

## U-Multirank 2016

### Top 25 Performers by selected indicators

These lists present the U-Multirank 2016 top 25 performers by selected indicators from each of the five U-Multirank dimensions. In the first four dimensions we present institutional results; the list for teaching and learning refers to the subject rankings. The indicators included are:

#### **Dimension Research:**

- Number of research publications (absolute numbers)
- Top cited publications
- Interdisciplinary research

#### **Dimension Knowledge Transfer**

- Co-publications with industrial partners
- Patents awarded (size-normalised)
- Income from continuous professional development

#### **Dimension International Orientation:**

- Student mobility
- International joint publications

#### **Dimension Regional Engagement**

- Regional joint publications

#### **Dimension Teaching & Learning**

- Student-staff-ratio in the sciences (mathematics, chemistry, biology)

While the lists are sorted by indicator scores in descending order, ties are possible and not marked. Hence the lists do not represent league tables.

## U-Multirank top 25 performers in research publications (absolute numbers)

In this list we present the U-Multirank 2016 top performers on the indicator 'research publications (absolute numbers)'.

The number of publications in academic journals is a measure of the institution's research activity and its capability in producing research publications at the international level. Of course large universities have the potential to produce more publications.

The world's most productive research university produced more than 60,000 publications in the four-year period 2011- 2014. The majority of top performers (12) come from the US, while the list includes two Canadian universities, five European (four from the UK and one from France), five Asian institutions (three from China, one from Japan and Korea), and one from Brazil.

The 25 top performers in research publications (absolute numbers) are:

*Harvard U (United States)*  
*U Toronto (Canada)*  
*U Michigan (United States)*  
*Johns Hopkins U (United States)*  
*U São Paulo (Brazil)*  
*U Oxford (United Kingdom)*  
*U Tokyo (Japan)*  
*U Washington, Seattle (United States)*  
*U College London (United Kingdom)*  
*Stanford U (United States)*  
*U California, Los Angeles (United States)*  
*U Cambridge (United Kingdom)*  
*Zhejiang U (China)*  
*U California, Berkeley (United States)*  
*Columbia U (United States)*  
*U Pennsylvania (United States)*  
*Seoul Nat. U (Korea)*  
*Shanghai Jiao Tong U (China)*  
*Duke U (United States)*  
*U California, San Diego (United States)*  
*Imperial College London (United Kingdom)*  
*Peking U (China)*  
*U Minnesota, Twin Cities (United States)*  
*U British Columbia (Canada)*  
*Pierre & Marie Curie U (France)*

The list is sorted by indicator-scores in descending order; possible ties are not marked.

Information about the indicator:

Indicator	Research publications (absolute numbers)
Dimension	Research
Definition	The number of university's research publications (indexed in the Web of Science Core Collections database), where at least one author is affiliated to the source university or higher education institution.
Data source	CWTS/Thomson Reuters - Web of Science Core Collection
Time reference	period 2011-2014

## U-Multirank top 25 performers in top cited publications

In this list we present the U-Multirank 2016 top performers on the indicator 'top cited publications'.

This is a measure of international research excellence, showing universities with well over 10% of their publications in the top decile of frequently cited articles worldwide.

US universities are most successful in terms of the high impact of their academic research: the majority of top ranked institutions (18) are from the US including the top 13. Among the top 25 are six institutions from Europe (and one from Israel). While some Asian universities score high on academic output (number of publications) they are not among the institutions with the highest citation impact.

The 25 top performers in top cited publications are:

*Rockefeller U (United States)*  
*MIT (United States)*  
*Stanford U (United States)*  
*Harvard U (United States)*  
*Princeton U (United States)*  
*Caltech (United States)*  
*U California, Berkeley (United States)*  
*U California, Santa Barbara (United States)*  
*Rice U (United States)*  
*U California, San Francisco (United States)*  
*Yale U (United States)*  
*U California, Santa Cruz (United States)*  
*U Chicago (United States)*  
*Weizmann Inst. Science (Israel)*  
*School of Hygiene & Tropical Medicine (United Kingdom)*  
*Hanken School of Economics (Finland)*  
*EPF Lausanne (Switzerland)*  
*Norwegian School of Sports & Science (Norway)*  
*U Oxford (United Kingdom)*  
*U Colorado, Boulder (United States)*  
*U Texas SW Medical, Dallas (United States)*  
*U California, San Diego (United States)*  
*Columbia U (United States)*  
*Northwestern U (United States)*  
*U Cambridge (United Kingdom)*

The list is sorted by indicator scores in descending order; possible ties are not marked.

Information about the indicator:

Indicator	Top cited publications
Dimension	Research
Definition	The proportion of the university's research publications that, compared to other publications in the same field and in the same year, belong to the top 10% most frequently cited worldwide.
Data source	CWTS/Thomson Reuters - Web of Science Core Collection
Time reference	Publications: period 2011-2014; citations until 3rd quarter 2015

## U-Multirank top 25 performers in interdisciplinary publications

In this list we present the U-Multirank 2016 top performers on the indicator 'interdisciplinary publications'.

The more a publication refers to publications belonging to different fields of science and the larger the distance between these fields, the higher is the degree of interdisciplinary research at a university. Given that the frontiers of research are often the edge of disciplines, the interdisciplinarity of research also reflects its innovative character.

The top performers on this indicator are spread across Europe (14) and Asia (7), plus two from the US and one from Egypt and Lebanon. The institutional profile of the top performers is diverse: the list includes universities with a focus on medicine and pharmacology as well as technical universities and more comprehensive universities.

The 25 top performers in interdisciplinary publications are:

*Tallaght Inst. Tech (Ireland)*  
*China Medical U Taiwan (Taiwan)*  
*Taipei Medical U (Taiwan)*  
*China Pharm. U (China)*  
*U Sadat City (Egypt)*  
*U Guglielmo Marconi (Italy)*  
*Beirut Arab U (Lebanon)*  
*U Fernando Pessoa (Portugal)*  
*U Agric. Sci & VetMed Iasi (Romania)*  
*Kaohsiung Medical U (Taiwan)*  
*UAS & Arts Western (Switzerland)*  
*U Inf. Tech. & Management (Poland)*  
*Jinan U (China)*  
*U Nova Gorica (Slovenia)*  
*Panjab U (India)*  
*UAS Wiener Neustadt (Austria)*  
*U Greifswald (Germany)*  
*Pavol Jozef Safarik U Kosice (Slovakia)*  
*Mendel U Brno (Czech Republic)*  
*Agro ParisTech (France)*  
*U Defence Brno (Czech Republic)*  
*Harbin Medical U (China)*  
*Olin College of Engineering (United States)*  
*U Camerino (Italy)*  
*Montana State U (United States)*

The list is sorted by indicator scores in descending order; possible ties are not marked.

Information about the indicator:

Indicator	Interdisciplinary publications
Dimension	Research
Definition	The extent to which reference lists of university's publications reflect cited publications in journals from different scientific disciplines.
Data source	CWTS/Thomson Reuters - Web of Science Core Collection
Time reference	period 2011-2014

## U-Multirank top 25 performers in co-publications with industrial partners

In this list we present the U-Multirank 2016 top performers on the indicator 'co-publications with industrial partners'.

This indicator addresses the level of collaboration between universities and industry. The more research is carried out with industrial partners, the more likely it is that knowledge transfer takes place between academia and business/industry.

The list of top performers in university – industry cooperation as measured by joint research publications is dominated by European (16) and Asian (9) institutions. Among the top performers are many technical universities. The highest score is achieved by a German university of applied sciences (Reutlingen) with 18.6 % of all publications being published with co-authors from business/industry.

The 25 top performers in Co-publications with industrial partners are:

*Reutlingen UAS (Germany)*  
*Nuremberg IoT (Germany)*  
*Munich UAS (Germany)*  
*Eindhoven U Tech (Netherlands)*  
*ENS Mines ParisTech (France)*  
*Telecom ParisTech (France)*  
*Yokohama National U (Japan)*  
*Nagoya Institute of Technology (Japan)*  
*École Centrale Lyon (France)*  
*Volgograd State U (Russia)*  
*Japan Advanced Institute of Science & Technology (Japan)*  
*Tokyo U Agriculture & Technology (Japan)*  
*Toyohashi U Technology (Japan)*  
*Lulea U Tech (Sweden)*  
*Osaka Prefecture U (Japan)*  
*Pohang U Science & Technology (Korea)*  
*INP Grenoble Institute of Technology (France)*  
*Delft U Technology (Netherlands)*  
*INSA Lyon (France)*  
*Grad. Engineering School Lille (France)*  
*U Antonio de Nebrija (Spain)*  
*Kansai U (Japan)*  
*Chalmers U Technology (Sweden)*  
*Tokai U (Japan)*  
*Telecom Bretagne (France)*

The list is sorted by indicator scores in descending order; possible ties are not marked.

Information about the indicator:

Indicator	Co-publications with industrial partners
Dimension	Knowledge Transfer
Definition	The percentage of the university's research publications that list an author affiliate with an address referring to a for-profit business enterprise or private sector R&D unit (excludes for-profit hospitals and education organisations).
Data source	CWTS/Thomson Reuters - Web of Science Core Collection
Time reference	period 2011-2014

## U-Multirank top 25 performers in patents awarded (size-normalised)

In this list we present the U-Multirank 2016 top performers on the indicator 'patents awarded (size-normalised)'.

The number of patents is an established measure of technology transfer as it indicates the degree to which discoveries and inventions made in academic institutions are transferred to economic actors for further industrial/commercial development. Correcting for the size of the institution (overall student enrollments) enables a size-independent comparison of higher education institutions.

The top 25 list is dominated by US universities (15). In addition, three universities from Korea, two from Japan and Taiwan, and one from France, Israel, and Saudi Arabia make it into the top list.

The 25 top performers in patents awarded (size-normalised) are:

*Rockefeller U (United States)*  
*Korea Institute of Science & Technology (Korea)*  
*Caltech (United States)*  
*Weizmann Institute of Science (Israel)*  
*Gwangju Institute of Science & Technology (Korea)*  
*MIT (United States)*  
*U Virginia (United States)*  
*Mt. Sinai School Medicine (United States)*  
*Nara Inst. of Science & Technology (Japan)*  
*Korea Adv. Institute of Science & Technology (KAIST) (Korea)*  
*Stanford U (United States)*  
*Harvard U (United States)*  
*U Maryland, Baltimore (United States)*  
*Case Western Reserve U (United States)*  
*Nat. Chiao Tung U (Taiwan)*  
*Medical U South Carolina (United States)*  
*Nat. Tsing Hua U (Taiwan)*  
*Toyohashi U Tech (Japan)*  
*Johns Hopkins U (United States)*  
*Rice U (United States)*  
*Georgia Tech (United States)*  
*King Fahd U Petroleum & Minerals (Saudi Arabia)*  
*Oregon Health & Science U (United States)*  
*Cornell U (United States)*  
*École Polytechnique (France)*

The list is sorted by indicator scores in descending order; possible ties are not marked.

Information about the indicator:

Indicator	Patents awarded (size-normalised)
Dimension	Knowledge Transfer
Definition	The number of patents assigned to (inventors working in) the university over the period 2002-2011 (per 1,000 students).
Data source	CWTS/PATSTAT database
Time reference	period 2003-2012

## **U-Multirank top 25 performers in income from continuous professional development**

In this list we present the U-Multirank 2016 top performers on the indicator ‘income from continuous professional development’.

The indicator concerns the level of knowledge transfer: a university active in providing continuous professional education courses to companies and individuals is assumed to transfer knowledge to external actors.

18 of U-Multirank’s 25 top performers in income from continuous professional development are European. Among the top performers are two universities from Africa and two from Latin America. The top list includes institutions with different profiles: a number of business schools as well other specialised institutions, technical institutions, comprehensive universities, universities of applied sciences and an open university.

The 25 top performers in income from continuous professional development are:

*Siberian Inst. Business (Russia)*  
*IPAC School of Management Annecy (France)*  
*Federal U Agriculture Abeokuta (Nigeria)*  
*Cyprus International Institute of Management (Cyprus)*  
*U KwaZulu-Natal (South-Africa)*  
*U Economics Ho Chi Minh City (Vietnam)*  
*ESSEC Business School Cergy (France)*  
*Lithuanian Maritime Acad. (Lithuania)*  
*Bocconi University (Italy)*  
*Asian Institute of Technology (Thailand)*  
*U Foreigners Siena (Italy)*  
*U St. Gallen (Switzerland)*  
*Open U Catalonia (Spain)*  
*Mondragon U (Spain)*  
*Catholic U Peru (Peru)*  
*Xiamen U (China)*  
*U Antonio de Nebrija (Spain)*  
*Seconda U Napoli (Italy)*  
*Catholic U Portugal (Portugal)*  
*Grenoble Ecole de Management (France)*  
*RANEPA Moscow (Russia)*  
*VIA U College (Denmark)*  
*U Ramon Llull (Spain)*  
*Latin American U Science & Technology (Costa Rica)*  
*EDHEC Business School (France)*

The list is sorted by indicator scores in descending order; possible ties are not marked.

Information about the indicator:

Indicator	Income from continuous professional development
Dimension	Knowledge Transfer
Definition	The percentage of the university's total revenues that is generated from delivering continuous professional development courses and training.
Data source	Institutional questionnaire
Time reference	Average 2011-2013

## U-Multirank top 25 performers in student mobility

In this list we present the U-Multirank 2016 top performers on the indicator 'student mobility'.

Having an international student body and offering students the opportunity to study part of their degree-programme abroad is an indication of the international orientation of a university. In order to provide a full picture of mobility and international exchange U-Multirank takes into account both incoming and outgoing mobility.

Among the U-Multirank participants, business schools are particularly high performers in student mobility. Half of the top performers are business schools or higher education institutions specialised in business and economics. Eleven of the top performing institutions are French.

The 25 top performers in student mobility are:

*IESEG Sch. of Management Lille (France)*  
*U of Management Varna (Bulgaria)*  
*WHU School of Management (Germany)*  
*Munich Business School (Germany)*  
*Toulouse Business School (France)*  
*École Centrale Nantes (France)*  
*EM Strasbourg Business School (France)*  
*Vesalius College (Belgium)*  
*Hasselt U (Belgium)*  
*Kufstein UAS (Austria)*  
*Tecnologico Monterrey (Mexico)*  
*Sciences Po Paris (France)*  
*EBS U Wiesbaden (Germany)*  
*MEPhI Moscow (Russia)*  
*Audencia Sch. of Management (France)*  
*HEC Paris (France)*  
*Grad. Engineering School Lille (France)*  
*Andrássy U Budapest (Hungary)*  
*ESSEC Business School Cergy (France)*  
*ENSAT Toulouse (France)*  
*Jönköping U (Sweden)*  
*ESCP Europe Business School (International)*  
*BiTS UAS Iserlohn (Germany)*  
*Bordeaux INP (France)*  
*Norwegian Sch. Economics (Norway)*

The list is sorted by indicator scores in descending order; possible ties are not marked.

Information about the indicator:

Indicator	Student mobility
Dimension	International Orientation
Definition	A composite of international incoming exchange students, outgoing exchange students and students in international joint degree programmes.
Data source	Institutional questionnaire
Time reference	Average 2011-2013

## U-Multirank top 25 performers in international joint publications

In this list we present the U-Multirank 2016 top performers on the indicator 'international joint publications'.

The percentage of international joint publications reflects the degree to which a university's research is connected to international research networks.

The list of the 25 top performers does not include any US universities; their major partners in research cooperation are mostly other US universities. The list is characterised by a diversity of countries; higher education institutions from 19 different countries are represented. The list includes some higher education institutions from small countries (e.g., Liechtenstein, Luxemburg, Slovenia and Iceland) which do not have a large number of potential collaborators within their country. The top performer is a university of applied sciences from Austria; the top two are small institutions with a small absolute number of publications but with a high percentage of these internationally co-authored (more than 80 % each).

The 25 top performers in international joint publications are:

*UAS Wiener Neustadt (Austria)*  
*U Liechtenstein (Liechtenstein)*  
*King Abdulaziz U (Saudi Arabia)*  
*Qatar U (Qatar)*  
*U Guglielmo Marconi (Italy)*  
*I. Javakishvili Tbilisi State U (Georgia)*  
*Moldova State U (Moldova)*  
*Reykjavik U (Iceland)*  
*School of Hygiene & Tropical Medicine (United Kingdom)*  
*IESEG School of Management Lille (France)*  
*King Abdullah U Science & Technology (Saudi Arabia)*  
*U Luxembourg (Luxemburg)*  
*Beirut Arab U (Lebanon)*  
*Kwame Nkrumah U Science & Technology (Ghana)*  
*Mohammed V U Rabat (Marocco)*  
*HEC Paris (France)*  
*Technical U Federico Santa María (Chile)*  
*U Nova Gorica (Slovenia)*  
*U Lugano (Switzerland)*  
*Cardiff U (United Kingdom)*  
*King Saud U (Saudi Arabia)*  
*U Mons (Belgium)*  
*U Aberdeen (United Kingdom)*  
*Catholic U Peru (Peru)*  
*U Balamand (Lebanon)*

The list is sorted by indicator scores in descending order; possible ties are not marked.

Information about the indicator:

Indicator	International joint publications
Dimension	International Orientation
Definition	The percentage of the university's research publications that list at least one affiliate author's address located in another country.
Data source	CWTS/Thomson Reuters - Web of Science Core Collection
Time reference	period 2011-2014

## U-Multirank top 25 performers in regional joint publications

In this list we present the U-Multirank 2016 top performers on the indicator 'regional joint publications'.

Co-publications with authors located elsewhere within the institution's geographical region are a reflection of regional linkages between a university and its regional partners.

The list of top performers is dominated by European higher education institutions (21 out of 25); the others are from Taiwan (1), Japan (1) and Iran (2). Most of the top performers are small in terms of the absolute number of their publications. Among the three top performers are two universities of applied science from the Netherlands and Portugal.

The 25 top performers in regional joint publications are:

*Hanze UAS (Netherlands)*  
*Moscow Inst. Physics & Tech (Russia)*  
*Polytechnical Institute Lisbon (Portugal)*  
*U Guglielmo Marconi (Italy)*  
*U Fernando Pessoa (Portugal)*  
*Valencia Catholic U (Spain)*  
*Siberian Federal U (Russia)*  
*Cardinal Stefan Wyszyński U (Poland)*  
*Agro ParisTech (France)*  
*U Lucerne (Switzerland)*  
*ENSAE Paris (France)*  
*MEPhI Moscow (Russia)*  
*Taipei Medical U (Taiwan)*  
*Allameh Tabataba'i U (Iran)*  
*Islamic Azad U (Iran)*  
*TED U (Turkey)*  
*Polytech. Inst. Coimbra (Portugal)*  
*INPT Toulouse (France)*  
*Paris Descartes U Paris 5 (France)*  
*Tohoku Gakuin U (Japan)*  
*Polytech. Inst. Setúbal (Portugal)*  
*Saint-Louis U (Belgium)*  
*European U Madrid (Spain)*  
*Oslo & Akershus U College (Norway)*  
*Samara State Aerospace U (Russia)*

The list is sorted by indicator scores in descending order; possible ties are not marked.

Information about the indicator:

Indicator	Regional joint publications
Dimension	Regional Engagement
Definition	The percentage of the university's research publications that list at least one co-author with an affiliate address located in the same spatial region (within a distance of 50 km).
Data source	CWTS/Thomson Reuters - Web of Science Core Collection
Time reference	period 2011-2014

## **U-Multirank top performers in student-staff ratios in Mathematics, Chemistry and Biology**

In this list we present the U-Multirank 2016 top performers on the indicator 'student-staff ratio' for the 2016 science fields of mathematics, chemistry and biology.

The student-staff ratio is a measure of the (expected) intensity of mentoring and tutoring and of contact between students and teachers. A good score on this ratio is an indication of an institution's efforts to provide good learning conditions for students.

To identify the top performers we selected all institutions with an "A" score in at least two out of the three fields as well as those institutions with an "A" or "B" in all three fields. 16 higher education institutions met these criteria.

The top performers list brings together institutions from a number of countries, including Poland (three institutions), Belgium, Germany, Italy and Spain (two institutions each).

The top performers in terms of student-staff ratio are:

*University of Barcelona (Spain)\**  
*University of Lodz (Poland)\**  
*Jacobs University Bremen (Germany)\**  
*Nagoya University (Japan)\**  
*University of La Laguna (Spain)\**  
*Karlsruhe Institute of Technology (KIT; Germany)*  
*São Paulo State University - UNESP (Brazil)*  
*Université libre de Bruxelles (Belgium)*  
*University of Wrocław (Poland)*  
*Catholic University of Louvain (UCL; Belgium)*  
*Jagiellonian University (Poland)*  
*Siberian Federal University (Russia)*  
*University of Bologna (Italy)*  
*University of Genoa (Italy)*  
*University of Lisbon (Portugal)*  
*West University of Timisoara (Romania)*

\* "A" score in at least two of the three fields

Information about the indicator:

Indicator	Student-staff ratio
Dimension	Teaching and learning
Level	Subject rankings/departments
Definition	The number of students (headcount) per member of the academic staff (fte). Staff members solely involved in research are excluded.
Data source	Departmental questionnaire
Time reference	Three year average 2012-2014