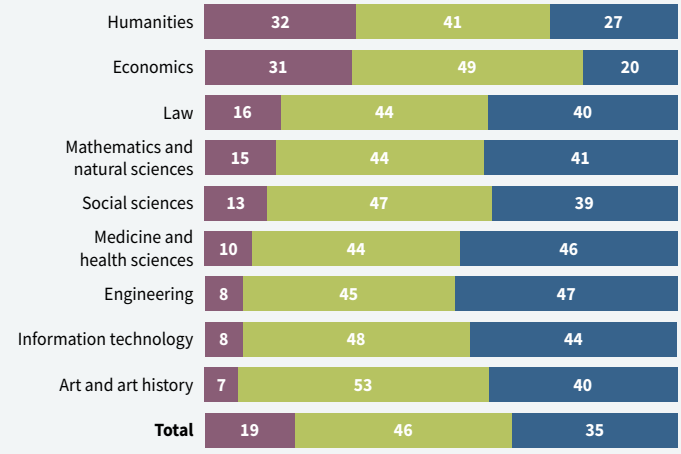
3 For further information on the BintHo project (in German only), see: www.daad.de/bintho.

4 Respondents were asked to select up to three particularly important reasons from a predefined list.

5 Reference group: German nationals and Bildungsinlaender with study-related visits abroad.

6 Reference group: German nationals and Bildungsinlaender with and without study-related visits abroad.

C2.5 Obligation to undertake study-related visits abroad among domestic students, by selected subject groups, in the 2023/24 winter semester[5]



Source: DAAD, BintHo Survey 2023/24, weighted figures

C2.6 Significance of support services for study-related visits abroad from the point of view of domestic students, by type of degree, in the 2023/24 winter semester[5]

Support services	Type of degree in %	Total share in %
Information on the subject of visits abroad (e.g. organisational arrangements, financing options, regional studies, field reports)	Bachelor's 90 Master's 90	91
General information sessions on visits abroad	Bachelor's 91 Master's 88	90
Internal language courses at the university (e.g. at the Language Centre)	Bachelor's 68 Master's 72	71
Specific preparatory courses (e.g. cultural awareness training, introduction to regional studies, application training)	Bachelor's 61 Master's 59	60
Guidance or support during visits (e.g. support by telephone or email, chat, blog, questions for reflection, exercises)	Bachelor's 48 Master's 44	46
Follow-up events (e.g. exchange meet-ups with other students, reviews)	Bachelor's 33 Master's 30	32

Shares of scale responses 4 + 5 on a scale from 1 = "not important at all" to 5 = "extremely important"

Source: DAAD, BintHo Survey 2023/24, weighted figures

students are found in the relevance of personal development and acquiring specialised expertise. The former was much more frequently cited as a key motive for mobility by internationally mobile students and the latter by non-mobile students.

Apart from students' individual motives, institutional and organisational frameworks also figure prominently as mobilisation factors. For example, in the DAAD's second BintHo Survey, almost one third of internationally mobile students in the two subject groups of the humanities and economics stated that their visit abroad was a compulsory element of the curriculum. Moreover, a look at the significance of the support provided by many universities reveals the following finding: most notably, both bachelor's and master's students in the BintHo Survey regarded general information sessions and information material on study-related visits abroad as (rather or very) important. By contrast, respondents were a great deal less likely to consider internal language courses at the university, specific preparatory courses (e.g. cultural awareness training, introduction to regional studies), guidance or support during visits (e.g. via email, chat or telephone) and, in particular, follow-up events (e.g. meet-ups with other students, reviews) as important.

C2.7 Greater willingness to undertake study-related visits abroad as a result of digital services among not (yet) internationally mobile domestic students, by sex, in the 2023/24 winter semester[6]

Digital services	Sex in %	Total share in %
During visits abroad, support services provided by the home university may still be accessed.	Female 66 Male 57	61
During visits abroad, examinations can be taken at the home university.	Female 62 Male 52	57
During visits abroad, it is still possible to attend events at the university in Germany.	Female 47 Male 38	42

Shares of scale responses 4 + 5 on a scale from 1 = "not at all" to 5 = "to a very significant extent"

Source: DAAD, BintHo Survey 2023/24, weighted figures

Another potential mobilisation factor are the digital services provided by universities in the context of study-related visits abroad. In light of the above, domestic students who had not yet completed a study-related visit abroad were asked in the BintHo Survey to rate to what extent certain digital services would increase their willingness to undertake a study-related visit abroad. The aspects cited most frequently as highly or even extremely highly instrumental in making them more open to becoming internationally mobile were continuing to be able to access support services provided by their home university while undertaking a visit abroad (61%), followed by the options of sitting examinations from abroad (57%) and attending events (42%) at their home university. It is striking that, in each case, noticeably more women than men indicated that these digital services would significantly increase their willingness to be mobile.

2.3 Obstacles to mobility and implementation challenges

Figuratively speaking, the process of planning and implementing study-related visits abroad can be compared to an obstacle course, during which two crucial hurdles must be overcome: the decision-making barrier (deciding whether or not to undertake a visit abroad) and the realisation barrier (successfully or unsuccessfully planning and implementing a visit abroad).[1] As a rule, if the decision-making barrier is not overcome, there will be no attempt to get past the implementation barrier. Furthermore, problems often arise during a visit abroad, which, once resolved, prove to be a valuable learning experience in many cases. Nonetheless, in a worst-case scenario, they may lead to the visit being abandoned.

The domestic[3] students surveyed in the BintHo project[2] were asked to indicate which aspects represented the strongest arguments against undertaking a study-related visit abroad. In doing so, they could select three aspects from a predefined list. Among the respondents who had not yet undertaken a visit abroad, financial difficulties were by far the most frequently reported (53%). Other key obstacles to mobility were the separation from partner, friends and family (38%), loss of time during their degree (32%) and the excessive organisational burden (30%). All other reasons were considered particularly important by less than one fifth of respondents.

C2.8 Reasons not to undertake study-related visits abroad from the point of view of domestic students without a visit abroad, by type of degree, in the 2023/24 winter semester[3, 5, 7]

Reasons against study-related visits abroad		Share in %	Total share in %
Financial difficulties	Bachelor's	54	53
	Master's	51	
Separation from partner, friends, family etc.	Bachelor's	38	38
	Master's	41	
Loss of time during degree	Bachelor's	30	32
	Master's	32	
Excessive organisation	Bachelor's	30	30
	Master's	33	
Fear of unfamiliar study situation	Bachelor's	19	18
	Master's	16	
Incompatibility with the requirements of my degree programme/recognition difficulties	Bachelor's	15	17
	Master's	18	
Inadequate language skills	Bachelor's	14	14
	Master's	13	
Obligations towards my employer	Bachelor's	12	12
	Master's	15	
No benefit for my degree/career	Bachelor's	7	7
	Master's	8	
Child care/caring for dependents etc.	Bachelor's	7	7
	Master's	8	
Lack of motivation/apathy	Bachelor's	7	7
	Master's	8	
Difficult to obtain relevant information	Bachelor's	7	7
	Master's	6	
Physical impairments, chronic diseases, psychological stress	Bachelor's	7	6
	Master's	6	
Impact of air travel on the environment/CO_2 emissions	Bachelor's	6	6
	Master's	6	

Source: DAAD, BintHo Survey 2023/24, weighted figures

A comparison of the respective ratings given by bachelor's and master's students shows hardly any differences between the two types of degree. A similar result can be seen for the correlation between students at universities and universities of applied sciences (UAS), with one notable exception, however: loss of time during their degree was more likely to be perceived as an impediment to study-related visits abroad by students at universities (36%) than by their counterparts at UAS (28%). One possible explanation could be that UAS students go on placement visits abroad more frequently than university students and thus more rarely encounter problems in getting their academic credits obtained abroad recognised (which may lead to delays in their degree programme).

As discussed above, most internationally mobile students encounter a variety of problems when planning and realising their visit abroad. Therefore, the BintHo Survey conducted by the DAAD asked students who had already completed a study-related visit abroad to indicate which issues (from a predefined list of 20 typical problems) occurred during their visit. Just under a quarter (24%) of the respondents stated that they had not experienced any of the problems on the list. The four areas most frequently cited by the other respondents in terms of issues encountered

Footnotes

1 See also Netz (2015).
2 See also the info box on p. 70 and www.daad.de/bintho.
3 Reference group: German nationals and Bildungsinlaender.
4 See DAAD/DZHW (2021), p. 77.
5 Total students including other types of degree (e.g. German "Diploma" degree, state examination, German "Magister" degree).
6 Total students including colleges of art and music.
7 Only reasons or problems cited by at least 5% of all respondents.

C2.9 Reasons not to undertake study-related visits abroad from the point of view of domestic students without a visit abroad, by type of university, in the 2023/24 winter semester[3, 6, 7]

Reasons against study-related visits abroad	Share in %		Total Share in %
Financial difficulties	Universities	53	53
	UAS	54	
Separation from partner, friends, family etc.	Universities	38	38
	UAS	39	
Loss of time during degree	Universities	36	32
	UAS	28	
Excessive organisation	Universities	31	30
	UAS	30	
Fear of unfamiliar study situation	Universities	18	18
	UAS	18	
Incompatibility with the requirements of my degree programme/recognition difficulties	Universities	19	17
	UAS	15	
Inadequate language skills	Universities	13	14
	UAS	15	
Obligations towards my employer	Universities	10	12
	UAS	14	
No benefit for my degree/career	Universities	8	7
	UAS	7	
Child care/caring for dependents etc.	Universities	7	7
	UAS	7	
Lack of motivation/apathy	Universities	7	7
	UAS	7	
Difficult to obtain relevant information	Universities	6	7
	UAS	7	
Physical impairments, chronic diseases, psychological stress	Universities	7	6
	UAS	6	
Impact of air travel on the environment/CO2 emissions	Universities	6	6
	UAS	5	

Source: DAAD, BintHo Survey 2023/24, weighted figures

C2.10 Problems with study-related visits abroad encountered by domestic students in EU and non-EU host countries, in the 2023/24 winter semester[3, 7]

Problems with study-related visits abroad	Share in %		Total Share in %
Finding accommodation in the host country	EU host country	30	25
	Non-EU host country	19	
Loss of time during degree	EU host country	20	20
	Non-EU host country	19	
Challenges in making travel arrangements as eco-friendly as possible	EU host country	16	19
	Non-EU host country	22	
Financial difficulties	EU host country	17	18
	Non-EU host country	19	
Organisational issues in the host country	EU host country	16	15
	Non-EU host country	14	
Loneliness, social difficulties, homesickness	EU host country	15	15
	Non-EU host country	14	
Restrictions due to the pandemic	EU host country	14	14
	Non-EU host country	15	
Language difficulties	EU host country	14	13
	Non-EU host country	13	
Problems obtaining recognition for academic achievements	EU host country	13	12
	Non-EU host country	11	
Unscheduled changes to the curriculum (e.g. cancelled courses)	EU host country	13	11
	Non-EU host country	8	
Health issues/psychological problems	EU host country	10	10
	Non-EU host country	9	
Level of courses in the host country is too low	EU host country	9	9
	Non-EU host country	9	
Coping with the foreign culture/ mentality in the host country	EU host country	7	8
	Non-EU host country	11	
Poor-quality courses in the host country	EU host country	9	8
	Non-EU host country	7	
Problems with supervisor or mentor	EU host country	6	5
	Non-EU host country	4	
No, I did not experience any of these issues.	EU host country	23	24
	Non-EU host country	24	

Source: DAAD, BintHo Survey 2023/24, weighted figures

in conjunction with their visit abroad were as follows: finding accommodation in the host country (25%), loss of time during their degree (20%), challenges in making travel arrangements as eco-friendly as possible (19%) and financial difficulties (18%). As opposed to the first BintHo Survey,[4] challenges in making travel arrangements as eco-friendly as possible figured much more prominently in respondents' perception of problems, indicating their increased focus on this topic. By contrast, another problem area loomed considerably larger in the first BintHo Survey: the restrictions on visits abroad due to Covid-19. Lastly, it is striking that there are only minor variations overall in the problem perception of students with visits in EU and non-EU countries. Significant differences between the two groups can only be found with regard to finding accommodation in the host country, unscheduled changes to the curriculum (e.g. in the form of cancelled courses), coping with the foreign culture or mentality in the host country and making travel arrangements that are as eco-friendly as possible. Students with visits in EU countries were more likely to report having been affected by the first two problems mentioned above, while students with visits in non-EU countries cited the last two areas more frequently.

2.4 Erasmus visits

Between the 2011 and 2022 funding periods, the number of annual Erasmus visits undertaken by students at German universities jumped by 32%, from around 30,300 to 40,100.[1] Consequently, since 2011, the number of all Erasmus participants from Germany has seen similar exponential growth to the number of students in Germany over the same period (+33%). In the 2021 funding period, the number of Erasmus participants was back to the pre-pandemic level of 2019, after 2020, the first year of Covid-19, and the associated decrease. The number fell to 40,063 participants in the 2022 funding period, but then returned to the 2020 level; however, this is probably mainly due to the introduction of the new programme generation and the associated change in funding periods. Over the last ten funding periods, the number of Erasmus participants rose more rapidly at universities of applied sciences (UAS) (+40%) than at universities (+6%).[2] Compared to the previous period, there was a downshift in the number of participants at universities (–10%), while the number at UAS was up (+5%). UAS now account for 33% of all Erasmus participants.

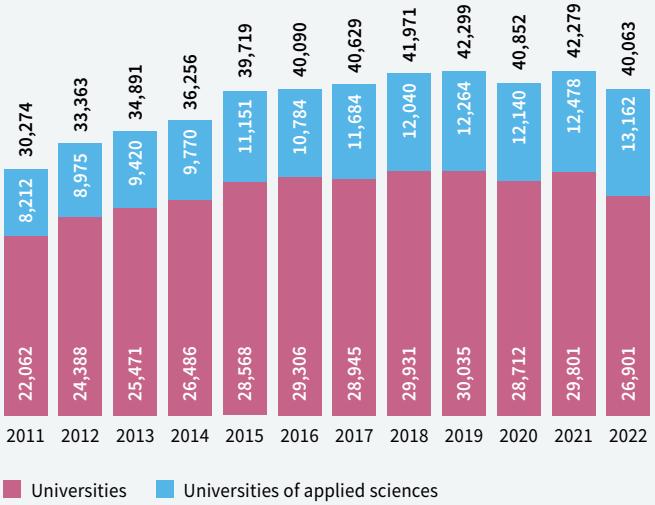
> “Of the ten key host countries, Austria, Portugal (+8% each) and Italy (+14%) saw increases compared to the previous year.

As in previous funding periods, Spain was once again the most popular destination for Erasmus participants from Germany in the 2022 funding period, followed by France and the United Kingdom. Compared to the previous funding period, the number of Erasmus visits dropped in all three countries – by less than 1% in Spain, by 4% in the United Kingdom and by a remarkable 26% in France. Among the ten key host countries, reductions were also observed in the Netherlands (–3%), Norway (–25%), Sweden (–34%), and Finland (–42%).

Database

The data on temporary international mobility presented here refer exclusively to visits undertaken as part of the EU’s Erasmus+ mobility programme. The basis for these data are the Erasmus statistics prepared by the DAAD. According to the findings of the DAAD’s BintHo (International University Benchmark) survey, almost half of all temporary study-related visits abroad by German students are undertaken and funded through Erasmus+. Both German and international students wishing to complete a study or placement visit in one of the 33 participating programme countries are eligible for funding if they are enrolled at a German university, have completed their first academic year, their university participates in Erasmus+ and the home university and the desired host university have concluded an Erasmus cooperation agreement. The present analyses therefore refer to all Erasmus participants from Germany or, to be precise, German universities, and not only to German Erasmus participants. Since the introduction of the new programme generation (2021–2027), there are also third countries around the world in which Erasmus placements are possible, in addition to fully associated countries. The United Kingdom, formerly associated to the Programme, has been a partner country since 2021

C2.11 Erasmus participants from Germany, by type of university, since 2011[1, 2, 3]



Source: DAAD, Erasmus statistics

Footnotes

1 Erasmus statistics until 2014: the respective funding period starts in the winter semester and ends in the summer semester of the following year (e.g. 2014 = WS 2013/14 and SS 2014). Erasmus+ statistics from 2015 to 2021: the funding period starts on 1 June of the previous year and ends on 31 May of the following year (e.g. 2021 = 1 June 2020 to 31 May 2022). Erasmus+ statistics from 2022: due to a restructuring of the programme, the funding period is 26 months and starts on 1 June of the previous year and ends on 31 July of the following year. The start of the first funding period after the programme restructuring was delayed, therefore the visits from 1 September 2021 until 31 October 2023 are shown here in the 2022 funding period.

2 Colleges of art and music and other higher education institutions were added to the universities. These institutions make up approximately 2.6% of all Erasmus visits.

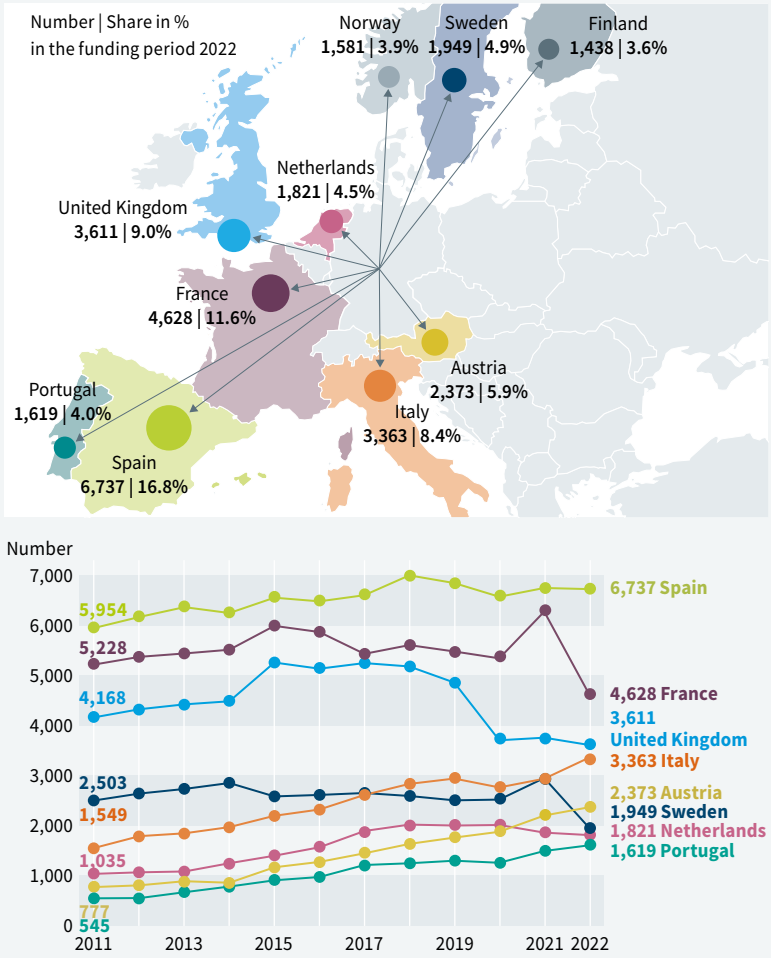
3 Since June 2020, Erasmus mobility statistics have also included hybrid visits, in other words, a combination of physical and virtual visits. Visits that were purely virtual or not actually undertaken were not included.

4 Subject group distribution for all students in Germany in the 2021/22 winter semester.

5 The number and shares of all students in Germany refer to the 2021/22 winter semester.

6 For the sake of clarity, Finland and Norway are not included in the lower section of the figure.

C2.12 Erasmus participants from Germany, by key host countries, in 2022 and since 2011[1, 3, 6]



Source: DAAD, Erasmus statistics

Compared to the previous year, the number of Erasmus visits increased in the remaining three of the ten key host countries of Erasmus participants from Germany. They are Austria, Portugal (+8% each) and Italy (+14%).

An analysis of the distribution of Erasmus participants from Germany by subject group shows that students of the arts and humanities notably account for an above-average proportion.[4] Their share among Erasmus participants (17%) is almost double that of their share of all students in Germany (9%). The social sciences, journalism and information are also clearly over-represented, while the subject groups of information and communication technologies, engineering, manufacturing and construction, plus education are distinctly under-represented. At 3%, the share of all Erasmus participants in information and communication technologies was merely one third that of students as a whole (9%).

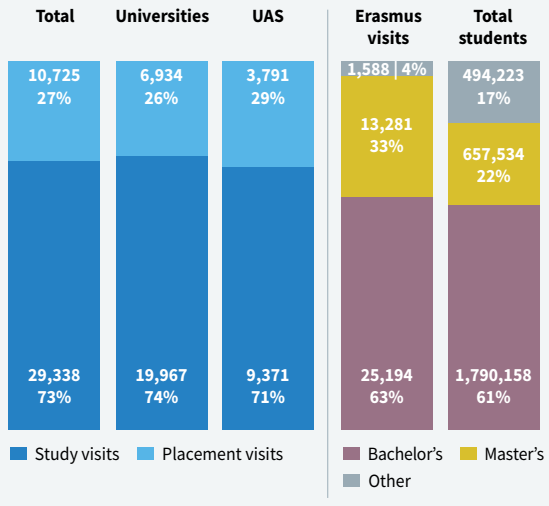
73% of all Erasmus visits undertaken by students from Germany in the 2022 funding period were study visits, while 27% were placements. The share of placement visits at UAS (29%) is slightly higher than that at universities (26%). Bachelor's students accounted for 63% and master's students for 33% of Erasmus visits. A comparison of this distribution with that of all students in Germany reveals that both types of degree are over-represented among Erasmus participants. By contrast, state examinations, doctorates and other types of degree are strongly under-represented.

C2.13 Erasmus participants from Germany and all students in Germany, by subject group, in 2022[1, 3, 4]

Share of all students in Germany in %	Subject group	Share of all outgoing Erasmus participants in %
11.0	Education	6.5
8.9	Arts and humanities	17.1
8.2	Social sciences, journalism and information	13.0
26.1	Business, administration and law	26.3
8.2	Natural sciences, mathematics and statistics	8.6
8.6	Information and communication technologies	3.2
17.0	Engineering, manufacturing and construction	12.4
1.4	Agriculture, forestry, fisheries and veterinary	1.2
8.6	Health and welfare	9.2
2.0	Services	2.5

Sources: DAAD, Erasmus statistics; DAAD calculations; Federal Statistical Office, student statistics; DZHW calculations

C2.14 Erasmus participants from Germany, by type of university, visit and degree, in 2022[1, 2, 3, 5]



Number and share in %

Sources: DAAD, Erasmus statistics; Federal Statistical Office, student statistics; DAAD calculations

1 International academics and researchers at German universities

1.1 Mobility trends, regions of origin and countries of origin

International academic personnel[1] at German universities in 2022[2] were composed of around 63,100 academic and artistic staff of foreign nationalities, or 14.7% of all academic staff. Since 2017, the number of international staff has increased by 33%. By comparison, the number of German academics and researchers has only risen by 5% over the same period.

However, this dynamic cannot be observed for all groups under the heading of international academic staff. In particular, this appears to be a more gradual process for international professors. In 2022, around 3,900 professors of foreign nationality were appointed at German universities, equating to a rise of 22% since 2017. The lower growth rate compared to other international personnel is also explained by the fact that, unlike the recruitment of most other academic staff, professors are generally appointed for life. Positions of this kind usually only become vacant when the incumbent reaches the age limit.

> “The number of Indian academics and researchers has almost doubled in five years.

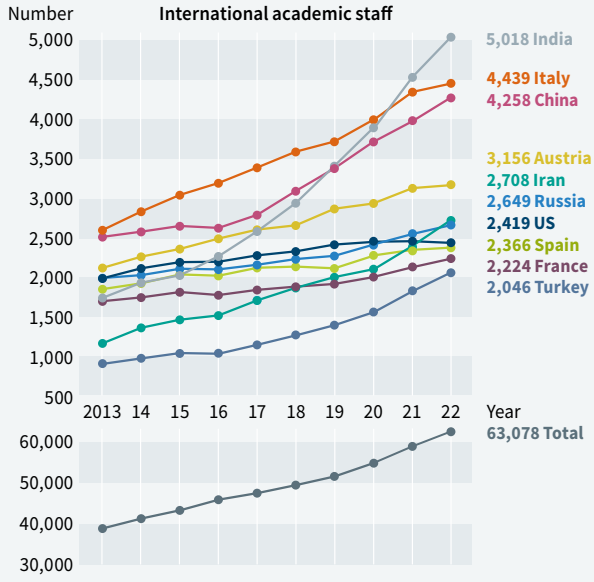
International professors account for just 7.7% of all professors at German universities. This is a much lower proportion than that of international personnel among all academic staff. Even among international academic staff, a mere 6% are professors, while this figure is 13% of German academic staff. This situation may be attributed both to “hidden” appointment hurdles and the smaller pool of international candidates. Above all, professorships at universities of applied sciences, which account for over 40% of all professorships at German universities, may not be attractive enough for international applicants thanks to a lack of recognition and prestige. Moreover, international applicants are probably less likely to be considered due to their insufficient proficiency in German or they may even refrain from applying in the first place.

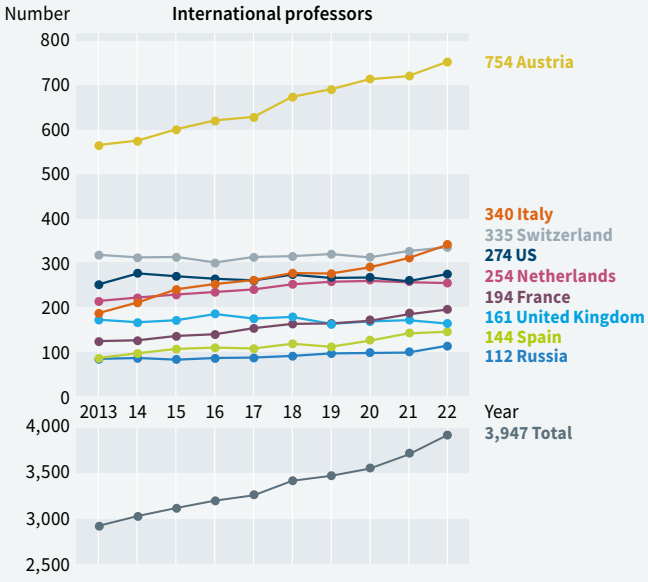
A comparison of types of universities confirms these assumptions. While international staff at universities account for 17.6% of all academic staff and international professors for 11.3% of all professors, the corresponding figures at universities of applied sciences are 6.8% and 3.0% respectively. By contrast, at colleges of art and music, the share of international academic staff is 21.0% and that of international professors a remarkable 22.0%.

The key countries of origin for international academic staff at German universities are India, Italy, China, Austria, Iran, Russia, the US, Spain, France and Turkey. While Italy, Austria, Russia and France have seen an increase of between 21% and 31% in the number of academic staff since 2017, this rate is below average for the US (+7%) and Spain (+12%). Moreover, India (+95%), Turkey (+81%), Iran (+59%) and China (+53%) report particularly positive developments.

In terms of international professors, Austria is by far the most important country of origin, followed by Italy, Switzerland and the US. Together, the two German-speaking countries of origin, Austria and Switzerland, account for more than one quarter of all international professors, at 19% and 8% respectively. However, while the number of Austrian professors has climbed by 20% since 2017, the Swiss figure has

D1.1 Total international academic staff and international professors, by key countries of origin, since 2013[1,2]





Source: Federal Statistical Office, university staff statistics

only gone up by 7%. The largest increases can be observed for Spain (+37%), Russia (+33%) and Italy (+31%). By contrast, the numbers of professors from the United Kingdom have dwindled during the same period (–7%).

A regional breakdown shows that the Western Europe region of origin dominates both for international academic staff as a whole and for international professors. Of all international staff, 30% come from Western European countries; for professors, the figure is as high as 62%. Other major regions of origin for academic staff are Asia and Pacific (21%), Central and South Eastern Europe (15%), and North Africa and Middle East (11%). In the case of international professors, they are Central and South Eastern Europe (12%) and North America (8%). The vital role played by Western Europe is also reflected in the guest researchers who come to Germany for a temporary research or teaching visit (see pp. 94/95). This is partly attributable to the high level of the scientific and higher education systems in these countries, but also to corresponding alliances between universities, along with historic, economic and political relationships such as those in the context of the EU.

Footnotes

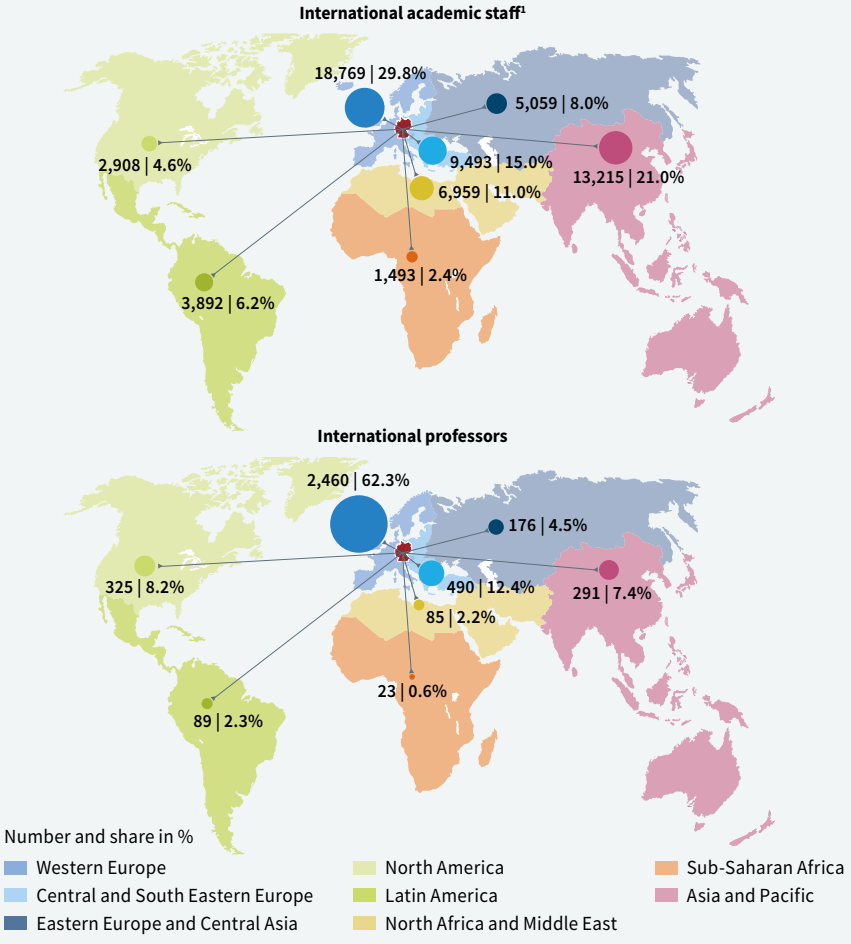
1 International academic staff comprise all academic and artistic personnel at German universities with foreign citizenship, including academic and artistic staff whose citizenship is unknown. The following groups are included in academic and artistic staff: professors, lecturers and assistants; academic and artistic staff; teaching staff with special duties; visiting professors and emeriti; assistant lecturers and honorary professors; private lecturers and graduate student research assistants (i.e. with a degree).

2 Data from the Federal Statistical Office on academic staff at universities refer to reporting years (January–December) and not to academic years.

3 No concrete details have been released regarding the citizenship of 1,290 scientific and artistic staff members, including eight professors. They represent approximately 2% of international academic staff.

4 Unlike previous editions of *Wissenschaft weltoffen*, the countries of origin Greece and Cyprus have been included in the region of origin of Central and South Eastern Europe and not Western Europe as before.

D1.2 Total international academic staff and international professors, by region of origin, in 2022[1, 3, 4]



Source: Federal Statistical Office, university staff statistics; DZHW calculations

D1.3 Share of international academic staff of the total academic staff, by type of university, in 2012, 2017 and 2022[1, 2]

Type of university	Staff	Year	in %
Universities	International academic staff	2012	11.9
		2017	14.1
		2022	17.6
	International professors	2012	9.2
		2017	10.1
		2022	11.3
Universities of applied sciences	International academic staff	2012	4.9
		2017	6.1
		2022	6.8
	International professors	2012	2.2
		2017	2.4
		2022	3.0
Colleges of art and music	International academic staff	2012	15.7
		2017	18.7
		2022	21.0
	International professors	2012	20.4
		2017	21.1
		2022	22.0
Total	**International academic staff**	2012	**10.2**
		2017	**12.0**
		2022	**14.7**
	International professors	2012	**6.3**
		2017	**6.8**
		2022	**7.7**

Source: Federal Statistical Office, university staff statistics; DZHW calculations

1.2 Federal states and subject groups

Most academic and artistic personnel with foreign citizenship work at the universities in North Rhine-Westphalia (18%), Baden-Württemberg (17%) and Bavaria (16%). These three federal states alone account for approximately half of international academic staff. The same applies to international professors. The number of international staff depends not only on the number and size of the universities in a federal state, but also on structural aspects such as the proportion of different types of universities and the subjects offered. Proximity to other countries' borders and the attractiveness of certain locations are also factors. The universities in Saarland (19.1%), Berlin (18.4%) and Brandenburg (18.0%) therefore have particularly high shares of international staff, while this figure is relatively low for Mecklenburg-Western Pomerania (11.2%) and Schleswig-Holstein (11.5%). A similar picture emerges for the proportion of international professors as a percentage of the total professorial body. Here, Berlin's universities lead the field with 11.2%, while in Mecklenburg-Western Pomerania just 3.9% of professors come from abroad.

> "41% of international academic staff work in STEM subjects.

Over the last five years, the different federal states have seen varying quantitative increases in international academic staff. Thuringia (+75%) shows a significant upswing, while Bremen trails far behind (+10%). The development in the number of international professors shows a similar range. The greatest growth rate between 2017 and 2022 is recorded for Brandenburg at 57%, as opposed to a slight reduction for Bremen (–5%). When interpreting these findings, it should be noted that the differences are also linked to the state-specific expansion of staffing levels at universities.[1]

International academic staff are represented to varying degrees across the different subject groups. With a share of 21%, most foreign academic personnel can be found in the mathematics and natural sciences subject group. Engineering, medicine and health sciences are of similar consequence (20% each). 11% of international academic staff work in law, economics and social sciences, with another 10% each in the humanities and the central institutions of the universities. A comparison with German academics and researchers reveals two key differences: while the share of foreign academic staff in law, economics and social sciences is less than half that of German staff, it is almost twice as high in mathematics and natural sciences.

In addition to mathematics and natural sciences (21%), the subject groups of engineering, law, economics and social sciences (18% each),

D1.4 Total international academic staff and international professors, by federal state, in 2022 and development since 2017

	International academic staff		International professors		Development 2017–2022 in %	
Federal states	Number	Share in %	Number	Share in %	Academic staff	Professors
Baden-Württemberg	10,707	14.2	605	8.3	26	15
Bavaria	9,889	16.5	664	9.1	38	33
Berlin	5,143	18.4	433	11.2	41	15
Brandenburg	1,332	18.0	66	7.7	41	57
Bremen	593	14.5	57	8.0	10	–5
Hamburg	2,061	12.4	133	7.6	45	20
Hesse	3,668	13.6	242	6.9	29	19
Lower Saxony	3,933	13.3	225	6.3	21	24
Mecklenburg-Western Pomerania	729	11.2	36	3.9	46	30
North Rhine-Westphalia	11,193	12.8	696	6.8	30	19
Rhineland-Palatinate	2,058	13.6	150	6.5	29	18
Saarland	828	19.1	41	9.4	23	44
Saxony	3,095	15.3	160	7.5	44	36
Saxony-Anhalt	1,233	13.3	63	6.2	44	24
Schleswig-Holstein	1,062	11.5	78	6.5	32	14
Thuringia	1,813	16.9	72	6.4	75	14
Total	**63,078**	**14.7**	**3,947**	**7.7**	**35**	**22**

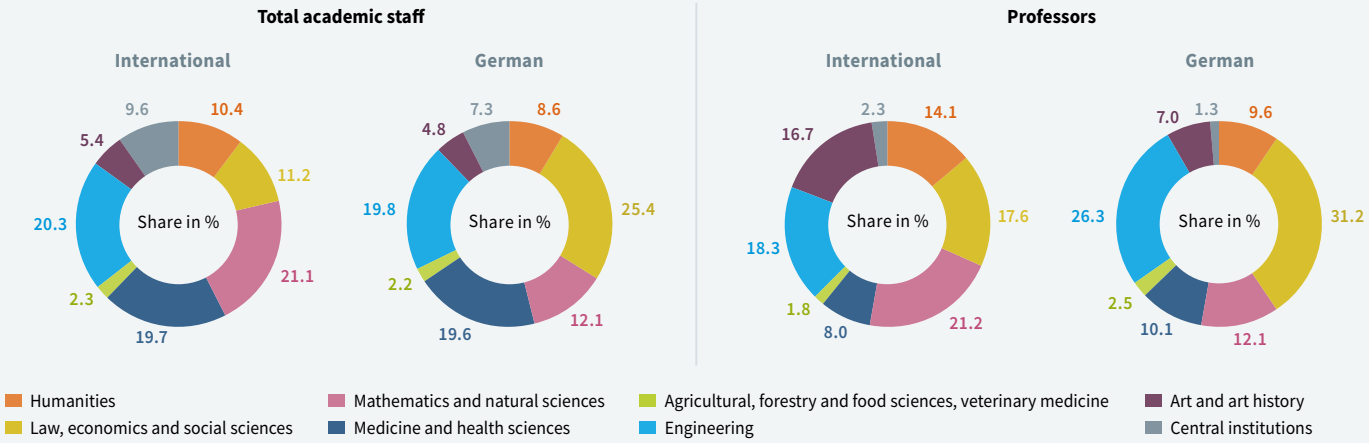
Source: Federal Statistical Office, university staff statistics; DZHW calculations

D1.5 Share of international academic staff of all academic staff and share of international professors of all professors, by type of university and subject group, in 2022

Subject groups	Universities	UAS	Universities	UAS
	Share of total academic staff in %		Share of all professors in %	
Humanities	18.6	22.6	12.1	6.8
Law, economics and social sciences	9.9	5.7	7.3	2.8
Mathematics and natural sciences	23.7	8.3	14.1	3.9
Medicine and health sciences	15.4	3.2	7.1	2.2
Agricultural, forestry and food sciences, veterinary medicine	19.5	5.5	9.4	2.3
Engineering	21.6	6.3	11.5	3.0
Art and art history	16.8	9.8	20.1	6.4
Central institutions	19.1	16.7	16.0	5.3
Total	**17.6**	**6.8**	**11.3**	**3.0**

Source: Federal Statistical Office, university staff statistics; DZHW calculations

D1.6 Total international and German academic staff and international and German professors, by subject group, in 2022



Source: Federal Statistical Office, university staff statistics; DZHW calculations

and art and art history (17%) are particularly relevant for international professors. Compared to German professors, international professors are thus much more strongly represented in art and art history (German professors: 7%) and in mathematics and natural sciences (German professors: 12%), yet tend to be under-represented in law, economics and social sciences (German professors: 31%) and in engineering (German professors: 26%).

The distribution of international academic staff among all academic staff at universities follows the same pattern, with large shares especially found in the subject groups of mathematics and natural sciences (24%) and engineering (22%), as well as in agricultural, forestry and food sciences, veterinary medicine (20%). At universities of applied sciences (UAS), high percentages are employed in the central institutions (17%) or work first and foremost in the humanities (23%). This may be explained by the strong focus at UAS on foreign languages, which are taught by native speakers. With regard to international professors, above-average shares can be observed in art and art history, both at universities (20%) and at UAS (6%). The humanities are also well-represented at UAS with 7%.

Footnote

1 While the number of professorships went up by 15% in Bavaria and Schleswig-Holstein between 2017 and 2022, it rose by just 2% in Saarland.

1.3 Doctorates and habilitations

Many international doctoral students in Germany are aiming at a professorship at a German university (see p. 85). A habilitation is often a prerequisite for an appointment. In 2022, 187 international academics and researchers habilitated successfully, some 28% more than a decade earlier. Nevertheless, this increase is due to an irregular development. It is also reflected in the change in the proportion of habilitations by international academics and researchers of all habilitations. In 2022, this was 12.2% or 3.3 percentage points above the 2012 figure. However, a share of 12.3% was recorded in 2016, which dropped to 10.1% over the course of three years and has been rising again ever since.

As many as 5,500 doctorates were awarded to international academics and researchers in 2022, significantly above the number of habilitations. It exceeds the 2012 figure by 38%. Furthermore, the proportion of international doctoral students among all doctoral students is also noticeably higher at 20% (see pp. 84/85). The decrease in the share of international academics and researchers throughout their academic career continues until the professorship level, with the share of international professors amounting to a mere 8% (see pp. 76/77). The difference between the percentages of researchers with doctorates and those with habilitations may probably be attributed to similar reasons as the low share of international professors. Firstly, there is some evidence of "hidden" obstacles in terms of language and culture, which affect the academic career of international academics and researchers (see pp. 84–87); secondly, however, the question arises as to how attractive habilitation may be for international researchers given that, in other countries or higher education systems, candidates' suitability for a professorship does not have to be demonstrated by a habilitation.[1]

The majority of habilitations among international academics and researchers in 2022 were in medicine and health sciences, which account for 41%. Numerous habilitations are also found in mathematics and natural sciences (22%) and the humanities (20%).[2] By contrast, most doctorates are awarded to international academics and researchers in mathematics and natural sciences (40%) and engineering (20%), with just 17% in medicine and health sciences.

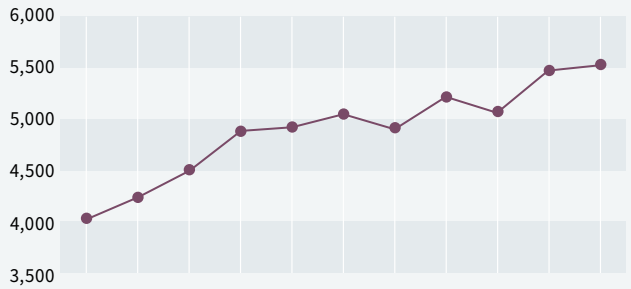
Looking at the shares of habilitations by international academics and researchers of all habilitations reveals a different picture, however. The highest proportion is not found in medicine and health sciences, as might be assumed in view of the high number – in actual fact, this subject group has the lowest share at 9% – but in mathematics and natural sciences with 26%. Above-average shares can also be observed in the humanities (17%) and engineering (15%). With regard to doctorates, the highest proportion of international doctorate holders is again recorded in mathematics and natural sciences (29%), with similar percentages in agricultural, forestry and food sciences, and veterinary medicine, the humanities (27% each) and engineering (26%).

Comparing the subject-related shares of habilitations among international academics and researchers with those of international professors, it is striking that, despite the low number of habilitations, many international professors teach in art and art history as well as engineering (see pp. 78/79). Countless international professors were clearly appointed directly from abroad in these subject groups or, rather, they received an invitation without having obtained a habilitation in Germany.

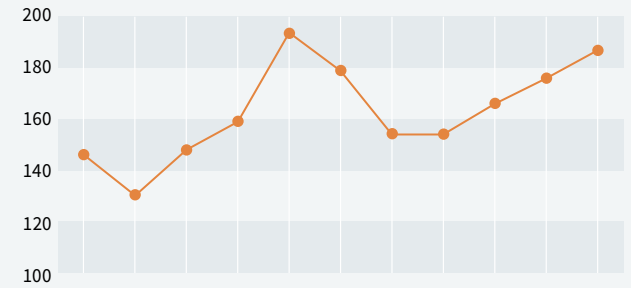
In 2022, academics and researchers from Western Europe were awarded a particularly high proportion of habilitations (42%). 26% of

D1.7 Number of habilitations and doctorates of international academics and researchers and their share of all habilitations and doctorates, since 2012

	Habilitations of international academics and researchers										
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Share in %	15.0	15.3	16.0	16.7	16.8	17.8	17.6	18.5	19.3	19.5	20.0
Number	4,021	4,237	4,497	4,887	4,923	5,051	4,903	5,222	5,065	5,480	5,532

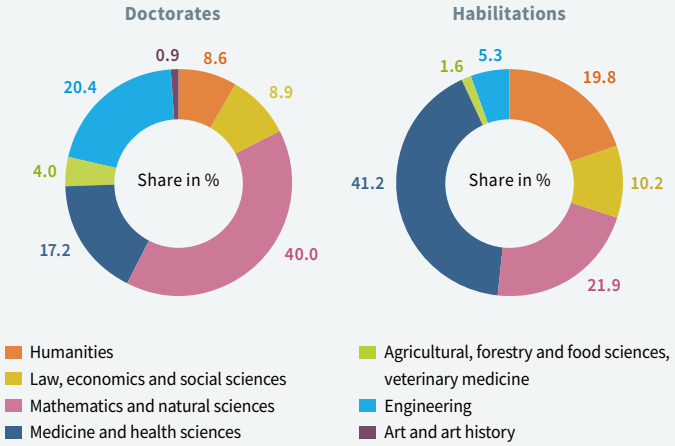


	Doctorates of international academics and researchers										
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Share in %	8.9	8.3	9.1	9.8	12.3	11.3	10.1	10.1	10.8	10.9	12.2
Number	146	130	148	159	194	179	154	154	166	176	187



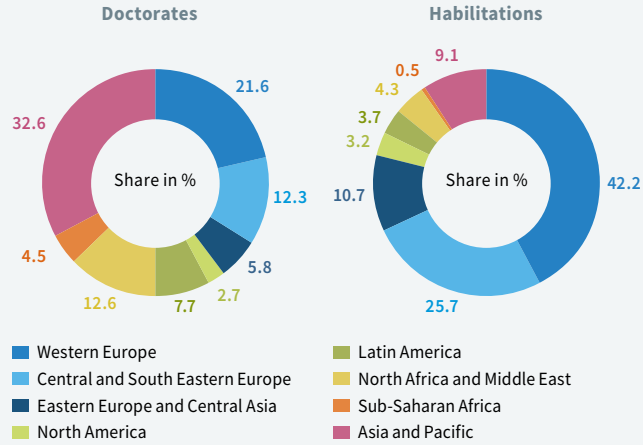
Source: Federal Statistical Office, examination and university staff statistics; DZHW calculations

D1.8 Habilitations and doctorates of international academics and researchers, by subject group, in 2022[2]



Source: Federal Statistical Office, examination and university staff statistics; DZHW calculations

D1.9 Habilitations and doctorates of international academics and researchers, by region of origin, in 2022[3]



Source: Federal Statistical Office, examination and university staff statistics; DZHW calculations

D1.10 Share of habilitations and doctorates of international academics and researchers of all habilitations and doctorates, by subject group, in 2022[2]

Doctorates of international academics and researchers in %	Subject groups	Habilitations of international academics and researchers in %
26.6	Humanities	16.9
12.6	Law, economics and social sciences	12.2
28.6	Mathematics and natural sciences	25.5
10.9	Medicine and health sciences	8.9
26.7	Agricultural, forestry and food sciences, veterinary medicine	12.0
25.6	Engineering	14.7
21.7	Art and art history	
20.0	**Total**	12.2

Source: Federal Statistical Office, examination and university staff statistics; DZHW calculations

Footnotes

1 Apart from habilitation, other qualification paths in Germany may lead to a professorship. At universities, especially in natural sciences and engineering, as well as generally at universities of applied sciences, equivalent achievements are (increasingly) being taken into account when appointing candidates for professorships.

2 In 2022, no international academics and researchers obtained a habilitation in art and art history. In previous years, one or two habilitations were recorded in this subject group.

3 Deviations from 100% are due to rounding.

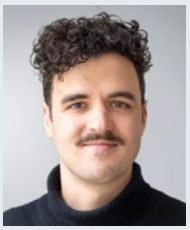
habilitations were achieved by researchers from Central and South Eastern Europe and 11% from Eastern Europe and Central Asia. Thus, the vast majority of 79% of habilitations were completed by academics and researchers from European countries. Austria (14%) and Italy (9%) lead the field in this regard. Finally, the share of international professors from European countries is 79%, too (see pp. 76/77). With regard to doctorates, unlike habilitations, academics and researchers from Asia and Pacific are in first place (33%), followed by Western Europe (22%), North Africa and Middle East (13%) and Central and South Eastern Europe (12%). Key countries here are China (18%), India and Italy (7% each).

SPOTLIGHT

The research and working conditions of international academics and researchers at German universities

A guest article by Gregor Fabian and Christophe Heger

Gregor Fabian is head of the Scientists Survey project. He works at the German Centre for Research on Higher Education and Science Studies (DZHW) in the Research Area Research System and Science Dynamics in Berlin.



Christophe Heger is a researcher in the Scientists Survey project. He works at the German Centre for Research on Higher Education and Science Studies (DZHW) in the Research Area Research System and Science Dynamics in Berlin.

The science system in Germany has been facing major challenges for several years. Academics and researchers' views on its current state are thus of considerable interest. The results show that international researchers generally regard the science landscape in Germany in a more favourable light than their German colleagues: international academics and researchers are, in some cases, much more disposed to rate all aspects of the science system positively ("good" and "very good") than German academics and researchers.

On the whole, both German and international academics and researchers hold the autonomy and freedom of research of the German science system in (very) high esteem, along with the social relevance of research, its innovative capacity and the cohesion of the scientific community. Nonetheless, certain aspects are only considered positive by a minority. This critical view is solely found among German researchers, however. These aspects are the balance between research and teaching (only 44% favourable responses), the appreciation in society at large (43%) and the assessment of performance equity in the scientific system (32%). This is in contrast with the perceptions of international academics and researchers, more than half of whom rate the above aspects positively.

Database

Regularly conducted, the Scientists Survey is a representative study on the working and research conditions of professors, postdocs and doctoral students from all fields at German universities with the right to award doctorates. The study focuses on the research and working conditions of academics and researchers at universities, their assignments and professional aspirations as well as current topics in science policy.[1] In total, some 11,371 respondents, including 15% with an international background, took part in the most recent study in 2023.

Respondents were also asked to evaluate the research situation in their own field, including its international relevance, the requirement for third-party funding, the pressure to publish and competition among researchers. Assessments of these aspects of the research situation are virtually the same among international and German academics and researchers. The international relevance of their own field is considered high by researchers from both groups (62% vs. 60%). However, this

DS1 Share of positive ratings of selected aspects of the German science system, by German and international academics and researchers, in 2023

International academics and researchers in %	Aspects of the science system	German academics and researchers in %
85.1	Academic freedom and autonomy	78.7
70.9	Social relevance of research	63.9
73.4	Innovative capacity	60.7
60.8	Cohesion of the academic community	57.0
58.7	Ratio of research and teaching	43.8
63.8	Appreciation in society	42.6
58.5	Performance equity	31.5

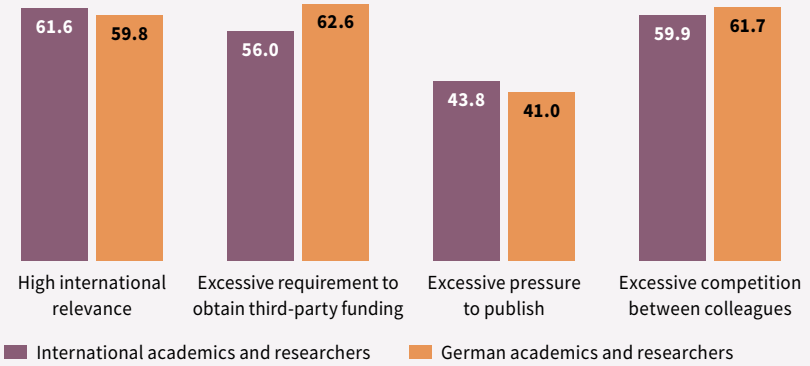
Shares in %, values 3 + 4 on a four-point scale from 1 = very poor to 4 = very good

Source: DZHW, Scientists Survey 2023

also applies to their perceived obligation to acquire research funds (56% vs. 63%) and to their impression of the competition between colleagues (60% vs. 62%). Overall, the findings suggest that researchers from all backgrounds face the same high demands in their day-to-day research work.

> “International postdocs spend more time on research-related activities.

DS2 Rating of selected aspects of the research situation in their own field, by German and international professors, in 2023



Shares in %, values 4 + 5 on a five-point scale from 1 = “irrelevant” to 5 = “at the forefront” and from 1 = “far too low” to 5 = “far too high”

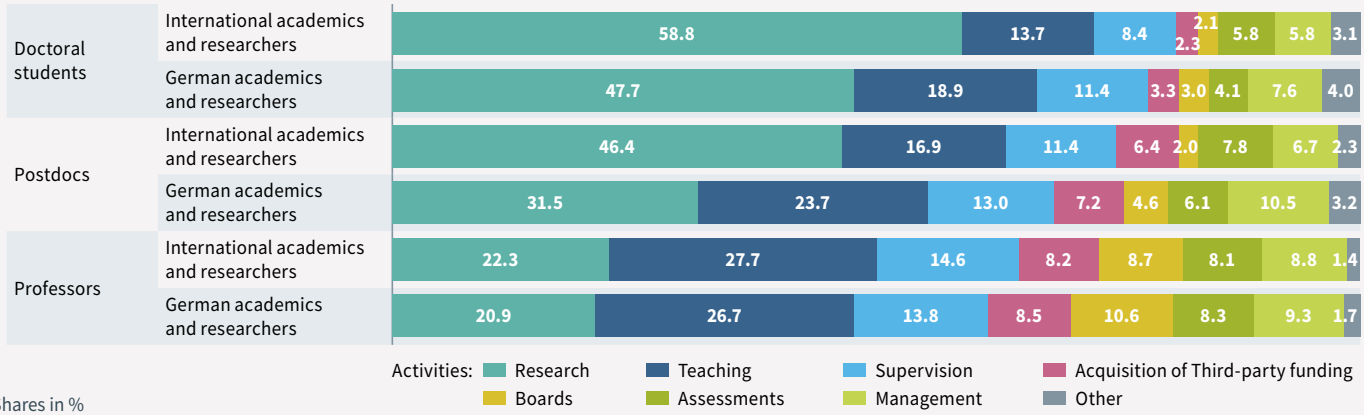
Source: DZHW, Scientists Survey 2023

The working time available for academics and researchers' various tasks is one of the central conditions of employment at universities. In most cases, the hours actually worked per week are significantly higher than those contractually agreed.[2] The range of activities mainly consists of research, teaching and supervision. Other important aspects are attracting external funding, general representation on boards, assessments and management tasks. Although the scope of individual activities may vary significantly, depending on the career status of the researcher, there are only minor differences between international and German researchers within the status groups in terms of their total weekly working hours (professors 51 vs. 53 hours per week, postdocs 45 vs. 44 hours per week and doctoral students 41 vs. 40 hours per week).

Figure DS3 shows the average percentage distribution of activities by status group for German and international academics and researchers. For professors, there is little variation between the two groups in the distribution of activities. Whilst German professors generally spend slightly more time on academic self-administration and somewhat less on research, teaching and supervision, there are no noteworthy differences between these two groups. The average activity profiles of German and international professors are almost identical.

A different picture emerges for postdocs and doctoral students: international postdocs are much more likely to work in a highly research-based environment. At 46%, their research share is almost 15 percentage points above that of German postdocs, thereby occupying on average just under half of their total working time. The shares of other activities, especially teaching duties and management tasks, are accordingly lower for international postdocs. By contrast,

DS3 Activity profiles of German and international academics and researchers, by status group and type of activity, in 2023[3]



Shares in %

Source: DZHW, Scientists Survey 2023

The research and working conditions of international academics and researchers at German universities

DS4 Discrimination experienced by German and international academics and researchers, in 2022 and 2023

Source: DZHW, Scientists Survey 2023

international postdocs tend to spend more time on assessments (8% vs. 6%). The activity profiles of German and international doctoral students also vary considerably in the distribution of their working hours between individual tasks. While German doctoral students devote an average of 30% of their working hours to teaching and supervision, these activities account for just 22% of their international colleagues' working time. In contrast, the average research shares among international doctoral candidates (59%) are significantly higher than those in the German group (48%).

> "International doctoral students and postdocs are more inclined to aim for a professorship than their German counterparts.

In consequence of their often different ethnic background and migration experience, the issue of discrimination in the German scientific system is particularly acute for international researchers. In fact, some 30% of international academics and researchers report having experienced discrimination in the workplace during the last 24 months with respect to one or more categories, compared to 22% of their German counterparts. The main reason for this disparity is that international researchers are much more likely to face discrimination on account of their ethnic origin than Germans (16% vs. 1%). Both groups are equally affected by sexual discrimination, although it is almost exclusively women who report having been discriminated in this way (13% vs. 15%). International academics and researchers experience the same discrimination regardless of their status: the proportions of the aspects surveyed differ only slightly between the groups. By their own assessment, professors alone are discriminated against due to their ethnic background somewhat less frequently than doctoral candidates and postdocs.

On the whole, despite the differences in their job profiles and working conditions, German and international researchers at universities in Germany are satisfied with many factors of their professional activity. However, the higher proportion of working time devoted by international researchers to research activities is obviously reflected in their satisfaction ratings for this field of work. Thus, both international postdocs and international doctoral candidates are considerably more satisfied with their research activity than their German colleagues. At 13 percentage points (postdocs) and 16 percentage points (doctoral students), the frequency of their favourable ratings is higher than in the German group. Even controlling for sex, specialist field and actual hours worked, the disparity remains stable and statistically highly significant. One aspect of job satisfaction that is viewed most critically by both status groups below the level of professor is professional development. This is partly due to the uncertain career opportunities in the science landscape. Nonetheless, when comparing German and international researchers below professorship level, it becomes apparent that international postdocs and doctoral students are somewhat more satisfied – albeit at a low level – with their career prospects than their German colleagues.

Footnotes

1 Fabian et al. (2024).
2 Ambrasat (2019).
3 Deviations from 100% are due to rounding.

DS5 Satisfaction of German and international academics and researchers with selected aspects of their professional activity, by status group and type of activity, in 2023[3]

	Doctoral students		Postdocs		Professors	
Aspects of professional activity	International academics and researchers	German academics and researchers	International academics and researchers	German academics and researchers	International academics and researchers	German academics and researchers
Teaching	56.1	59.7	62.7	67.3	67.9	69.8
Research	64.0	48.1	62.4	49.0	58.5	52.4
Relationship with colleagues	70.3	73.0	68.4	71.1	63.6	64.4
Position attained	50.3	46.5	39.0	40.4	74.8	77.9
Career prospects	43.5	36.5	29.3	24.9	56.4	56.5
Realisation of ideas	54.4	51.7	54.9	52.9	69.1	64.9
Overall satisfaction	51.1	42.4	40.1	43.1	63.9	63.5

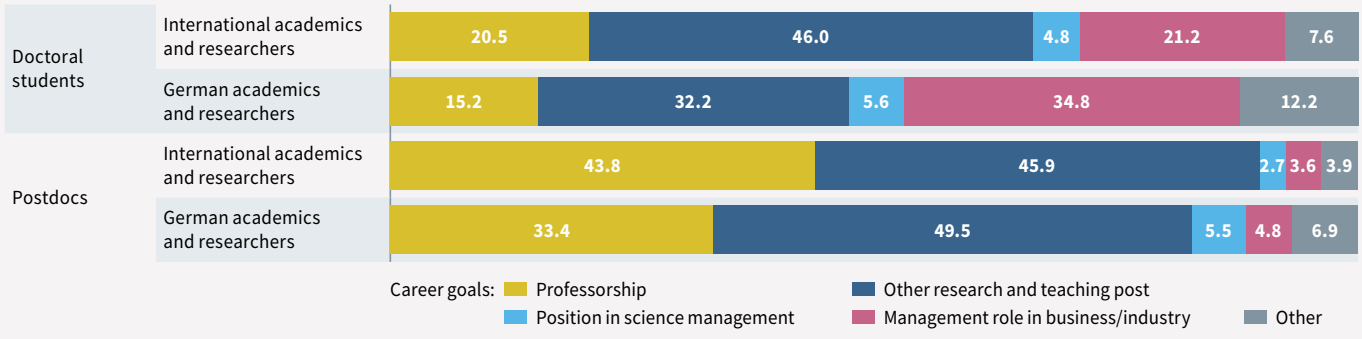
Shares in %, values 4 + 5 on a five-point scale from 1 = very dissatisfied to 5 = very satisfied

Source: DZHW, Scientists Survey 2023

Researchers with and without a doctorate have differing career goals. While most postdocs aspire to a professorship or another (permanent) position in research and teaching, a large proportion of doctoral candidates also consider taking up a post outside academia. However, international doctoral students who work and conduct research in Germany are far more likely than German doctoral candidates to pursue a long-term career in academia (67% vs. 47%). The career goals of German and international postdocs differ mainly in that the latter group are much more inclined to seek a professorship.

In summary, it is clear that, to a large extent, German and international professors view their research situation in the same way. Their activity profiles and job satisfaction diverge only slightly. The situation is very different for international doctoral students and postdocs compared to their German colleagues. International academics and researchers below the level of professor tend to aim for a long-term career in academia, they are generally able to devote more working time to research and are more satisfied with some professional aspects (research activity, career prospects) than their German counterparts. Despite experiencing discrimination in the workplace relatively frequently, they rate the German science system more favourably than German researchers.

DS6 Career goals of of German and international academics and researchers, by status group and type of activity, in 2023[3]



Shares in %, values 4 + 5 on a five-point scale from 1 = very dissatisfied to 5 = very satisfied

Source: DZHW, Scientists Survey 2023

SPOTLIGHT

International academics at German universities: from postdoc to professorship

A guest article by Susanne Jaudzims and Axel Oberschelp

Dr. Susanne Jaudzims is the research director of the InWiDeHo project. She works at the German Centre for Research on Higher Education and Science Studies (DZHW) in Hannover, Research Area Governance in Higher Education and Science.

Dr. Axel Oberschelp is a researcher in the InWiDeHo project. He works at the German Centre for Research on Higher Education and Science Studies (DZHW) in Hannover, Research Area Governance in Higher Education and Science.

International academics experience the transition from the postdoc phase to professorship at German universities very differently. The project's findings show that international academics regard universities' support as vital when transitioning to permanent employment as professors and, in most cases, also rate it positively. First and foremost, they single out the graduate organisations and research funding administrations as beneficial for their career advancement. They also report excellent feedback on the international offices at universities. For example, they point out that welcome centres assist foreign candidates every step of the way, from applying for visas to promptly obtaining work permits and resolving any communication problems related to the German language. The support provided by academic supervisors during and after the doctoral phase is also rated positively. Not only do they advise international academics on the German science system, career aspirations and career paths, they also identify opportunities for obtaining third-party funding. Services provided by non-university institutions such as the DAAD, the German Research Foundation and the Alexander von Humboldt Foundation with regard to financial support, free language courses and general information on qualifications and career paths are also lauded.

The language barrier represents the greatest obstacle for international academics. This barrier is evident in everyday work settings, when carrying out teaching duties or participating in academic self-administration. Particularly in these areas, universities only accommodate international colleagues to a lesser extent and German language skills are required to be able to carry out these tasks in full. In comparison, research is scarcely restricted due to communication difficulties as English is often used as the working language. On the other hand, language barriers play a significant role in application and appointment processes, for example, where important documents are not available in several languages or when appointment lectures and trial sessions must be held in German. According to the respondents, one of the difficulties in learning the language is because the language courses offered by universities tend not to be tailored to the specific needs of academics at an advanced stage in their career.

The special structures of the higher education and science system in Germany (e.g. habilitation, the *Lehrstuhlprinzip* or faculty chair principle, the ban on internal appointments, the low number of permanent posts available) are challenging for all junior researchers. For academics from non-EU countries, the situation is exacerbated by the fact that they can lose their right of residence in Germany when a fixed-term employment contract expires.

Respondents also cite further obstacles: the pressure to adapt to a different culture and sub-conscious discriminatory behaviour lead to a feeling of "not belonging". To some extent, there is also a lack of support and multicultural skills on the part of universities, for example in internal administrative processes (when appointing international academics) or recognising qualifications that were obtained abroad. Many of the international academics interviewed would like more information on career opportunities in Germany. In some cases, appointment procedures are regarded as non-transparent and incomprehensible with regard to the qualification profiles and structure of professorship posts. For example, it is often unclear what qualification certificates applicants require, what tasks the post involves and what remuneration is offered.

Respondents evaluate the non-academic environment in Germany very differently. Positive ratings in terms of infrastructure, personal environment and quality of life must be weighed against negative

Database

The research project "International Academics at German Universities: From Postdoc to Professorship (InWiDeHo)" was carried out by the DZHW in collaboration with the DAAD and funded by the Federal Ministry of Education and Research. The project focused on the incentives and obstacles encountered by young researchers from abroad in the transition from postdoc to professorship at German universities. In the framework of this exploratory study in 2022/23, intensive interviews were conducted with twelve international postdocs and nine newly appointed international professors. Respondents come from all regions of the world and are engaged in the fields of natural sciences, economics, social sciences and engineering. In addition, six members of university management were interviewed and three group discussions held with university staff.

DS7 Feedback from international academics and researchers on universities' internal environment

Positive ratings	• **Information and advisory services** (graduate organisations, international offices) • **Research support** (academic environment, research infrastructure and facilities, mentoring programmes)
Both positive and negative ratings	• **Dual-career couples** (service centres, support for partner's career) • **Family-friendly services** (child care, flexible working time models) • **Social and academic integration** (social environment, integration in social networks, involvement and participation in academic self-administration boards)
Negative ratings	• **Non-transparent appointment procedure** (vacancy notices, review process, appointment negotiations) • **Language in university life** (absence of multilingualism in teaching, inadequate cultural awareness of university staff, language courses are often not tailored to researchers' specific needs)

Source: DAAD/DZHW, InWiDeHo project

DS8 Feedback from international academics and researchers on the non-academic environment

Positive ratings	• **Infrastructure** (social, education and health system, transport, security) • **Personal environment** (family and partner, friendships, relationships with colleagues) • **Quality of life** (cultural and leisure activities, remuneration, reputation)
Both positive and negative ratings	• **Hospitality/xenophobia** (culture of welcome vs. experienced discrimination, pressure to integrate, racism) • **Other non-academic areas** (e.g. bureaucracy and administration, equal opportunities and diversity)
Negative ratings	• **Accommodation** (availability, discrimination experienced) • **Integration and language in everyday life** (language barriers, negative sentiments) • **Immigration office** (discrimination, no service orientation and inadequate cultural awareness)

Source: DAAD/DZHW, InWiDeHo project

assessments in other areas. Child care and the education system in Germany are particularly commended. On the other hand, discrimination is reported when looking for accommodation, in dealings with the immigration office and in everyday situations. This is particularly true for people from countries of the Global South. As far as hospitality in Germany is concerned, responses are ambivalent.

Experiences of international academics

> *For example, I received help in preparing my scholarship (funding programme for junior researchers). Moreover, there is a department at the university that assists with preparation and checks whether your application is in order. It's very useful, very constructive, and I think that's part of establishing yourself as a professor. So this is an enormous help."*
>
> (Postdoc, natural science)

> *[…] Even if you have communication problems, there are always people around you who can help. For example, we have the International Office at the university and they are actually pretty accommodating for those postdocs and academics who don't speak German. […] In general, I think most services are on offer and quite easy to find."*
>
> (Postdoc, engineering)

> *My professor was extremely supportive and he wanted me to become a professor, [...] he gave me tips and so on. […] The thing was, I never expected to get this job. To be honest, I mainly applied to gain experience. […] I think he handled everything extremely well. Very correctly, very transparently. And he helped me tremendously. All things considered, I would say he helped me a great deal."*
>
> (Newly appointed professor, economics and social sciences)

> *I understand German but I don't speak it very well. I can understand some texts, more or less, but this is very specific jargon. Virtually all the documents were in German. And I felt like I couldn't ask for them in English. […] I mean, the dean, the head of department, these people speak English but not everyone in the dean's office speaks English."*
>
> (Newly appointed professor, economics and social sciences)

From the perspective of university management, internationalising professorships is paramount. Overall, they believe that Germany has an extremely high standing as a centre of science. However, they also highlight critical aspects that are impeding the internationalisation of teaching staff. University locations with international profiles are few and far between; moreover, communication of the system's high potential could be improved. Criticism also centres on the career prospects of international academics after completing their doctorate and the definition of professorships. Specifically, the requirement to collaborate in academic self-administration and the enormous teaching obligations in Germany by international standards reduce the attractiveness of university chairs for international academics.

2.1 Mobility trends, regions of origin and countries of origin

In 2022[1], roughly 16,600 academics and researchers of foreign nationalities were contractually employed by the four largest non-university research institutes (NURI).[2] Their number has doubled since 2012 (+105%), indicating more dynamic development at NURI than at universities in terms of international academic staff. While the number of international academics and researchers at universities has risen by 33% since 2017, the increase at NURI over the same period is 41%, up 5% on 2021 alone.

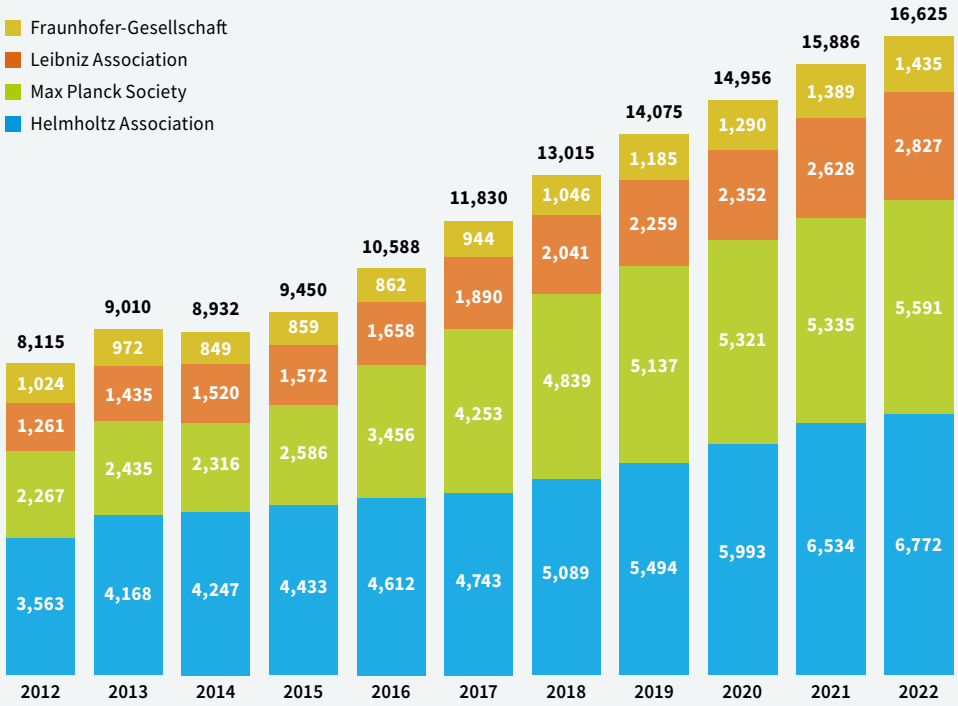
> “ 30% of academics and researchers at non-university research institutes come from abroad.

The Fraunhofer-Gesellschaft and the Leibniz Association register the strongest growth, where the number of international academics and researchers has soared by 52% and 50% respectively in the last five years. Nonetheless, in the case of the Fraunhofer-Gesellschaft, this uptick was preceded by a marked plunge between 2012 and 2016. At the Helmholtz Association, there has also been a similarly significant rise in international academic staff since 2017, up by 43%. During this period, the Max Planck Society shows an influx of 31% in its international academic staff.

The steady growth in international academic staff at NURI means that, in 2022, about 30% of all academics and researchers come from abroad. In 2017, this proportion was roughly 25%. The current share of international academics and researchers at NURI is thus twice as high than at universities (see pp. 76/77). This is partly due to the different subject profiles. The majority of NURI – with the exception of the Fraunhofer Institutes – focus strongly on the highly internationalised field of natural sciences. In these disciplines, the proportion of international academic staff of all those working in science and research, including universities, is above average at 24% (see pp. 76/77). In addition, the outstanding research conditions and lower language barriers – there are no teaching obligations and English is generally spoken in natural science laboratories – also contribute to the international attractiveness of NURI.

By far the highest proportion of international academics and researchers among all employed academics and researchers, around 53%, is found at the institutes of the Max Planck Society. Approximately half of academics and researchers are thus foreign nationals. This high number is partly due to the decision taken in 2015 to no longer finance doctoral students by means of scholarships, as is still the case in other non-university research institutes, but to offer them fixed-term contracts. By contrast, just 12% of academics and researchers at the

D2.1 International academic staff at the four largest non-university research institutes, since 2012[1]



Source: Federal Statistical Office, statistics on non-university research institutes

Footnotes

1 Data from the Federal Statistical Office on staff at non-university research institutes refer to reporting years (January–December) and not to academic years.

2 Data and comments refer exclusively to the four largest non-university German research institutes: Helmholtz Association, Max Planck Society, Leibniz Association and Fraunhofer-Gesellschaft.

3 In the official statistics on non-university research institutes, the origin of international staff is not broken down by more differentiated regions, but by continents.

4 Deviations from 100% are due to rounding.

5 Unlike previous editions of *Wissenschaft weltoffen*, the countries of origin Greece and Cyprus have been included in the region of origin of Central and South Eastern Europe and not Western Europe as before.

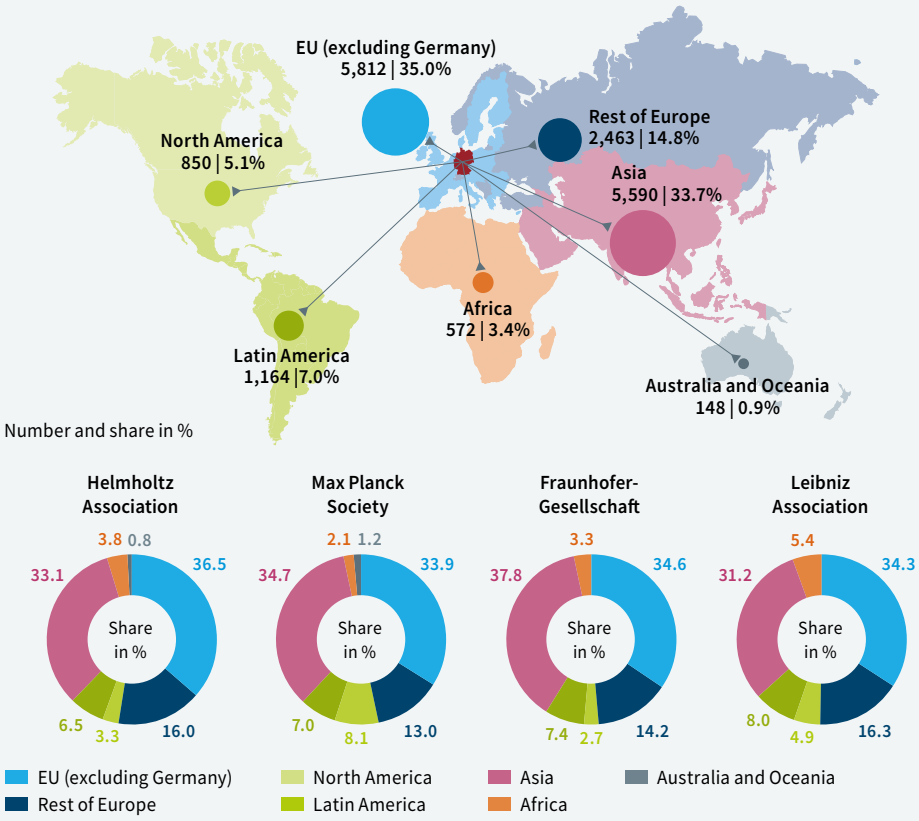
mostly engineering-oriented institutes of the Fraunhofer-Gesellschaft come from abroad. For both the Helmholtz and Leibniz Associations, this figure is over one quarter (30% and 28% respectively).

> “With over 1,700 academics and researchers, India is the key country of origin of international academic staff at non-university research institutes.

International academic staff at NURI are mainly from European countries. EU countries account for 35% of international academics and researchers, the remaining European countries for 15%. Another large share, namely 34%, comes from Asia. The dominance of academics and researchers from European countries at NURI corresponds to the origin of international academic staff at the universities, where more than half of academics and researchers are from Europe. These numbers only vary slightly across the various NURI. The largest proportion of academics and researchers from European countries can be found at the institutes of the Helmholtz Association (53%), while most academics and researchers from Asia (38%) work at the Fraunhofer-Gesellschaft.

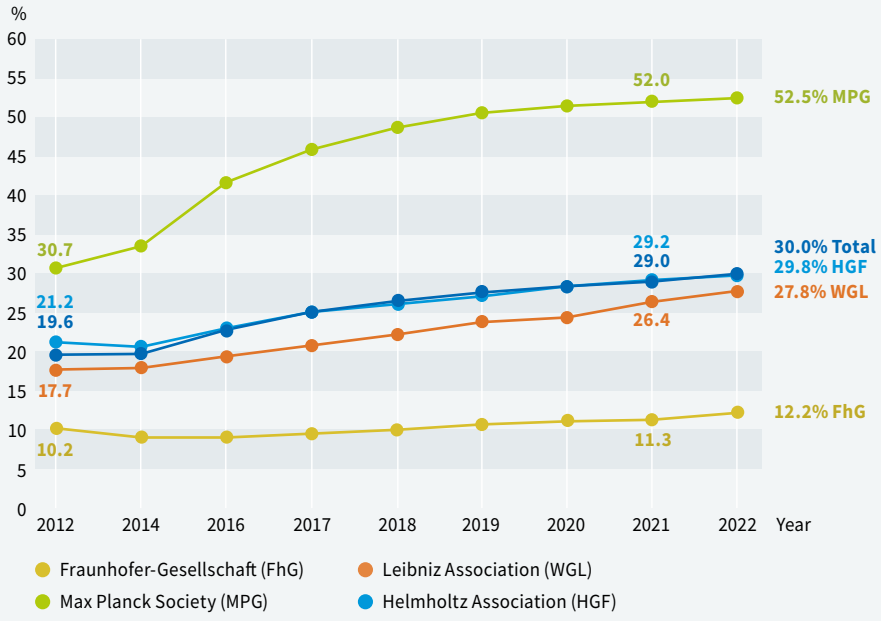
The key countries of origin are India with 1,700 and China with 1,600 academics and researchers, while Italy takes third place with roughly 1,400 staff engaged at NURI in 2021. Other major countries are Russia (approximately 800), France, Spain and the US (around 700 each).

D2.2 International academic staff at the four largest non-university research institutes, by region of origin, in 2022[3, 4, 5]



Source: Federal Statistical Office, statistics on non-university research institutes; DZHW calculations

D2.3 Share of international academic staff of the total international academic staff at the four largest non-university research institutes, since 2012



Source: Federal Statistical Office, statistics on non-university research institutes; DZHW calculations

2.2 Subject groups and qualifications

With a share of approximately 69%, the majority of international academic staff at non-university research institutes (NURI) can be assigned to the mathematics and natural sciences subject group. Most are physicists and biologists. 18% of international academics and researchers are employed in engineering, medicine accounts for 7%, the social sciences and the humanities for 5% each. The preponderance of international academic staff working in the natural sciences is in line with the general focus of the NURI. Only the institutes of the Fraunhofer-Gesellschaft are primarily oriented towards engineering.

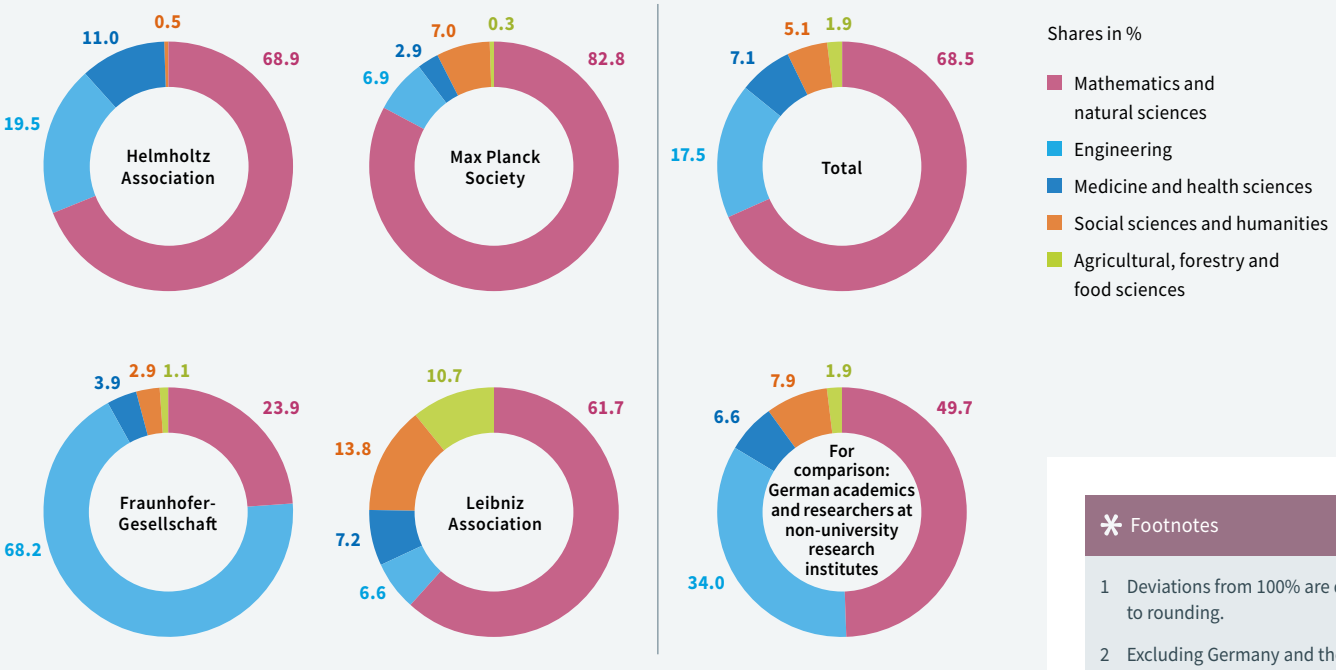
> “Half of department heads at Max Planck institutes are international academics and researchers.

The proportion of international academics and researchers working in mathematics and natural sciences is significantly higher than that of German staff (69% vs. 50%), whereas it is much lower in engineering (18% vs. 34%). At the level of the individual research institutes, however, these differences even out as they are due first and foremost to the lower proportion of foreign academics and researchers employed at the Fraunhofer-Gesellschaft (see p. 89). Only the Helmholtz and Leibniz Associations report a slightly higher percentage of international than German academics and researchers in the field of mathematics and natural sciences.

The keen interest of international academics and researchers in scientific research at NURI is demonstrated not only by the large number of people engaged in this field, but also by the fact that these disciplines make up the highest share of the total staff (37%) compared to other subjects. Only medicine and health sciences (32%), agricultural, forestry and food sciences, and veterinary medicine (30%) achieve similarly high figures. The relatively low proportion of foreign academics and researchers in engineering (18%) is quite surprising, given the high number of international bachelor’s, master’s and doctoral students on engineering programmes at German universities.

4% of the international academic staff at NURI are heads of research groups or heads of departments, 31% hold posts requiring a doctorate and 65% are other academics and researchers. A comparison with German academic staff reveals a share almost twice as high among heads of research groups and heads of departments, namely 7%, while that of other academics and researchers is also substantially larger at 78% and the share of posts requiring a doctorate considerably smaller at 16%. The pattern is similar at all research institutes. Worthy of note here is the exceptionally high proportion of international heads of research groups and heads of departments in the Leibniz Association

D2.4 International academic staff at the four largest non-university research institutes, by subject group, in 2022[1]



Source: Federal Statistical Office, statistics on non-university research institutes; DZHW calculations

Footnotes

1 Deviations from 100% are due to rounding.

2 Excluding Germany and the United Kingdom.

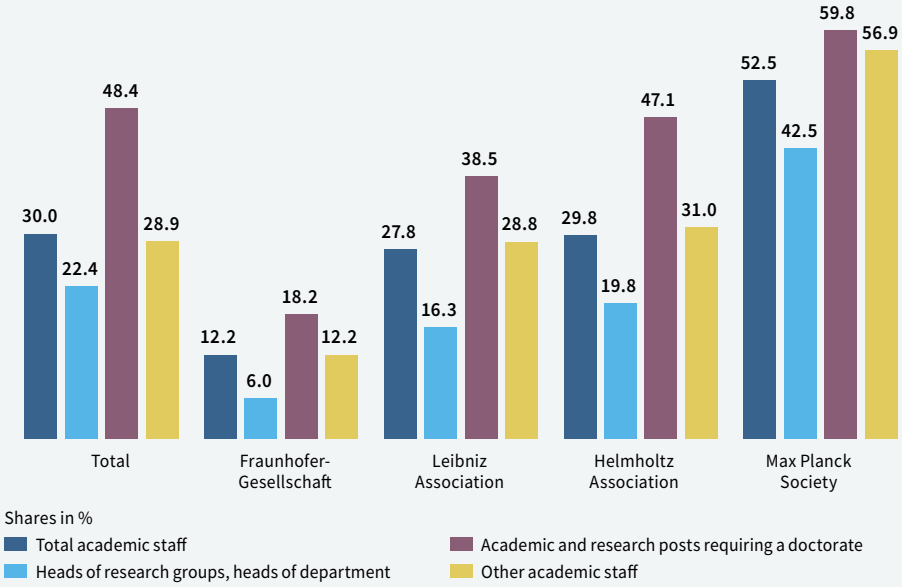
(7%), whereas the share is particularly low in the Fraunhofer-Gesellschaft (1%). In both cases, however, these figures are in line with the corresponding percentages of German academics and researchers (15% and 2% respectively). A remarkable number of personnel hold posts requiring a doctorate, 37% and 35% respectively, of the international academic staff employed at the institutes of the Max Planck Society and the Leibniz Association.

> “More than one fifth of senior management at non-university research institutes are foreign nationals.

Looking at the corresponding shares of international academic staff in all staff groups, it becomes clear that around one in five research group heads or heads of department comes from abroad (22%). Furthermore, 48% of employees in positions requiring a doctorate and 29% of the other academics and researchers are foreign nationals. At the institutes of the Max Planck Society, these figures are higher for all staff groups: 43% of research group heads and heads of department, 60% of posts requiring doctorates and 57% of the remaining academics and researchers come from abroad. At the institutes of the Fraunhofer-Gesellschaft, by contrast, just 6% of the research group leaders and heads of department, 18% of employees in posts requiring a doctorate and 12% of other academics and researchers are foreign nationals.

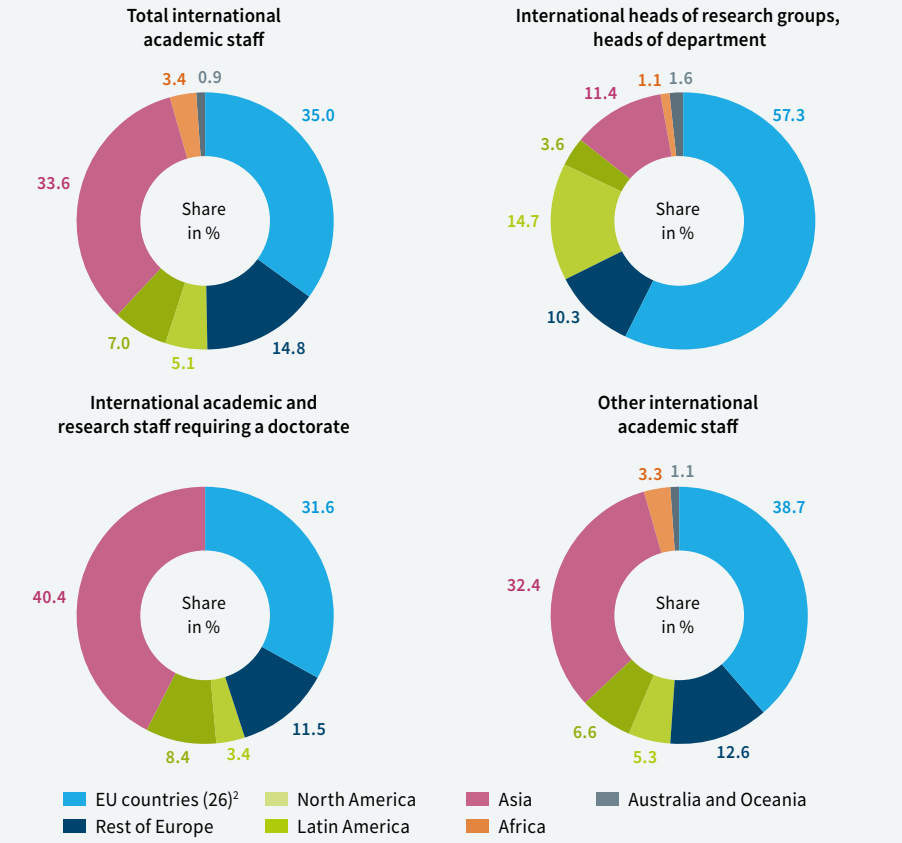
The majority of international research group heads and heads of department, namely 57%, are from EU countries, 15% from North America and 11% from Asia, while the rest of Europe accounts for another 10%. Among international academic staff requiring a doctorate, doctoral students from Asian countries represent the largest group (40%), followed by academics and researchers from EU countries (32%). Most of the remaining international academic staff also come from EU countries (39%) and Asia (32%).

D2.5 Share of international academic staff of the total international academic staff at the four largest non-university research institutes, by employment status, in 2022



Source: Federal Statistical Office, statistics on non-university research institutes; DZHW calculations

D2.6 International academic staff at the four largest non-university research institutes, by employment status and region of origin, in 2022[1]



Source: Federal Statistical Office, statistics on non-university research institutes; DZHW calculations

3 Guest researchers from abroad in Germany

3.1 Mobility trends, funding organisations and funded groups

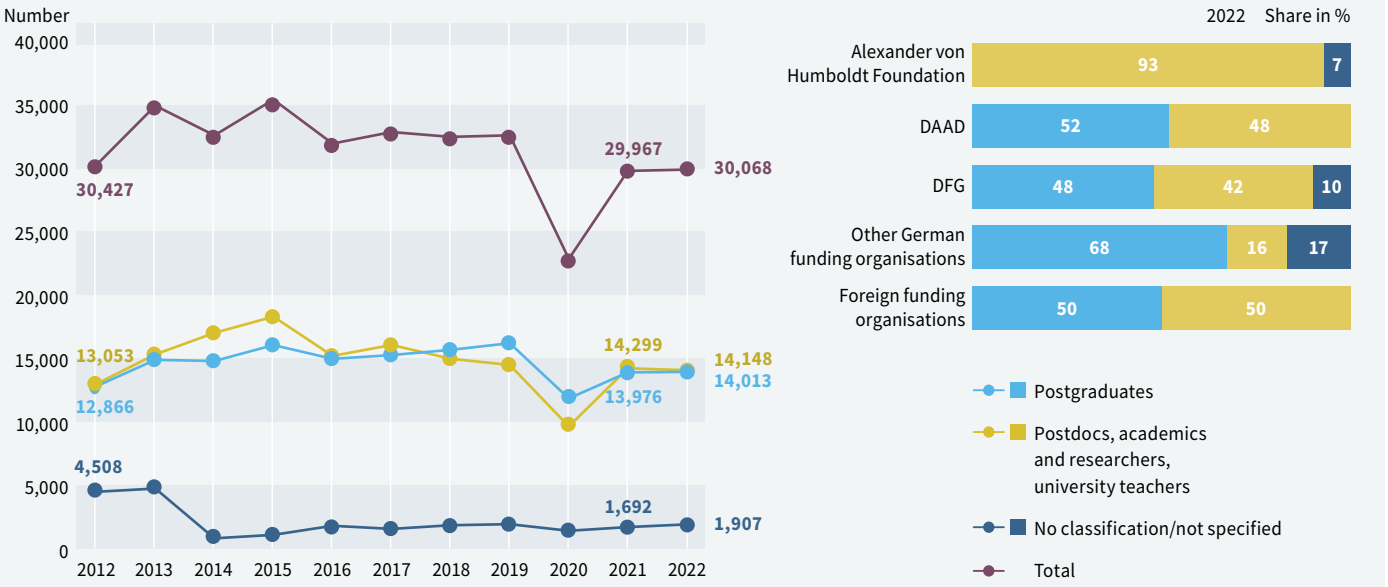
In 2022, domestic and foreign organisations funded around 30,100 visits to Germany by international guest researchers from abroad.[1, 2] Guest researchers are persons who work at academic teaching facilities or research institutes abroad. They visit Germany for a limited period without being contractually employed, yet receive financial support and are active in teaching and research at universities or other research institutes. Although the data collected on mobility funding do not represent a complete analysis of German funding organisations, they cover the major part of sponsored visits undertaken by guest researchers from abroad.[3] With regard to funding provided by foreign organisations, however, the data have so far been limited to a few institutes and the Marie Skłodowska-Curie actions of the EU.

> “The number of visits to Germany by guest researchers that were funded by the DFG increased by 11% in 2022.

Compared to the previous year, the number of sponsored visits by guest researchers is only up slightly, by 50 visits.[4] Nevertheless, this increase and that of the previous year together almost offset the slowdown in 2020, which was due to the pandemic. In 2022, visits by guest researchers from abroad are thus just 8% below the figure for pre-pandemic year 2019. Different developments are discernible in relation to the various funding organisations. Three large funding organisations are still the primary source of support for the vast majority of guest researchers' visits to Germany: the German Research Foundation (DFG), the German Academic Exchange Service (DAAD) and the Alexander von Humboldt Foundation (AvH). In 2022, the DFG alone sponsored 49% of all guest research visits, the DAAD 36% and the AvH 8%. Together, they contributed to the financing of 93% of all recorded visits. Moreover, within one year, the funding activities of the DFG rose by around 11% and those of the AvH by 12%, while the number of visits sponsored by the DAAD dropped by 13%. This decline is also due to the restructuring of DAAD funding.

In 2022, approximately 5% of the visits undertaken by guest researchers received support from a multitude of other, smaller, German funding organisations. Although the scope of the funding activities of these organisations may not seem impressive, their contribution to international mobility should not be underestimated. Firstly, their activities reveal that numerous institutes in Germany play a role in subsidising the international mobility of academics and researchers. Secondly, these smaller institutions often focus on supporting specific areas of teaching and research, thereby creating a strong incentive for internationalisation in these fields. Compared to the previous year, the majority of these funding organisations have upheld or even increased their funding budgets. The Rosa Luxemburg Foundation, the Herzog August Bibliothek Wolfenbüttel, the Heinrich-Böll-Stiftung, the German Federal Environmental Foundation and the University of Münster have all stepped up their activities significantly. On the other hand, other organisations, such as the Hanns Seidel Foundation and the Konrad Adenauer Foundation, were obliged to reduce the number of sponsored visits abroad. Overall, however, the number of visits by guest re-

D3.1 Guest researchers from abroad in Germany, by funded group, since 2012[1, 2]



Source: DZHW survey, data provided by funding organisations; DZHW calculations

searchers from abroad that were financed by these organisations has hardly changed compared to the previous year.[4]

Foreign institutions' funding activities included in the survey cover just under 2% of the visits of guest researchers presented here. Unlike the German funding organisations, the foreign institutions did not succeed in redeveloping their funding. Year-on-year, the number of visits they support has fallen by 21% or approximately 100 visits.

47% of all sponsored guest researchers from abroad are academics and researchers with doctorates, including professors and experienced researchers, such as heads of research groups. A further 47% of funded visits were carried out by doctoral students and other postgraduates. This distribution of the funding activities among the different status groups of academics and researchers has essentially remained unchanged for several years, making it clear that, even during the pandemic, the various organisations have adhered to their longer-term strategy with regard to funding activities.

Sponsorship provided by the Alexander von Humboldt Foundation was reserved almost exclusively (93%) for experienced academics and researchers with doctorates visiting German universities and research institutes. In contrast, the DAAD supported visits by postgraduates from abroad to a significant extent (52%), along with the DFG (48%).

Footnotes

1 The statistics on guest researchers from abroad in Germany on pp. 92–95 do not contain any information on the major non-university research institutes: Helmholtz Association, Max Planck Society, Leibniz Association and Fraunhofer-Gesellschaft. See also pp. 96/97.

2 Not including Erasmus visits to Germany undertaken by guest researchers from abroad.

3 No information is available on university funding of visits by guest researchers from abroad, for example.

4 This figure excludes the number of visits financed by the Hanse-Wissenschaftskolleg, whose data were recorded for the first time in 2022.

5 As of 2023, Research Institute for Sustainability – Helmholtz Centre Potsdam.

D3.2 Funded visits undertaken by guest researchers from abroad in Germany, by funding organisation, in 2022[2]

Funding organisations	Number
Key German funding organisations	
German Research Foundation	14,722
German Academic Exchange Service	10,770
Alexander von Humboldt Foundation	2,541
Other German funding organisations	
Konrad Adenauer Foundation	305
Gerda Henkel Foundation	200
Katholischer Akademischer Ausländerdienst	198
Rosa Luxemburg Foundation	88
Akademie Schloss Solitude	75
Friedrich Ebert Foundation	64
University of Münster	61
German Federal Environmental Foundation	58
Hans Böckler Foundation	57
Hanse-Wissenschaftskolleg	51
Herzog August Bibliothek Wolfenbüttel	48
German National Committee of the Lutheran World Federation/Bread for the World	41
Friedrich Naumann Foundation for Freedom	35
Baden-Württemberg Stiftung	35
Einstein Foundation Berlin	34
Boehringer Ingelheim Fonds	32
Heinrich-Böll-Stiftung	27
Study Foundation of the Berlin House of Representatives	23
IASS Institute for Advanced Sustainability Studies[5]	22
Hanns Seidel Foundation	17
Fritz Thyssen Foundation	16
Alfried Krupp Institute for Advanced Study	12
Klassik Stiftung Weimar	9
Heinrich Hertz-Stiftung – MKW Nordrhein-Westfalen	7
Stiftung Charité	7
ZEIT-Stiftung Ebelin und Gerd Bucerius	3
Alfred Toepfer Stiftung F.V.S.	2
Leopoldina – the German National Academy of Sciences	2
DECHEMA Research Institute	1
Foreign funding organisations and programmes	
Marie Skłodowska-Curie actions of the EU	357
Swiss National Science Foundation	95
German-American Fulbright Commission (US)	27
Japan Society for the Promotion of Science	23
The Austrian Science Fund (FWF)	3
Total	**30,068**

Source: DZHW survey, data provided by funding organisations

3.2 Regions and countries of origin and subject groups

In 2022, Western Europe and Asia and Pacific were the key regions of origin for guest researchers from abroad, whose visits to Germany were sponsored by domestic and foreign funding organisations. 21% of the funded academics and researchers came from each of these regions. Other major regions of origin are Central and South Eastern Europe (13%), North Africa and Middle East (11%) and Latin America (10%). Lower percentages are recorded for Eastern Europe and Central Asia (9%), Sub-Saharan Africa (7%) and North America (6%). The frequency of visits by academics and researchers from Western Europe and Asia and Pacific for research and teaching purposes in Germany corresponds to the preponderance of these regions of origin among international academics and researchers employed at German universities or non-university research institutes (see pp. 76/77 and 88/89). The mobility flows of Western European and Asian guest researchers to Germany are not only a consequence of demographics – that is, the high number of university-trained academics and researchers in these regions – they are also the result of many years of economic and academic collaboration, including alliances between German universities and research institutes. The shares of the various regions of origin have not changed substantially compared to previous years.

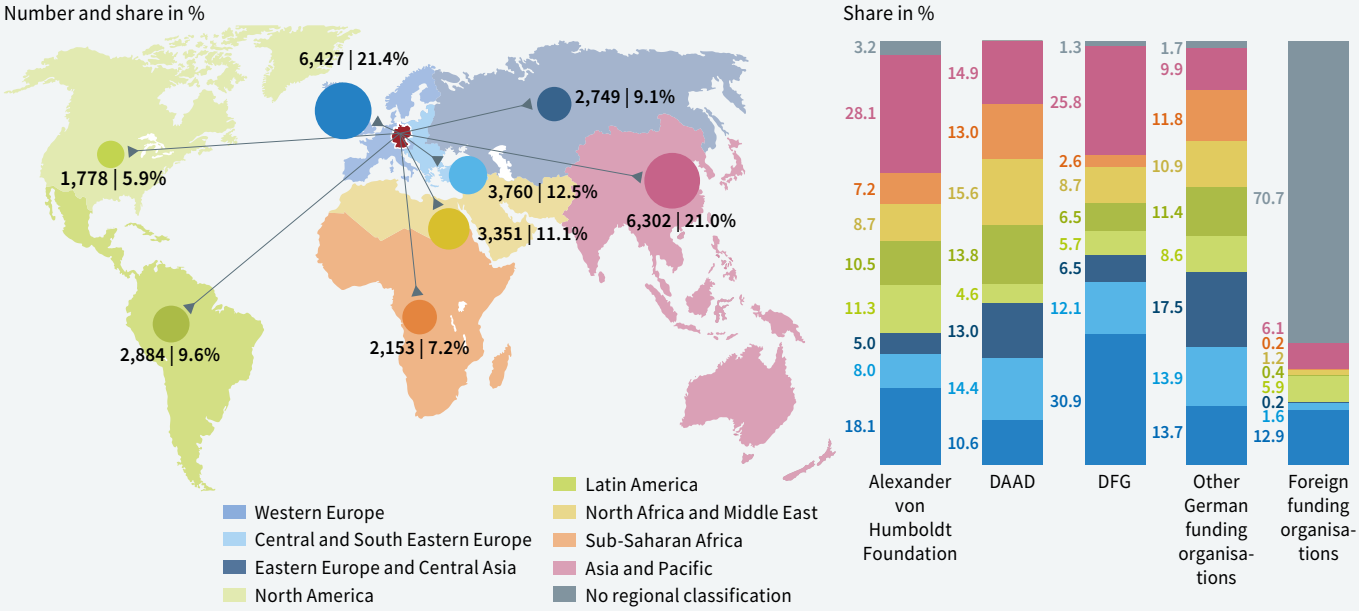
The individual funding organisations are distinguished by their different regional emphases.[1] The DFG's shares of sponsored guest researchers from Western Europe (31%) and Asia and Pacific (26%) are particularly remarkable. The Alexander von Humboldt Foundation also subsidises an above-average proportion of academics and researchers from Asia and Pacific (28%). In contrast, support from the DAAD and the smaller German funding organisations is more evenly spread across the various regions of origin.

> "44% of guest researchers work and teach in mathematics and natural sciences.

In 2022, India continues to lead the field among the key countries of origin with 2,300 guest researchers, followed by China and Italy. In 2021, around 2,100 and 1,800 funded academics and researchers came from these countries respectively. Compared with 2021, the number of guest researchers from India increased by 10%, from China by 3% and from Italy by 2%. While India has thus exceeded the level of pre-pandemic year 2019, China is still well below and Italy slightly below this figure. Other major countries of origin are the US, Ukraine, Iran, Russia and Spain. As a result of the war, the number of guest visits undertaken by Ukrainian academics and researchers rocketed by 61% within one year; accordingly, the number of academics and researchers from Russia plunged by 22%.

The largest single group of international guest researchers, namely 44%, can be found in mathematics and natural sciences. The humanities (14%), engineering and law, economics and social sciences (13% each) trail far behind, while medicine and health sciences (7%), agricultural, forestry and food sciences, and veterinary medicine (3%), plus art and art history (2%) only play a subordinate role.

D3.3 Funded visits undertaken by guest researchers from abroad in Germany, by region of origin and funding organisation, in 2022[1, 2, 3, 4]

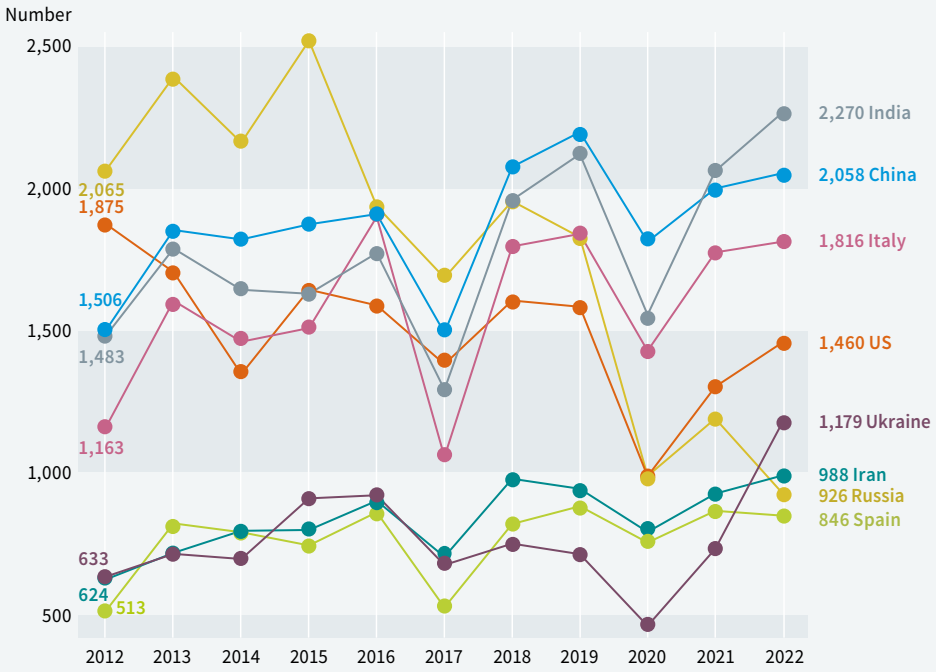


Source: DZHW survey, data provided by funding organisations; DZHW calculations

The dominance of the natural sciences among guest researchers from abroad reflects the importance of this subject area among foreign academics and researchers who are contractually employed at German universities or non-university research institutes. The only striking feature is the disproportionately high share of guest researchers representing the humanities (see pp. 88/89 and 90/91).

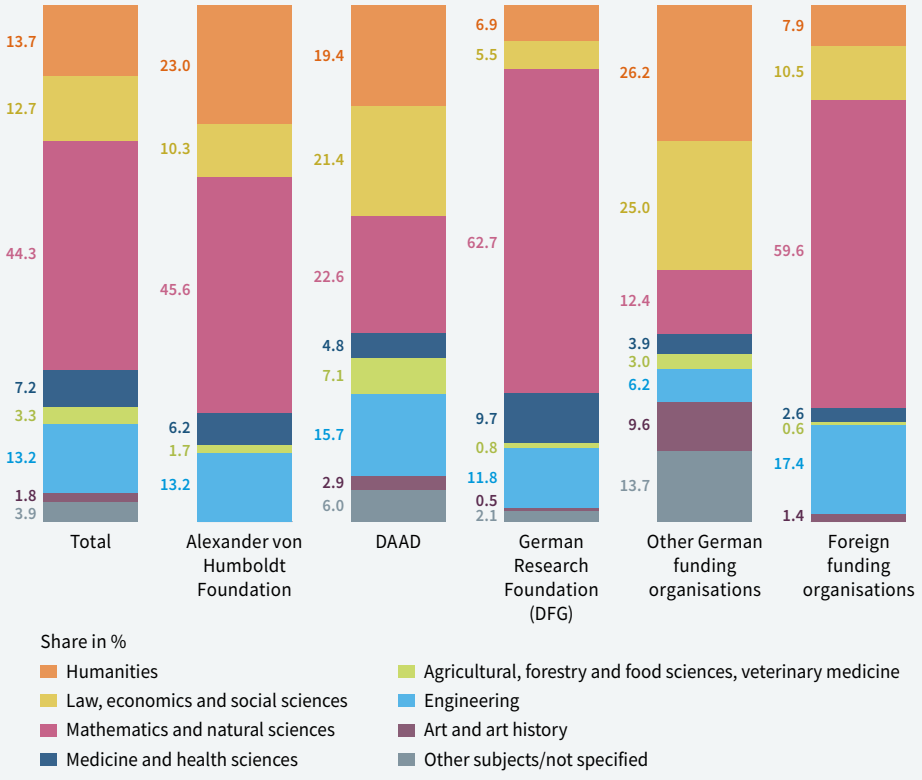
Clear distinctions can be drawn between the various funding organisations in terms of the specialist areas of the sponsored academics and researchers. At the DFG and foreign funding organisations, the shares of academics and researchers in the natural sciences, 63% and 60% respectively, are remarkably high. By contrast, the smaller German funding organisations typically support the humanities (26%), as well as law, economics and social sciences (25%) to a greater degree. At 17%, foreign funding organisations sponsor the highest proportion of engineering academics and researchers.

D3.4 Guest researchers from abroad in Germany, by key countries of origin, since 2012



Source: DZHW survey, data provided by funding organisations

D3.5 Funded visits undertaken by guest researchers from abroad in Germany, by funding organisation and subject group, in 2022[3]



Source: DZHW survey, data provided by funding organisations; DZHW calculations

Footnotes

1 With the exception of EU funding under the Marie Skłodowska-Curie actions, foreign funding organisations generally sponsor visits to Germany by guest researchers from their respective countries of location.

2 Total funded guest researchers from abroad in Germany: 30,068 (including 650 guest researchers who cannot be assigned to any region of origin).

3 Deviations from 100% are due to rounding.

4 Unlike previous editions of *Wissenschaft weltoffen*, the countries of origin Greece and Cyprus have been included in the region of origin of Central and South Eastern Europe and not Western Europe as before.

3.3 Guest researchers from abroad in Germany at non-university research institutes

Internationalisation processes at the non-university research institutes (NURI) are not limited to the employment of foreign academics and researchers, but also include temporary research visits by guest researchers from other countries. Some of these visits are sponsored by institutions other than NURI, whereas a significant percentage of these temporary visits are facilitated by NURI themselves by awarding scholarships or other funding. Data on guest researchers from abroad whose visits are financed by the NURI have improved considerably in recent years. Above all, the Max Planck Society and the Helmholtz Association – and the Leibniz Association to a lesser extent – now have robust data on funded visits by guest researchers from abroad to their institutes and on the projects they undertook.

In 2022, the Max Planck Society and the Helmholtz and Leibniz Associations together funded the visits to Germany of around 8,700 guest researchers from abroad. Compared to the previous year, this equates to roughly 1,800 or 26% more sponsored visits. Nevertheless, this uptick by no means compensates for the steep decline in the number of grants by as many as 5,000 guest researchers between 2019 and 2020.[1] The Helmholtz Association accounts for approximately 4,500 (+8%), the Leibniz Association for 3,100 (+80%) and the Max Planck Society for around 1,100 (+10%) guest researchers.[2] With regard to contractually employed academic staff, this means that, in 2022, the Max Planck Society funded one guest researcher for every ten salaried researchers, while the Helmholtz Association funded one guest researcher for every five salaried researchers.[3] The ratio at the Leibniz Association was a remarkable three to one.

In 2022, all three research institutes recorded the region of origin of their guest researchers from abroad. Both the Helmholtz and the Leibniz Associations tended to sponsor academics and researchers from European countries. In total, 39% and 38% respectively of their guest researchers were from EU countries, with 13% and 18% respectively from other European countries. Academics and researchers from Asia also figured prominently, representing 35% and 15% respectively of all funding recipients. China (17%) topped the list of countries at the Helmholtz Association, followed by India (8%), Italy, France and Sweden (6% each). The key countries at the Leibniz Association were the US (17%), France and the United Kingdom (10% each), Italy (6%) and China (4%).

The Max Planck Society also frequently sponsored temporary visits by guest researchers from European countries, with 19% from EU countries and 18% from other European countries. However, the funding extended to academics and researchers from Asia is particularly important, accounting for 37%. 12% of guests hailed from North America and 11% from Latin America. China is the leading

Fraunhofer-Gesellschaft

The Fraunhofer-Gesellschaft can provide information on guest researchers from abroad who spent time in Germany as part of a central funding programme. These figures cannot be compared with the funding data of the other NURI as they include funding from the individual member institutes. In connection with the central funding programme, visits undertaken by 19 postdocs from abroad were sponsored by the Fraunhofer-Gesellschaft in 2022. Exclusively working in mathematics and natural sciences, these academics and researchers spent between six and twelve months in Germany. 14 of them came from Asian countries, mostly India.

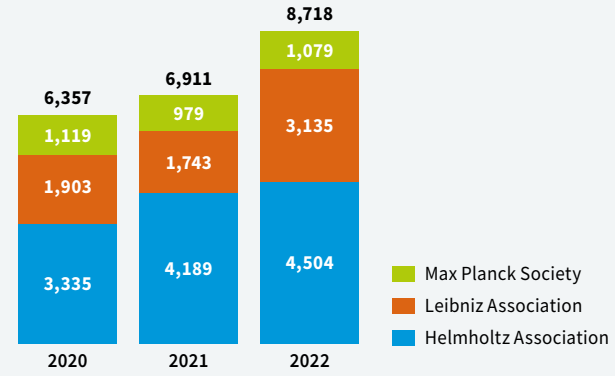
D3.6 Guest researchers from abroad whose visits to Germany were funded by the Helmholtz and Leibniz Associations and the Max Planck Society, by region and country of origin, in 2022

	Helmholtz Association	Leibniz Association	Max Planck Society
Regions of origin	Share in %		
EU (excluding Germany)	39.0	37.5	18.9
Rest of Europe	12.7	18.0	17.5
North America	3.6	19.6	11.8
Latin America	5.0	4.7	10.9
Asia	34.8	15.3	37.3
Africa	3.6	3.8	2.5
Australia and Oceania	0.6	1.1	1.0
Not specified	0.6	0.0	0.0
Total	**100.0**	**100.0**	**100.0**

Helmholtz Association			Leibniz Association			Max Planck Society		
Countries of origin	Number	Share in %	Countries of origin	Number	Share in %	Countries of origin	Number	Share in %
China	745	16.5	US	544	17.4	China	151	14.0
India	338	7.5	France	327	10.4	India	122	11.3
Italy	272	6.0	UK	303	9.7	US	110	10.2
France	254	5.6	Italy	176	5.6	Ukraine	72	6.7
Sweden	246	5.5	China	134	4.3	Russia	48	4.4
Other countries	2,649	58.8	Other countries	1,651	52.7	Other countries	576	53.4
Total	**4,504**	**100.0**	**Total**	**3,135**	**100.0**	**Total**	**1,079**	**100.0**

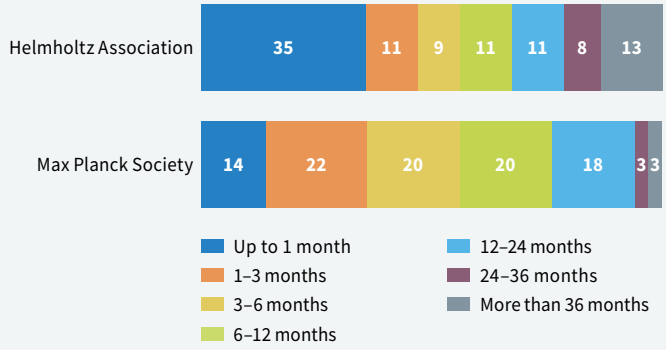
Source: DZHW survey, data provided by non-university research institutes; DZHW calculations

D3.7 Guest researchers from abroad whose visits to Germany were funded by the Helmholtz and Leibniz Associations and the Max Planck Society, since 2020



Source: DZHW survey, data provided by non-university research institutes

D3.8 Guest researchers from abroad whose visits to Germany were funded by the Helmholtz Association and the Max Planck Society, by visit duration, in 2022[4]



Share in %

Source: DZHW survey, data provided by non-university research institutes; DZHW calculations

country of origin with 14% of all guest academics and researchers, followed by India (11%) and the US (10%).

The Max Planck Society and the Helmholtz Association have also published data on the subject groups of guest researchers from abroad in 2022. In both research institutes, the largest group of international guest researchers were mathematicians and scientists, making up 55% and 44% respectively. Meanwhile, at the Max Planck Society, 25% were active in the disciplines of law, economics and social sciences and 16% in medicine and health sciences. Thus, compared to the international academics and researchers contractually employed by the Max Planck Society, the subject groups of medicine and health sciences plus law, economics and social sciences play a much more significant role for guest researchers, while mathematics and natural sciences figure less prominently (see pp. 90/91).

Information on visit duration is also available for the Max Planck Society and the Helmholtz Association. In 2022, the Helmholtz Association chiefly funded shorter visits by guest researchers from abroad – some 46% of visits were three months or less – whereas longer visits played a greater role at the Max Planck Society. 38% of the guest visits it sponsored lasted between six months and two years.

Footnotes

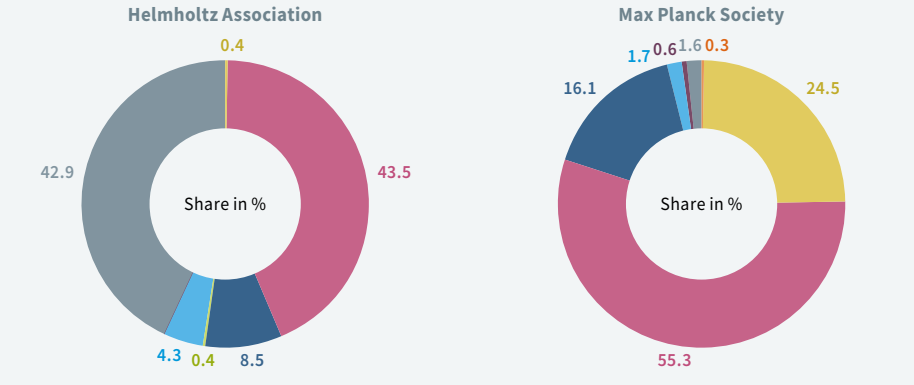
1 The 2022 funding data for non-university research institutes, particularly the Max Planck Society, can only be compared to a limited extent with the figures for years prior to 2020 due to changes in the way in which they are collected.

2 For 2022, the Max Planck Society indicates an additional 2,394 visits by guest researchers, which were financed by other institutes (whether international or German).

3 When evaluating these data, it should be noted that, since 2015, the Max Planck Society has given doctoral students (including international doctoral candidates) fixed-term contracts, thus they are no longer financed by scholarships.

4 Deviations from 100% are due to rounding.

D3.9 Guest researchers from abroad whose visits to Germany were funded by the Helmholtz Association and the Max Planck Society, by subject group, in 2022



Source: DZHW survey, data provided by non-university research institutes; DZHW calculations

3.4 Erasmus guest lecturers

Temporary visits abroad by guest lecturers also receive funding under the European Union's Erasmus+ Programme. These guest lectureships in Europe can last between two and sixty days. Funding includes teaching visits by academic staff and professors from universities and research institutes as well as business entrepreneurs. Participants in this programme do not necessarily have to be nationals of the sending country and foreign academic staff at universities in the sending country can also take part. It is therefore possible for some Erasmus guest lecturers in Germany to be German citizens, although this percentage is likely to be very small.

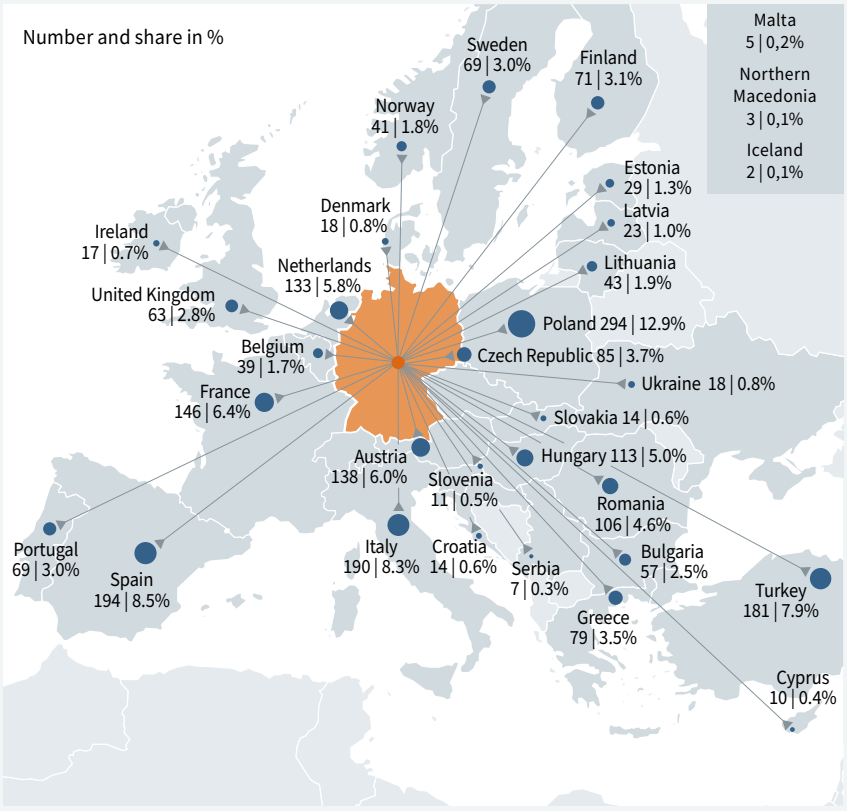
> "The number of Erasmus guest lecturers snowballed by 137% over the course of one year.

During the 2022 funding period[1], a total of 2,282 Erasmus guest lecturers came to Germany on teaching visits, a year-on-year increase of 1,300 or 137%. This tremendous hike practically cancels out the downturn in Erasmus visits to Germany by guest lecturers in 2020, the first year of the pandemic. The 2022 figures are now merely 9% below those for 2019.

29% of Erasmus guest lecturers – the largest group – came from countries in Central and Eastern Europe, followed by 20% from Southern Europe, 19% from South Eastern Europe and 17% from Western Europe. The share of guest lecturers from Northern Europe was 9%, with Central Western Europe bringing up the rear at 6%. Despite Covid-19, which was still making its impact felt in 2022, there was no significant change in the size or respective proportions of the groups from these regions. Poland is the key country of origin for Erasmus guest lecturers in Germany, alone accounting for 13%. Spain (9%) is in second place, while Italy, Turkey (8% each), France, Austria and the Netherlands (6% each) also continue to play a crucial role. Compared to the 2021 funding period, the number of participants from all key countries of origin have seen a marked increase, most notably in Italy (+245%), France (+115%), Spain (+169%) and Turkey (+166%).

With a share of 35%, most foreign Erasmus guest lecturers in Germany are found in the arts and humanities.[3] 14% each belong to the groups

D3.10 Erasmus guest lecturers in Germany, by region and country of origin, in 2022[1, 2]



Regions of origin	Number	Share in %
Central Eastern Europe	651	28.5
Southern Europe	458	20.1
South Eastern Europe	436	19.1
Western Europe	398	17.4
Northern Europe	201	8.8
Central Western Europe	138	6.0
Total	**2,282**	**100.0**

Source: DAAD, Erasmus statistics

Footnotes

1 Erasmus statistics until 2014: the respective funding period starts in the winter semester and ends in the summer semester of the following year (e.g. 2014 = WS 2013/14 and SS 2014). Erasmus+ statistics from 2015 to 2021: the funding period starts on 1 June of the previous year and ends on 31 May of the following year (e.g. 2021 = 1 June 2020 to 31 May 2022). Erasmus+ statistics from 2022: due to a restructuring of the programme, the funding period is 26 months and starts on 1 June of the previous year and ends on 31 July of the following year. The start of the first funding period after the programme restructuring was delayed, therefore the visits in the period from 1 September 2021 until 31 October 2023 are shown here in the 2022 funding period.

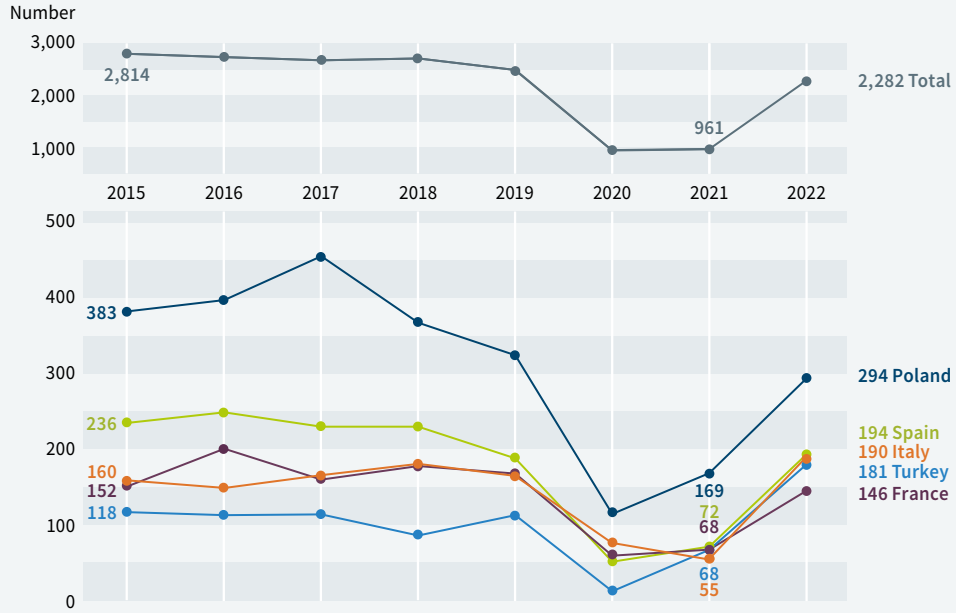
2 In the 2022 funding period, visits by guest lecturers from Ukraine were financed for the first time. They were included in the region of Central Eastern Europe.

3 Data on Erasmus guest lecturers by subject group are only available using the ISCED classification system.

of business, administration and law plus engineering, manufacturing and construction. Social sciences, journalism and information make up 10% and education 8%, whereas natural sciences, mathematics and statistics plus health and welfare each account for 6%. By contrast, the remaining subject areas are relatively immaterial. Compared to German Erasmus guest lecturers who go abroad for a temporary visit, there are no significant differences in the distribution of subject groups (see pp. 112/113).

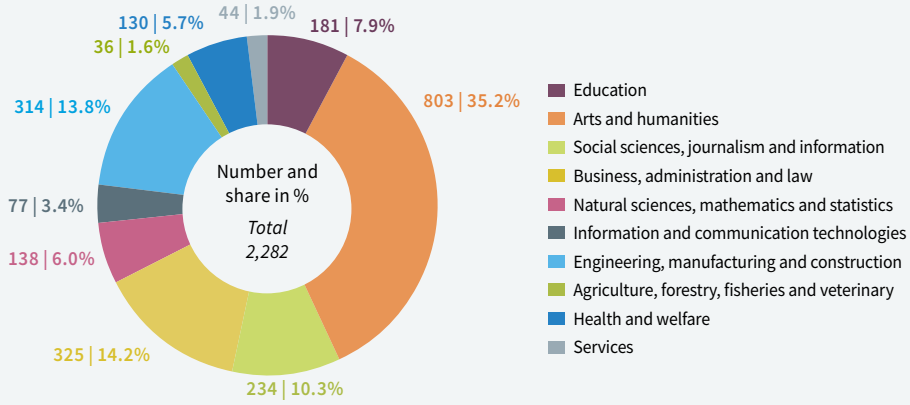
Although Erasmus guest lectureships can last up to two months, lecturers in Germany only stayed between five and six days on average. This figure is roughly the same as the previous year. The longest average visit can be observed among Erasmus guest lecturers from Ukraine (27 days) and Slovenia (10 days); it should be noted, however, that these countries report comparatively small participant numbers. By contrast, guest lecturers from Malta, Austria and the Netherlands only spent between three and four days in Germany on average.

D3.11 Erasmus guest lecturers in Germany, by key countries of origin, since 2015[1]



Source: DAAD, Erasmus statistics

D3.12 Erasmus guest lecturers in Germany, by subject group, in 2022[1, 3]



Source: DAAD, Erasmus statistics

D3.13 Erasmus guest lecturers in Germany, by country of origin and average visit duration, in 2022[1]

Countries of origin	Duration Ø Days
Ukraine	27.3
Slovenia	10.3
Croatia	6.4
Czech Republic	6.1
Norway	6.0
Italy	5.8
Romania	5.7
Iceland	5.5
United Kingdom	5.5
Slovakia	5.4
Spain	5.4

Countries of origin	Duration Ø Days
Hungary	5.3
Turkey	5.3
Greece	5.2
Ireland	5.2
Denmark	5.1
Northern Macedonia	5.0
Portugal	5.0
Estonia	4.9
Bulgaria	4.9
Poland	4.9
Sweden	4.8

Countries of origin	Duration Ø Days
Cyprus	4.8
Finland	4.6
France	4.6
Serbia	4.6
Latvia	4.6
Belgium	4.4
Lithuania	4.2
Netherlands	3.9
Austria	3.7
Malta	3.4
Total	**5.9**

Source: DAAD, Erasmus statistics

E GERMAN ACADEMICS AND RESEARCHERS ABROAD

1 German academics and researchers at foreign universities

1.1 Contractually employed academic staff

Only very few countries currently record the number, origin and status of international academics and researchers employed at their universities. Data of this kind are only available to some extent for the United Kingdom, the Netherlands, Austria and Switzerland. Data are missing for countries such as Sweden, France, Australia or even Spain, the US and Canada, where it may be assumed that there are a great many German academics and researchers (see pp. 102/103), given the large number of doctoral students from Germany. Moreover, there are considerable differences in how the countries listed above collect data.[1]

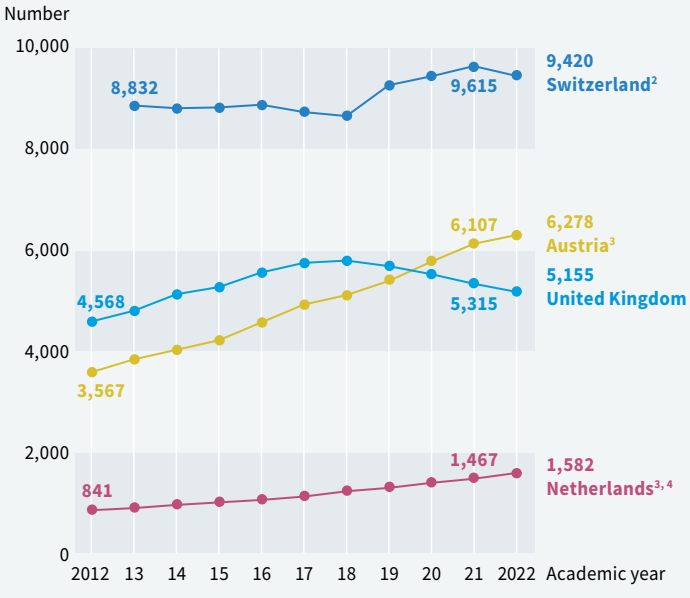
Many factors determine whether the number of international academics and researchers working in a country is large or small. These factors include the size, attractiveness and structure of the academic and higher education systems; access and employment opportunities, including the development of academic labour markets, as well as cultural and linguistic aspects. In the countries covered here, by far the most German academics and researchers are employed at universities in neighbouring Switzerland. Numbering no less than 9,400[2] in 2022, the vast majority of over 80% work at universities in the German-speaking cantons. Universities in Austria come second, with approximately 6,300[3] German academics and researchers, followed by the United Kingdom, with roughly 5,200 German academics and researchers. Their direct proximity to Germany and a common language are likely to be important factors for the attractiveness of Switzerland and Austria. In 2022, approximately 1,600[3, 4] German academics and researchers were working at universities in the Netherlands.

> “The number of German academics and researchers in the Netherlands has jumped by 42% since 2017.

Although the number of German academics and researchers at Swiss universities rose by 10% between 2017 and 2021, there was a decrease of 2% the following year. Meanwhile, the number of staff from Germany in the United Kingdom has fallen even more noticeably, by 11%, after peaking in 2018. This may be a consequence of the United Kingdom's withdrawal from the European Union. On the other hand, the numbers of German academics and researchers at both Austrian and Dutch universities have shot up by 28% and 42% respectively over the last five years. More German academics and researchers are now currently employed at universities in Austria than in the United Kingdom.

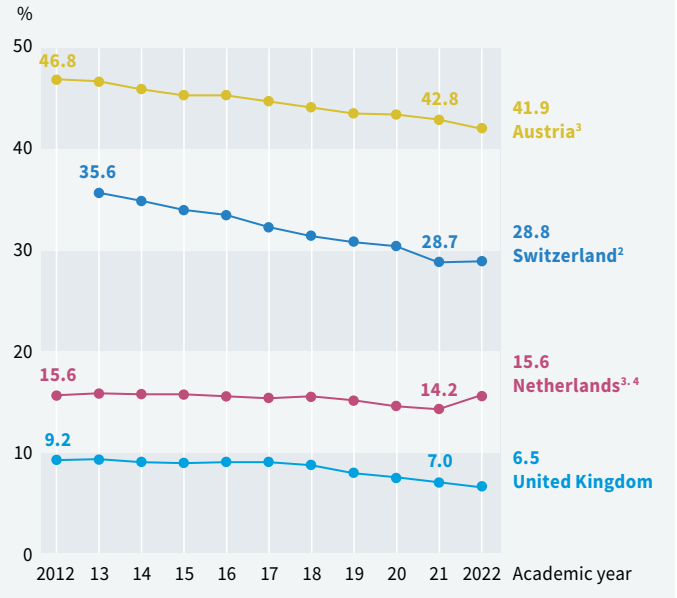
In addition to the number of German academics and researchers at universities in other countries, their share of all international academics and researchers is also a revealing criterion for their success on academic labour markets. The highest proportion of German academics and researchers (42%) is found at Austrian universities,[3] where they account for 14% of all academics and researchers. However, since

E1.1 German academic staff at universities in selected host countries, since 2012



Sources: Data provided by the respective statistical offices

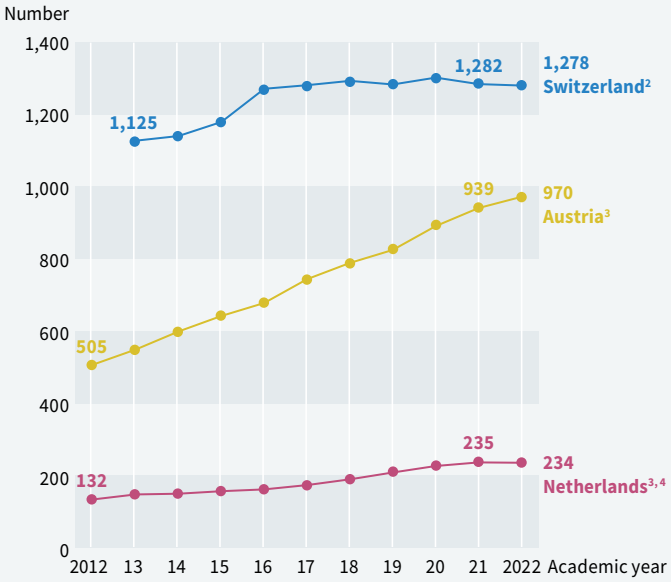
E1.2 Share of German academic staff of the total international academic staff at universities in selected host countries, since 2012



Share in %

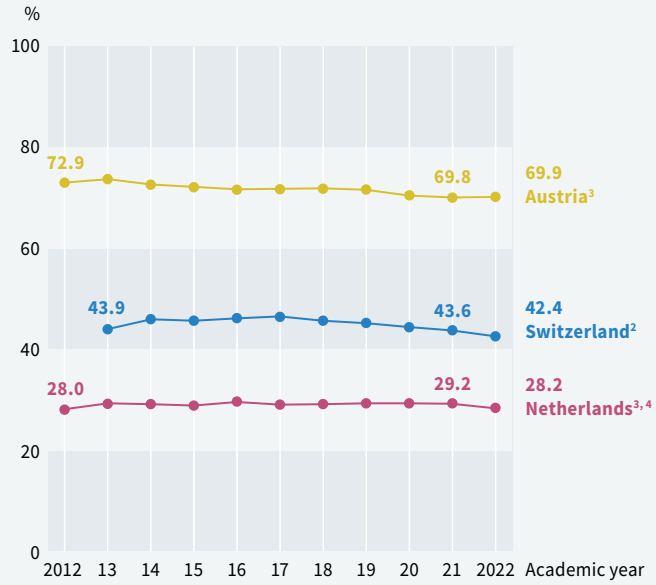
Sources: Data provided by the respective statistical offices; DZHW calculations

E1.3 German professors at universities in selected host countries, since 2012



Source: Data provided by the respective statistical offices

E1.4 Share of German professors of all international professors at universities in selected host countries, since 2012



Share in %

Source: Data provided by the respective statistical offices; DZHW calculations

2017, they have dropped back by roughly two and a half percentage points as a proportion of all international academics and researchers; at the same time, the share of international academic staff of all academics and researchers rose by some six percentage points to 33%. In Switzerland, too, German academics and researchers account for a substantial share (29%[2]), although this figure has also declined by around three percentage points since 2017. They thus represent 13% of all academics and researchers at Swiss universities, with a total share of international academic staff of 45%. Furthermore, 16%[3, 4] of all international academics and researchers at universities in the Netherlands and approximately 7% at universities in the United Kingdom are German nationals, two and a half percentage points below the 2017 level. Overall, the share of international academic staff stands at 38% in the Netherlands and 33% in the United Kingdom.

The number of German professors abroad corresponds to that of German academics and researchers. For 2022, Switzerland leads the field with 1,278[2] German professors, followed by Austria with 970.[3] Some 234[3, 4] German professors teach and conduct research at Dutch universities. While these figures have been dwindling slightly in Switzerland since 2017, Austria (+31%) and the Netherlands (+36%) have continued to make substantial gains.

> “Some 1,278 German professors teach at Swiss universities.

Furthermore, in each of the above countries, the share of German professors also exceeds that of German academics and researchers. Professorships advertised there are evidently very attractive to German academics and researchers, who can hold their own against international competition. German professors make up the highest share of all international professors in Austria, at 70%,[3] and 42%[2] in Switzerland, with the Netherlands trailing behind at 28%.[3, 4] Over the last five years, the share has declined slightly, by one to four percentage points, in all three countries. While this figure has dropped by about four percentage points at universities in both Austria and Switzerland over the last five years, it has scarcely fluctuated at universities in the Netherlands.

Footnotes

1 Some figures are only available for universities but not for other types of higher education institutions; moreover, the understanding of the terms “academic and researcher” and “professor” differs considerably.

2 Data do not specify members of university administration.

3 Data from the Netherlands and Austria refer to universities only.

4 Not including information from seven of the eight medical training centres in the Netherlands, plus estimated figures for Utrecht University (2016–2022), Vrije Universiteit Amsterdam (2019–2022), the University of Amsterdam (2017) and the Open Universiteit (2021–2022).

1.2 Doctoral students

Overall, approximately 14,200 German doctoral students were documented at foreign universities for 2021/22,[1] roughly equivalent to the figure of previous years. Although this does not cover all German doctoral students, it includes the majority. Of the key countries in which it may be assumed that a significant number of German students are enrolled at universities, relevant data are only missing for China. Most German doctoral students were enrolled at universities in Switzerland (2022: around 3,300), Austria (2021: around 2,500), the United Kingdom (2021: around 1,700) and the US (2022: around 1,200). German doctoral candidates in Switzerland alone account for approximately 24% of all German doctoral students abroad. The regional and linguistic proximity to Germany, excellent conditions for research at renowned universities and attractive remuneration are likely to be the most important factors in Switzerland's popularity as a host country for German doctoral students. The four countries at the top of the doctoral ranking together account for no less than three fifths (62%) of all German doctoral students abroad. Also of no small importance is the Netherlands, with around 900 German doctoral students, Sweden and Australia with around 500 doctoral students each, as well as France and Spain, with around 400 doctoral students each. In total, 81% of all German doctoral students abroad are based in these nine countries, while the remaining 19% are spread across a further 26 countries.

> "Since 2016, the number of German doctoral candidates in the United Kingdom has tumbled by 31%.

Broken down by region, the overwhelming majority (79%) of doctoral students from Germany conduct research in Western Europe, with 11% in North America, 7% in Central and South Eastern Europe and 4% in Australia and Oceania. The regional distribution of German doctoral candidates abroad thus closely resembles the distribution of all German students abroad. Here again, Switzerland, Austria, the United Kingdom and the US are among the most popular countries (see pp. 64/65). It can therefore be assumed that a fair number of German students who are awarded a master's degree abroad remain at the same university, or at least in the same country, for their doctorate. One exception is the Netherlands,

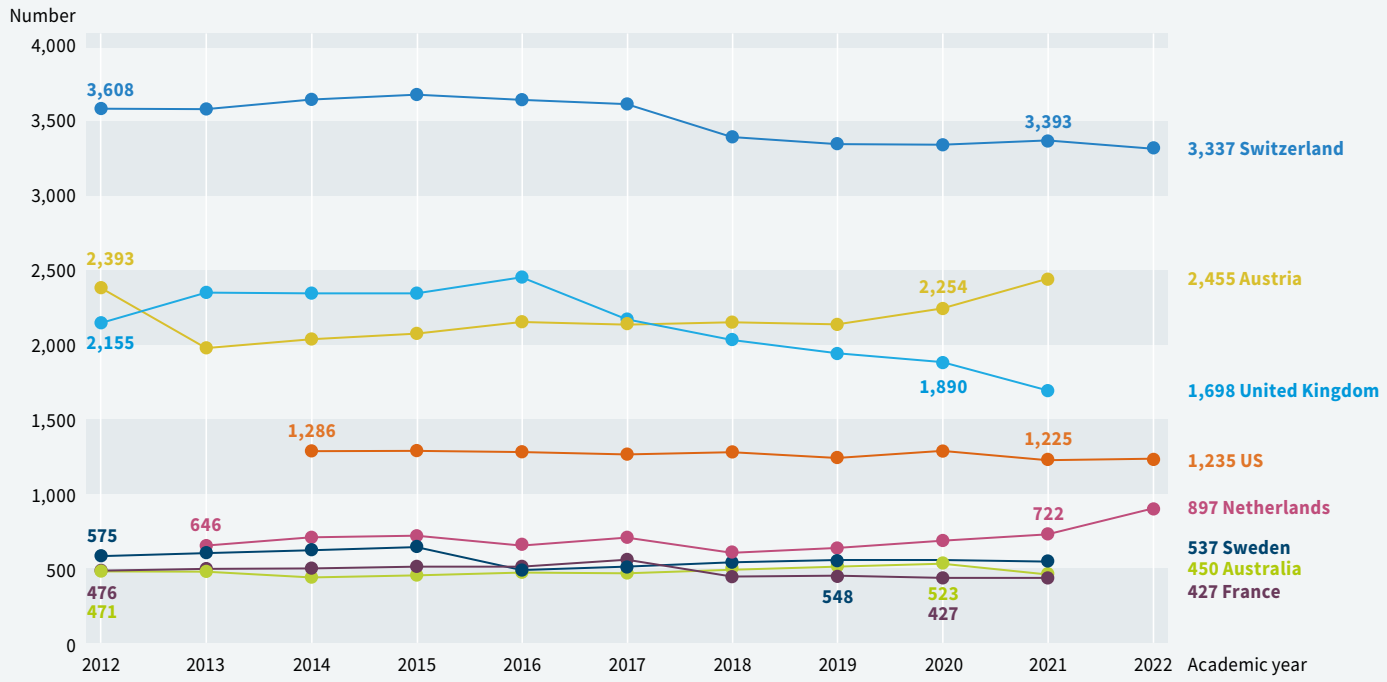
E1.5 German doctoral students at universities in selected host countries, in 2021/2022[1]

Host countries	Reference year	Number	Share of all doctoral students in %	Share of all German students in the country in %
Switzerland	2022	3,337	23.5	26.7
Austria	2021	2,455	17.3	6.8
UK	2021	1,698	12.0	15.3
US	2022	1,235	8.7	11.9
Netherlands	2022	897	6.3	3.5
Sweden	2021	537	3.8	22.7
Australia	2021	450	3.2	48.2
France	2021	427	3.0	9.4
Spain	2021	406	2.9	18.4
Denmark	2020	361	2.5	12.8
Canada	2020	342	2.4	24.3
Czech Republic	2020	243	1.7	25.5
Norway	2021	239	1.7	32.8
Slovakia	2021	228	1.6	25.1
Finland	2021	178	1.3	36.8
Ireland	2021	156	1.1	18.8
Turkey	2022	122	0.9	2.7
Italy	2021	90	0.6	6.6

Host countries	Reference year	Number	Share of all doctoral students in %	Share of all German students in the country in %
Bulgaria	2022	89	0.6	4.9
Portugal	2021	84	0.6	3.1
Liechtenstein	2021	81	0.6	37.2
New Zealand	2022	76	0.5	55.9
Japan	2020	65	0.5	12.0
Romania	2022	57	0.4	3.3
Hungary	2022	52	0.4	1.6
Israel	2021	52	0.4	33.1
Belgium	2021	51	0.4	10.9
Poland	2021	37	0.3	2.6
Iceland	2022	31	0.2	17.2
Latvia	2021	28	0.2	2.8
Greece	2020	25	0.2	2.0
Estonia	2021	24	0.2	26.7
Russia	2019	16	0.1	6.3
Brazil	2021	13	0.1	5.1
Lithuania	2022	5	0.0	0.9
Total		**14,187**		**8.8**

Sources: Federal Statistical Office, "Deutsche Studierende im Ausland" survey; OECD; US Department of Homeland Security, SEVIS data (Student and Exchange Visitor Information System)

E1.6 German doctoral students abroad, by selected host countries, since 2012[1]



Sources: Federal Statistical Office, "Deutsche Studierende im Ausland" survey; US Department of Homeland Security, SEVIS data (Student and Exchange Visitor Information System)

where a large number of German students enrol at universities, but not for a doctorate. One possible reason is that most of these students are on bachelor's programmes, while German nationals make up only a comparatively small percentage of master's students in the country (see Fig. C1.6 on p. 67).

In addition to the number of German doctoral students at universities in other countries, considering German doctoral candidates as a share of all German students and doctoral students in a given country also sheds light on their geographical distribution, where other countries come to the fore: New Zealand (56%) is in first place, followed by Australia (48%), Liechtenstein and Finland (37% each), with Israel and Norway (33% each) bringing up the rear. By contrast, despite the relatively high number of German doctoral students in Austria, they account for just 7% of all German students and doctoral candidates in the country.

Footnote

1 The numbers of German doctoral students abroad were primarily taken from the current survey of "Deutsche Studierende im Ausland" conducted by the Federal Statistical Office. This was supplemented by data from OECD statistics and the Student and Exchange Visitor Information System of the US Department of Homeland Security to factor in current data from other host countries (including the US, Estonia, Italy, the Netherlands and Slovakia). In some cases, the data for the various host countries refer to different years.

Compared to the previous year, the number of German doctoral students abroad has barely changed. In some cases, there are striking differences between the various countries with regard to the development in the number of doctoral candidates, however. A steeper decline can be observed in German doctoral students in Italy (–46%), New Zealand (–26%) and Hungary (–21%). Then again, Greece (+150%), Bulgaria (+37%), Belgium (+34%), Slovakia (+33%) and Canada (+30%) reported significant gains in the number of doctoral students from Germany. Looking at the long-term trend in numbers of German doctoral students in major host countries, a slowdown became apparent between 2016 and 2021 or 2022, first and foremost in the United Kingdom (–31%), but also in France (–15%) and Switzerland (–9%). During the same period, the number of German doctoral students went up in the Netherlands (+39%), Austria (+14%) and Sweden (+12%). Nevertheless, in all countries for which data since 2012 are available, the number of German doctoral students has maintained a relatively high level of continuity, while all fluctuations remain within narrow limits. This means that no significant changes can be observed in the essential regional distribution of German doctoral students abroad over the years.

1.3 Doctoral students with temporary doctoral-related visits abroad

Just as for other students, doctoral students exhibit two types of international mobility: firstly, those spending their entire doctoral period abroad, including the examination process and, secondly, those undertaking doctoral-related temporary visits abroad while working on a doctorate in Germany.[1] The Federal Statistical Office and international organisations regularly provide current data on the degree-related international mobility of German doctoral students (see pp. 102/103). However, representative surveys are still needed to obtain information on temporary mobility.

According to the National Academics Panel Study (Nacaps) conducted by the DZHW, 31% of all doctorate holders who were awarded a doctorate between 2020 and 2023 had completed at least one doctoral-related temporary visit abroad while studying for their doctorate. There are clear variations between the subject groups, however. Above-average proportions of doctoral holders with doctoral-related experience abroad can be found in the humanities (48%) and art and art history (46%). Among other reasons, this is due to the fact that many doctoral topics in the humanities, especially in the subjects of linguistics, literature and cultural studies, refer to other cultures. This thematic orientation is also a characteristic feature of doctorates in art history. Above-average shares of doctoral holders undertaking doctoral-related visits abroad are also encountered in mathematics and natural sciences (37%) and law, economics and social sciences (34%). In contrast, a relatively small percentage of doctoral holders with experience abroad are recorded in engineering (27%) as well as in medicine and health sciences (10%). Most importantly, doctorates in medical subjects are typically undertaken in parallel with specialised medical training, which limits the opportunities for doctoral visits abroad. Finally, just 24% of doctorate holders in agricultural, forestry and food sciences, and veterinary medicine spent time abroad.

Methodology

Data on the temporary international mobility of doctoral students at German universities were collected as part of the DZHW's National Academics Panel Study (Nacaps). The data refer to former doctoral students who were awarded their doctorate between 2020 and 2023. The information they provided on doctoral-related visits abroad only refers to the period during which they wrote their dissertation. Nacaps is a regular, nationwide survey of doctoral students from 57 German universities that are entitled to confer doctorates.

Some 46% of temporary visits abroad undertaken by doctorate holders who were awarded a doctorate by a German university between 2020 and 2023 took place in Western Europe. Other major host regions were North America (19%) plus Asia and Pacific (12%). By contrast, the world regions of Sub-Saharan Africa, Central and South Eastern Europe (6% each), Latin America (5%), North Africa and Middle East (4%) plus Eastern Europe and Central Asia (3%) did not figure prominently. The key host country for doctorate holders was the US, where 16% of all doctoral-related temporary visits took place. Other major host countries are the United Kingdom (8%), France (6%), Italy and Switzerland (5% each), with Austria and the Netherlands (4% each) hot on their heels. Along with Canada, Japan and Spain (3% each), these countries account for more than half of all doctoral-related visits abroad undertaken by those who obtained their doctorate between 2020 and 2023. Thus, most visits abroad were completed in countries that are economically and scientifically advanced, which clearly offered excellent conditions for the research work carried out by the doctorate holders.

E1.7 Doctorate holders who obtained their doctorate between 2020 and 2023, with temporary doctoral-related visits abroad, by subject group

Subject group	Internationally mobile doctorate holders in %
Humanities	48
Art and art history	46
Mathematics and natural sciences	37
Law, economics and social sciences	34
Engineering	27
Agricultural, forestry and food sciences, veterinary medicine	24
Medicine and health sciences	10
Total	**31**

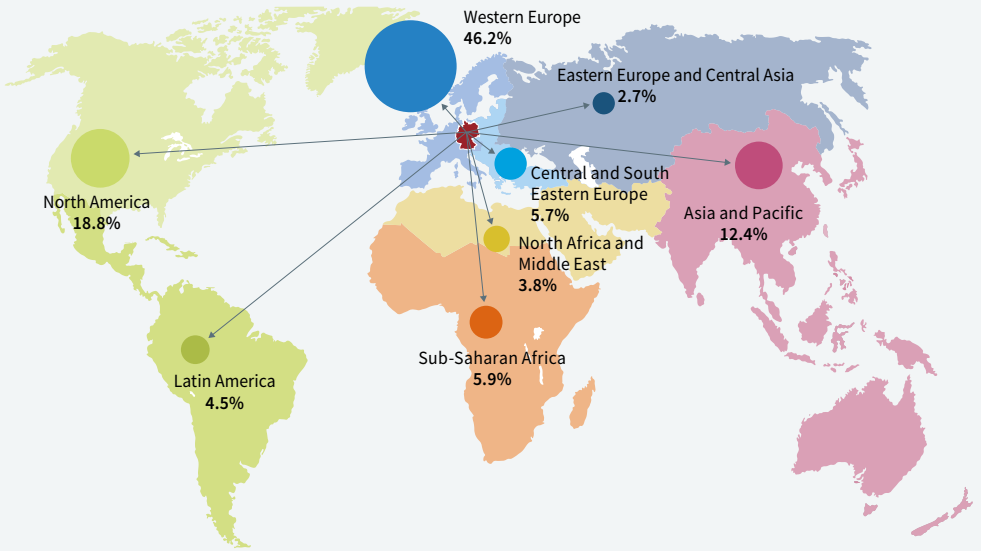
Source: DZHW, National Academics Panel Study (Nacaps)

Footnotes

1 See also Netz/Hampel (2019).

2 The share of doctorate holders completing a doctoral-related visit abroad has been determined for those cohorts who were awarded a doctorate between 2019 and 2022 (see *Wissenschaft weltoffen 2023*, p. 110). They also scored a quota of 31% internationally mobile doctorate holders. This comes as no surprise, given the overlap in the cohorts. By the same token, this finding also indicates that there will be no significant change in the following cohort.

E1.8 Temporary doctoral-related visits abroad undertaken by doctorate holders who were awarded a doctorate by German universities between 2020 and 2023, by host region and key host countries



Key host countries	Share in %
US	15.5
United Kingdom	8.0
France	6.2
Italy	5.3
Switzerland	4.8
Austria	3.5
Netherlands	3.5
Canada	3.4
Japan	3.3
Spain	3.2
Australia	2.7
China	2.2

Source: DZHW, National Academics Panel Study (Nacaps)

The share of doctorate holders with doctoral-related visits abroad remains unchanged in recent years.[2] Internationally non-mobile doctorate holders who account, as before, for 69% of all doctorate holders chiefly abstained from spending time abroad because they did not want to be separated from their partners, children or friends. Almost half of the non-mobile doctoral students (46%) gave this as the reason. Financial difficulties (35%), problems in finding a position abroad (32%) and, correspondingly, the lack of advisory and support services (31%) were other significant obstacles. Moreover, 25% of the respective doctorate holders felt they stood to gain insufficient personal benefit from visits abroad, while 23% cited a lack of motivation. A mere 12% considered their inadequate language skills to be a material impediment. Lastly, concern about losing contact with their academic network in Germany (9%), health issues (7%) and cultural differences (4%) were of little account.

E1.9 Obstacles to doctoral-related visits abroad among doctorate holders who were not internationally mobile and obtained a doctorate between 2020 and 2023

Obstacles	Not internationally mobile doctorate holders in %
Separation from partner, children or friends	46.0
Financial difficulties	34.8
Problems finding a suitable position abroad	32.4
Lack of advisory and support services	30.8
Insufficient personal benefit	24.5
Lack of motivation	22.8
Inadequate language skills	12.3
Loss of contact with academic network in Germany	8.5
Health issues	6.7
Cultural difficulties	4.3

Source: DZHW, National Academics Panel Study (Nacaps)

2.1 Mobility trends, funding organisations and funded groups

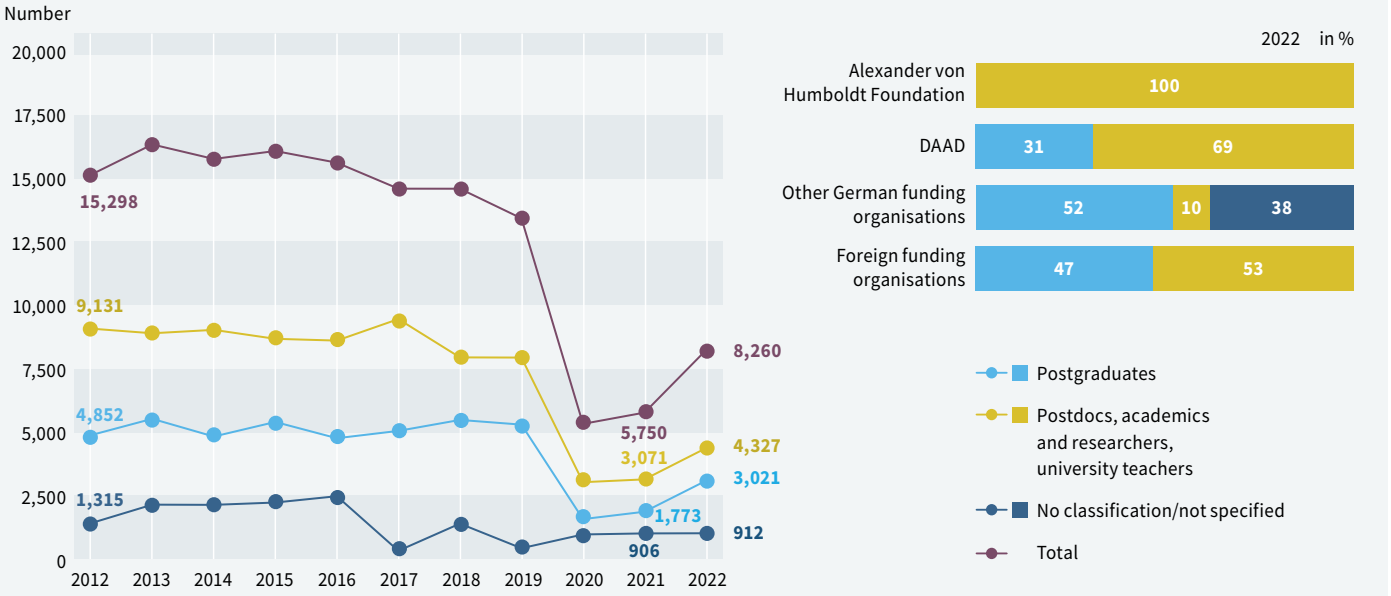
In 2022, domestic and foreign organisations funded a total of around 8,300 visits abroad undertaken by guest researchers from Germany.[1, 2] Guest researchers refer to individuals working in Germany as academics and researchers, but who receive financial support to spend a limited period abroad in order to teach and research at a foreign university or research institute without occupying a specific post. Although the data collected on mobility funding do not represent a complete analysis of German funding organisations, they cover the majority of sponsored visits abroad undertaken by guest researchers from Germany.[3] With regard to funding provided by foreign organisations, however, the data so far only represent a small section of the funding activities carried out by a few countries.

> “ In 2022, the number of funded visits abroad undertaken by guest researchers from Germany rose by 44% year-on-year.

The number of sponsored visits abroad by guest researchers from Germany is still substantially lower than the corresponding number of grants awarded to guest researchers from abroad in Germany (see pp. 92/93). Although they were almost back to 2019 levels in 2022, when Covid-19 was still making its influence felt, and the number of guest researchers abroad increased by 2,500 visits or 44% year-on-year, it still only reached 61% of the figure for the pre-pandemic year 2019. Global mobility restrictions evidently made visits abroad even more difficult for academics and researchers from Germany than it was, by the same token, for academics and researchers to enter Germany. Nonetheless, it should not be forgotten, firstly, that the smaller number of grants awarded to academics and researchers from Germany may also be attributed to the incomplete records of both German and foreign funding organisations, including the missing information for the Marie Skłodowska-Curie actions in 2021. Secondly, the data for the German Research Foundation (DFG) only document sponsored visits abroad undertaken by guest researchers from Germany who received funding in the form of research fellowships. Lastly, several German funding organisations only support visits to Germany by international academics and researchers.

There was no significant change in the prominence of individual funding organisations. The DAAD continues to sponsor the majority of visits by guest researchers from Germany (68%). Moreover, the sharp rise in funded visits abroad is largely thanks to the DAAD, which expanded its funding activities by 51% in 2022, compared to the previous year.[4] By contrast, the share of visits funded by the DFG totalled approximately 8%, whereby the number of grants issued decreased by a further 7% in 2022, after falling 10% the year before. Another 24% of visits abroad were sponsored by smaller German funding organisations and less than 1% by the foreign organisations presented here. Most of these organisations recorded a significant, year-on-year increase in their funding activities; in many cases, they financed more than double the number of visits abroad in 2021. In this regard, the Heinrich-Böll-Stiftung (+886%), the Hans Böckler Foundation (+544%), the Friedrich Ebert Foundation (+221%) and the Evangelisches Studienwerk (+158%)

E2.1 Funded visits abroad undertaken by guest researchers from Germany, by funded group, since 2012[1, 2]



Source: DZHW survey, data provided by funding organisations

clearly went to exceptional lengths. A substantial drop in the number of recipients is only apparent for CERN fellowships (–26%). Although, in terms of sponsoring guest researchers from Germany, the scope of these smaller organisations' activities was proportionately greater than their funding of academics and researchers from abroad in Germany, it was still restricted. All the same, their contribution should not be underestimated. Their activities reveal that numerous institutes in Germany play a role in facilitating the international mobility of academics and researchers. Moreover, the smaller funding institutes tend to focus on sponsoring specific teaching and research fields, along with host countries or regions, that would otherwise be overlooked.

> "Approximately 52% of all recipients of funding are academics and researchers with doctorates, including professors.

52% of all funded guest researchers from Germany were academics and researchers with doctorates, including professors and experienced researchers, such as heads of research groups. A further 37% of funded visits abroad were carried out by doctoral students and other postgraduates. This distribution of the funding activities among the different status groups of academics and researchers has essentially remained unchanged for several years, underlining the fact that the funding activities of the various organisations are based on a long-term strategy.

The DAAD funded the majority of visits to foreign universities and research institutes by experienced academics and researchers from Germany with doctorates (69%). The funding activities of foreign organisations have a similar focus. By contrast, the smaller organisations mainly supported a high percentage of visits by doctoral students from Germany in 2022 (52%).

Footnotes

1 Not including Erasmus visits by guest researchers from Germany abroad.

2 The statistics on visits abroad undertaken by guest researchers from Germany on pp. 106–109 do not contain any information on the major non-university research institutes: Helmholtz Association, Max Planck Society, Leibniz Association and Fraunhofer-Gesellschaft. See pp. 110/111.

3 No information is available on university funding of visits by guest researchers from Germany, for example.

4 Data for the DFG only include funded visits abroad undertaken by guest researchers from Germany who received funding in the form of research fellowships.

5 Figure estimated.

E2.2 Funded visits undertaken by guest researchers from Germany, by funding organisation, in 2022[1, 2]

Funding organisations	Number
Key German funding organisations	
German Academic Exchange Service	5,587
German Research Foundation[4]	674
Other German funding organisations	
Studienstiftung des deutschen Volkes	510
Alexander von Humboldt Foundation	222
Max Weber Foundation – German humanities institutes abroad	211
Gerda Henkel Foundation	211
Cusanuswerk – Bischöfliche Studienförderung	119
Hans Böckler Foundation	103
CERN fellowships	87
Evangelisches Studienwerk	80
Heinrich-Böll-Stiftung	69
Boehringer Ingelheim Fonds	68
Rosa Luxemburg Foundation	63
Friedrich Ebert Foundation	45
Friedrich Naumann Foundation for Freedom	34
Leopoldina – the German National Academy of Sciences	33
Joachim Herz Foundation[5]	30
The Martin Buber Society of Fellows	18
Fritz Thyssen Foundation	17
ZEIT-Stiftung Ebelin und Gerd Bucerius	14
Heinrich Hertz-Stiftung – MKW Nordrhein-Westfalen	11
Avicenna-Studienwerk	10
Deutsche Herzstiftung	6
Baden-Württemberg Stiftung	2
Foreign funding organisations and programmes	
German-American Fulbright Commission (US)	20
Japan Society for the Promotion of Science	11
The Austrian Science Fund (FWF)	5
Total	**8,260**

Source: DZHW survey, data provided by funding organisations

2.2 Regions and countries of origin and subject groups

Western Europe remains the key host region for guest researchers from Germany whose visits abroad in 2022 were supported by the domestic and foreign funding organisations included in this report. 30% of these sponsored visits were to Western European countries. Other major host regions are North America (19%) and Central and South Eastern Europe (14%). These three host regions alone thus account for around two thirds (63%) of all visits by German guest researchers. By contrast, the shares of Asia and Pacific (11%), Latin America (7%), North Africa and Middle East (6%), Sub-Saharan Africa and Eastern Europe and Central Asia (4% each) are considerably lower. There are marked differences compared to the regions of origin of guest researchers from abroad in Germany (see pp. 94/95). Only Central and South Eastern Europe is of similar importance in 2022, both as a host region and as a region of origin. Otherwise, academics and researchers from Germany tended to favour Western Europe and, above all, North America as host regions, while a higher proportion of academics and researchers from abroad came to Germany from Asia and Pacific, Latin America, and North Africa and Middle East. This focus on Western Europe and North America among guest researchers from Germany with regard to visits abroad is probably due to the high level of development of academia and research in these countries and the longstanding academic cooperation.

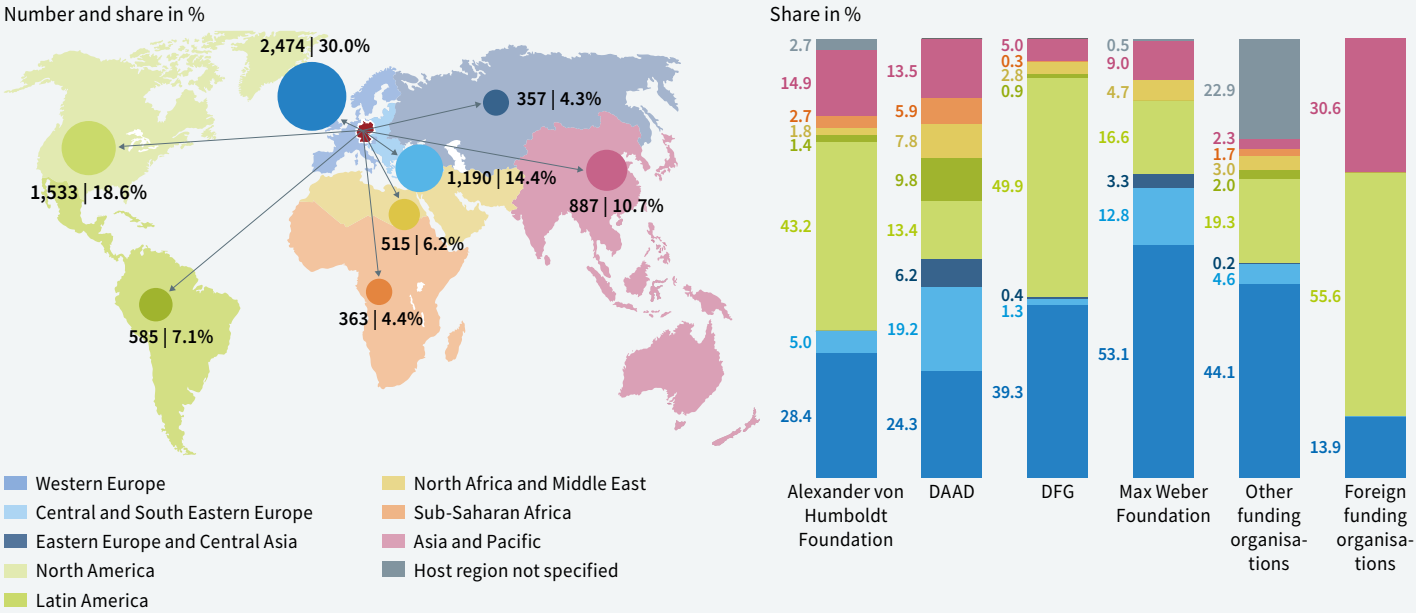
> “The number of funded guest visits to the United States has jumped by 116% year-on-year.

The various funding organisations are characterised by their different regional emphases. The Alexander von Humboldt Foundation (AvH) and the German Research Foundation (DFG) reported particularly high percentages of sponsored guest visits to North America (43% and 50% respectively). The smaller German funding organisations and the Max Weber Foundation primarily supported visits to Western European countries (44% and 53% respectively). By contrast, DAAD funding was more evenly balanced across the different host regions.

By a clear margin, the key host country for guest researchers from Germany is still the US, followed by the United Kingdom and France. The US alone accounts for 16% of all funded guest visits, the United Kingdom for 7% and France for 6%. Following the dramatic plummet of the previous two years, the number of funded visits abroad rose steeply once again in all three countries, up by 116% in the US, by 60% in the United Kingdom and by 51% in France. By contrast, the increase in Italy (+24%) and Switzerland (+10%) was less pronounced. However, despite these gains, none of the major host countries have yet matched the pre-pandemic year 2019 with regard to the number of sponsored guest visits. For example, funding in the United States is just two thirds of the previous highest level.

The two largest groups of German guest researchers abroad, with shares of 24% each, are found in mathematics and natural sciences, and the humanities, followed by law, economics and social sciences at 20%. Engineering (12%), medicine and health sciences (6%), art and art history (4%) and, lastly, agricultural, forestry and food

E2.3 Funded visits abroad undertaken by guest researchers from Germany, by host region and funding organisation, in 2021[1, 2, 3, 4]



Source: DZHW survey, data provided by funding organisations

sciences, and veterinary medicine (2%) only play a subordinate role. Compared to guest researchers in Germany, 44% of whom work in the field of mathematics and natural sciences (see p. 95), guest researchers from Germany are more evenly distributed across the various areas of teaching and research.

> “ Some 24% each of the funded guest researchers work in the humanities and mathematics and natural sciences.

Clear distinctions can be drawn between the various funding organisations in terms of the specialist areas of the sponsored academics and researchers. At the Max Weber Foundation, the proportion of humanities scholars, 84%, was correspondingly high, given the profile of the associated institutes. By comparison, with shares of 57% and 50% respectively, the AvH and the DFG were much more likely to support academics and researchers in mathematics and natural sciences. On the other hand, funding provided by the DAAD and other German funding organisations is balanced more evenly across the subject groups.

Footnotes

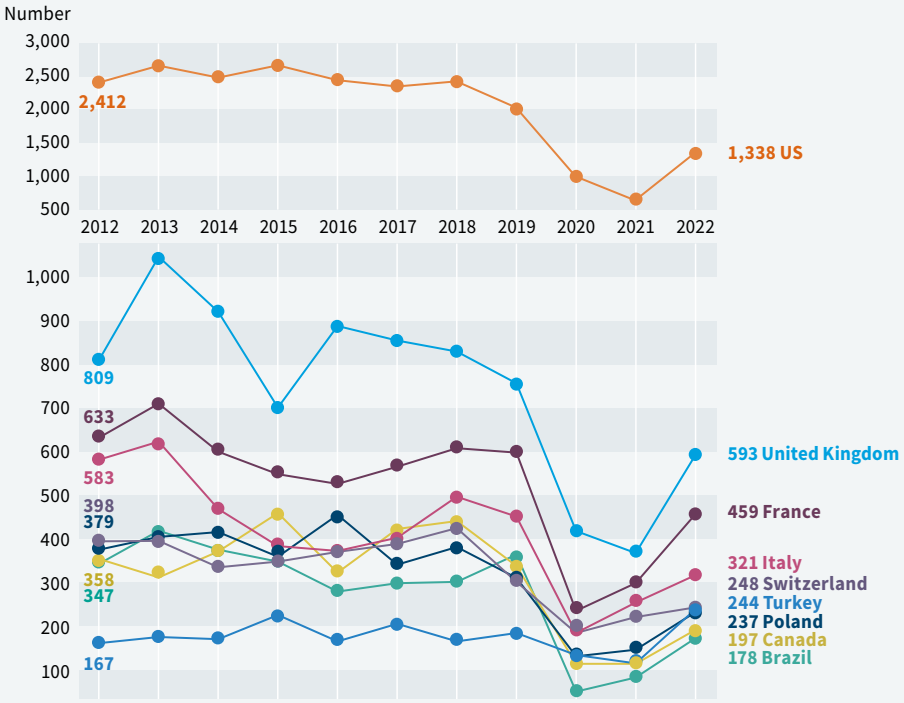
1 Foreign funding organisations generally sponsor visits by guest researchers from Germany to their respective countries of location.

2 Total visits undertaken by guest researchers from Germany at funding organisations abroad: 8,260 (including 356 visits that cannot be assigned to any host region, making up roughly 4% of all sponsored visits abroad).

3 Deviations from 100% are due to rounding.

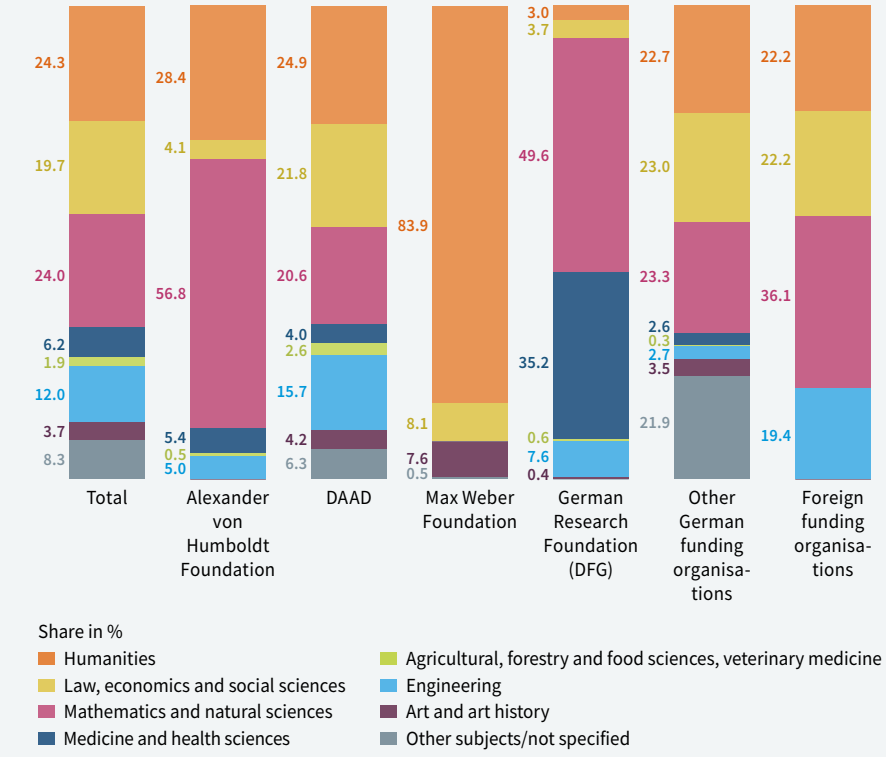
4 Unlike previous editions of *Wissenschaft weltoffen*, the countries of origin Greece and Cyprus have been included in the region of origin of Central and South Eastern Europe and not Western Europe as before.

E2.4 Funded visits abroad undertaken by guest researchers from Germany, by key host countries, since 2012



Source: DZHW survey, data provided by funding organisations

E2.5 Funded visits abroad undertaken by guest researchers from Germany, by funding organisation and subject group, in 2022[3]



Source: DZHW survey, data provided by funding organisations

2.3 Guest researchers from Germany whose visits abroad were funded by non-university research institutes

At non-university research institutes (NURI), international exchanges are not only facilitated in the form of visits by guest researchers from abroad, but also by funding temporary research visits to other countries for the academic staff of the Fraunhofer-Gesellschaft, the Helmholtz Association, the Max Planck Society and the Leibniz Association. In recent years, these institutes have started documenting the visits that were undertaken abroad, with NURI funding, by their own academics and researchers. First and foremost, the Helmholtz Association – and the Leibniz Association to a lesser extent – now have data on the sponsored visits of their own staff to research and teaching facilities abroad. The Fraunhofer-Gesellschaft has also collated preliminary data on its visits.

> “ Year-on-year, the Leibniz Association sponsored 203% more visits abroad.

Fraunhofer-Gesellschaft

The Fraunhofer-Gesellschaft can provide information on the visits undertaken by its own staff in other countries that were funded under central programmes. These figures cannot be compared with the funding data of the Helmholtz and Leibniz Associations as they include funding from the individual member institutes. In connection with the central funding programme, visits abroad undertaken by eleven doctoral students and eight postdocs and experienced academics and researchers were sponsored by the Fraunhofer-Gesellschaft in 2022. 58% of them were from mathematics and natural sciences, while most of the others were from medicine and health sciences and engineering disciplines. 37% of the recipients spent time in Europe, 26% in North America and 16% each in Australian Pacific countries. 53% of the guest visits abroad were for three to six months, with 47% between one and three months.

In 2022, the Helmholtz Association and Leibniz Association together funded approximately 1,900 visits abroad for guest researchers. Compared to previous years, this equates to roughly 1,100 or 152% more sponsored visits. The Helmholtz Association accounted for around 1,200 (65%) and the Leibniz Association for around 700 guest researchers (35%). Year-on-year, there was a dramatic uptick, namely 203%, in visits funded by the Leibniz Association after 2020 and 2021, when the pandemic was in full swing. The Helmholtz Association stepped up its funding by 92%. In terms of contractually employed academic staff, this means that, in 2022, the Helmholtz Association funded one guest visit abroad for every 33 salaried researchers. The ratio at the Leibniz Association was a remarkable eight to one.

Both research institutes documented the host countries in which their academic staff completed a temporary research or teaching visit in 2022. Both the Helmholtz and the Leibniz Associations tended to finance visits to European countries. In total, 56% and 43% respectively of their sponsored guest researchers spent time in EU countries, with 22% and 12% respectively in other European countries. North America also figured prominently, with 14% and 13% of all recipients respectively. In addition,

E2.6 Visits abroad undertaken by guest researchers with funding from the Helmholtz Association and Leibniz Association, by region and country of origin, in 2022[1]

	Helmholtz Association	Leibniz Association
Regions of origin	Share in %	
EU (excluding Germany)	56.1	43.2
Rest of Europe	22.2	11.7
North America	14.2	12.9
Latin America	0.4	5.8
Asia	4.8	11.9
Africa	0.6	13.3
Australia and Oceania	1.5	1.2
Not specified	0.1	0.0
Total	**100.0**	**100.0**

Helmholtz Association			Leibniz Association		
Countries of origin	Number	Share in %	Countries of origin	Number	Share in %
Italy	77	11.5	US	132	10.7
Switzerland	75	11.2	France	102	8.2
France	71	10.6	Spain	87	7.0
US	70	10.4	Italy	85	6.9
United Kingdom	49	7.3	United Kingdom	58	4.7
Other countries	328	49.0	Other countries	775	62.6
Total	**670**	**100.0**	**Total**	**1,239**	**100.0**

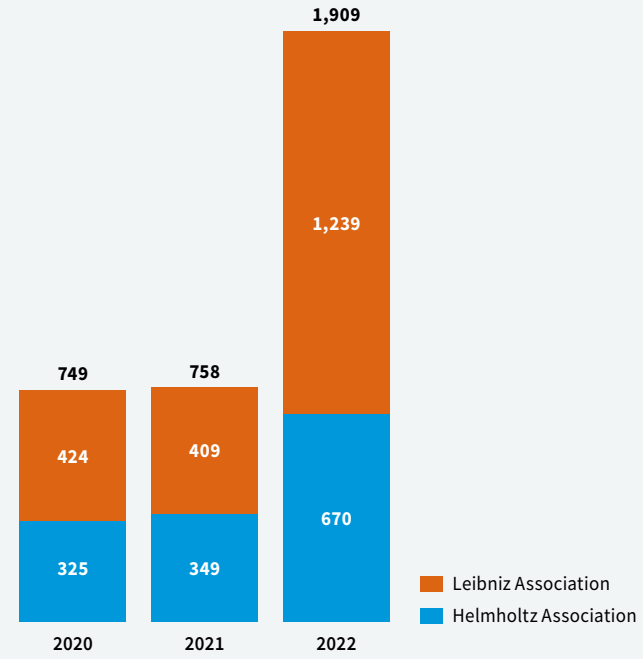
Source: DZHW survey, data provided by non-university research institutes; DZHW calculations

the Leibniz Association also awarded a relatively large number of grants for visits to Africa (13%) and Asia (12%). Italy (12%) topped the list of host countries at the Helmholtz Association, followed by Switzerland and France (11% each), the US (10%) and the United Kingdom (7%). The key countries at the Leibniz Association were the US (11%), France (8%), Spain and Italy (7% each), plus the United Kingdom (5%).

The Helmholtz Association has also provided data on the subject groups of their academics and researchers who completed a funded, temporary visit abroad in 2022. The overwhelming majority were mathematicians and scientists, with a share of 81%, while 18% were active in medicine and health sciences. These ratios essentially reflect the personnel situation at the institutes of the Helmholtz Association. Mathematics and natural sciences similarly predominate in terms of sponsored visits undertaken by guest researchers from abroad (see p. 97).

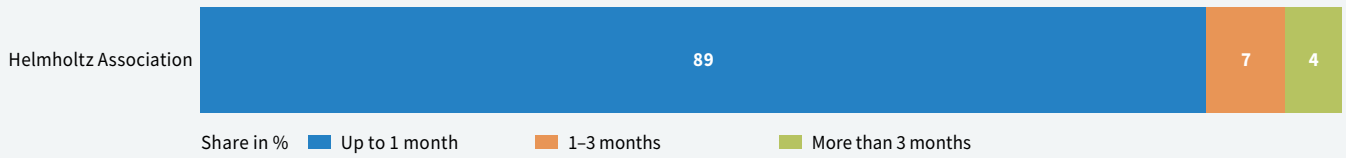
Information on visit duration is also available for the Helmholtz Association. It is characteristic of the Helmholtz Association that it chiefly financed brief visits to other countries in 2022, with 89% of visits lasting one month or less. A similar tendency can be observed at the Helmholtz Association with regard to funding short visits by guest researchers from abroad.

E2.7 Visits abroad undertaken by guest researchers with funding from the Helmholtz Association and Leibniz Association, since 2020



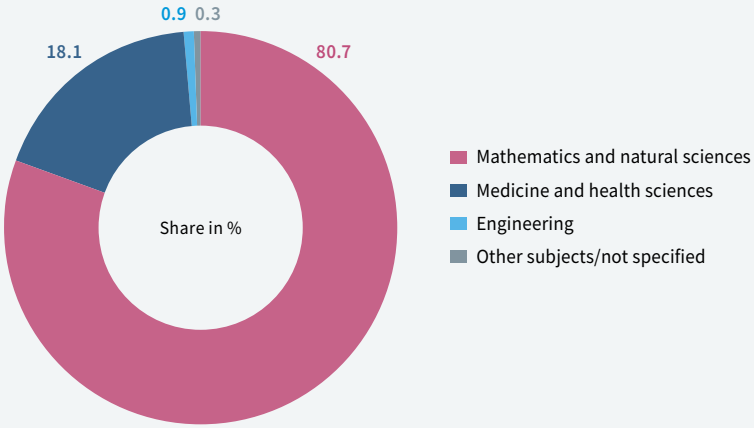
Source: DZHW survey, data provided by non-university research institutes

E2.8 Visits abroad undertaken by guest researchers with funding from the Helmholtz Association, by visit duration, in 2022



Source: DZHW survey, data provided by non-university research institutes; DZHW calculations

E2.9 Visits abroad undertaken by guest researchers with funding from the Helmholtz Association, by subject group, in 2022



Source: DZHW survey, data provided by non-university research institutes; DZHW calculations

Footnote

1 Deviations from 100% are due to rounding.

2.4 Erasmus guest lecturers

Temporary visits abroad by guest lecturers also receive funding under the European Union's Erasmus+ Programme. These guest lectureships in Europe can last between two and sixty days. Funding includes teaching visits by academic staff and professors from universities and research institutes as well as business entrepreneurs. Participants in this programme do not necessarily have to be nationals of the sending country and foreign academic staff at universities in the sending country can also take part. It is therefore possible for some Erasmus guest lecturers from Germany to be foreign nationals, although this percentage is likely to be very small.

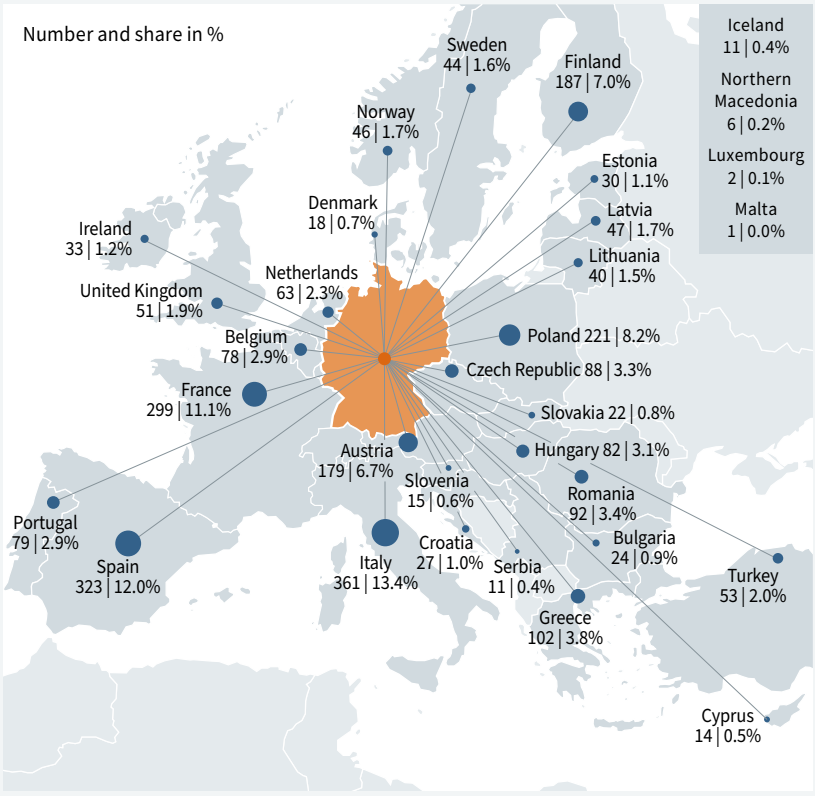
In the 2022 Erasmus funding period[1], a total of around 2,700 Erasmus guest lecturers from Germany spent time teaching abroad with Erasmus support. Compared to the previous year, their number has thus almost tripled following the steep decline in 2020 and 2021. Nonetheless, it should be noted that the hike of 177% during the last funding period refers to the extended funding term. Therefore, the number of Erasmus guest lecturers in Germany is almost back to pre-pandemic levels.

> "Erasmus guest lecturers from Germany shot up by 177% during the 2022 funding period.

In 2022, most Erasmus guest lecturers spent time in countries in Southern Europe (28%), while 22% travelled to Central Eastern Europe and 20% to Western Europe. 11% each of visits were to Northern Europe and South Eastern Europe, with 7% to Central Western Europe. For the first time, it was possible to visit other partner countries in addition to countries previously associated to the Erasmus+ Programme. However, only about 1% of guest lecturers took advantage of this option.[2] In 2022, the key host countries for Erasmus guest lecturers from Germany were Italy, Spain and France, at 13%, 12% and 11% respectively, followed by Poland with 8%, Finland and Austria with 7% each.

With a share of 36%, most German Erasmus guest lecturers abroad can be assigned to the arts and humanities.[3] 19% belonged to the group of business, administration and law, a further 14% represented engineering, manufacturing and construction, with social sciences, journalism and information making up 7%. Natural sciences, mathematics and statistics along with health and welfare each accounted for 6%. Information and communication technologies

E2.10 Erasmus guest lecturers in Germany, by host region and host country, in 2022[1, 2, 3]



Host region	Number	Share in %
Southern Europe	764	28.4
Central Eastern Europe	583	21.7
Western Europe	524	19.5
Northern Europe	306	11.4
South Eastern Europe	291	10.8
Central Western Europe	181	6.7
Countries outside the Erasmus+ programme	37	1.4
Total	**2,686**	**100.0**

Source: DAAD, Erasmus statistics

Footnotes

1 Erasmus statistics until 2014: the respective funding period starts in the winter semester and ends in the summer semester of the following year (e.g. 2014 = WS 2013/14 and SS 2014). Erasmus+ statistics from 2015 to 2021: the funding period starts on 1 June of the previous year and ends on 31 May of the following year (e.g. 2021 = 1 June 2020 to 31 May 2022). Erasmus+ statistics from 2022: due to a restructuring of the programme, the funding period is 26 months and starts on 1 June of the previous year and ends on 31 July of the following year. The start of the first funding period after the programme restructuring was delayed, therefore the visits in the period from 1 September 2021 until 31 October 2023 are shown here in the 2022 funding period.

2 Partner countries in addition to those associated to the Erasmus+ programme include states from the regions of the Western Balkans, North Africa and Middle East, Central, South and East Asia, Sub-Saharan Africa, North and Latin America.

3 Deviations from 100% are due to rounding.

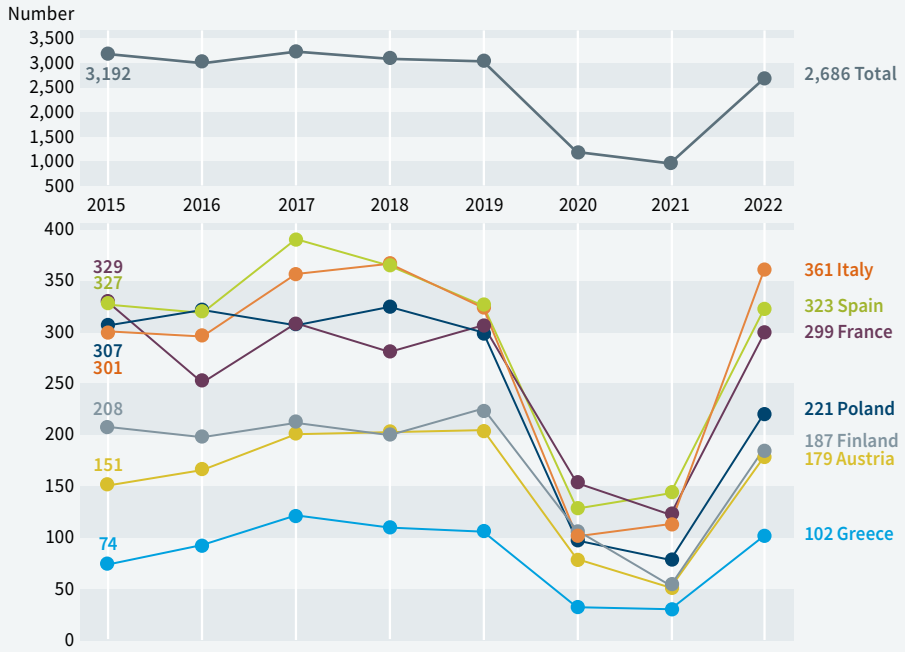
4 The distribution of Erasmus guest lecturers across the different subject groups is only available in the ISCED classification system.

(4%), services (2%), and agriculture, forestry, fisheries and veterinary (1%) played a subordinate role. Compared to foreign Erasmus guest lecturers who came to Germany for a temporary visit, there are no significant differences in the distribution of subject groups (see pp. 98/99). This is due chiefly to the fact that Erasmus+ is designed as a reciprocal exchange programme, with a similar number of funded places at the partner institutions on both sides.

> “Erasmus guest lecturers from Germany spent an average of six days in another European country.

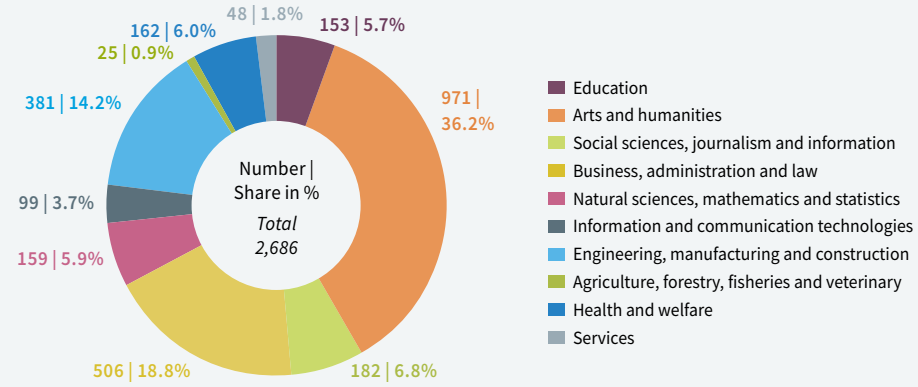
Although Erasmus guest lectureships can last for up to two months, lecturers from Germany remained an average of just 6.1 days abroad in 2022. This figure is thus slightly less than the previous year. There were no major differences between individual host countries. On average, Erasmus guest lecturers spent between nine and eight days in Luxembourg, Ireland and Cyprus. Finally, guest lecturers only visited Hungary and Poland for an average of between four and five days.

E2.11 Erasmus guest lecturers from Germany, by key host countries, since 2015[1]



Source: DAAD, Erasmus statistics

E2.12 Erasmus guest lecturers from Germany, by subject group, in 2022[4]



Source: DAAD, Erasmus statistics

E2.13 Erasmus guest lecturers from Germany, by host country and average visit duration, in 2022

Host country	Duration Ø Days
Luxembourg	9.5
Ireland	8.5
Cyprus	8.2
Iceland	7.4
Turkey	7.4
Croatia	7.2
Estonia	6.9
Slovakia	6.9
Italy	6.5
Romania	6.5
Greece	6.4

Host country	Duration Ø Days
Bulgaria	6.3
Spain	6.2
Serbia	6.1
Malta	6.0
Slovenia	5.7
France	5.7
Portugal	5.6
Sweden	5.5
Netherlands	5.4
Finland	5.4
Lithuania	5.4

Host country	Duration Ø Days
Belgium	5.3
Northern Macedonia	5.3
Austria	5.3
Denmark	5.2
United Kingdom	5.2
Czech Republic	5.2
Latvia	5.0
Norway	5.0
Poland	4.7
Hungary	4.5
Total	**6.1**

Source: DAAD, Erasmus statistics

"We must be more receptive to international talent"

An interview with two members of the Commission of Experts for Research and Innovation, Prof. Dr. Carolin Häussler and Prof. Dr. Guido Bünstorf

Prof. Dr. Carolin Häussler holds the Chair of Organization, Technology Management and Entrepreneurship at the University of Passau and is a member of the Commission of Experts for Research and Innovation (EFI), appointed by the German Federal Government.

Prof. Dr. Guido Bünstorf is head of the Economic Policy, Innovation and Entrepreneurship Group at the University of Kassel, where he also serves on the executive board of the International Center for Higher Education Research (INCHER) and as spokesperson of the Graduate School in Economic Behavior and Governance.

The Commission of Experts for Research and Innovation (EFI) published its annual "Report on Research, Innovation and Technological Performance in Germany" – or EFI Report for short – in February 2024. One of the four core topics of the Report is the chapter on "International Mobility in the Science and Innovation System", which was supervised by Commission members Prof. Dr. Guido Bünstorf (University of Kassel) and Prof. Dr. Carolin Häussler (University of Passau). In an interview with *Wissenschaft weltoffen*, they present their methodological approach and key findings of the analysis, along with the practical conclusions and recommended courses of action that, in their view, are the result thereof.

Prof. Häussler and Prof. Bünstorf, you were involved in the analysis of international mobility in the German science and innovation system published in the latest EFI Report. To start with, could you briefly explain your methodological approach to our readers – as comprehensibly as possible?

Bünstorf: Sure. First of all, it is important to realise that no statistics are kept on researchers who come to Germany or go abroad. It is therefore common practice to record international mobility in the science and innovation system on the basis of publication and patent data. Individuals are tracked over time to see whether there are any changes in their address or university affiliation. This also indicates a relocation from one country to another for their research. For its current report, EFI commissioned two studies in which this process was applied, firstly to publishing academic authors and secondly to patent-active inventors. In total, the data of approximately 1.2 million people were evaluated.

Häussler: In addition, we held a series of discussions with experts from science and industry. These discussions help us gain a better understanding of the patterns in the data. They are also key to identifying existing mobility barriers and suggesting improvements in areas that require attention.

In your view, what were the central findings of your analyses on international mobility in the German science and innovation system?

Häussler: Germany is moving in the right direction: today, more publishing researchers are coming to the country than are leaving. In the past it was the other way around. And although an average net outward flow of patent-active inventors has been documented over the last 20 years, this has been significantly lower in recent years than before. One especially positive development is that the share of internationally mobile researchers in top positions in the science system is above average. Many of them have worked in Germany before and have brought back new knowledge and extended networks. Nonetheless, we believe there is room for improvement. On the whole, those who leave Germany are more productive in scientific publishing than those who are immigrating. Non-mobile authors are the least productive, however.

Bünstorf: As the shortage of skilled personnel becomes more acute, we will need even greater inflows to Germany in the future than we are currently observing. International mobility is becoming increasingly critical – across the entire spectrum of the science and innovation system. We must be more receptive to international talent and encourage researchers who have moved away from Germany to return. It is also important to promote international exchange, via the DAAD, for example. After all, international cooperation is created through exchange and the data show that publications by international teams are of higher quality than those by purely national teams or individual authors.

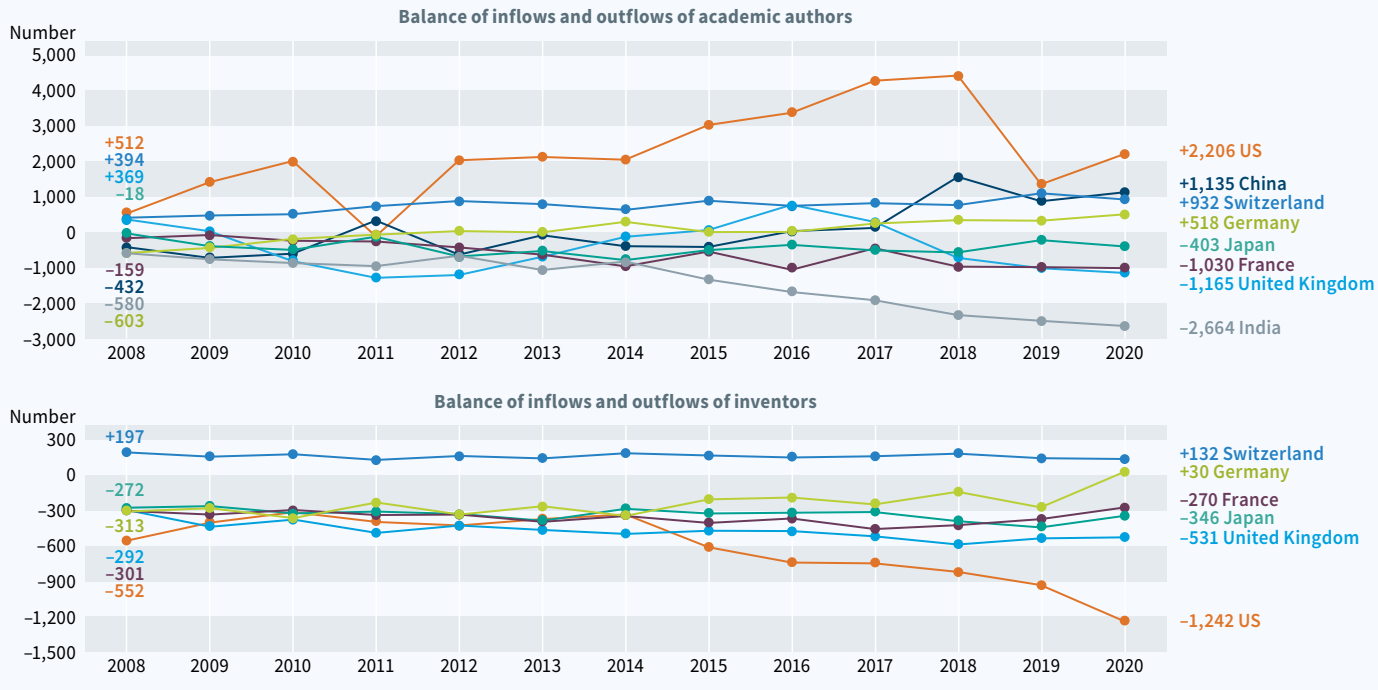
The Commission of Experts for Research and Innovation (EFI) and its Report 2024

Since 2008, on behalf of the German Federal Government, the Commission of Experts for Research and Innovation (EFI) has prepared and published its annual "Report on Research, Innovation and Technological Performance in Germany" (EFI Report for short). It contains a comprehensive analysis of the strengths and weaknesses of the German innovation system in an international and temporal comparison, evaluates Germany's perspectives as a location for research and innovation and presents proposals for optimising national research and innovation policy. The chapter on "International Mobility in the Science and Innovation System" in this year's EFI Report is based on two comprehensive studies that were commissioned specifically by the EFI.

The study on the "International Mobility and Collaboration of German Scientists, 2005–2020" was carried out by researchers at the Université de Bordeaux and focused on using bibliometric data to track international mobility in the period 2005–2020.[1] A special feature of this study is the use of name analysis, which makes it possible to assign academics and researchers to their presumed countries of origin, thereby facilitating a comparatively precise classification of internationally mobile researchers to a mobility category.[2] Indepth analyses focus on gender differences in international mobility, investigations into the publication quality of internationally mobile academics and researchers, the measurement and quality of international co-publications, the comparison of international mobility in specific research fields and the impact of funding programmes on the influx of international academics and researchers to Germany.

The study on "Researcher Mobility and Cooperation in the Science System" was carried out by researchers at the Fraunhofer Institute for Systems and Innovation Research (ISI) and covers two topics.[3] Based on patent applications in the period 2000–2020, the first part analyses Germany's position in inventor mobility flows over time and in relation to other relevant countries, outlines Germany's international inventor cooperation structure and provides insight into the effects of inventor mobility and cooperation patterns on the German innovation system. Using bibliometric measurements, the second part examines the international mobility experiences of researchers in critical career positions in the German research system during the period 2005–2021. Moreover, it includes an analysis of the mechanisms and determinants that were relevant to international researchers' transitions to these career positions.

ES1 Annual migration balances of inflows and outflows of academic authors and inventors, by selected countries of residence, 2008–2020[4]



Source: Own representation, following EFI (2024), on the basis of Coda-Zabetta, M. et al. (2024) and Karaulova, M. et al. (2024)

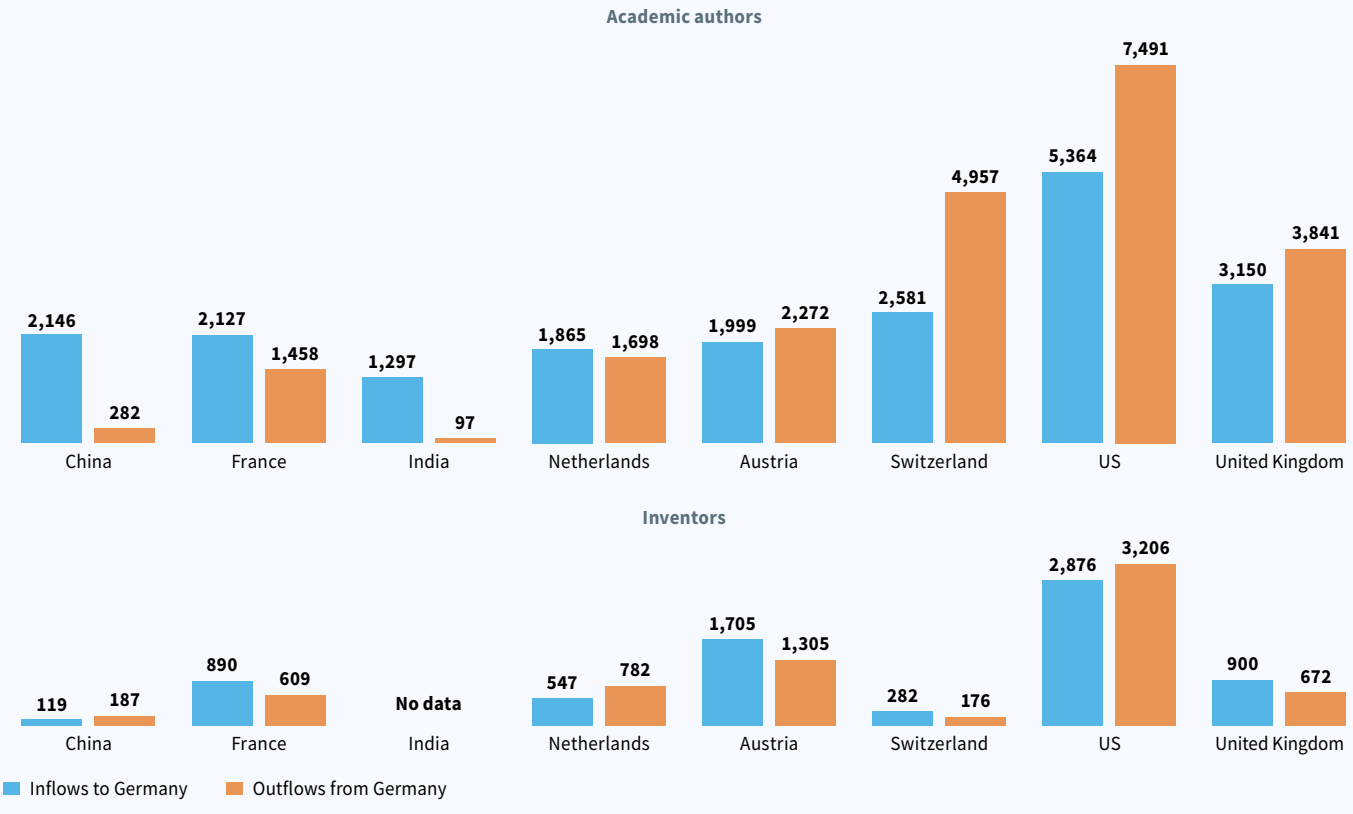
International mobility in Germany's science and innovation system

What conclusions or recommended courses of action arise from these findings for German science and research policy? In your view, are the findings also of practical relevance for individual research institutes or even individual researchers?

Häussler: One common problem, whether someone intends to work at a university in Germany or in a company's research department, are the lengthy administrative processes this entails, first when applying for a visa at a German diplomatic mission abroad, then later at the local immigration office. To facilitate this, we propose a digital transformation from a single mould – a digital platform that integrates all the immigration sub-processes into one overall process, thereby connecting all those involved. The plan is to integrate the recognition of qualifications at the same time. This has the advantage of reducing the administrative burden, at the same time keeping all parties updated as to the status of their application. By the same token, any bottlenecks can be quickly identified and hopefully eliminated promptly.

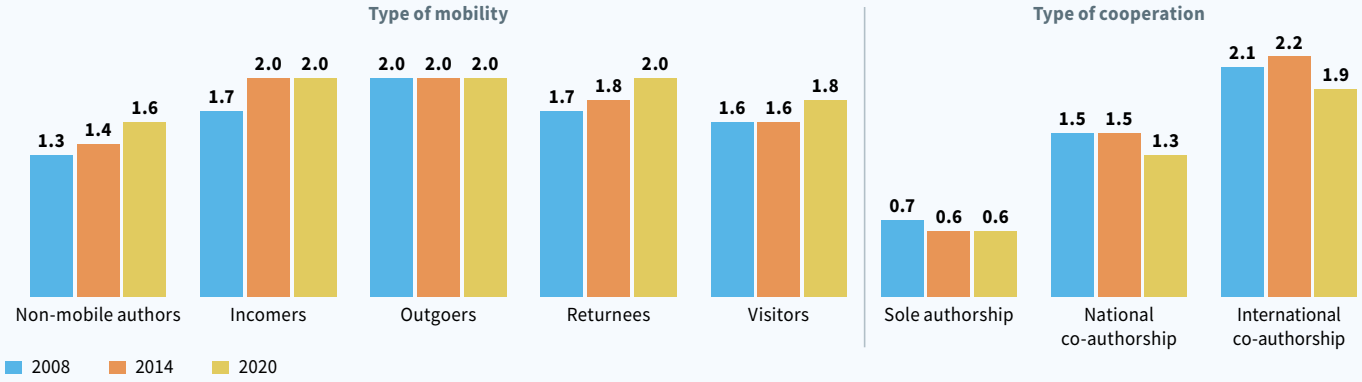
Bünstorf: Universities and research institutes must be more receptive to international careers. The Tenure Track Programme of the federal government and the federal states is a good starting point in encouraging policies to promote this openness; the programme will systematically ensure that equipment and remuneration can compete on the international stage, while also being fully compatible with the international labour market. This includes ensuring that candidates from abroad are given reliable information on their salary and pension entitlements at an early stage. Germany must also enhance its standing as a location of science and research for international talents below the level of professor, ideally with research-oriented tenure track positions that allow for independent work.

ES2 Bilateral inflows and outflows of academic authors and inventors to or from Germany, by selected countries of origin and destination countries, 2000–2020[5]



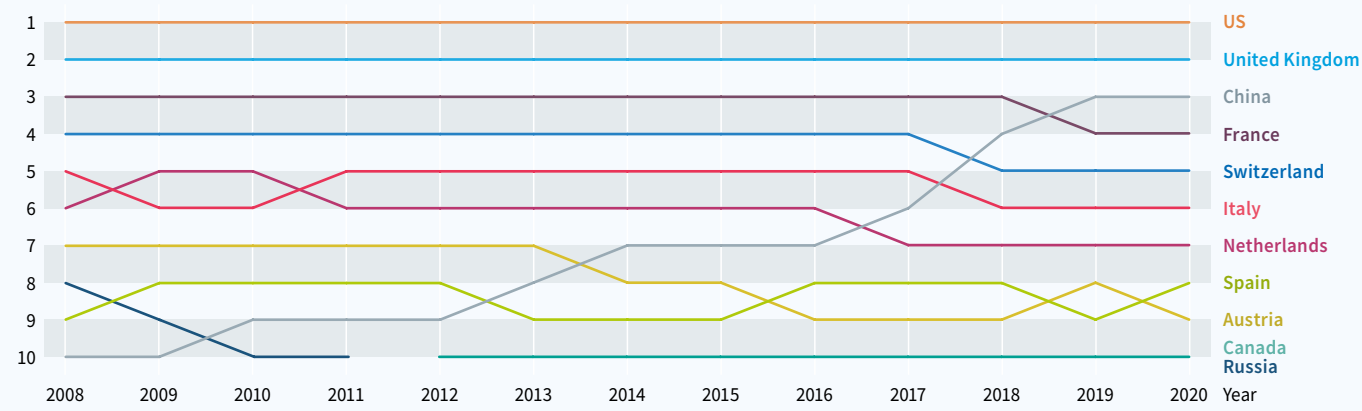
Source: Own representation, following EFI (2024), on the basis of Coda-Zabetta, M. et al. (2024) and Karaulova, M. et al. (2024)

ES3 Average value of the quality indicator of publications by academic authors with Germany as their country of residence, by type of mobility and cooperation, 2006–2020[2, 6]



Source: Own representation, following EFI (2024), on the basis of Coda-Zabetta, M. et al. (2024)

ES4 Germany's top ten partner countries in terms of academic co-authorship, 2008–2020



Source: Own representation, following EFI (2024), on the basis of Coda-Zabetta, M. et al. (2024)

Footnotes

1 See Coda-Zabetta et al. (2024).

2 To differentiate between mobility types, the publication analysis of academic authors also included information from the IBM Global Name Recognition database. The database links every first name and last name to all countries where they occur. Conclusions can be drawn about the nationality or ethnicity of the authors, based on the frequency distribution of their names. For example, "Fowler" is often found in the United Kingdom and "Rajiv" in India, therefore these countries would be chosen as associations for an author named Rajiv Fowler. This approach is in line with the latest methodological standard for research on scientific mobility. Accordingly, incomers are authors without typical German first or last names, who first published outside Germany and subsequently came to Germany and remained here. Outgoers are authors with typical German first or last names who first published in Germany and then left Germany without returning. Returnees are authors with typical German first or last names, who first published outside Germany and later came to Germany and stayed here, or authors whose first and last names are untypical for Germany, who first published in Germany, then left Germany before returning at a later date. Visitors are authors who first published outside Germany, then moved to Germany for a certain period and left the country again.

3 See Karaulova et al. (2024).

4 The study by Karaulova et al. (2024) does not include any data on inventors from China and India.

5 The study by Karaulova et al. (2024) does not include any data on inventors from India.

6 The quality indicator is based on the SCImago Journal Rank (SJR) determined by Elsevier. The prestige of academic journals is assessed by taking into account both the number of citations that a journal receives and the prestige of the journals from which these citations originate.

F STRUCTURAL ASPECTS OF INTERNATIONALISATION

1 Central dimensions

The internationalisation of studies and research at German universities and non-university research institutes will not come about without facilitation. It relies on structures that provide the framework not only for the international mobility of students and researchers, but also for universities' internationalisation potential as a whole. As a result, the various structural aspects are constantly evolving. In view of their significance, future editions of *Wissenschaft weltoffen* will also present data and facts on the structures of internationalisation. To date, however, no systematic representation has been drawn up of all dimensions that play a role in the process. Moreover, the data situation on the distinct structural aspects of internationalisation is extremely heterogeneous. Although some structures are well documented and reliable data are available, no data have been collated on others. Therefore, this edition of *Wissenschaft weltoffen* will begin by monitoring a limited selection of structural aspects, which will then be expanded in future issues.

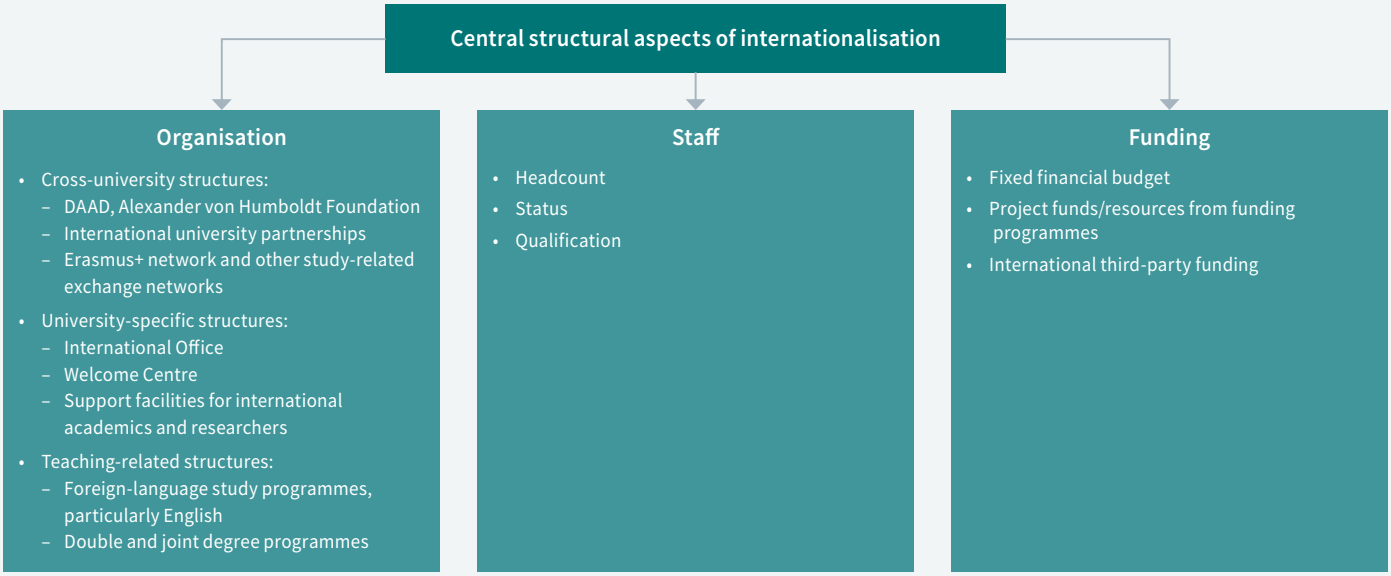
It may generally be assumed that the different structural aspects are divided into three main groups:

- Organisational aspects
- Personnel aspects
- Financial aspects

The scale and diversity of the organisational aspects attest to a high degree of institutionalisation for all activities that promote internationalisation; on the other hand, however, this also reflects the importance of such an organisational basis. At the forefront are cross-university organisations such as the DAAD and the Alexander von Humboldt Foundation, which guide, facilitate and strategically develop the internationalisation activities of universities and other research institutes across the board. The international university partnerships in which virtually all German universities are involved form another cross-university connection. They serve as a crucial foundation in consolidating and developing international exchanges. Lastly, these structures also include the Erasmus+ programme, which enables hundreds of thousands of students, researchers and administrative staff to gain international experience in other countries every year.

Nonetheless, university-specific organisations that promote internationalisation are equally important. For the most part, these are the International Offices[1], but also Welcome Centres, support facilities for international academics and researchers, international alumni associations, internationalisation structures at the level of faculties or departments and so on. The common denominator of all these resources is their comprehensive support of the individual university with regard to international mobility and cross-border exchange. Teaching-related organisations also exist, which are instrumental in facilitating internationalisation. Measures include foreign-language study programmes, especially those in English, which are extremely popular among international students in Germany, but which make a significant contribution to "internationalisation at home" by teaching language skills and preparing students for the international labour market. Study programmes awarding international joint or double degrees work in a similar way. Transnational educational programmes offered by German universities are becoming increasingly important; international students thus have the option to study in German in their home countries, thereby paving the way for them to come to Germany. Ultimately, these programmes help develop the intercultural skills of teachers and students.

F1.1 Structural aspects of internationalisation



Source: Own representation

F1.2 Selected structural aspects: German Academic Exchange Service (DAAD)

- **1,174** staff
- **19** DAAD regional offices and **38** Information Points around the world
- **6** German Houses of Research and Innovation abroad
- Around **400** lectureships and guest lectureship positions at universities abroad
- Sponsors **140,803** students, graduates and researchers
- Funds **3,260** projects
- Roughly **140** alumni associations around the world

Source: DAAD Annual Report 2023

> “The most important responsibilities of the DAAD include granting scholarships, promoting the internationalisation activities of German universities and research organisations, strengthening German cultural and language studies abroad and helping developing countries establish productive higher education institutions. The DAAD is also the national agency for the coordination and implementation of the Erasmus+ programme.

F1.3 Selected structural aspects: Alexander von Humboldt Foundation

- **288** staff
- Grants **809** fellowships and awards to international and German academics and researchers
- **1,882** researchers from abroad came to Germany for the first time on fellowships
- Attracted **7** Humboldt professors
- Arranged over **2,300** research consortia
- Alumni network of **31,726** academics and researchers from all disciplines in more than **140** countries

Source: Annual Report 2023 of the Alexander von Humboldt Foundation

> “The Humboldt Foundation: We sponsor scientists and scholars, irrespective of academic discipline and nationality. We strengthen Germany as a research location through international research exchanges. We support our sponsorship recipients during their entire lifetimes and actively promote international understanding, scientific progress and development.

The institutionalisation of internationalisation funding goes hand in hand with personnel development and the appointment of appropriately trained staff at universities. Attributes of this structural

> “The internationalisation of studies and research is based on supporting structures.

aspect include the number of corresponding positions and/or employees, their status in the university organisation and their qualifications. It is reasonable to assume that the requirements for “internationalisation staff” at universities will continue to increase apace with international mobility and collaboration.

Finally, the financial resources that are available to facilitate internationalisation are another key structural aspect. It is not just a question of the relevant resources in the university budget but also of procuring additional funding. This includes third-party funding from international sources, such as the EU. Although this funding is for research into internationally relevant issues, the allocation thereof is often based on international cooperation projects.

In a first approach to the wide-ranging field of internationalisation structures, this edition of *Wissenschaft weltoffen* begins by presenting the following aspects: staff at International Offices, international university partnerships, transnational educational programmes and the international promotion of research and teaching. Moreover, a special Spotlight takes a closer look at the development of English-language study programmes.

Footnote

1 Universities have very different names for the respective organisational units. For the sake of simplicity and readability, the term “International Office” is used here.

STRUCTURAL ASPECTS OF INTERNATIONALISATION

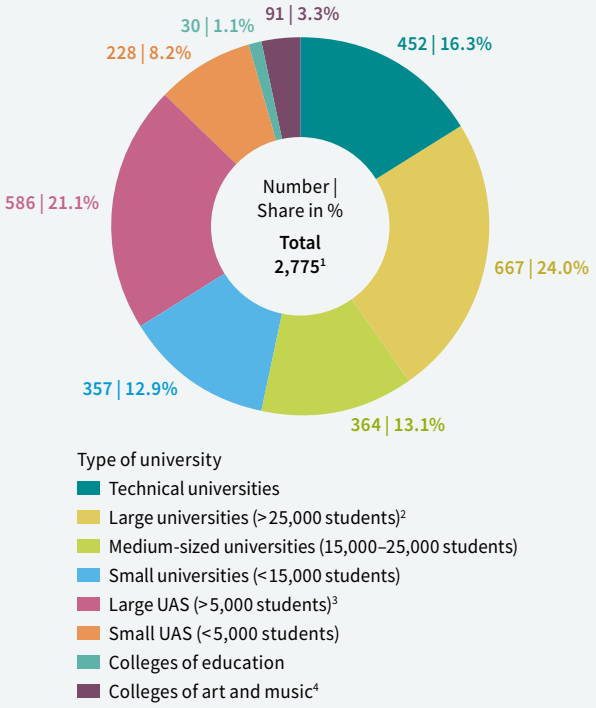
2 Staff of International Offices at universities

The vast majority of public universities in Germany have an International Office. Only one university of applied sciences (UAS) and one college of art and music do not have a separate organisational unit to facilitate their internationalisation processes; instead, responsibility for the various activities is shared entirely by the faculties and other administrative areas.

A total of 2,775 staff[1] are employed in the International Offices at public universities, UAS, colleges of art and music and colleges of education. 66% of these internationalisation staff work at universities, 29% at UAS, 3% at colleges of art and music and 1% at colleges of education.

As they engage in numerous international university partnerships, technical universities are particularly attractive for international students and researchers. Germany's 15 technical universities alone employ 452 staff in their International Offices, ranging from just seven to 70 team members. On average, 30 employees work in the International Offices at technical universities. At large universities with over 25,000 students, a remarkable 667 staff work in these departments.[2] Here again, there is a huge range, from nine to 54 colleagues. On average, 35 employees work in the International Offices at large universities. The lower average at technical universities is due to the fact that they comprise not only large but also medium-sized and small universities.

F2.1 Staff at International Offices, by type of university, in 2024



Source: Data from universities, DZHW research

Data basis

Data on staff of International Offices at German universities were taken from the websites of the individual universities. The findings relate only to public universities, UAS, colleges of art and music and colleges of education. Colleges of public administration, church-run and private universities were not taken into consideration. The vast majority of universities have separate organisational units that foster the internationalisation of studies, teaching and research. Not only are they incorporated differently in the university infrastructure, they are often also known by different names, depending on the university. For the sake of simplicity and readability, the term "International Office" is used here for these organisational units.

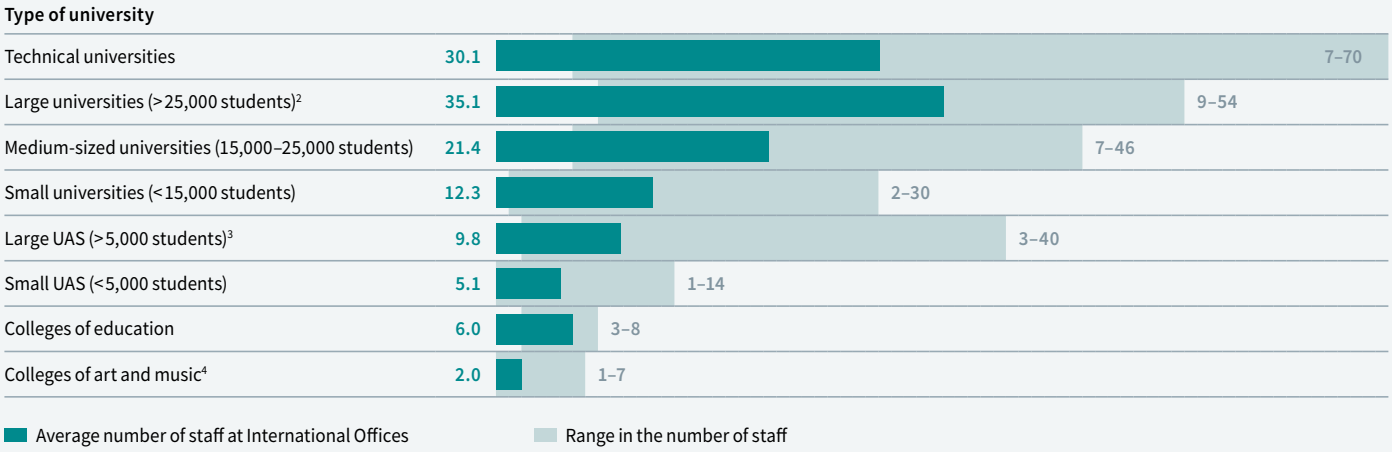
International Offices vary enormously with regard to the specific scope of their activities. Some tasks may be the responsibility of the International Office at one university but are assigned to other departments at the next. Nevertheless, the data collected relate only to the staff of International Offices. Employees tasked with internationalisation activities in other departments were not included. Some International Offices are also in charge of language courses at the university. These teaching staff were not factored in. This also applies to vice presidents, other members of the university administration and professors, where they are assigned to International Offices.

The survey recorded the number of individual employees, but not as full-time equivalents. The staff of International Offices may have different working hours, which reduces comparability between the various universities. The data nevertheless give an initial overview of the internationalisation staff at public universities.

The survey included staff of International Offices at all public universities, with the exception of two universities and one UAS, along with one UAS and one college of art and music that do not have an International Office. The data were compiled in June and July 2024.

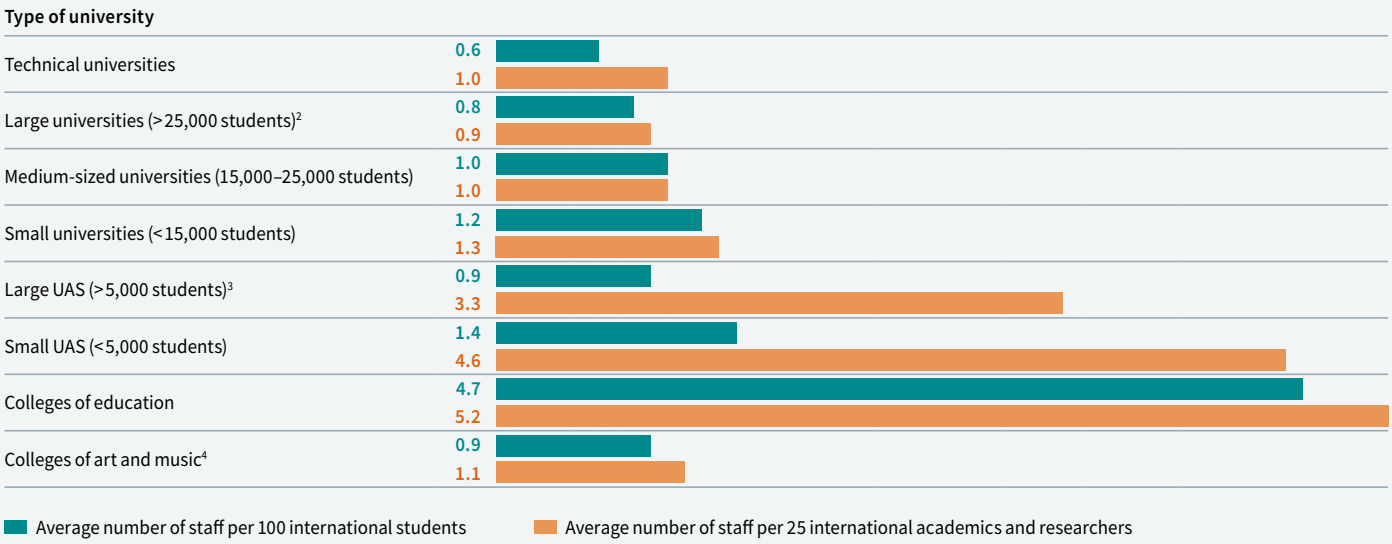
Medium-sized universities with 15,000 to 25,000 students employ 364 staff in their International Offices, whereby the range is similar to that at large universities. However, the average is 21. At smaller universities, with fewer than 15,000 students, some 357 staff work in the Offices. Ranging from two to 30 employees, the average is 12. Large UAS employ 586 personnel in the International Office,[3] ranging somewhere between medium-sized and small universities with an average of ten staff. By contrast, smaller UAS have just 228 colleagues, averaging at five, and the range is relatively narrow. Meanwhile, at colleges of education, International Offices are manned by 30 employees with an average of five. Colleges of art and music have 91 colleagues in the International Offices, again with a relatively narrow range of between one and seven team members.[4] On average, two employees work in the International Offices.

F2.2 Average number of staff at International Offices, by type of university, in 2024



Source: Data from universities, DZHW research

F2.3 Average number of staff at International Offices per 100 international students and per 25 international academics and researchers, by type of university, in 2024



Source: Data from universities, DZHW research

Footnotes

1 No data on the staff of the International Offices at two universities and one UAS.

2 No data on the staff of the International Offices at two large universities.

3 No data on the staff of the International Offices at two UAS.

4 No data on the staff of the International Office at one college of art and music.

These findings show that the number of employees in the International Office depends on the size of the university: the greater the student body, the more employees and the wider the range. A second factor is probably the volume of the specific fields of work. A comparison of the number of employees with the number of international students and international academic staff reveals other trends, however: based on 100 international students, the respective ratio of employees is highest in the International Offices of the smaller universities, UAS and colleges of education, whereas it is lowest at the larger institutions. This also applies to international academic staff. The ratio is highest in those institutions where relatively few international students are enrolled or few international academics and researchers are employed.

STRUCTURAL ASPECTS OF INTERNATIONALISATION

3 International university partnerships

Agreements between German universities and universities in other countries form the basis for the mobility and exchange of students, academics and researchers. Not only are they instrumental in facilitating academic progress and new scientific findings, they also strengthen the intercultural skills of all those taking part. The agreements ensure that collaboration is goal-oriented and permanent, taking place regularly and subject to ongoing development.

> “ German universities had roughly 35,800 partnerships with universities in other countries.

As of June 2024, German universities had roughly 35,800 partnerships with universities in other countries. Most of these alliances were concluded by public universities, alone entering into about 22,000 international partnerships, or 62% of all agreements. At public universities of applied sciences (UAS), around 11,000 agreements are in place with universities in other countries, representing 31% of all partnerships. Private universities also maintain a plethora of international partnerships: 1,300 at private universities and 1,400 at private UAS (roughly 4% each).[1]

As a rule, when developing their alliances, universities have a specific focus with regard to the scope and orientation of their collaboration. The individual contracts vary considerably in terms of content and fields of activity. It therefore follows that the size of a university is no indicator of the number of cooperation agreements it has entered into nor the scale of its collaborative activities. However, the situation is different at federal state level. The overall number of universities in a federal state and, to a certain extent, the size thereof correlate to the sum total of international cooperation projects they maintain. Most partnerships are in Baden-Württemberg (18%), Bavaria (16%) and North Rhine-Westphalia (14%). Universities in these federal states have concluded almost half (48%) of the international alliance projects in Germany. A mere 1% to 2% of all international partnership contracts were concluded in federal states whose higher education sector includes, by comparison, not just fewer but also smaller universities, such as Saarland, Mecklenburg-Western Pomerania, Schleswig-Holstein and Bremen.

Approximately two-fifths (42%) of all agreements are with universities in western European countries. This finding also corresponds to regional preferences regarding the temporary study, teaching and research-related international mobility of students, academics and researchers at German universities (see pp. 69 and 108–111). The key countries with the most partnership agreements are France, Spain and Italy, followed by the United Kingdom in fourth place. Furthermore, France and Spain are at the top of the league of all countries whose universities are associated with international partner institutions.

Data basis

Data on partnerships between German universities and universities in other countries are collated and made available in a database by the German Rectors’ Conference (HRK) (www.internationale-hochschulkooperationen.de/en/international-university-partnerships.html). The information is regularly updated by the individual institutions. Registered international university partnerships are usually written agreements signed at the institutional leadership level. This also includes contracts for international collaboration within the framework of Erasmus+. Collaboration with partner institutions abroad can also be arranged in writing or orally by single departments, institutes or chairs. The partnerships cover a wide range of exchange activities, such as agreements on the exchange of students and university staff as well as teaching collaboration (e.g. mutual recognition of academic achievements, joint study programmes and degrees), research consortia (joint projects, graduate schools, joint conferences and joint publications) and collaboration in institutional development. The findings on international university partnerships presented here are based on a survey conducted in June 2024.

F3.1 International university partnerships, by type of university and funding body, in 2024[2]

Type of university	International university partnerships	
	Number	Share in %
Public universities	33,044	92.3
Universities	22,046	61.6
UAS	10,998	30.7
Private universities[1]	2,744	7.7
Universities	1,323	3.7
UAS	1,421	4.0

Source: German Rectors’ Conference, database of international university partnerships; DZHW calcuations

Footnotes

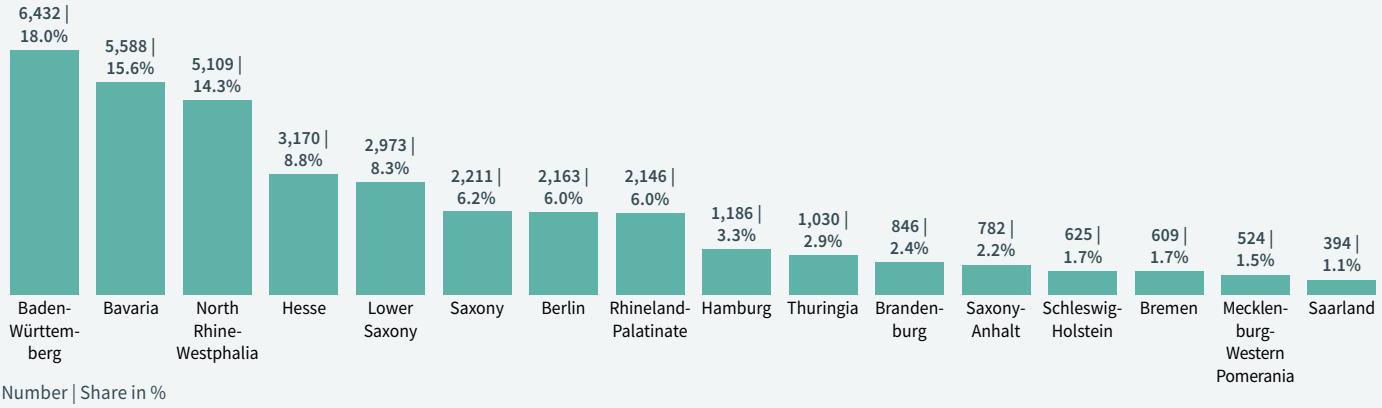
1 Including church-run universities.

2 In total, there were 35,832 international university partnerships in June 2024. In the case of 44 university partnerships, the German university could not be identified.

3 Deviations from 100% are due to rounding.

4 Due to Russia’s war of aggression against Ukraine, it may be assumed that the majority of alliances with Russian universities have currently been suspended.

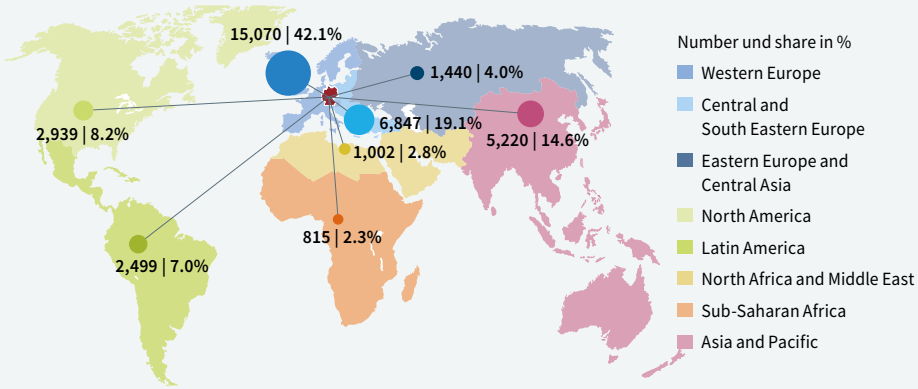
F3.2 International university partnerships, by federal state, in 2024[2]



Number | Share in %

Source: German Rectors' Conference, database of international university partnerships; DZHW calcuations

F3.3 International university partnerships, by world region and key countries, in 2024[3]



World region/country	Latin America	
	Number	Share in %
Brazil	650	1.8
Mexico	482	1.3
Chile	332	0.9
Argentina	297	0.8
Colombia	286	0.8

World region/country	North Africa and Middle East	
	Number	Share in %
Israel	287	0.8
Jordan	128	0.4
Egypt	109	0.3
Iran	77	0.2
Morocco	77	0.2

World region/country	Western Europe	
	Number	Share in %
France	2,753	7.7
Spain	2,574	7.2
Italy	2,057	5.7
United Kingdom	1,345	3.8
Austria	802	2.2

World region/country	Eastern Europe and Central Asia	
	Number	Share in %
Russia[4]	697	1.9
Ukraine	290	0.8
Georgia	122	0.3
Kazakhstan	101	0.3
Uzbekistan	72	0.2

World region/country	Sub-Saharan Africa	
	Number	Share in %
South Africa	235	0.7
Kenya	66	0.2
Ghana	60	0.2
Namibia	55	0.2
Ethiopia	54	0.2

World region/country	Central and South Eastern Europe	
	Number	Share in %
Poland	1,452	4.1
Turkey	1,371	3.8
Czech Republic	587	1.6
Hungary	574	1.6
Romania	488	1.4

World region/country	North America	
	Number	Share in %
US	2,301	6.4
Canada	638	1.8

World region/country	Asia and Pacific	
	Number	Share in %
China	1,306	3.6
Japan	845	2.4
South Korea	615	1.7
Australia	549	1.5
India	460	1.3

Source: German Rectors' Conference, database of international university partnerships; DZHW calcuations

Other major regions of international collaboration for German universities are Central and South Eastern Europe (19%) as well as Asia and Pacific (15%), to which a good third (34%) of all agreements refer. The principal alliances are located in Poland, Turkey and the Czech Republic, plus China, Japan and South Korea. In North America (8%), it is mainly US universities who have entered into partnerships. German universities collaborate to a similar extent with institutions in Latin America (7%), where Brazil, Mexico and Chile are the key countries.

The other world regions play a subordinate role in terms of the number of partnership agreements, reporting shares of between 2% and 4%. Most alliances with Russian, Ukrainian and Georgian universities are in Eastern Europe and Central Asia,[4] while Israel, Jordan and Egypt spearhead the associated countries in North Africa and Middle East. In Sub-Saharan Africa, German universities mainly work with universities in South Africa.

STRUCTURAL ASPECTS OF INTERNATIONALISATION

4 International third-party funding for research and teaching at German universities

The acquisition of international research and teaching funding is paramount for universities in Germany. Not only does this funding enable universities to carry out important research and teaching activities, it also serves as a catalyst in furthering their internationalisation. Requirements for successfully attracting international third-party funding include questions of international relevance and often also collaborative project structures, which involve liaising with partners from other countries (see p. 122/123).

> “9% of third-party funding at universities and 13% of third-party funding at UAS are provided by international organisations.

In 2021, German universities raised an impressive total of 825 million euros of third-party funding from the EU. Another roughly 32 million euros in funding came from other international organisations. These may be international funding networks in which various countries have joined forces as well as programmes set up by individual countries or institutions, for which funding is awarded internationally. In 2021, the EU provided some 96% of all international third-party funding to Germany. This EU third-party funding for German universities snowballed by 49% between 2010 and 2021. However, compared to the previous year, there was a decrease of 6%, thereby interrupting the positive development since 2015. In terms of third-party funding from other international organisations, German universities raised 41% less funding overall in 2021 than in 2010. However, an upward trend can be observed once again since 2015, with a 21% hike from 2020 to 2021 alone.

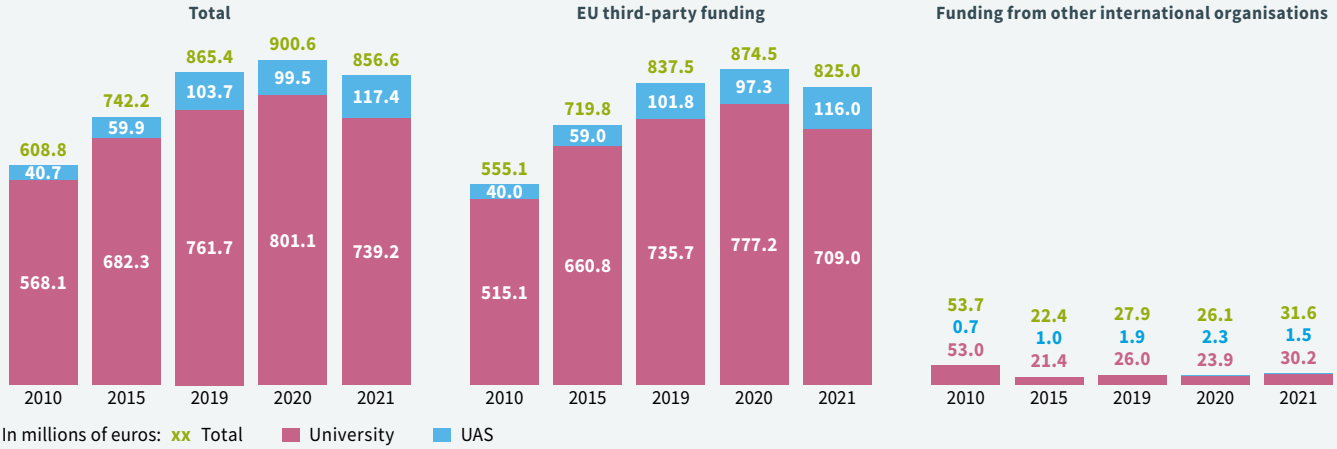
The third-party funding of the EU and other international organisations, which together amounted to around 857 million euros in 2021, accounted for 9% of all third-party funding at German universities. Between 2015 and 2020, this share was roughly 10%. This means that international third-party funding rose less sharply – even decreasing – in 2021, compared to other third-party funding.

In total, universities received 86% of all EU third-party funding and a remarkable 95% of funding from other international organisations. Although the shares of universities of applied sciences (UAS) are significantly lower at 14% and 5%, respectively, the UAS are clearly experiencing a greater dynamism in terms of the growth of international third-party funding. Universities were able to step up their third-party funding from the EU by 38% between 2010 and 2021; nonetheless, it fell by 9% over the last year. Funding from other international organisations has plummeted by 43% since 2010; it has been rising again since 2015, up by 26% since 2020 alone. In contrast, a more continuous development, especially in the use of EU funds, can be observed at UAS. From 2010 to 2021, EU third-party funding at UAS skyrocketed by 190% and that of other international organisations by 114%. EU funding increased by 19% last year, however, funding from other organisations dropped by 35%. These developments mean that international third-party funding makes up 9% of all third-party funding at universities, yet 13% at UAS.

There are clear differences between the individual federal states in terms of international third-party funding. Universities in the new federal states reported particularly high percentages in 2021. Mecklenburg-Western Pomerania occupied pole position with a share of around 25% of all international funds raised from third parties. However, Brandenburg (14%), Thuringia, Saxony-Anhalt, Saxony and Saarland (13% each) also achieved above-average proportions. Relatively low levels were registered in Bremen (5%) and Hamburg (6%).

These federal state-specific figures are based on universities’ varying strategies for the acquisition of third-party funding. When it comes to the use of international third-party funding, the differences between

F4.1 International third-party funding at German universities, by type of university, since 2010



Source: Federal Statistical Office, university financial statistics

F4.2 Share of international third-party funding of all third-party funding, by federal state and type of university, in 2021

Federal states	Share in %		
	Total	University	UAS
Mecklenburg-Western Pomerania	24.5	22.5	38.4
Brandenburg	13.7	12.3	19.4
Thuringia	13.4	13.1	16.8
Saxony-Anhalt	13.2	13.1	13.7
Saxony	12.6	11.8	21.0
Saarland	12.5	11.7	17.4
Bavaria	9.9	10.0	9.4
Berlin	9.2	9.2	8.7
North Rhine-Westphalia	8.5	8.0	11.9
Rhineland-Palatinate	7.8	7.5	9.5
Lower Saxony	7.8	6.8	21.8
Schleswig-Holstein	7.4	6.3	17.9
Hesse	7.2	7.2	8.3
Baden-Württemberg	7.0	6.7	9.9
Hamburg	6.0	5.2	17.8
Bremen	4.8	5.8	0.4
Total	9.0	8.6	12.9

Share in %: Total University UAS

Source: Federal Statistical Office, university financial statistics; DZHW calculations

F4.3 The 15 universities with the most international third-party funding, in 2021

Universities	International third-party funding in millions of euros
University of Munich	39.0
TU Dresden	34.5
RWTH Aachen	29.1
University of Cologne	27.9
University of Freiburg	20.5
University of Rostock	20.2
Universität Erlangen-Nürnberg	17.8
Heidelberg University	16.6
TU Darmstadt	16.4
University of Göttingen	15.4
FU Berlin	12.2
Johannes Gutenberg University Mainz	11.4
University of Münster	11.3
University of Würzburg	11.3
Ruhr-Universität Bochum	11.0

Source: Federal Statistical Office, university financial statistics; DZHW calculations

F4.4 The 15 universities with the highest shares of international third-party funding of all third-party funding, in 2021

Universities	Share of international third-party funding in %
Wismar University of Applied Sciences	55.5
Niederrhein University of Applied Sciences	31.2
Hochschule Zittau/Görlitz	29.7
University of Rostock	25.4
Eberswalde University for Sustainable Development	23.6
BTU Cottbus-Senftenberg	16.9
Trier University	16.1
TU Bergakademie Freiberg	14.7
Technical University of Munich	13.3
University of Cologne	11.6
Johannes Gutenberg University Mainz	11.5
TU Dresden	11.5
University of Wuppertal	11.2
University of Siegen	10.5
Frankfurt University of Applied Sciences	10.5

Source: Federal Statistical Office, university financial statistics; DZHW calculations

universities are considerable, both in terms of the absolute amount and the share that international funds make up in all third-party funding of universities. With regard to the amount of international funding, major universities with large numbers of students and staff led the field in 2021. Most international third-party funding was raised by the University of Munich (39 million euros), TU Dresden (34.5 million euros), RWTH Aachen (29.1 million euros) and the University of Cologne (27.9 million euros). However, the ten most important universities also include middle-level universities such as the University of Rostock (20.2 million euros).

> “56% of third-party funding at Wismar University of Applied Sciences comes from international sources.

A completely different ranking is found in the share of international third-party funding of all third-party funds. Here, three UAS top the league: Wismar University of Applied Sciences (56%), Niederrhein University of Applied Sciences (31%) and Hochschule Zittau-Görlitz (30%). International third-party funding is obviously of particular relevance for their research work. The first university only places fourth, namely the University of Rostock (25%).

SPOTLIGHT

English-language study programmes in Germany and around the world: development, status and significance from the perspective of international students

English-language study programmes are a central instrument in the internationalisation of university teaching in Germany and other non-English speaking countries. Not only do they offer domestic students an internationalised form of study, they are also an important factor in attracting international students and teaching staff.

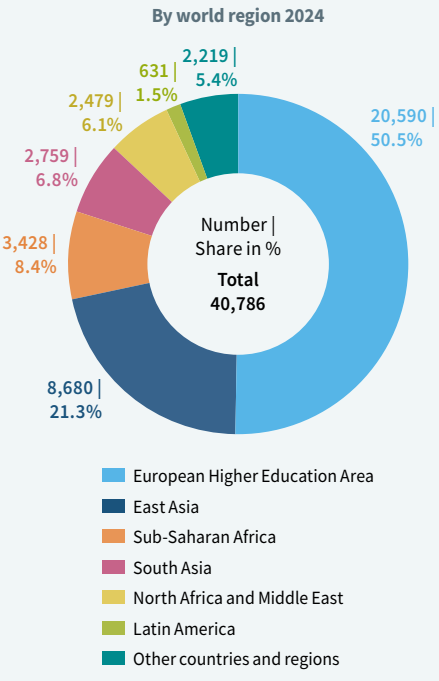
Sharp rise in English-language study programmes around the world

According to a recent analysis[1] undertaken by the British Council (in cooperation with the private education service provider Studyportals), just under 41,000 English-language, on-campus study programmes were available worldwide for bachelor's and master's degrees, outside the "Big Four" host countries of the United States, the United Kingdom, Canada and Australia, in March 2024. This number has tripled over the last decade, almost doubling (+49%) in the past five years, whereby the growth in bachelor's programmes (+59%) since 2019 has noticeably outstripped that for master's (+43%). Currently, a good 22% of the approximately 183,000 English-language study programmes worldwide identified in the analysis are offered outside the Big Four.

The European Higher Education Area (EHEA) accounts for over half of these degree programmes (around 20,600); the key non-English speaking provider countries are Germany (2,300) and the Netherlands (2,100). However, particularly marked gains in the range of programmes in the EHEA since 2019 are reported in Italy (+46%), Turkey (+55%) and notably in the Czech Republic (+78%). Outside the EHEA, the widest selection of English-language degree programmes can be found in China[2] (3,500), South Africa (2,800), Malaysia (2,400) and India (1,600).

The analysis carried out by the British Council also looked at which curricular aspects predominate in the English-language study programmes in non-English speaking countries. Universities in the non-English speaking countries make a conscious decision as to which degree programmes are to be offered in English and which are not. Therefore, a comparison between the key English-speaking countries (the Big Four) and the non-English speaking countries is particularly relevant with regard to the distribution of subjects.[3] The results show that, in relation to the English-language study programmes in non-English speaking countries, the subject groups of business & management, engineering & technology are over-represented, while the humanities, education & training, arts, design & architecture tend to be under-represented.

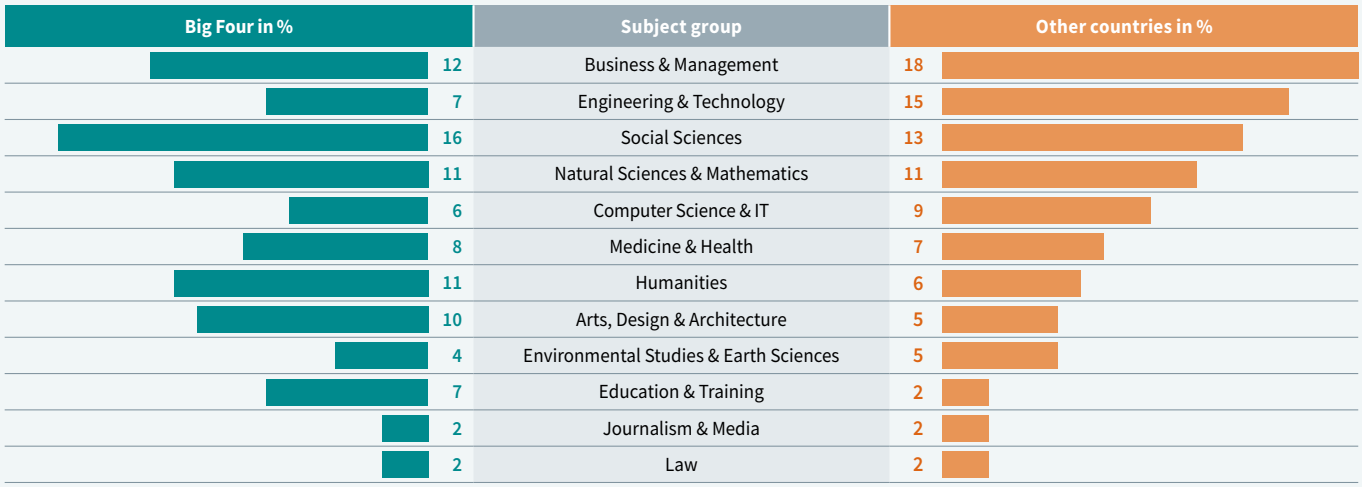
FS1 English-language study programmes offered outside the Big Four (US, UK, Canada, Australia), by world region and key non-English speaking provider countries, in 2019 and 2024[4]



	2019		2024		Development 2019–2024
Provider country	Number	in %	Number	in %	in %
China[2]	1,475	5.4	3,512	8.6	+138
South Africa	1,833	6.7	2,772	6.8	+51
Malaysia	973	3.6	2,397	5.9	+146
Germany	1,906	7.0	2,269	5.6	+19
Netherlands	1,946	7.1	2,104	5.2	+8
India	363	1.3	1,610	3.9	+344
Turkey	1,035	3.8	1,602	3.9	+55
France	1,020	3.7	1,323	3.2	+30
Italy	831	3.0	1,212	3.0	+46
Spain	1,157	4.2	1,027	2.5	–11
Sweden	933	3.4	1,019	2.5	+9
Pakistan	214	0.8	913	2.2	+327
United Arab Emirates	304	1.1	719	1.8	+137
Switzerland	592	2.2	658	1.6	+11
Iran	46	0.2	651	1.6	+1,315
Poland	515	1.9	642	1.6	+25
Japan	246	0.9	554	1.4	+125
Jamaica	233	0.9	499	1.2	+114
South Korea	326	1.2	489	1.2	+50
Thailand	184	0.7	467	1.1	+154
Portugal	385	1.4	459	1.1	+19
Finland	485	1.8	457	1.1	–6
Belgium	399	1.5	457	1.1	+15
Czech Republic	255	0.9	453	1.1	+78
Cyprus	485	1.8	450	1.1	–7
Other countries	9,225	33.7	12,071	29.6	+31
Total	**27,366**	**100**	**40,786**	**100**	**+49**

Source: British Council/Studyportals

FS2 English-language study programmes offered within and outside the Big Four (US, UK, Canada, Australia), by selected subject groups, in 2024[3]



Big Four in %	Subject group	Other countries in %
12	Business & Management	18
7	Engineering & Technology	15
16	Social Sciences	13
11	Natural Sciences & Mathematics	11
6	Computer Science & IT	9
8	Medicine & Health	7
11	Humanities	6
10	Arts, Design & Architecture	5
4	Environmental Studies & Earth Sciences	5
7	Education & Training	2
2	Journalism & Media	2
2	Law	2

Source: British Council/Studyportals

English-language study programmes in Germany: development and distribution

According to the Higher Education Compass of the German Rectors' Conference (HRK), in 2024 (as of 17 July), a total of 2,175 study programmes with English as the primary language of instruction are available, representing a share of almost 10% of all study programmes.[5, 6] In 2009, there were just 419 degree programmes, in other words, there has been a more than fivefold increase in the number of English-language study programmes at German universities over the last 15 years. Over the same period, the number of universities in Germany offering English-language study programmes rose from 340 to 414 (+22%); this means that the vast majority of the currently 427 state-recognised universities in Germany now have at least one English-language degree programme. Moreover, it can be concluded that the greatest portion of the increase presented above is due to an expansion of the corresponding study options at each university: thus, the average number of English-language degree programmes per university offering English-language curricula has more than tripled between 2009 and 2024, from 1.2 to 4.1. Over 80% of these study programmes (1,790 or 82%) are master's programmes, while just under a fifth (365 or 17%) are bachelor's programmes. Furthermore, the proportion of English-language programmes of all master's degrees is around 17%, more than four times higher than for bachelor's degrees (4%).

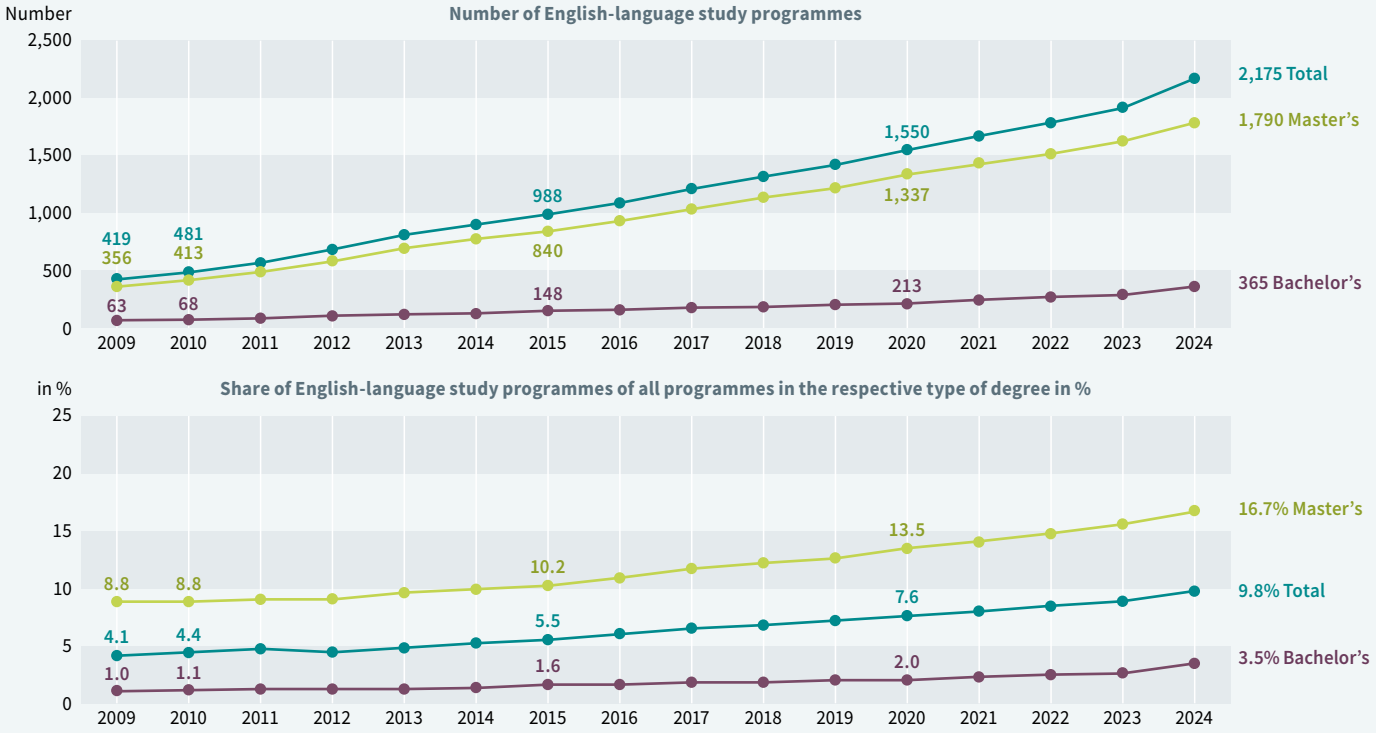
Looking at the distribution of English-language study options at universities in Germany by subject group, it can be seen that, overall, the three subject groups of business, administration and law (677 or 26%), mathematics and natural sciences (674 or 26%) plus engineering (455 or 18%) account for a good 1,800 or roughly 70% of these study programmes. At the same time, above-average proportions of English-language study programmes of all study programmes are found in these three subject groups, but particularly in the two groups of business, administration and law (18%) and mathematics and natural sciences (19%). Nevertheless, the highest share of English-language degree programmes, almost 23%, relate to the agriculture and forestry subject group; in absolute terms, however, these are only around 50 English-language programmes.

An analysis of English-language study programmes by type of university and funding body reveals that roughly 1,300, or about two thirds, are offered by universities and roughly 700, or about one third, at universities of applied sciences (UAS). On the other hand, English-language study programmes do not figure prominently at colleges of art and music. In total, just 24 such programmes are on offer, representing a share of only 2% of all study programmes at colleges of art and music. By comparison, the shares at UAS and universities, 9% and 10% respectively, are significantly higher. Moreover, it appears that over 80% of the English-language study programmes are offered by public universities in Germany, with the remaining 20% by private universities. However, the proportion of English-language degree programmes of all degree programmes at private universities (18%) is double that at public universities (9%). English-language study programmes are evidently an important business segment for some private universities, designed in particular to encourage international students to enrol for a degree.

SPOTLIGHT

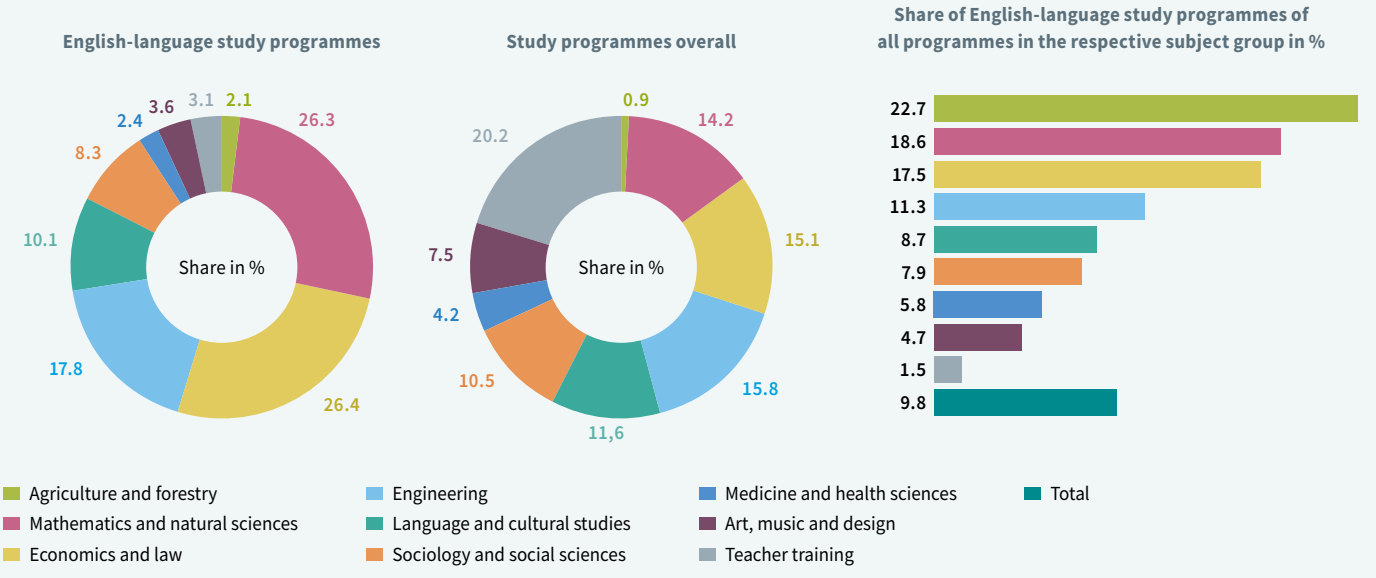
English-language study programmes in Germany and around the world: development, status and significance from the perspective of international students

FS3 English-language study programmes at universities in Germany, by type of degree, since 2009[7]



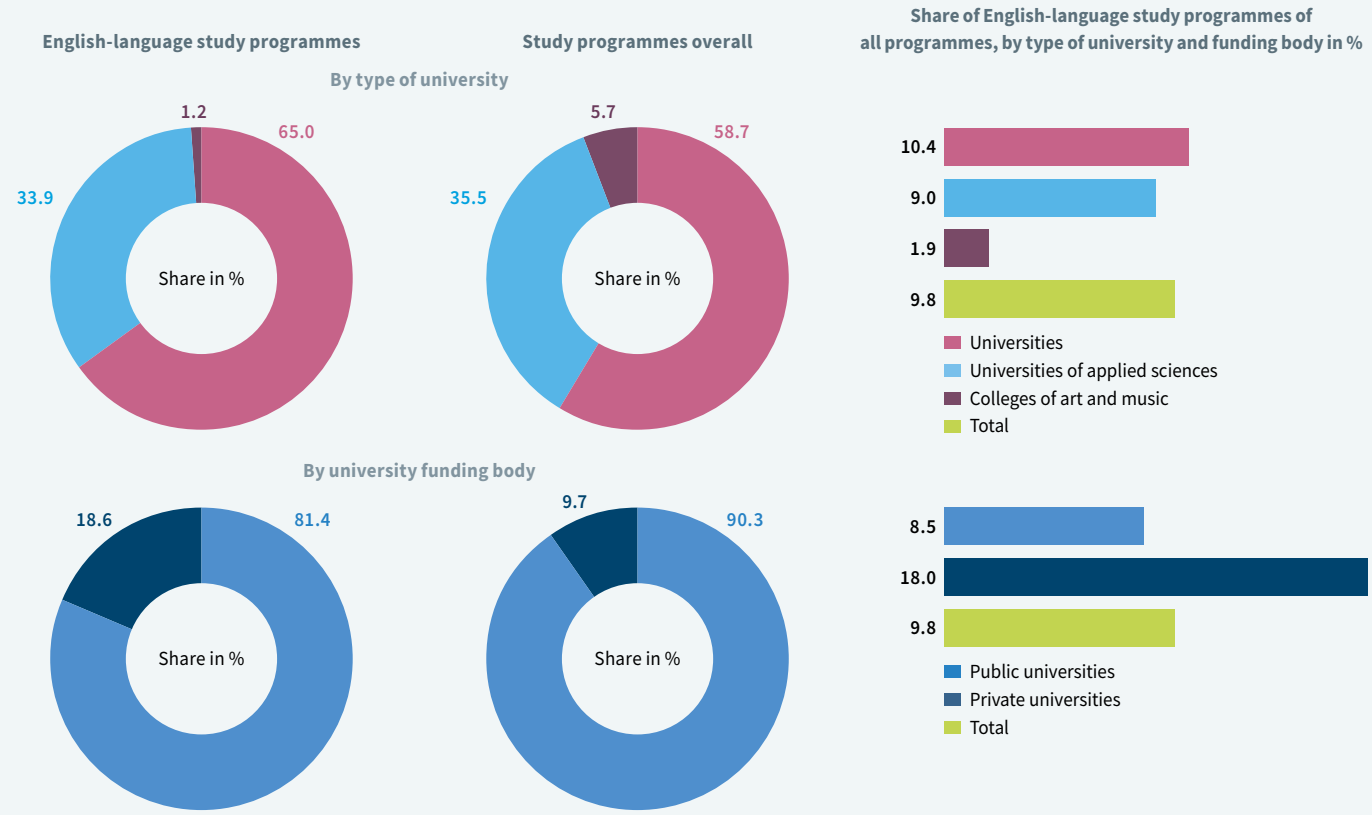
Source: German Rectors' Conference (HRK), Higher Education Compass

FS4 English-language study programmes at universities in Germany, by subject group, in 2024[4, 8, 9]



Source: German Rectors' Conference (HRK), Higher Education Compass

FS5 English-language study programmes at universities in Germany, by type of university and funding body, in 2024[4]



Source: German Rectors' Conference (HRK), Higher Education Compass

How important are English-language study programmes for international students in Germany?

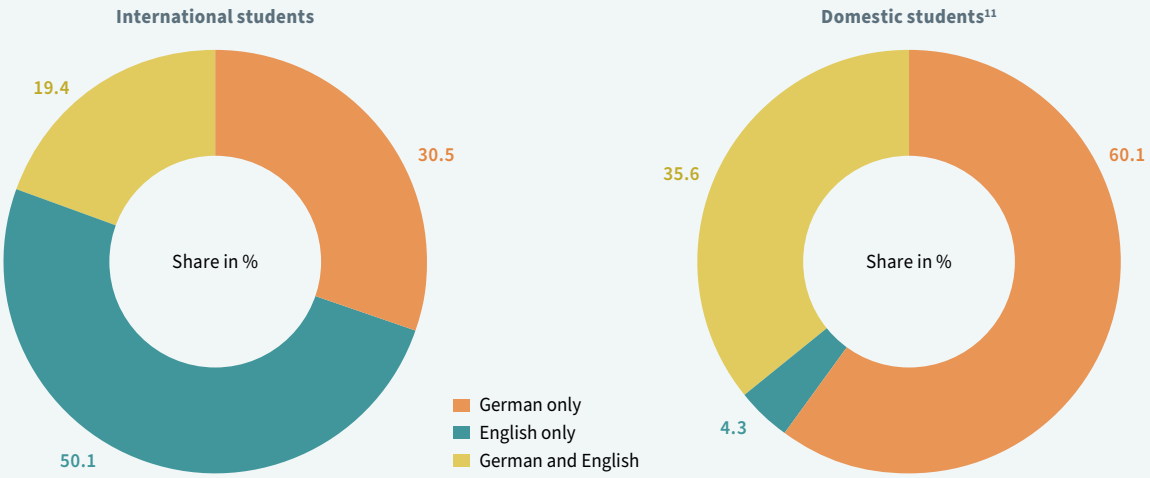
At present, official higher education statistics do not include the language of instruction as an attribute, therefore no data are available on the student numbers in English-language study programmes. In light of the above, the BintHo Survey[10] conducted by the DAAD in the 2023/24 winter semester asked domestic and international students to indicate the language of instruction. This survey therefore makes it possible for the first time to estimate major trends regarding student numbers in English-language programmes. On first comparing the significance of German and English as the language of instruction among domestic[11] and international students (intending to graduate), the findings in both groups differ enormously. Some 60% of domestic students are enrolled in German-language study programmes, with a further 36% in programmes taught in both German and English and a mere 4% in exclusively English-language programmes. Conversely, half (50%) of international students are enrolled in exclusively English-language programmes, a further 19% in programmes combining classes in both German and English and just 31% in exclusively German-language programmes.

One important reason for the varying relevance of English-language study programmes among domestic and international students is the different distribution of these two groups between bachelor's and master's degree programmes and the various subject groups. The following section therefore looks at the importance of English-language programmes for international students (intending to graduate) in Germany, depending on the type of degree and subject group. The first conclusion is that almost three quarters (73%) of all international master's students in Germany are enrolled in English-language degree programmes, as opposed to just one quarter (26%) of all international bachelor's students. At the same time, half of the bachelor's students are enrolled in exclusively German-language study programmes (50%), but just over one tenth (11%) of master's students. Lastly, programmes that are taught in both German and English play a slightly greater role among bachelor's students (24%) than for master's students (16%).

SPOTLIGHT

English-language study programmes in Germany and around the world: development, status and significance from the perspective of international students

FS6 German and English as language of instruction among domestic and international students intending to graduate in Germany, in the 2023/24 winter semester



Source: DAAD, BintHo Survey 2023/24, weighted figures

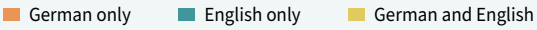
FS7 Reasons for choosing their university from the perspective of international students intending to graduate in Germany, in the 2023/24 winter semester[12]

Reasons for choosing the university	Share in %
Programme curriculum	51.6
English-language study programmes	41.0
University's excellent reputation/ranking	35.8
Low or no tuition fees	31.1
Living expenses at the place of study	16.0
Others' recommendations	15.3
Attractiveness of the university's location	12.8
Low requirements regarding level of German skills	11.8
Low admission restrictions	11.2
Available and affordable accommodation at the place of study	8.7
Personal connection to the university's location	8.0
Favourable application deadlines	6.2
Specific teaching staff at the university/in the programme	5.7
Cooperation with home university/alma mater	5.6
I was only accepted by this university.	5.2
Transport connections at the university's location	3.8
Preparatory courses at the university	3.4

Source: DAAD, BintHo Survey 2023/24, weighted figures

FS8 German and English as language of instruction among international students intending to graduate in Germany, by type of degree and subject group, in the 2023/24 winter semester[4]

Type of degree	Share in %		
Bachelor's	50.2	25.5	24.2
Master's	11.2	73.0	15.8
Subject group	**Share in %**		
Humanities	33.6	38.4	28.0
Law, economics and social sciences	22.3	60.9	16.9
Mathematics and natural sciences	26.6	57.8	15.6
Medicine and health sciences	53.0	37.7	9.2
Agricultural, forestry and food sciences, veterinary medicine	33.9	58.7	7.4
Engineering	31.4	49.5	19.0
Art and art history	50.1	6.5	43.4



Source: DAAD, BintHo Survey 2023/24, weighted figures

Footnotes

1 See the publication "Mapping English-taught Programmes Worldwide" on the website of the British Council: https://takeielts.britishcouncil.org/sites/default/files/mapping_english-taught_programmes_worldwide_0.pdf

2 Including Hong Kong and Macao.

3 Subject groups according to the classification in the British Council analysis.

4 Deviations from 100% are due to rounding.

5 Bachelor's and master's programmes account for the vast majority of English-language degree programmes (2,155 or 99%).

6 The above analysis by the British Council is based on the study programme database of the private education service provider Studyportals. As the database also includes study programmes at universities that are not officially recognised, the number of study programmes referenced is slightly higher than that in the Higher Education Compass of the German Rectors' Conference.

7 Total: including English-language study programmes leading to other types of degree.

8 Subject groups according to the classification of the German Rectors' Conference.

9 Including multiple answers as the study programmes in the Higher Education Compass of the German Rectors' Conference can be assigned to several subject groups.

10 See also the info box on p. 70 and www.daad.de/bintho.

11 German students plus foreign students who obtained their university entrance certificate at a German school (Bildungsinlaender).

12 Respondents were asked to select up to three particularly important reasons from a predefined list.

Sizeable variations in the significance of English-language study programmes can also be observed across some of the subject groups. Above-average shares of international students in English-language study programmes are found in the subject groups of law, economics and social sciences (61%), agricultural, forestry and food sciences (59%) plus mathematics and natural sciences (58%). By contrast, the engineering subject group has just an average share (50%) and the humanities (38%), as well as medicine and health sciences (38%) report below-average shares. Finally, the subject group of art and art studies is a notable outlier: even among international students, English-language study programmes only play a very subordinate role here (7%).

Another finding from the 2023/24 BintHo Survey also highlights the importance of an English-language curricula in attracting international students to universities in Germany. International students who were intending to graduate in Germany were also asked to select up to three from a predefined list of 17 possible reasons that were particularly pivotal for their decision to study at their university in Germany. After the content of the programme (52%), English-language study programmes were the second most frequently cited reason (41%). Moreover, just two other reasons (the university's excellent reputation or ranking along with low or no tuition fees) were considered equally important (36% and 31% respectively). All other reasons played a much less significant role in selecting a university in Germany.

5 Transnational education projects of German universities

5.1 Locations and forms

Transnational education (TNE) is the name given to a sub-area of internationalisation in which universities from one country bear academic responsibility for study programmes offered in another country that are aimed at prospective students from that country. Thus, TNE primarily refers to the transnational mobility of content, structures and institutions. This distinguishes TNE from the primarily individual, international mobility of students, academics and researchers. In 2023[1], German universities were represented worldwide with transnational education projects at 44 locations in 29 countries and with 316 study programmes. In 2021, there were 349 study programmes; the drop is chiefly due to projects in Belarus and Russia being suspended on account of the war. Nevertheless, the number of students enrolled in German TNE projects has continued to rise, currently at around 37,300. Compared to 2015, this represents an increase of 30%.[4]

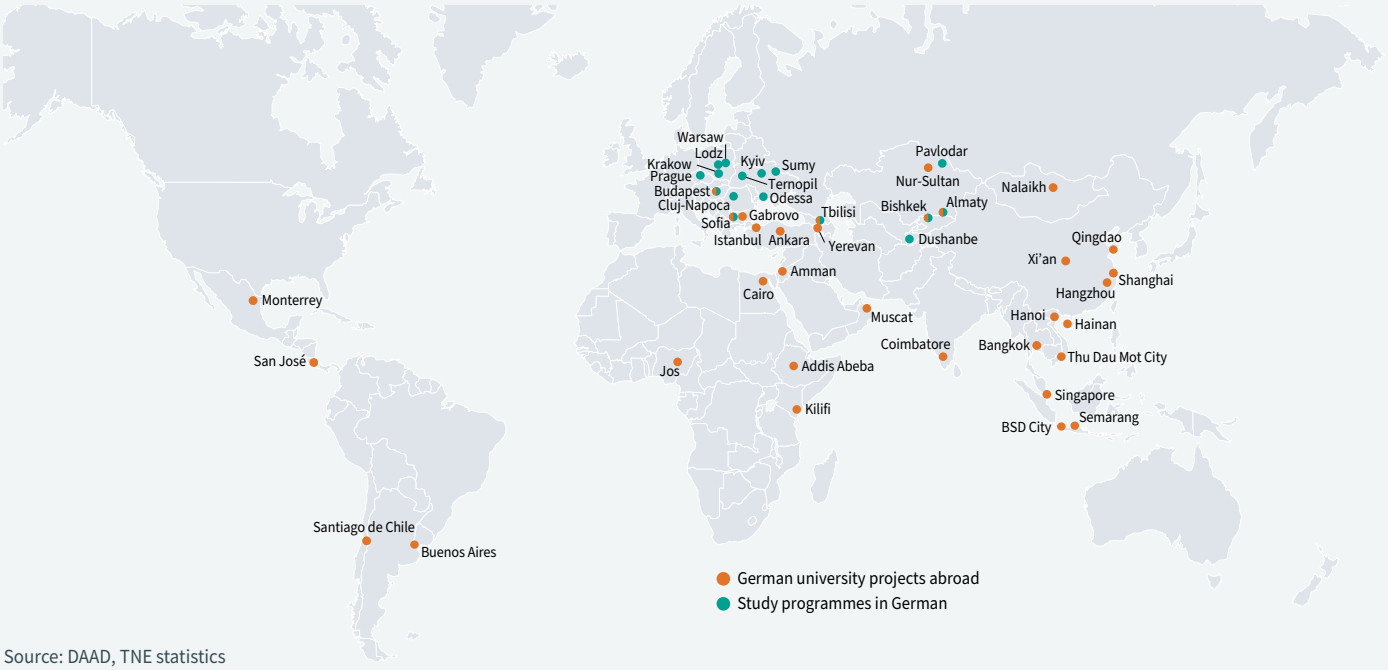
> “Despite the many challenges in the form of crises and conflicts, the number of students in German TNE projects has increased to around 37,300.

The regional focus of the German TNE projects is on North Africa and the Middle East (Egypt, Jordan, Oman) and the Asia and Pacific region (China, Vietnam). Binational higher education projects are of particular importance here: 44% of the students in German TNE projects alone are at the German University in Cairo (GUC). In addition, a further 19% of TNE students are in the North Africa and Middle East region, with 13% alone at the German-Jordanian University (DJU) in Amman and 6% at the German University of Technology (GUtech) in Oman at the Muscat site. The projects in China – including the Sino-German School for Postgraduate Studies (CDHK) and the Sino-German College of Applied Sciences (CDUAS) in Shanghai – together account for around 8% of the students enrolled in German TNE projects.

Methodology

The data presented here are based on reports from German universities whose TNE activities are currently being sponsored by the DAAD with funds from the Federal Ministry of Education and Research (BMBF), the Federal Foreign Office (AA) or the Federal Ministry for Economic Cooperation and Development (BMZ), or were funded in a start-up phase. They do not include the overwhelming majority of double (or multiple) degree study programmes between German universities and foreign, particularly European, university partners, which are registered with the German Rectors' Conference and which are predominantly geared towards the mutual exchange of students (as well as funded by the DAAD from federal funds).[6] Also not included are TNE activities that were established without DAAD funding. It is therefore not possible to present a complete overview of the TNE involvement of German universities here. However, it may be assumed that the data presented here reflect the majority of the overall TNE activities of German universities.

F5.1 Locations of transnational education projects hosted by German universities abroad with current DAAD funding, in 2023[1]



Source: DAAD, TNE statistics

Since only a few countries have collected TNE data thus far, and there is a lack of data and consistent terminology relating to TNE activities internationally, meaningful comparisons cannot be made between TNE projects offered by different countries at national and international level. A TNE classification framework for International Programme and Provider Mobility (IPPM), developed on the basis of international consultations and published in 2017, proposes a fundamental distinction between "collaborative" forms of TNEs – in other words, those jointly offered by universities in the country of the provider and the host country – and "independent" TNE formats, for which a foreign university is solely responsible.[5] Within these basic categories, a distinction is made between TNE activities at programme level (collaborative study programmes or franchise programmes) and the establishment of complete TNE institutions (joint university or branch campus). The application of the IPPM classification framework to German TNE data shows a continuing dominance of collaborative formats in TNE projects with the participation of German universities.[7] Of the programmes offered, 96.5% are within the framework of collaborative study programmes or binational universities, accounting for 98.6% of the total number of enrolled students.

Footnotes

1 Data are collected annually in January and refer to the status of the data in the previous year. Until the 2022 edition of *Wissenschaft weltoffen*, the year the data were collected was specified. Since the 2023 edition, the year to which the reported data relate is indicated.

2 As the data from the German University in Cairo were not available in full at the time of going to press, conservative estimates were made for the missing figures, assuming that they would remain at the level of the previous year. In all probability, the actual total figures are slightly higher than the values assumed here.

3 An academic year begins in the winter semester and ends in the summer semester of the following year (academic year 2023 = WS 2022/23 and SS 2023).

4 This is a year-on-year increase of 2.3%.

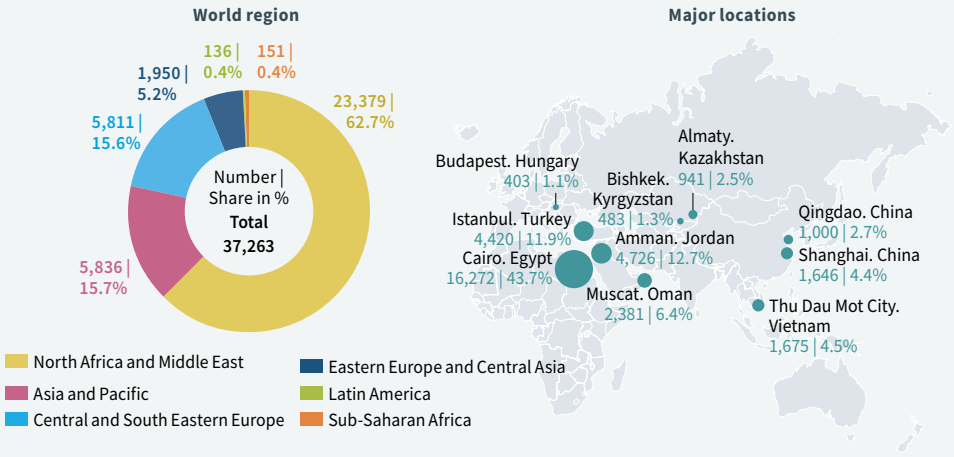
5 See Knight/McNamara (2017).

6 Thus, several hundred partnerships with universities in other countries for the award of double or joint degrees are not covered. This category includes the study programmes offered by the Franco-German University (DFH) and around 100 DAAD-funded study programmes with international double (or multiple) degrees. Also not accounted for is a growing number of around 200 doctorates currently being supervised at binational universities, often with co-supervision in Germany.

7 IPPM = International Programme and Provider Mobility.

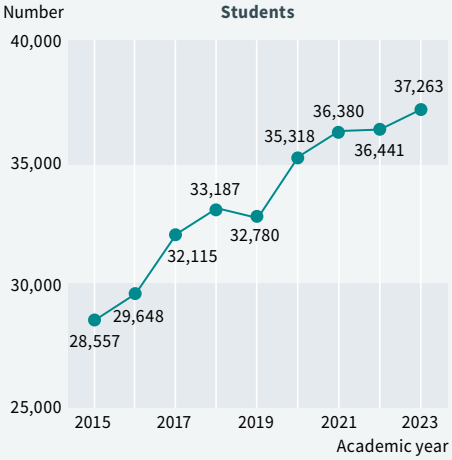
8 Deviations from 100% are due to rounding.

F5.2 Students in German TNE projects with current DAAD funding, by world region and major locations, in 2023[1, 2]



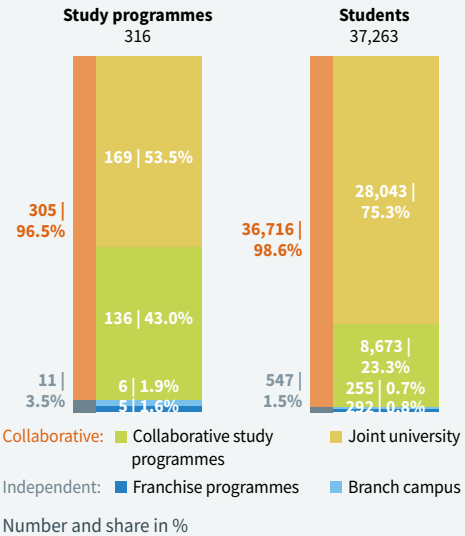
Source: DAAD, TNE statistics

F5.3 Students in German TNE projects with current or previous DAAD funding, since 2015[1, 2, 3]



Source: DAAD, TNE statistics

F5.4 German TNE projects according to the joint IPPM classification framework, in 2023[1, 2, 7, 8]



Number and share in %

Source: DAAD, TNE statistics

5.2 Features of German TNE projects

Although it is difficult to formulate a clear definition of the German approach to transnational education (TNE) due to the fluid transitions, a number of characteristics can be identified that are generally typical of German TNE projects. In contrast to commercial programmes, such as those developed by universities in Australia, the United Kingdom and the US, German TNE projects are characterised by the partnership-based pursuit of political objectives and interaction between the following actors:

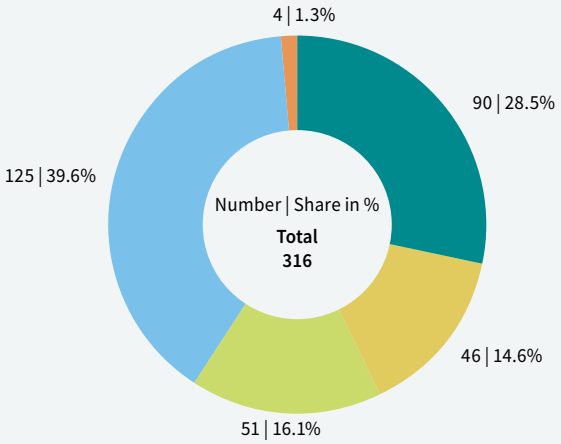
- German universities, whose commitment and assumption of academic responsibility are instrumental in shaping the field of German TNE;
- The universities and university policy players in the respective host country, whose regional competence is pivotal to successfully structuring the TNE projects to meet the needs of the target groups;
- The financing ministries (Federal Ministry of Education and Research, Federal Foreign Office, Federal Ministry for Economic Cooperation and Development), whose TNE funding addresses issues of foreign science policy, university internationalisation and research and development in equal measure;
- The DAAD, which acts as mediator and coordinator to ensure that TNE projects are implemented in a way that accommodates the interests of all parties.

> “72% of TNE students are enrolled in study programmes that include compulsory German language instruction, while a further 19% can take advantage of optional German language instruction.

Other important features of the German TNE approach are the academic responsibility of the participating German universities (usually through the application or transfer of quality-checked curricula), the flexible, demand-oriented and partnership-based structure of the projects, and the strengthening of references to Germany within the curricula. For German universities, the DAAD and funding providers, the TNE activities are an important instrument for strengthening the ties between TNE students and Germany. In this context, the political objectives of foreign science policy, research and development funding (focusing on foreign institutions) and the internationalisation of German universities (focusing on German institutions) are complementary.

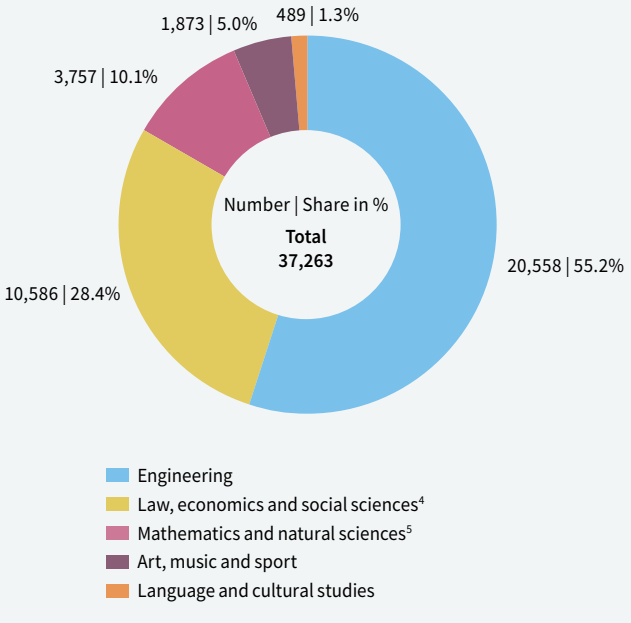
The TNE study programmes support the connection to Germany in various ways. First and foremost is the curricular responsibility borne by German universities, which leads to the award of German degrees or a combination of German and foreign degrees. In almost half of the TNE study programmes considered (43%), a German university degree is awarded as the sole degree or in combination with a foreign degree as a double or joint degree.[1] In addition, in some TNE projects, the degree is awarded by a university in the host country, while the programme in question is accredited in Germany. This applies to 16% of the study programmes covered here.

F5.5 TNE study programmes with current DAAD funding, by accreditation of the degree in Germany, in 2023[2, 3]



Source: DAAD, TNE statistics

F5.6 Students in German TNE projects with current DAAD funding, by subject group, in 2023[2]

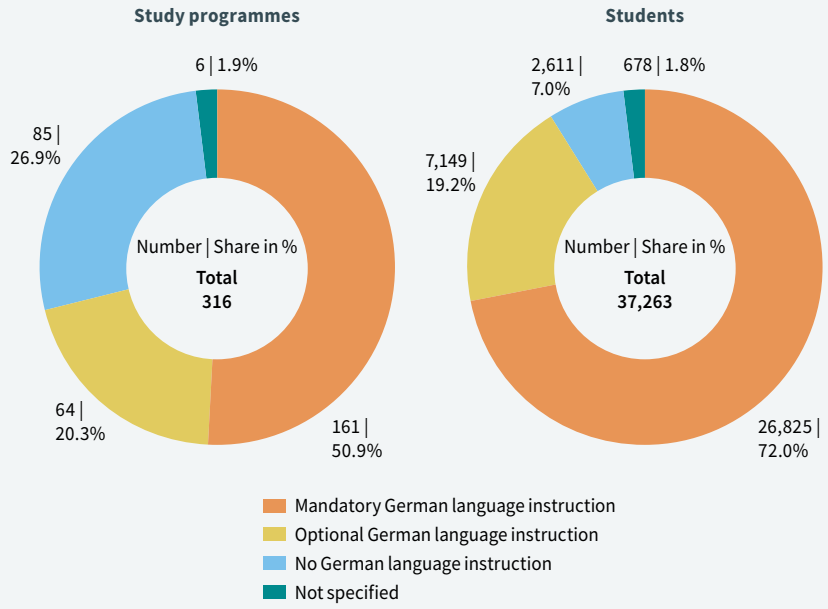


Source: DAAD, TNE statistics

Moreover, the clear majority of TNE students (72%) are enrolled in study programmes that include compulsory German language instruction, while a further 19% can take advantage of optional German language instruction. Spending time in Germany is another compulsory requirement of the curricula for almost a quarter of TNE students (23%). A further two thirds of TNE students (65%) may complete an optional period in Germany as part of their studies, which is fully integrated into the curriculum.

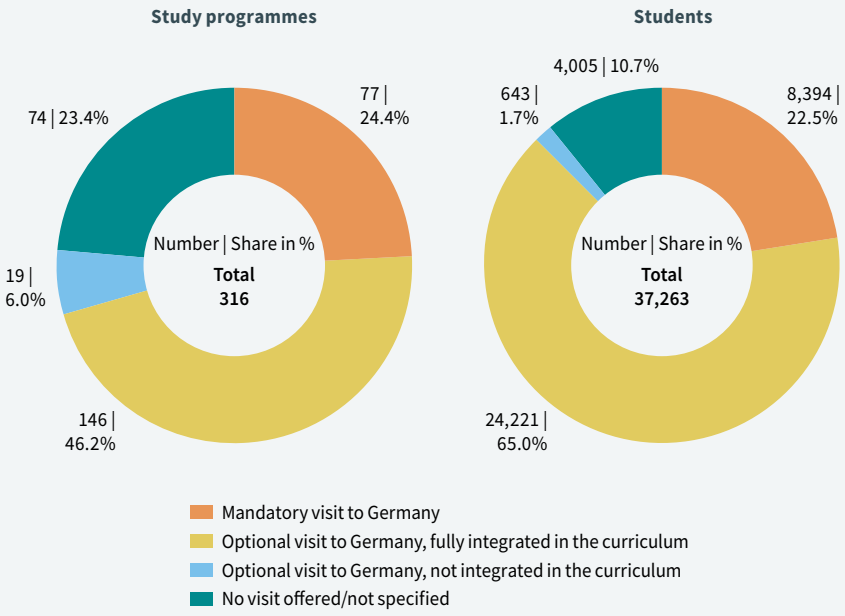
As in previous years, more than half (55%) of TNE students are enrolled in engineering study programmes. This predominance can be viewed as a further characteristic of German TNE projects. Law, economics and social sciences (28%) and mathematics and natural sciences (10%) lag considerably further behind. Other subject groups only play a subordinate role. The overwhelming majority of students in the TNE projects surveyed are aiming for an undergraduate degree, that is, a bachelor's or comparable first degree, and a smaller group for a master's degree. Doctorates are only offered at a small number of the registered TNE institutions and are not fully recorded statistically.

F5.7 TNE study programmes and students in TNE study programmes with current DAAD funding, by German language instruction options, in 2023[2]



Source: DAAD, TNE statistics

F5.8 TNE study programmes and students in TNE study programmes with current DAAD funding, by integration of periods in Germany in the curricula, in 2023[2, 3]



Source: DAAD, TNE statistics

Footnotes

1 In the case of a double degree, each partner university awards its own degree, documented either by two separate certificates or by a joint certificate listing both degrees. In the case of a joint degree, the partner universities award a joint degree, documented by a joint certificate.

2 Data are collected annually in January and refer to the status of the data in the previous year. Until the 2022 edition of *Wissenschaft weltoffen*, the year the data were collected was specified. Since the 2023 edition, the year to which the reported data relate is indicated.

3 Deviations from 100% are due to rounding.

4 Including veterinary/agricultural/forestry/environmental sciences.

5 Including pharmacy.

Mapping mobility: data basis and analytical concepts on the international mobility of students, academics and researchers

Wissenschaft weltoffen relies on various data sources on the international mobility of students, academics and researchers. When interpreting the data, it should be borne in mind that there are different types of student, academic and researcher mobility, the data collection of which is tied to different preconditions. For example, it is much easier to record the inbound mobility of international students in Germany than the outgoing mobility of German students as complete official data on study-related visits abroad are not yet available as part of higher education statistics. By the same token, it is even more difficult to document the international mobility of academics and researchers. In Germany and many other countries, records of this form of mobility are far from comprehensive and may not even be kept by statistical agencies. To serve as a guide for readers of *Wissenschaft weltoffen*, the following section therefore offers a brief overview of the relevant types of student, academic and researcher mobility, and outlines the data sources available for this purpose.

A. Student mobility

Types of mobility

The two terms *degree mobility* and *credit mobility* are used in connection with the international mobility of students. According to the European Mobility Strategy ("Mobility for Better Learning") adopted by the EHEA Ministerial Conference in Bucharest 2012, degree mobility covers all study-related visits during which a degree is acquired abroad. Credit mobility, on the other hand, refers to study-related visits abroad as part of a degree programme in Germany. In addition to temporary studies abroad, this also includes visits abroad that were undertaken as placements, language courses, study trips, project work or summer schools.

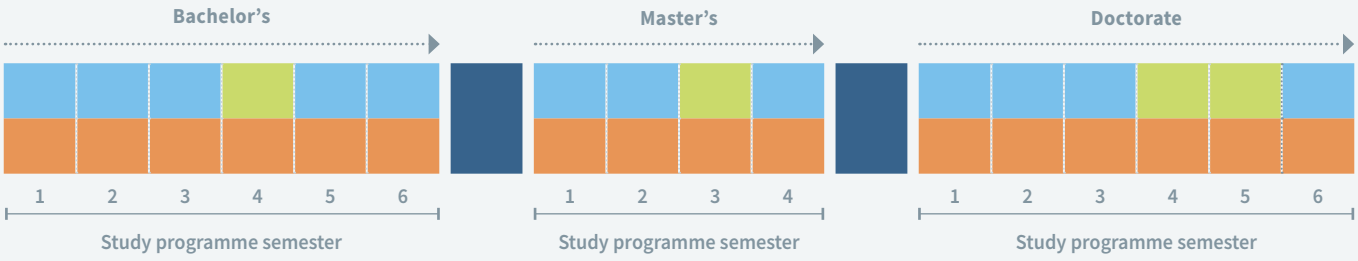
In line with the distinction between credit and degree mobility, *Wissenschaft weltoffen* distinguishes between temporary study-related visits abroad as part of a degree programme, where the degree is awarded in Germany, and degree-related international mobility, where visits abroad are undertaken with the aim of obtaining a degree abroad (see also Fig. 1). It should be noted that, due to the data situation regarding outgoing mobility, it is only possible to distinguish between these two forms of mobility to a limited extent. In the case of inbound mobility, on the other hand, this differentiation does not present any difficulties (see also the comments in the section on "Available data sources and data quality").

Lastly, the third type of mobility is bridge mobility between two study cycles (e.g. between a bachelor's degree and a master's programme or a master's programme and a doctorate). For some years now, the Erasmus programme of the European Union has included financial provisions for these visits, such as summer schools or preparatory courses abroad, during which the recipients of funding are not enrolled at a university.

Available data sources and data quality

To record the **degree-related international mobility** (DIM) of German students, data must be taken from the higher education statistics compiled by the respective host countries as these students have only enrolled at local universities there (see also Fig. 3 below). The Federal Statistical Office (Destatis) therefore conducts an annual survey of the institutions responsible for education statistics in around 40 major host countries of German students. The results of this survey are published in the annual report entitled "Deutsche Studierende im Ausland". The students thus registered are predominantly, but not exclusively, students who are seeking a degree abroad. The data for some countries include Erasmus students and other students on temporary study-related visits. A useful supplement is therefore the data on German first-year students and graduates abroad that have been collected in parallel by Destatis from the 2008 academic year onwards. However, these data are available for fewer countries than the number of students. In addition to the official statistics, the statistics on international student mobility published by UNESCO, OECD and the Statistical Office of the EU (Eurostat) can also be used to assess DIM. They are based on a

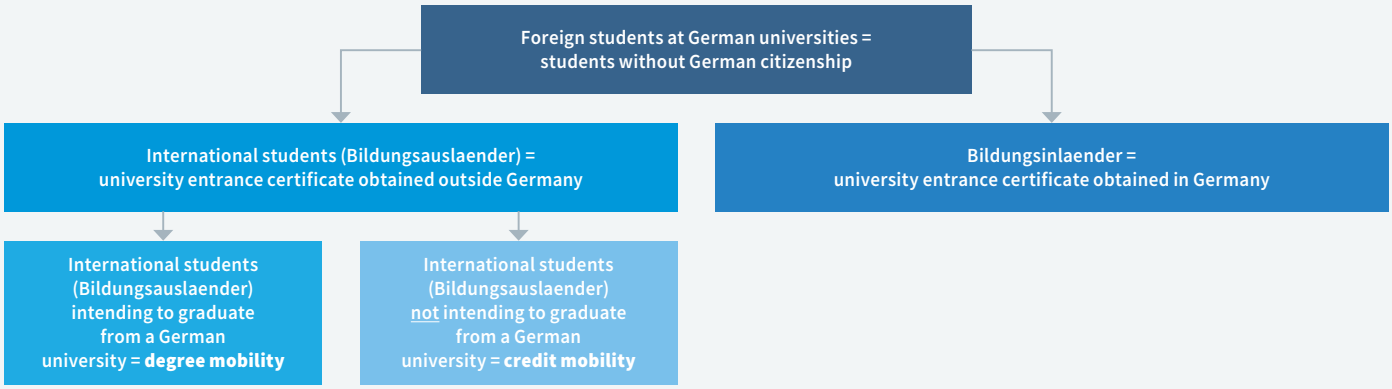
1 Forms of study-related international mobility during (ideal-typical) studies and doctoral studies



Degree at a university in Germany
Temporary study-related visits abroad as part of a domestic degree programme (e.g. semester abroad, placement visit abroad, study trip)
Bridge mobility between two study cycles (e.g. placement visit abroad, summer school, language course)
Degree-related international mobility (studies and degree abroad)

Source: Own representation

2 Key groups of foreign students at German universities



Source: Own representation

joint data collection, the "UOE data collection on education systems". Compared with the survey conducted by the Federal Statistical Office, the UOE survey has the advantage of providing data for significantly more host countries and countries of origin. On the other hand, the data documentation within the framework of the UOE data collection allows hardly any conclusions to be drawn about the data quality (which varies greatly from host country to host country). Moreover, fewer differentiating characteristics (such as subject groups) are recorded.

Foreign students in Germany form part of the normal student statistics compiled by the Federal Statistical Office (Destatis). According to these statistics, all students without German citizenship are classified as foreign students. They include both Bildungsauslaender and Bildungsinlaender (see also Fig. 2). Bildungsauslaender are international students who have acquired their university entrance certificate abroad or supplemented their school qualifications acquired abroad by successfully completing a preparatory college for university admission in Germany. In *Wissenschaft weltoffen*, they are referred to exclusively as international students in accordance with the term commonly used in other countries and in international organisations. In Destatis publications, however, international students refers to all students with a foreign university entrance certificate, including those students holding German citizenship. Bildungsinlaender, on the other hand, have obtained their university entrance certificate at a school in Germany or taken an aptitude or gifted students test here.

The student statistics compiled by Destatis enable international students to be broken down into **students intending to graduate** in Germany (degree-related international mobility or DIM) and those **not intending to obtain a degree in Germany** and/or who are seeking a degree abroad (temporary study-related international mobility or TSIM). Erasmus statistics are also available as a data source, although it should be noted that the students who have enrolled at a university and are recorded here are also included in the official student data. It is also important to note that the documentation of TSIM of international students in Germany only covers study visits at universities. Other study-related visits (e.g. placements, language courses or study trips) are not included in the Destatis statistics prepared here. Erasmus data, on the other hand, include study-related visits and placements, corresponding to the possibilities offered by this exchange programme.

To date, no official statistics are available on the total **temporary study-related international mobility** (TSIM) of German students. Reliable official data are only available for the subsection of temporary study or placement visits within the framework of the EU Erasmus programme. According to the findings of corresponding surveys, these Erasmus stays represent about one third of the TSIM of German students. However, the amendment of the Higher Education Statistics Act in 2016 means that valid official figures on study-related visits outside the Erasmus programme will be available in the future. Until such time, the TSIM of German students will have to be estimated by means of student and graduate surveys.

Data sources used

The central database for the findings on the **degree-related international mobility of German students** presented here is the "Deutsche Studierende im Ausland" data collection of the Federal Statistical Office (Destatis). These data are supplemented by figures from the UNESCO statistics for individual host countries. To describe temporary study-related international mobility, *Wissenschaft weltoffen* uses not only the Erasmus statistics but also results from the Social Surveys conducted until 2016 by the German Centre for Research on Higher Education and Science Studies (DZHW) of the German National Association for Student Affairs (DSW) and from the new, national Student Survey in Germany ("Die Studierendenbefragung in Deutschland", SiD) by the DZHW, the University of Konstanz and the DSW (especially when considering longer-term developments).

To trace the development of the study programmes of *international students (Bildungsauslaender) in Germany*, reference is made in particular to the Destatis student statistics. Data on Erasmus participants from abroad who spend temporary study periods at universities or on placement visits in Germany are also analysed.

Lastly, UNESCO student statistics are used to illustrate **global student mobility**.

3 Key data sources on student mobility

Source/creator	Title of statistics/study	Survey frequency	Types of mobility included[1]	Special features
German students abroad				
Federal Statistical Office	"Deutsche Studierende im Ausland"	Annually	DIM (primarily)	Data of approximately 40 major host countries of German students (at least 125 German students enrolled)
Federal Statistical Office	Examinations at universities/successful examinations with credits from abroad	Annually	TSIM	Only data on international mobility with degree-related credits, statistics still being prepared and/or incomplete
DAAD	Erasmus statistics	Annually	TSIM	Full survey
DAAD	"Benchmark internationale Hochschule" (BintHo Survey)	Every three years	TSIM	Alternating participation of universities
DSW/DZHW	Social Survey	Every four years (until 2016)	TSIM	Nationally representative sample
DZHW, University of Konstanz, DSW	The Student Survey in Germany (SiD)	Every four years (since 2021)	DIM and TSIM	Nationally representative sample
DZHW	Graduate Panel	Every fourth cohort	TSIM	In total, three survey waves by degree, nationally representative sample
International students in Germany				
Federal Statistical Office	Students at universities	Annually	DIM and TSIM	Full survey
Federal Statistical Office	Examinations at universities	Annually	DIM	Full survey
Federal Statistical Office	Study progress statistics	Annually	DIM	Full survey, previously published data only cover part of the study programme
DAAD	Erasmus statistics	Annually	TSIM	Full survey
DAAD	"Benchmark internationale Hochschule" (BintHo Survey)	Every three years	TSIM	Alternating participation of universities
DSW/DZHW	Social Survey	Every four years (until 2016)	DIM and TSIM	Nationally representative sample
DZHW, University of Konstanz, DSW	The Student Survey in Germany (SiD)	Every four years (since 2021)	DIM and TSIM	Nationally representative sample
International student mobility				
UNESCO	UIS statistics database (online)	Annually	DIM (primarily)	Most extensive country data, differentiated by sex, not differentiated by type of degree
OECD	Education at a Glance	Annually	DIM (primarily)	Only OECD countries, differentiated by sex and type of degree or ISCED level[2]
Eurostat	Eurostat database (online)	Annually	DIM (primarily)	Only European countries, differentiated by sex, type of degree and ISCED level or ISCED subject group[2]

1 DIM = degree-related international mobility; TSIM = temporary study-related international mobility.

2 The basis for the collection and processing of data is the International Standard Classification of Education (ISCED 2011) and/or ISCED-F 2013 (fields of education and training), which ensures the international comparability of national data. ISCED 2011 differentiates between eight levels, whereby Levels 5 to 8 refer to tertiary education. ISCED-F 2013 differentiates between ten subject groups.

Source: Own representation

4 Advantages and disadvantages of official statistics, bibliometric data and surveys of academic and researcher mobility

Official and other public statistics	Bibliometric data	Surveys
Advantages		
• No time or effort required on the part of data users or academics and researchers surveyed • As a rule, publicly accessible and free of charge • Regular, usually annual surveys, i.e. developments can be analysed over time • As a rule, comprehensive data collection or even full surveys	• No time or effort required on the part of data users or academics and researchers surveyed • Enables a global, relatively comprehensive survey of academic and researcher mobility • Developments can be analysed over time	• Enables precise definition of target population • Wide range of possible study variables • High degree of international comparability
Disadvantages		
• Preselected sample • Sample depends on records of academics and researchers in public statistics • Preselected, very limited number of study variables • International comparability is severely restricted	• Preselected sample • Sample depends on publication activity of academics and researchers • Preselected, very limited number of study variables • International comparability is severely restricted • High costs for access to publication databases	• Difficult to obtain access to respondents • Considerable time and effort involved for surveying researchers and responding academics and researchers • Frequently requires the number of respondents to be limited, potential problems with representativeness • Often only cross-sectional surveys, i.e. no possibility of tracing developments over time

Source: Own representation

B. Mobility of academics and researchers

Types of mobility

There are three basic types of mobility among academics and researchers, based on the particular reason for mobility, between which there are close links and overlaps: project- and event-related international mobility (e.g. conference trips or research projects abroad), qualification-related international mobility (e.g. doctoral studies abroad or postdoctoral projects abroad) and job-related international mobility (temporary or permanent research and teaching positions abroad). Depending on the perspective, many cases of academics' and researchers' mobility can be classed as several of these types. For example, many doctoral or postdoctoral projects abroad can be both project-related and qualification-related international mobility. In addition to the overlaps between the three types of mobility of academics and researchers, they are also linked by causal relationships. This also applies to the specific types of mobility within the three types of mobility. Students' study-related international mobility often leads to doctoral mobility, which in turn leads to postdoctoral mobility. Project-related mobility of academics and researchers becomes event-related mobility in many cases. By the same token, contacts are often established at international academic conferences, which in turn lead to project-related mobility among academics and researchers.

Available data sources and data quality

Research on international mobility among academics and researchers has so far relied **mainly on three data sources**: official or other publicly available statistics, publication databases (bibliometric data) and survey data (see also Fig. 5). All three sources have strengths and weaknesses, some of which mirror each other, in other words, the strength of one source turns out to be a weakness of the other (see also the overview in Fig. 4).

When **drawing on** publicly **available statistics**, independent data are not collected but existing data sets used instead. The work involved on the part of researchers and their respondents in collecting data is thus eliminated, which can be regarded as the central strength of these sources. Moreover, official data frequently contain very large samples or even full surveys, another of their strong points. In addition, publicly available data have the advantage that the findings can often be easily compared with other analyses that use the same data basis. The main shortcoming of publicly accessible statistics is that they are limited to the variables available in the respective databases and cannot be supplemented by additional variables that allow for indepth analysis (e.g. of the causes and effects of academics' and researchers' mobility). Besides, they usually only record academics and researchers at public institutions. A further weak point of this source, which still exists at present, is the lack of comparability of the data across national borders as different definitions of academics and researchers are often used, and the quality and completeness of official data collections also vary greatly from country to country.

5 Key data sources of academic and researcher mobility

Source/creator	Title of statistics/study	Publication frequency	Special features
Foreign academics and researchers in Germany			
Federal Statistical Office	Staff at universities	Annually	Full survey
Federal Statistical Office	Finance statistics of public research institutes (staff at non-university research institutes)	Annually	Full survey
Federal Statistical Office	Doctoral student statistics	Annually	Full survey, i.e. including doctoral students not enrolled at universities
Federal Statistical Office	Students at universities (doctoral students)	Annually	Only includes enrolled doctoral students
DAAD	Erasmus statistics (guest lectureships)	Annually	Full survey
DAAD/DZHW	Funded guest visits undertaken by academics and researchers from other countries	Annually	Survey of relevant funding organisations
German academics and researchers abroad			
DAAD/DZHW	Funded guest visits to other countries undertaken by academics and researchers from Germany	Annually	Survey of relevant funding organisations
DAAD	Erasmus statistics (guest lectureships)	Annually	Full survey
National statistical offices in other key host countries	National university staff statistics	Annually	Varying definitions of recorded academics, researchers and universities, plus different scopes of the surveys
International mobility and cooperation among academics and researchers			
EU office of the BMBF	Contract database of EU Research Framework Programmes	Annually	Full survey
OECD	Student statistics (international doctoral students)	Annually	Not including data on international doctoral students in the US
National statistical offices in other key host countries	National university staff statistics	Annually	Varying definitions of recorded academics, researchers and institutes, plus different scopes of the surveys
Elsevier or Clarivate	Scopus or Web of Science	Ongoing	Contains bibliometric data on publications worldwide
European Commission	Mobility Patterns and Career Paths of EU Researchers (MORE)	Every three years since 2010	Only international researcher survey carried out regularly worldwide

Source: Own representation

International publication and citation databases are used as a data basis for *bibliometric analyses* of academics' and researchers' mobility. This is usually one of the two predominant databases around the world, *Scopus* (Elsevier) or *Web of Science* (Clarivate). These databases contain a certain number of the articles published worldwide in (English-language) academic journals and their citations in other articles. In addition, the respective country of location of each author's institution is documented for every article. By this means, these databases can also be used to analyse the international mobility of academics and researchers since a comparison of the country of location of different articles submitted by an author allows conclusions to be drawn about their mobility biography. The strengths of this source largely correspond to those of publicly available statistics, that is, no data collection effort on the part of researchers and their subjects, large samples or full surveys, and comparability with other analyses that draw on the same publication database as a data basis.

Despite the comprehensive data sets on which bibliometric analyses can be based, they are subject to several significant limitations. Firstly, access to existing international publication databases entails high costs. Secondly, only those academics and researchers who have (already) published in academic journals are included, which are covered in

turn by the publication databases used. These are primarily English-language journals from the natural sciences and economics. This means that academics and researchers from disciplines where monographs and edited volumes still play an important role as publication media (i.e. primarily the humanities and social sciences) are strongly under-represented. Since there are also marked differences between countries with regard to these publication cultures and non-English language publications are also systematically under-represented in most international publication databases, country comparisons based on bibliometric analyses can only be of limited value. Moreover, a complete survey of mobility biographies in bibliometric studies is not possible as mobility is only recorded if a publication (in publication databases) was published before and after the mobility from the respective country of location. Furthermore, academics and researchers are only included in the sample from the date of their first publication. (Potential) mobility before this first publication is therefore excluded, which may lead to a false determination of the mobility status and the respective country of origin. Thus, academics and researchers who published in different countries during the period under review are usually considered mobile, whereby their first country of residence during the period under review is regarded as the country of origin. It is therefore conceivable that prior mobility may be excluded and that the presumed country of origin is actually a host country. Ultimately, at least two publications during the period under review are required to determine mobility. Accordingly, young researchers who have no or only one academic journal article to show for the period under review are excluded from the analysis.

In contrast to the two methods described above, **surveys** are characterised in particular by their systematic collection of new data on academics' and researchers' mobility. This has the advantage that the researchers themselves can determine who is to be interviewed and which questions are to be asked or which attributes surveyed. The number of variables available for the analysis of the mobility of academics and researchers is therefore generally much higher than in public statistics and publication databases, thus allowing for more indepth or explanatory analyses (e.g. on the mobility motives of academics and researchers). Furthermore, researchers who are not covered by publication databases or public statistics (e.g. researchers in companies) can also be included in the analysis. Finally, surveys of academics and researchers that are conducted internationally guarantee a high degree of cross-border comparability of the data from the different countries. However, surveys entail considerable time and effort, and therefore also high costs. These limitations mean that regular surveys are relatively infrequent and therefore not suitable for use as a basis for obtaining ongoing statistics on academics' and researchers' mobility. The only exception in this respect is the EU-funded study "Mobility Patterns and Career Paths of EU Researchers" (MORE), which has been conducted every three years since 2010, most recently in 2019/20 (MORE4).

Data sources used

Wissenschaft weltoffen draws from different data sources to produce as comprehensive a picture as possible of the mobility of academics and researchers in Germany and other countries. The official statistics of the Federal Statistical Office relating to foreign academic staff at state-recognised universities and non-university research institutes and to (enrolled) international doctoral students are used to record **foreign academics and researchers in Germany**. In addition, data are analysed on short-term visits from the Erasmus statistics (Erasmus guest lecturers) and from a survey conducted by the DAAD and the DZHW on funded visits undertaken by guest researchers from other countries in Germany at relevant funding organisations. With regard to the official statistics relating to academic staff, it should be noted that the international academics and researchers recorded are not necessarily actually mobile in all cases as only information on their citizenship, not on their educational and research biographies, is collected here. Differentiation between international academics, researchers, students and Bildungsinlaender, as in the case of foreign students, is therefore not possible at this point.

The data basis for recording **German academics and researchers abroad** has so far been very patchy, particularly with regard to longer-term stays (qualification- or job-related international mobility). Short-term visits abroad are covered by Erasmus statistics on Erasmus guest lecturers and by the abovementioned surveys of relevant funding organisations. These data are supplemented by a further survey carried out by the DAAD and the DZHW for *Wissenschaft weltoffen* at the respective statistical offices on German university staff in major host countries of German academics and researchers. The job-related international mobility recorded here is subject to country-specific definitions and restrictions.

Finally, to illustrate the **international mobility of academics and researchers**, *Wissenschaft weltoffen* uses OECD data on international doctoral students worldwide, national official data on international academics and researchers at universities and public research institutes in major host countries, funding data from the contract database for the EU's Research Framework Programmes as well as bibliometric data from the Elsevier Scopus database (prepared and analysed by the DZHW).

GLOSSARY

Academic and artistic university staff
According to the higher education statistics published by the Federal Statistical Office, academic and artistic university staff refer to professors (including visiting, honorary and adjunct professors), lecturers and assistants, academic and artistic staff, specialised teaching staff, emeritae and emeriti, assistant lecturers, private lecturers, student research assistants (with a degree) and tutors.

Academics and researchers
In the context of *Wissenschaft weltoffen*, academics and researchers are persons who work in a professional capacity on formulating and publishing new insights and who develop or refine theories, models, instruments, IT programs or methods as part of their concepts.

Academic year
Used here as a reference value to determine the number of students → First-year students. In most cases, the number of students in a winter semester is regarded as the number of students in the academic year. For first-year students, the total number of first-year students in a summer semester and the following winter semester is regarded as the number of first-year students in a specific academic year. The first-year students of the 2022 academic year are thus the first-year students of the 2022 summer semester and the 2022/23 winter semester.

Bildungsauslaender
Students with foreign citizenship (or stateless persons) who have obtained their university entrance certificate at a school abroad (i.e. outside of Germany). Since the 2020 edition of *Wissenschaft weltoffen*, → international students, a term widely used around the world, has been employed instead of *Bildungsauslaender*.

Bildungsinlaender
Students with foreign citizenship (or stateless individuals) who obtained their university entrance certificate at a German school.

Countries of origin
The region of origin of international students is defined differently in the various data sources. The Federal Statistical Office assigns students to a country of origin according to their citizenship. In the UNESCO statistics, the country where students obtained their university entrance certificate is used to determine their country of origin (irrespective of their citizenship).

Credit mobility
→ Temporary study-related visits abroad

Degree mobility
→ Degree-related international mobility

Degree-related international mobility
A study period at a university in another country with the intention of acquiring a degree. Also referred to as → Degree mobility.

First-year students
First-year students in Germany are students enrolled in their first university semester. In most countries, students who appear in student statistics for the first time on the date of the survey are counted as German first-year students abroad, regardless of what → Study programme semester they are currently enrolled in. In some cases, therefore, they may be students in later semesters.

Foreign students
All students with foreign citizenship including stateless students, in other words, both → *Bildungsauslaender* and → *Bildungsinlaender*.

Funded groups
Funded groups here include:
- Postgraduates: persons with a university degree who receive funding to work on their dissertations as foreign citizens in Germany or as German nationals abroad, as well as graduates who have been awarded a mobility scholarship, despite not intending to embark on doctoral studies.
- Postdocs: doctorate holders whose visits to Germany or abroad are funded to enable them to obtain further qualifications by conducting research. They include university lecturers and experienced academic staff at universities or research institutes (e.g. professors or heads of research groups).

Graduation year
A graduation year includes the graduates of a winter semester and the following summer semester. The number of graduates in 2022 is the total number of graduates in the 2021/22 winter semester and the 2022 summer semester.

International students/internationally mobile students
Students who are internationally mobile for study-related purposes, in other words, who enrol in a university outside the country in which they obtained their university entrance certificate. Since the 2020 edition of *Wissenschaft weltoffen*, international students, a term widely used around the world, has been employed instead of → *Bildungsauslaender*.

Students in later semesters
Different definitions are used, depending on the study.
In the DSW/DZHW Social Surveys, all students in the 9th to 14th semesters at universities and all students in the 7th to 11th semesters at universities of applied sciences are considered students in later semesters. In the new DZHW's Student Survey in Germany (SiD), students in later semesters refer to those from the sixth university semester on bachelor's programmes, from the fourth study programme semester in master's programmes and from the ninth university semester in state examination programmes.

Study programme semester
The name given to semesters during which students are enrolled in a specific degree programme.

Temporary study-related visits abroad
Study-related visits abroad as part of a domestic degree programme (e.g. semester abroad, placement visit abroad, summer school, language course). Also referred to as → Credit mobility.

Transnational education projects (TNE)
Transnational education projects are study programmes for which a university abroad bears the main academic responsibility. These projects only refer to TNE study programmes, TNE faculties, branch campuses – i.e. spin-offs or branches of universities abroad – and binational universities, in other words, not double degree programmes or distance learning courses.

Types of study
Types of study include:
- First degree programme: a study course leading to a first university degree.
- Postgraduate degree programme: study course after completing a first degree programme; postgraduate degree programmes include second degree programmes, complementary and supplementary courses, contact/further education courses, non-consecutive and consecutive master's programmes.
- Doctoral studies: a degree or academic activity with the goal of gaining a doctorate.

University semester
The name given to semesters during which students are enrolled at a German university. Thus, university semesters also comprise all → Study programme semesters in a degree programme as well as those semesters spent in another degree programme after changing programmes, for example. They also include semesters with leave of absence and any semesters completed as part of a second degree programme.

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STRUCTURE OF THE WORLD REGIONS

Since the 2017 edition, the regional classification of *Wissenschaft weltoffen* has adopted the DAAD regional classification:

Western Europe
Andorra, Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Malta, Monaco, Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, United Kingdom, Vatican City

Central and South Eastern Europe
Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Kosovo, Latvia, Lithuania, Montenegro, Northern Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, Turkey

Eastern Europe and Central Asia
Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

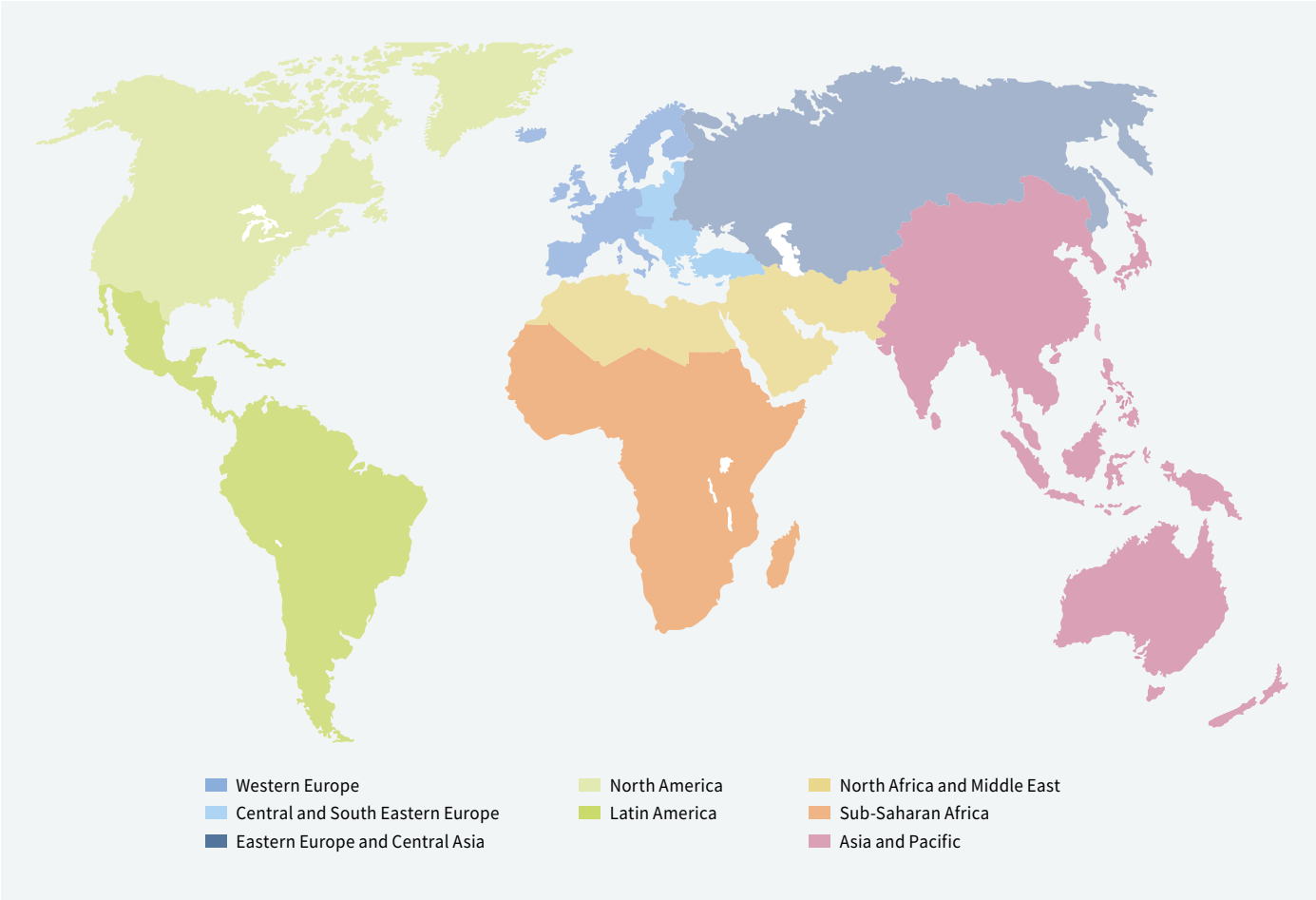
North America
Canada, United States of America (US)

Latin America
Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela

North Africa and Middle East
Afghanistan, Algeria, Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Pakistan, Palestinian territories, Qatar, Saudi Arabia, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen

Sub-Saharan Africa
Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Congo/Democratic Republic, Djibouti, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe

Asia and Pacific
Australia, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Cook Islands, Federal States of Micronesia, Fiji, Hong Kong (CN), India, Indonesia, Japan, Kiribati, Laos, Macao (CN), Malaysia, Maldives, Marshall Islands, Mongolia, Myanmar, Nauru, Nepal, New Zealand, Niue, North Korea, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, South Korea, Sri Lanka, Taiwan, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu, Vietnam



Wissenschaft weltoffen 2024

The internationalisation of studies and research in Germany and around the world is making dynamic progress, with the number of internationally mobile students and researchers growing apace. In June 2024, the Federal Government and the state governments proposed a new internationalisation strategy for German universities – a clear testament to the significance of internationalisation for Germany as a location of research, business and innovation. Data and facts are indispensable in evaluating the status of the internationalisation process. The publication series *Wissenschaft weltoffen* has been providing these findings for more than 20 years, becoming the **standard, central source of information on student, academic and researcher mobility.**

In this 24th edition, the *Wissenschaft weltoffen* data basis has been extended once again: the **new Chapter F** also analyses the **structural aspects of internationalising** universities and research facilities in Germany. For example, this includes data on international academic collaboration and international research funding. The aim is to gradually develop this new chapter in future.

In addition to the regular data updates, **six Spotlights** present special evaluations of current topics. Chapter A's Spotlight looks at "Student mobility between the United States and Europe: development and status" from a data analysis perspective. The Spotlight in Chapter B evaluates the "Reasons given by international students to study in Germany and their study satisfaction" on the basis of the latest Student Survey in Germany. Two Spotlights in Chapter D delve into "The research and working conditions of international academics and researchers at German universities" and "International academics at German universities: from postdoc to professorship". In an interview with two members of the Commission of Experts for Research and Innovation (EFI), the Spotlight in Chapter E explores the topic of "International mobility in Germany's science and innovation system". For the first time, an additional Spotlight in the new Chapter F takes a deep dive into "English-language study programmes in Germany and around the world: development, status and significance from the perspective of international students".

Once again, the *Wissenschaft weltoffen* **website** also has a number of new features. Readers can thus download all figures in the publication as graphic files or data tables for their own purposes (based on a CC license). Moreover, the website now includes additional interactive diagrams on international student mobility, showing flows to Germany and all over the world.

DAAD

The **German Academic Exchange Service (DAAD)** is the world's largest funding organisation for the international exchange of students and scholars. It emerged from a student initiative and was founded in 1925. It is supported by German universities and their students – in 2023, 243 universities and 104 student councils were registered members.

The DAAD is mainly funded by the Federal Foreign Office, the Federal Ministry of Education and Research, the Federal Ministry for Economic Cooperation and Development and the European Union. Other sponsors are foreign governments, companies, foundations and the "Stifterverband für die Deutsche Wissenschaft". The DAAD is headquartered in Bonn with an additional office in Berlin that includes the renowned Artists-in-Berlin Program. A worldwide network of 57 foreign offices, around 350 lectureships and 55 long-term lecturers and German Studies teachers maintains contact with partner countries across all continents and provides advisory services on the ground.

www.daad.de/en

DZHW

Headquartered in Hannover and Berlin, the **German Centre for Higher Education Research and Science Studies (Deutsches Zentrum für Hochschul- und Wissenschaftsforschung, DZHW)** is a research institute funded by the federal and state governments. As an international competence centre for research on higher education and science studies, the DZHW collects data and carries out analyses, provides research-based services for policy-makers in higher education and science and serves the scientific community as a research infrastructure in the field of higher education and science studies.

Research conducted by the DZHW is theory-based and application-oriented. Particular emphasis is placed on the long-term observation of developments in higher education and the scientific sector. The DZHW has gained a reputation for its unique nationwide surveys of individuals with university entrance qualifications, students and graduates, and for its scientific studies on the internationalisation process of the German higher education system, lifelong learning, higher education governance and funding. Its research activities focus on educational careers and graduate employment, research system and science dynamics, governance in higher education and science, and methods of empirical social research.

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