Moscow International University Ranking
"The Three University Missions" Methodology 2021

The first draft of the methodology for the Moscow International University Ranking methodology was developed following a large-scale public discussion with a total of over 100 collective contributors: universities, rector councils, expert associations and rating agencies. The list of ranking criteria was submitted for consideration to the International Expert Council of Ranking, comprised of 25 renowned higher education experts from Belgium, Brazil, China, India, Iran, Italy, Poland, Russia, South Africa, Turkey, the UK, and the USA.

Expert discussions continued after the release of the pilot version of the ranking in December 2017. Following the feedback, some of the indicators of the ranking were adjusted, and the shortlist of participating universities was expanded to 500. In 2019 the shortlist featured over 1700, in 2020 — over 1800, and in 2021 — over 2000 higher education institutions (HEIs), representing 119 countries and territories.

Shortlisted Universities

The Moscow International University Ranking 2021 shortlist was largely comprised of about 1800 HEIs shortlisted in 2020. The number of institutions representing any given country was determined to be proportional to the country's contribution to the world economy. Universities with leading positions in global university rankings and/or national academic rankings listed in IREG Inventory of National Rankings were included in the evaluation list. In some cases, the selection was based on the number of the university's academic papers from 2016 to 2019 indexed by the Web of Science Core Collection citation database; according to the data obtained by the analytical tool InCites. Furthermore, narrow-focused HEIs, i.e. those without educational programs in at least two out of six research areas according to the Organization for Economic Co-operation and Development (OECD) classification, and HEIs with no Bachelor's, Master's and PhD programs or their equivalents were excluded from consideration. Higher education institutions with a student body of less than 500 were excluded from the list as well.

Changes in the Indicators and Ranking Calculation Methodology

The methodological changes made in 2021 affected the weights of indicators and the range of data sources. The weight of the "Number of Massive Open Online Courses" indicator increased from 5% to 6%. The weight of the "Number of alumni with an individual article on Wikipedia" indicator was reduced from 8% to 7%. The "presence or absence of a published list of degree programs" marker was removed from the Transparency indicator. The scope of the "Number of Massive Open Online Courses" criterion was significantly increased: now the weighted sum of courses posted on different platforms from the "Class Central" aggregator list, as well as platforms, such as "Open Education" (Russia) and icourse163.org (China), are taken into consideration. Each platform is assigned a weight depending on the total number of learners.

Information Sources

The ranking uses only objective indicators approved by international experts. Reputation surveys were entirely excluded from consideration. Information sources included open access data from official websites of universities and national authorities, as well as data obtained from independent international sources, such as: the bibliometric data provider Clarivate Analytics; the largest aggregator of online course platforms "Class Central"; mass education platforms Open Education and icourse163.org; the free content, multilingual online encyclopedia Wikipedia; search engines (Google, Yandex, Baidu); social networks (Facebook, Twitter, VK, Sina Weibo); Alexa — one of the world leaders in web-analytics and websites of international student competitions and scientific awards from the IREG List of International Academic Awards.

Ranking Calculation

The overall weight of indicators per group is 45% for Education, 25% for Research, and 30% for University and Society.

For each indicator, a score was calculated to characterize the university's position in relation to its competitors. The calculation was carried out in two ways:

1) for normalized indicators (global and national citations, share of publications and transparency), the score of the participating HEIs was calculated according to the formula:

$$x_i = \frac{a_i - a_{min}}{(a_{max} - a_{min})},$$

where:

x_i is the score of the ith indicator;

a_i is the value of the ith indicator;

a_{max} is the maximum value of the ith indicator;

a_{min} is the minimum value of the ith indicator.

2) in cases where a linear calculation was not applicable, data normalization methods have been used. Subsequently, the scores of universities for each of the ranking indicators were multiplied by the corresponding weight coefficients. Finally, the weighted university scores in all of the indicators were summed up:

$$f = \sum_{i=1}^{n_x} x_i \ v_i,$$

where:

f is the ranking score;

x_i is the score of the ith indicator;

n_x is the number of ranking indicators;

v_i is the weight of the ith indicator.

Moscow International University Ranking
"The Three University Missions" Indicators 2021

№	Name	Parameters measured	Weight, %	Meaning and justification	Data source	Details
				I. Group of indicators: Education		
1	Number of student wins in international student contests	Students' competitiveness	7	Unlike common scientometric indicators, which measure achievements of the academic personnel, the innovative criterion of the Moscow Ranking makes it possible to measure the competitiveness of university students. The criterion demonstrates the quality of knowledge, skills and competence university students obtain during their studies, as well as their ability to use these resources to solve complex tasks. The amount of winners of international student competitions and other prestigious international contests cannot be large, yet the number of Prize winners of prestigious contests demonstrates in a focused way the effectiveness of learning and students' aptitude for breakthrough scientific research.	Websites of international contests	Personal and team wins in the 17 international student contests* from 2015 to 2019 were calculated in a similar way as Olympics medal tally (absolute winners and Prize winners were considered). Each contest was given a weight depending on the number of countries covered (for example, the ACM ICPC, which brings together students from over 100 countries, was assigned the maximum weight — 1.00; while NSUCRYPTO and Belgrade Business International Case Competition with participants from as few as 9 countries have a weight of 0.09). The weighted values were then summed up.
2	Share of international students	Attractiveness for international students	8	This indicator shows the proportion of international students to the total number of students. It is widely used by existing academic rankings.	Websites of universities and regulatory bodies	International students of all full- and part-time Bachelor's, Specialist's, Master's, and PhD programs (ISCED-2011 Levels 6-8), who spent more than 3 months in the university in the specified year (given to the total of students in full-time Bachelor's, Specialist's, Master's and PhD training programs). The number of students was converted to full-time equivalent.
3	University budget to student ratio	Financial resources	15	This criterion evaluates a university's financial wellbeing. The higher the indicator, the wider the range of the university's opportunities to implement the three main missions: education, scientific research and contribution to society.	Websites of universities and regulatory bodies	As the cost of products and services may vary significantly from country to country, the budget was converted into USD using purchasing power parity (PPP) defined by the World Bank (or in case the necessary value was not present, PPP defined by the OECD). Students of all full- and part-time Bachelor's, Master's, and PhD programs (ISCED-2011 Levels 6-8) were considered. The number of students was converted to full-time equivalent.
4	Student to academic staff ratio	Human resources	15	The indicator measures a university's staffing. The more faculty and research staff per student, the more attention the university staff may give to each student, and, therefore, the better the learning conditions at the university.	Websites of universities and regulatory bodies	The number of academic personnel (academic staff and researchers) was calculated on a full-time equivalent basis. Students of all full- and part-time Bachelor's, Master's, and PhD programs (ISCED-2011 Levels 6–8) were considered. The number of students was converted to full-time equivalent.

№	Name	Parameters measured	Weight, %	Meaning and justification	Data source	Details
				II. Group of indicators: Research		
5	IREG List awards won by university academic staff and alumni	Outstanding scientific achievements	7	The proposed metric is an elaboration of the approach proposed by the Shanghai ranking. Fundamentally, the idea of counting the number of winners of prestigious prizes to assess a university's scientific potential is correct. However, taking into account only Nobel and Fields Prizes severely limits the scope for evaluating an HEI. Therefore, we used the IREG List of International Academic Awards, which includes the world's 99 most prestigious scientific awards (with a possibility of expanding the prize list in the future).	Websites of international awards	The weighted number of awards from the IREG List of International Academic Awards received by the university's staff and alumni between 2000 and 2020 was determined. Only permanent university staff members as of the date of prize giving were considered. Those who have successfully completed their undergraduate, graduate and postgraduate studies (and programs equivalent to those listed) are counted as graduates.
6	Average normalized citation impact (global level)	Quality of scientific publications (international level)	10	The normalized citation impact quantitatively shows how much better or worse than the global average a particular publication is cited compared to publications of the same type, area of knowledge, and year of publication. The indicator demonstrates global relevance of the university's research activities within the academia, reflecting its acuteness and quality. Normalized citation indicators are widely used by academic rankings.	Web of Science Core Collection	Publications dated 2016–2019 were considered. The normalized citation impact values were calculated separately for the six research areas according to the OECD classification: Natural Sciences, Engineering and Technology, Medical and Health Sciences, Agricultural Sciences, Social Sciences, Humanities. Finally, the scores gained in each area of knowledge were summed up.
7	Average normalized citation impact (national level)	Quality of scientific publications (national level)	3	The indicator demonstrates global relevance of the university's research activities within the academia of the university's home country. Introducing this criterion contributes to a better consideration of achievements of national research schools and a more accurate evaluation of research output in the humanities.	Web of Science Core Collection	Publications dated 2016–2019 were considered. This indicator's calculation is different from that of global level average normalized citation impact in the fact that for each of the six research areas a ratio of a university's normalized citation impact to its country's respective value is calculated. The relation of the university's result to the best result among the universities located in this particular country was used as the final value.
8	Research income per academic staff member	Involvement of staff in research and development	5	The indicator actually shows the amount of R&D funds raised per academic staff member. The higher the amount per staff member, the more in-demand the university's research is. For universities that collect data on expenditure rather than income, the indicator is calculated as expenses (budget) per academic staff member.	Websites of universities and regulatory bodies	Funds attracted by a university for academic research and development were considered. This did not include other components, such as income from education activities, investment, commercialization, etc. In case country-specific features or other peculiarities did not allow to calculate the research income, the research budget as the amount of money, spent on research, was used. The values were converted into USD using purchasing power parity (PPP) defined by the World Bank (or in case the necessary value was not present, PPP defined by the OECD). The number of academic personnel, including teaching and research staff, was calculated on a full-time equivalent basis.

№	Name	Parameters measured	Weight, %	Meaning and justification	Data source	Details
				III. Group of indicators: University & Society		
9	Number of Massive Open Online Courses (MOOCs)	University's contribution to affordable online education	6	The innovative indicator, applied for the first time in the practice of global academic rankings, measures a university's activity in the area of developing MOOCs. There is a clear public demand for open online courses, and the fact that this education activity is rapidly developing is beyond doubt. The more courses are published on online platforms, the broader the knowledge a university delivers through the internet, and the greater its contribution to the accessibility of education worldwide.	"Class Central" aggregator, Open Education, icourse163.org	Total number of MOOCs published on online learning platforms, considered by the "Class Central" aggregator, as well as on Open Education and icourse163.org, at the time of data collection (May 2021) was determined. Each platform was weighted according to the total number of course-participants of that platform (Coursera, edX, FutureLearn, Open Education and icourse163.org have the maximum weight of 1.00). The obtained weights were summed up.
10	Share of the university in total national publications	University's contribution to its country's scientific research	4	This innovative ranking indicator measures national significance of universities for scientific development in their respective countries. The higher the university's share in the country's total university publications, the bigger its contribution to research in the country, and consequently, the higher such a university's importance and value for society.	Web of Science Core Collection	The ratio of a university's scholarly output measured by the total number of academic papers published during the four year (2016–2019) period, indexed by the Web of Science Core Collection database, to its home country's scholarly output. The relation of the university's result to the best result among home country universities was used as the final value.
11	Total pages of a university's website indexed by the leading search engines	Web presence	3	The indicator evaluates some of the most important aspects of a university's interaction with society: openness and transparency, information availability, commitment to information exchange.	Search engines: Google, Baidu, Yandex	The number of web pages of a university's official domain, indexed by search engines, was measured by standard domain search syntactical operators of following search engines: Google, Baidu and Yandex. The minimum index value according to each engine was determined after a series of data retrievals in April and May 2021. The highest result of the three search engines was used as the final value.
12	Views of the university's page on Wikipedia	Popularity on the web	1	Along with the official university website, Wikipedia is an important source of information. The large number of views on the university's page is a testament to its impact on the community.	Wikipedia	Total views of the university's Wikipedia pages in English and (if applicable) in the official national language (languages) in 2020.
13	University's followers in social media	Communication in social media	3	Social media is one of the most practical communication tools for the university and those interested in its activity. A significant number of universities creates awareness of their activities through social media. The popularity of different social networks varies in different countries and from university to university. Therefore, the number of subscribers on 4 social medias was collected for each university.	Facebook, Twitter, VK, Sina Weibo	The number of subscribers on Facebook, VK, Twitter and Sina Weibo were recorded. Pages in English and national languages (if applicable) were considered. The final score was the sum of subscribers in the two social networks, where a university has its largest audience.
14	Number of alumni with an individual article about them on Wikipedia	Alumni impact on society	7	Quality education is made up of largely incommensurable phenomena, including the extent to which a university has an impact on society. One of the most effective ways to measure this is to count the number of alumni who are successful in various areas (politics, science, art, business, charity) and possess an individual article about them on Wikipedia. This indicator quantifies the university's impact on society.	Wikipedia	The total number of university alumni with a personal page on Wikipedia meeting the thresholds: alumnus date of birth — not earlier than 1950; page views — at least 1000 in 2020. Unpopular pages are thus excluded from calculation.

№	Name	Parameters measured	Weight, %	Meaning and justification	Data source	Details
15	University website reach	Societal relevance	4	This indicator reflects the relevance of the university's official website for users from all over the world. The higher the visit ratio, the more popular a university is. If the university's website is visited by many Internet users, then the university is considered relevant and valuable for society.	Alexa	This criterion evaluates the university website audience percentage among all Internet users. This indicator is based on data from Alexa (alexa.com) — one of the global leaders in web analytics. The data was compiled in May 2021.
16	Transparency	Informational openness and quality of information policies	2	The indicator is a complex evaluation of a university's policies related to informational openness to society, their consistency, and the extent to which the university encourages horizontal communication.	Websites of universities	This indicator takes into account the availability of the following resources, materials, and publications on the university's official website: an up-to-date institutional report, an up-to-date financial report, an open access list of university staff or an open access staff search system, as well as the university's mission.

* list of student contests:
- ACM International Collegiate Programming Contest
- Belgrade Business International Case Competition
- Green Brain of the Year Contest
- International Mathematics Competition for University Students
- John Molson Undergraduate Case Competition
- McGill Management International Case Competition
- Network of International Business Schools Worldwide Case & Business Plan Competitions
- NSUCRYPTO
- SCORE Software Engineering Contest
- The Annual Willem C. Vis International Commercial Arbitration Moot
- The Mathematical Contest in Modeling
- The Philip C. Jessup International Law Moot Court Competition
- The SIAM Award in the Mathematical Contest in Modeling
- The University Physics Competition
- The World Universities Debating Championships
- Global Investment Banking Valuation Olympiad
- LafargeHolcim Awards