

GENERAL ARTICLE

US News Global Ranking of Subjects 2022-2023

Gangan Prathap

A P J Abdul Kalam Technological University, Thiruvananthapuram, Kerala, India 695016

and

*Institute of Computer Science & Digital Innovation, UCSI University, Kuala Lumpur
Campus No. 1, Jalan Puncak Menara Gading, UCSI Heights, 56000 Cheras, Kuala Lumpur,
Malaysia.*

e-mail: gangan_prathap@hotmail.com

Abstract

The performance of Indian Higher Educational Institutions (HEIs) in the U.S. News 2022-2023 Best Global Universities Rankings and Subject Rankings shows that engineering and natural sciences constitute most of India's research base. There are many areas in which no Indian school has distinguished itself.

Keywords US News Rankings · Shanghai Rankings · Global Rankings of Subjects · Engineering · Sciences · Research performance

Introduction

U.S. News (<https://www.usnews.com/education/best-global-universities>) has now come out with Best Global Universities Rankings and Subject Rankings in 47 subject areas for 2022-23. This compares with the 54 subjects covered by The Global Ranking of Academic Subjects (GRAS) of ShanghaiRanking Consultancy (SRC) which were covered in these pages earlier (Prathap¹⁻²). U.S. News has a separate ranking of 2,000 top universities, with 99 from India making it to the list. There are two rankings and two lists: one for Subjects and one for Best Universities (Top 2000). Only one (Tata Institute of Fundamental Research (TIFR), #1 in Best Universities in India, and #452 in Best Global Universities) appeared in the Top 500. In the corresponding SRC Ranking for 2022, only one (Indian Institute of Science) appeared in the 301-400 band, and none in the 401-500 band. The prescient editorial comment in these pages³ that “the best of Indian institutions does not compare well on an international scale,” and that none of the “real” universities found a place in this top list⁴ still rings true.

In our study here we shall restrict attention to the 47 subject areas, which are slightly different from the taxonomy used in the Shanghai Ranking. For example, Arts and Humanities appear in the former but not in the latter. Economics and Business is a single area in the U.S. News list but appear as three separate categories (Economics, Business Administration, and Public Administration) in the Shanghai list. Since U.S. News reports two separate studies (Global Universities Rankings and Subject Rankings), we find that some institutions from India in one list will not appear in the other list. So, we will have to navigate this carefully.

The U.S. News rankings rely heavily on bibliometric data based on the Web of Science and metrics provided by Clarivate. Like all other similar ranking exercises, U.S. News used a multivariable methodology along with weighting schemes that they developed for the purpose.

Results and discussions

We shall slightly modify our earlier approach¹⁻² and now curate lists of India’s presence in 2022-2023 Best Global Universities Rankings and the corresponding Subject Rankings. There are 2165 schools in all globally from 95 countries in the Subjects Rankings list, of which 99 are from India. Of this 99, 81 schools made it to the Best Universities rankings. To put this number in perspective, this is a 4.1% share of the global total, slightly better than our economic share of the global GDP (approximately 3.5% of nominal GDP), but significantly smaller than

the demographic share of the global population (approximately 18%). This also compares with India's share in the SRC rankings of about 2.5% of the 1800 universities from 96 countries². In total, 17,200 universities (schools) are ranked in 47 subjects in the 2022-2023 rankings. This is possible because universities are counted as many times as they are ranked in each subject, and many schools appear in more than one subject. Each appearance counts separately in the overall number of universities ranked in the 47 subjects. The Indian Institute of Technology at Delhi appears in 14 subjects. China is the top-performing country in the overall ranking, with 338 universities, i.e., 16.9% of all the ranked schools. This is practically on par with their demographic weight.

Of the list of 99, we have extracted a list of 18 schools which appear in the Table 1, which have a Subject Score and Rank but do not have a Global Score or Rank in the U.S. News Rankings for 2022-23. These are all institutions with a strong focus restricted to certain subjects. The Mahatma Gandhi University, Kerala stands out in the Indian list with a stellar performance in Polymer Science (Subject Score of 53.1 and a Subject Rank of 72). The highest score is normalized to 100. The Inter-University Centre for Astronomy & Astrophysics has done well in Physics (Score: 59.9, Rank: 209) and Space Science (Score: 48.8, Rank: 111). The take-away from this is that the Mahatma Gandhi University should strengthen other faculties and that the Inter-University Centre for Astronomy & Astrophysics should be embedded as part of a larger university while retaining its autonomy to do research. Only then will we find schools making it to the Global 2000 list. This serves equally well for most universities and institutions from India that did not make it to the lists and for those in the list who need to improve their ranking.

The obverse of the above is that we find another list of 16 schools which have Global Scores and Ranks but do not appear in any of the 47 subject lists. This is shown in Table 2. Clearly, there are no individual faculties in these schools with sufficient critical mass and quality to appear in the Subject Lists for their disciplines.

This leaves us with a list of 65 schools that appear in both lists. As in the previous two tables, the institutions are arranged in alphabetical order in Table 3. In the Shanghai Rankings, we saw the Indian Institutes of Technology dominating this list. This is true here as well. Also, as in recent Shanghai Rankings¹⁻², India's research base is hugely skewed toward engineering and natural sciences. In Table 4 we collect the 19 Subject Areas in which no school from India

made the cut this year in the U.S. News list. These are mainly in the Medical Sciences, in the Life Sciences and in the Social Sciences. Also shown are the 21 subject areas and fields in the Shanghai 2022 Rankings where India drew a blank.

The IIT at Delhi show up in 14 subjects. This is captured in matrix form in Table 5. The Indian Institute of Science and the IITs at Bombay, Kharagpur and Madras appear in 13 subjects. Note that all five top institutions taken together account for only 19 of the 47 subject areas. These are entirely in the engineering and natural sciences. The complete matrix for all 99 schools is available with the author and can be shared on request.

Conclusions

The data we curated from the U.S. News Global Ranking of Universities is very similar to that from the SRC Subject Rankings 2022 which we have reported on earlier in these pages¹⁻². The latest rankings conform once again that India's research base is dominated by the engineering and natural sciences.

References

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Table 1. The list of 18 schools which have a Subject Score and Rank but do not have a Global Score or Rank in the U.S. News Rankings for 2022-23.

List of 18	Subject	University/School	Subject Score	Subject Rank
1	Physics	Gauhati University	27.5	720
2	Engineering	Indian Institute of Technology (IIT) - Ropar	29.6	879
3	Clinical Medicine	Institute of Post Graduate Medical Education & Research (IPGMER), Kolkata	38.8	682
4	Physics	International Centre for Theoretical Sciences, Bengaluru	58.2	235
5	Physics	Inter-University Centre for Astronomy & Astrophysics	59.9	209
	Space Science		48.8	111
6	Chemistry	Jain University	34.7	760
7	Clinical Medicine	King George's Medical University	33.4	819
8	Chemistry	Madurai Kamaraj University	43.2	522
	Chemistry		29.7	908
9	Polymer Science	Mahatma Gandhi University, Kerala	53.1	72
10	Clinical Medicine	Maulana Azad Medical College	28.9	950
11	Engineering	Maulana Azad National Institute of Technology Bhopal	29.5	881
12	Electrical and Electronic Engineering	National Institute of Technology Kurukshetra	28.0	487
13	Computer Science	Netaji Subhas University of Technology	15.0	734
14	Clinical Medicine	Sanjay Gandhi Postgraduate Institute of Medical Sciences	54.1	348
15	Clinical Medicine	Seth Gordhandas Sunderdas Medical College & King Edward Memorial Hospital	28.2	964
16	Physics	Shoolini University	33.4	634
17	Physics	University of Jammu	35.6	604
18	Physics	University of Rajasthan	33.4	634

Table 2. The list of 16 schools which have a Global Score and Rank but do not have a Subject Score or Rank in the U.S. News Rankings for 2022-23.

List of 16	University/School	Global Score	India Rank	Global Rank
1	Amity University Noida	29.8	41	1413
2	Annamalai University	24.6	55	1636
3	Birla Institute of Technology & Science Mesra	16.2	73	1888
4	Cochin University of Science and Technology	12.4	77	1950
5	Guru Nanak Dev University	21.1	63	1771
6	Indian Institute of Engineering Science Technology Shibpur (IEST)	14.8	75	1915
7	Indian Institute of Technology (IIT) - Mandi	15.1	74	1908
8	Motilal Nehru National Institute of Technology	18.5	70	1835
9	National Institute of Technology Calicut	9.4	81	1980
10	Osmania University	19	68	1821
11	Pondicherry University	27.5	47	1514
12	Punjabi University	9.6	80	1976
13	Sathyabama Institute of Science & Technology	10.9	78	1969
14	Siksha 'O' Anusandhan University	14.5	76	1916
15	Tezpur University	9.9	79	1974
16	University of Kashmir	16.9	72	1878

Table 3. The list of 65 schools which have both a Global Score and Rank and a Subject Score or Rank in the U.S. News Rankings for 2022-23.

List of 65	University/School	Global Score	India Rank	Global Rank
1	Alagappa University	25.9	53	1585
2	Aligarh Muslim University	43.5	11	787
3	All India Institute of Medical Sciences (AIIMS) New Delhi	42.4	12	826
4	Amrita Vishwa Vidyapeetham	28.1	44	1483
5	Anna University Chennai	31.0	36	1361
6	Banaras Hindu University (BHU)	42.4	12	826
7	Bharathiar University	30.6	38	1376
8	Bharathidasan University	28.7	43	1455
9	Birla Institute of Technology & Science Pilani (BITS Pilani)	33.2	29	1254
10	Christian Medical College & Hospital (CMCH) Vellore	43.9	10	770
11	Delhi Technological University	28.1	44	1483
12	Homi Bhabha National Institute	31.2	35	1354
13	Indian Institute of Science (IISc) - Bangalore	49.6	2	551
14	Indian Institute of Science Education & Research (IISER) - Bhopal	26.2	52	1570
15	Indian Institute of Science Education & Research (IISER) - Kolkata	42.0	15	852
16	Indian Institute of Science Education & Research (IISER) - Mohali	24.6	55	1636
17	Indian Institute of Science Education & Research (IISER) Pune	40.4	20	926
18	Indian Institute of Technology (IIT BHU) - Varanasi	32.3	32	1291
19	Indian Institute of Technology (IIT) - Bombay	48.7	3	583
20	Indian Institute of Technology (IIT) - Delhi	45.3	5	717

Table 3. The list of 65 schools which have both a Global Score and Rank and a Subject Score or Rank in the U.S. News Rankings for 2022-23. (contd.)

List of 65	University/School	Global Score	India Rank	Global Rank
21	Indian Institute of Technology (IIT) - Gandhinagar	45.1	7	725
22	Indian Institute of Technology (IIT) - Guwahati	36.4	25	1106
23	Indian Institute of Technology (IIT) - Hyderabad	41.4	17	875
24	Indian Institute of Technology (IIT) - Indore	35.6	26	1140
25	Indian Institute of Technology (IIT) - Kanpur	41.3	18	879
26	Indian Institute of Technology (IIT) - Kharagpur	44.1	9	764
27	Indian Institute of Technology (IIT) - Madras	48.2	4	605
28	Indian Institute of Technology (IIT) - Patna	21.7	61	1746
29	Indian Institute of Technology (IIT) - Roorkee	41.0	19	896
30	Indian Institute of Technology (Indian School of Mines) Dhanbad	27.7	46	1506
31	Indian Institute of Technology Bhubaneswar	30.3	40	1389
32	Indian Statistical Institute Kolkata	31.3	34	1350
33	Institute of Chemical Technology - Mumbai	21.5	62	1753
34	Jadavpur University	34.6	28	1184
35	Jamia Hamdard University	30.9	37	1365
36	Jamia Millia Islamia	41.9	16	856
37	Jawaharlal Nehru University, New Delhi	36.8	24	1088
38	Kalinga Institute of Industrial Technology (KIIT)	20.4	64	1788
39	Lovely Professional University	24.5	57	1647
40	Malaviya National Institute of Technology Jaipur	25.1	54	1617

Table 3. The list of 65 schools which have both a Global Score and Rank and a Subject Score or Rank in the U.S. News Rankings for 2022-23. (contd.)

List of 65	University/School	Global Score	India Rank	Global Rank
41	Manipal Academy of Higher Education (MAHE)	38.1	22	1032
42	National Institute of Pharmaceutical Education & Research (NIPER)	26.6	51	1556
43	National Institute of Technology Durgapur	19.8	66	1805
44	National Institute of Technology Karnataka	23.1	58	1694
45	National Institute of Technology Rourkela	31.7	33	1327
46	National Institute of Technology Silchar	19.1	67	1818
47	National Institute of Technology Tiruchirappalli	29.8	41	1413
48	National Institute of Technology Warangal	22.3	59	1726
49	Panjab University	44.2	8	759
50	Post Graduate Institute of Medical Education & Research (PGIMER), Chandigarh	37.4	23	1060
51	Punjab Agricultural University	18.0	71	1849
52	Sardar Vallabhbhai National Institute of Technology	22.0	60	1735
53	Savitribai Phule Pune University	26.8	50	1549
54	Shanmugha Arts, Science, Technology & Research Academy (SASTRA)	27.5	47	1514
55	Shivaji University	20.1	65	1798
56	SRM Institute of Science & Technology Chennai	32.6	31	1281
57	Tata Institute of Fundamental Research (TIFR)	53.1	1	452
58	Thapar Institute of Engineering & Technology	38.8	21	997
59	University of Calcutta	30.6	38	1376
60	University of Delhi	45.3	5	717
61	University of Hyderabad	32.8	30	1271
62	University of Madras	26.9	49	1542
63	Vellore Institute of Technology	42.2	14	844
64	Visva Bharati University	34.7	27	1180
65	Visvesvaraya National Institute of Technology, Nagpur	19.0	68	1821

Table 4. The 19 Subject Areas in which no institution from India made it to the U.S. News rankings. Also shown are the 21 subject areas and fields in the Shanghai 2022 Rankings where India drew a blank.

U.S. News 2022-2023	Shanghai 2022	Field
	Aerospace Engineering	Engineering
	Biomedical Engineering	Engineering
Environment/Ecology	Environmental Science & Engineering	Engineering
Food Science and Technology		Engineering
	Remote Sensing	Engineering
Water Resources		Engineering
	Geography	Natural Sciences
Meteorology and Atmospheric Sciences		Natural Sciences
	Statistics	Natural Sciences
	Agricultural Sciences	Life Sciences
Cell Biology		Life Sciences
	Human Biological Sciences	Life Sciences
Microbiology		Life Sciences
Cardiac and Cardiovascular Systems		Medical Sciences
	Dentistry & Oral Sciences	Medical Sciences
Endocrinology and Metabolism		Medical Sciences
Gastroenterology and Hepatology		Medical Sciences
Immunology		Medical Sciences
Infectious Diseases		Medical Sciences
	Nursing	Medical Sciences
Oncology		Medical Sciences
		Medical Sciences
Surgery		Medical Sciences
	Communication	Social Sciences
Economics and Business	Economics	Social Sciences
Education and Educational Research	Education	Social Sciences
	Finance	Social Sciences
	Hospitality & Tourism Management	Social Sciences
	Law	Social Sciences
	Library & Information Science	Social Sciences
	Political Sciences	Social Sciences
Psychiatry/Psychology	Psychology	Social Sciences
	Public Administration	Social Sciences
Public, Environmental and Occupational Health		Social Sciences
Social Sciences and Public Health	Sociology	Social Sciences
		Social Sciences
Arts and Humanities		

Table 5. The School to Subject matrix showing the performance of the five leading institutions from India.

Subject Area	IIT - Delhi	IISc - Bangalore	IIT - Bombay	IIT - Kharagpur	IIT - Madras
Biology and Biochemistry	X	X	X	X	X
Biotechnology and Applied Microbiology	X				
Chemical Engineering			X	X	X
Chemistry	X	X	X	X	X
Civil Engineering			X	X	X
Computer Science	X	X	X	X	X
Condensed Matter Physics	X	X			
Electrical and Electronic Engineering	X	X	X	X	X
Energy and Fuels	X		X		X
Engineering	X	X	X	X	X
Geosciences		X	X	X	
Materials Science	X	X	X	X	X
Mathematics		X			X
Mechanical Engineering	X	X	X	X	X
Nanoscience and Nanotechnology		X			
Optics	X				
Physical Chemistry	X	X	X	X	X
Physics	X	X	X	X	X
Polymer Science	X			X	
19	14	13	13	13	13