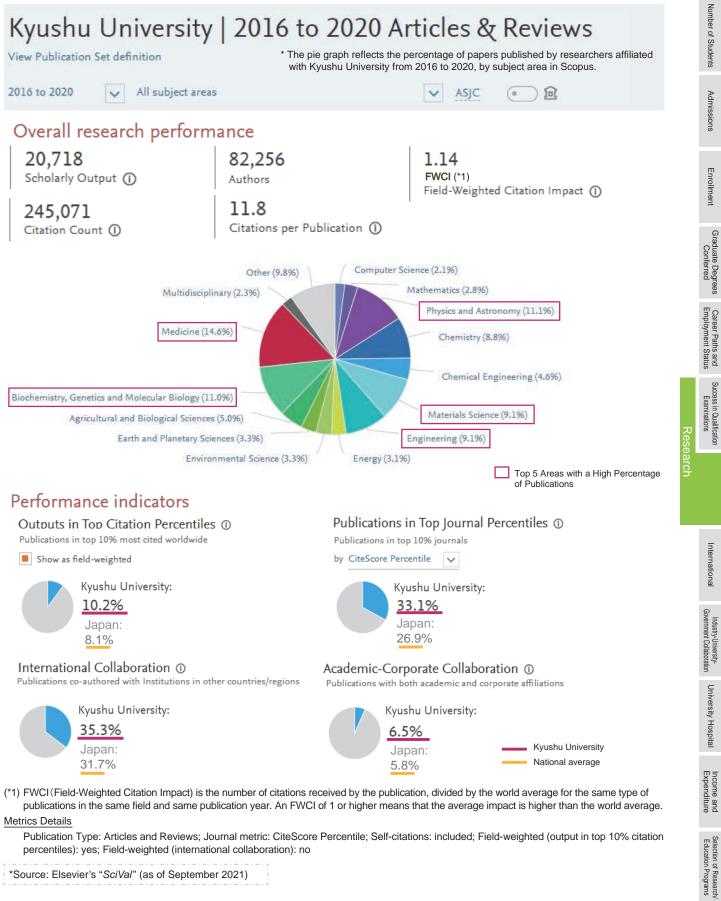
9. Research

9-1. Trends across Kyushu University as a Whole Based on Field **Classification of Journals**



^{*}Source: Elsevier's "SciVal" (as of September 2021)

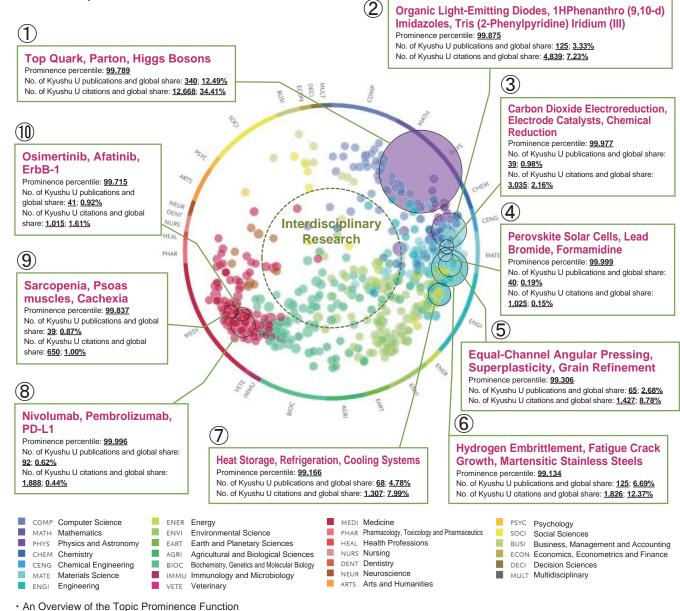
Overview and Comparisons with Other Universities

Income and Expenditure

Topic Prominence: Analysis of University Strengths Based on Co-citation of Publications

The Most Prominent <u>1%</u> of Topics (2016-2020)

Out of the top 1% prominent topics, 1-10 are those with the top 10 highest number of publications Kyushu university has a high number of publications in these fields, so these can be considered some of the most active research fields at the University.



Scopus Publications were clustered in to 97,000 topics based on citation links, and rankings were added using "Prominence". New indicator "Prominence" shows the number of references, the number of views and the level of interest. "Prominence" has a correlation with grants, and helps to support more grants for researchers and research managers. The more central the topic in the circle, the more interdisciplinary. (Excerpted from Elsevier Quick Reference Guide, January 2018)

Between 2016 and 2020, of all Kyushu University publications, 8,002 research fields emerged as high-profile topics.

♦Perspectives◆

- · Circumference indicates research fields used in Scopus (ASJC 27 major subject areas) by color.
- Each circle represents a topic.
- Color of circle: For the fields of the publications that make up the topics, the fields that make the highest proportion of the total are displayed in the color of the fields located around the circumference.
- Size of circle indicates the output of the entity in the topic.
- Position of the circle is based upon the ASJC categories of the journals in which the scholarly output is published. Topics closer to the center of the wheel are more likely to be multidisciplinary.

Metrics Details

Publication Type: Articles and Reviews; Self-citations: included

*Source: Elsevier's "SciVal" (as of September 2021)

Industry-University-Government Collaboration

University Hospital

Selection of Education |

9-2. Comparisons of Publication Quantity and Quality Number of Publications and FWCI

Number of Publications and FWCI (*1): 2011-2020 6.000 1.50 5,000 1.25 .14 1.10 30. 1.04 (Number of publications) 4,000 1.00 (FWCI) 3,000 0.75 4.182 2,000 0.50 1,000 0.25 0 0.00 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 (Publications Year)

Kyushu University

♦ Comparison of RU11 (*2) ♦

Scholarly Output

Rank	University	Number	
1	The University of Tokyo	48,971	
2	Kyoto University	34,911	
3	Osaka University	26,556	
4	Tohoku University	26,078	
5	Kyushu University	20,723	
6	Nagoya University	20,280	
7	Hokkaido University	19,125	
8	University of Tsukuba	14,132	
9	Tokyo Institute of Technology	14,044	
10	Keio University	12,624	
(2016-2020)			

Average Citations per Citation Rank University Count Publication 1 The University of Tokyo 717,877 14.7 2 Kyoto University 511,390 14.6 Osaka University 3 317,949 12.0 4 Tohoku University 313,769 12.0 5 Nagoya University 253,679 12.5 245,073 11.8 Kyushu University 7 Hokkaido University 210,542 11.0 Tokyo Institute of 175,182 8 12.5 Technology 9 University of Tsukuba 174,274 12.3 10 Keio University 157.346 12.5 (2016 - 2020)

Citation Count

FWCI

Rank	University	FWCI	
1	The University of Tokyo	1.40	
2	Kyoto University	1.38	
3	University of Tsukuba	1.30	
4	Keio University	1.21	
5	Nagoya University	1.20	
6	Kyushu University	1.14	
7	Tokyo Institute of Technology	1.13	
7	Osaka University	1.13	
7	Waseda University	1.13	
10	Tohoku University	1.11	
(2016-2020)			

(*1) FWCI (Field-Weighted Citation Impact) is the number of citations received by the publication, divided by the world average for the same type of publications in the same field and same publication year. An FWCI of 1 or higher means that the average impact is higher than the world average.

(*2) RU11 (Research University 11) is a consortium that aims to develop academia via eleven universities: Hokkaido University, Tohoku University, University of Tsukuba, The University of Tokyo, Waseda University, Keio University, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, and Kyushu University. RU11 is composed of both national and private universities.

Metrics Details

Publication Type: Articles and Reviews; Self-citations: included

*Source: Elsevier's "SciVal" (as of September 2021)

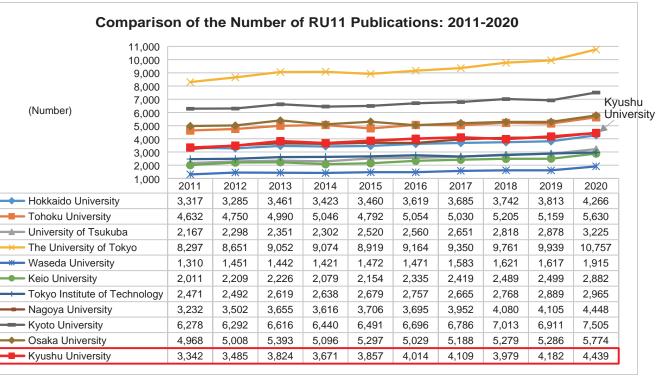
nternational

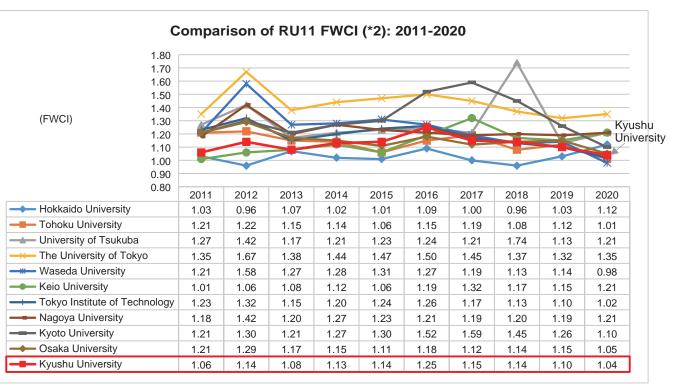
Industry-University-Government Collaboration

University Hospital

Income and Expenditure

◆Comparison of RU11 (*1) ◆





(*1) RU11 (Research University 11) is a consortium that aims to develop academia via eleven universities: Hokkaido University, Tohoku University, University of Tsukuba, The University of Tokyo, Waseda University, Keio University, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, and Kyushu University. RU11 is composed of both national and private universities.

(*2) FWCI (Field-Weighted Citation Impact) is the number of citations received by the publication, divided by the world average for the same type of publications in the same field and same publication year. An FWCI of 1 or higher means that the average impact is higher than the world average.

Metrics Details

Publication Type: Articles and Reviews; Self-citations: included

*Source: Elsevier's "SciVal" (as of September 2021)

KYUSHU UNIVERSITY FACT BOOK 2021

Admissions

University Hospital

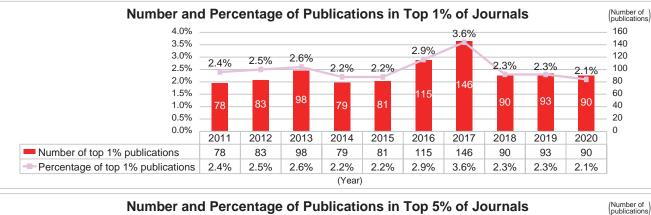
Income and Expenditure

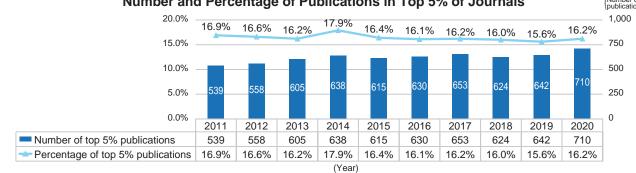
Selection of Research Education Programs

International

Number and Percentage of Publications Carried in the World's Top Journals

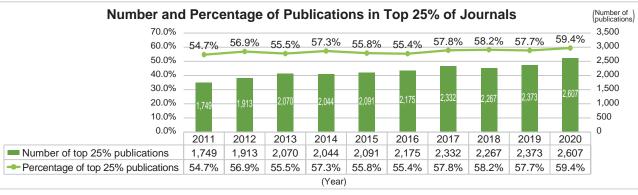
Kyushu University





★Key Performance Indicators (KPI) for the Designated National University Corporations





• What do we mean by the number and percentage of publications carried in journals in top percentiles?

The number and percentage of publications carried in journals in top percentiles, based on citation counts. It indicates the number of publications in the top 1%, 5%, 10%, and 25% of journals based on the number and percentage of citations in Scopus each year. Metrics Details

Publication Type: Articles and Reviews; Journal Metric: CiteScore Percentile

*Source: Elsevier's "SciVal" (as of September 2021)

Government Collaboration University Hospital

International

Overview and Comparisons with Other Universities

Number of Faculty and Staff Members

Number of Students

Admissions

Enrollment

Graduate Degrees Conferred

♦Comparison of RU11(*1) Percentage of Publications in Top 1% of Journals Percentage of Publications in Top 5% of Journals 4.5 24.0 4.0 22.0 3.5 20.0 3.0 (%) (%) 18.0 2.5 16.0 2.0 14.0 1.5 1.0 12.0 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 Hokkaido University 2.9 2.9 2.7 3.2 2.5 2.8 3.3 2.7 2.5 2.5 Hokkaido University 20.4 18.2 17.9 19.7 19.3 18.2 16.8 15.6 15.3 15.0 - Tohoku University 17.8 16.7 19.1 19.2 16.5 18.2 15.9 14.8 14.4 14.8 2.5 2.6 2.5 2.4 2.2 2.1 Tohoku Universitv 2.9 2.9 3.0 3.4 - University of Tsukuba 2.6 3.0 Lniversity of Tsukuba 18.4 19.1 18.1 17.5 17.5 15.9 17.8 15.9 16.0 16.0 2.7 1.7 1.9 2.7 3.2 2.6 2.5 3.4 The University of Tokyo 3.8 3.4 3.7 3.6 3.4 3.3 3.8 3.4 3.1 3.0 The University of Tokyo 22.1 20.8 20.9 22.9 21.2 22.2 21.4 20.0 19.9 21.0 Waseda University 15.4 16.6 17.0 16.4 16.2 17.1 17.8 16.1 14.0 14.5 Waseda University 2.0 2.6 2.2 1.9 1.6 1.7 2.7 1.9 1.9 2.1 Keio University 3.4 2.3 2.5 3.4 3.2 3.0 2.6 3.2 2.2 2.8 Keio University 17.0 15.9 16.3 16.5 16.2 15.9 13.6 13.3 13.5 13.4 Tokyo Institute of Technology 19.7 21.1 21.1 21.1 21.4 22.4 22.7 21.1 20.1 20.6 Tokyo Institute of Technology 2.6 3.4 3.4 3.4 2.9 4.1 4.1 2.8 2.7 2.4 Nagoya University 18.3 16.8 18.8 20.6 18.2 17.9 16.9 18.1 15.8 15.3 Nagoya University 2.3 2.9 2.6 2.4 2.5 2.0 2.5 2.4 2.3 1.9 20.9 19.9 20.7 22.4 21.4 21.0 21.7 20.2 19.3 18.5 Kyoto University 3.5 2.8 3.1 3.8 2.9 3.0 2.1 Kyoto University 3.1 3.4 3.4 19.8 20.2 19.9 20.4 18.0 18.4 17.7 16.0 16.2 15.6 Osaka University 31 3.3 2.6 2.6 2.3 2.8 2.9 2.6 2.9 2.3 Osaka University Kyushu University 2.4 2.5 2.6 2.2 2.2 2.9 3.6 2.3 2.3 Kyushu University 16.9 16.6 16.2 17.9 16.4 16.1 16.2 16.0 15.6 16.2 2.1 Percentage of Publications in Top 10% of Journals Percentage of Publications in Top 25% of Journals 48.0 70.0 68.0 45.0 66.0 42.0 64.0 39.0 62.0 (%) (%)36.0 60.0 58.0 33.0 56.0 30.0 54.0 27.0 52.0 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 Hokkaido University 32.2 30.5 32.5 33.0 34.4 36.6 36.3 34.7 33.4 32.1 Hokkaido University 61.3 57.4 59.4 57.6 59.7 59.5 60.9 59.0 59.1 61.1 - Tohoku University 34.8 31.7 34.2 34.7 36.8 36.7 38.8 33.7 30.7 30.2 - Tohoku University 62.9 62.8 61.3 60.8 60.5 59.4 63.0 61.2 60.3 61.2 University of Tsukuba 34.3 34.2 32.4 34.0 36.2 37.0 38.9 34.9 33.5 31.7 University of Tsukuba 60.7 63.6 58.4 58.4 57.8 58.0 61.1 61.2 57.1 58.9 The University of Tokyo 66.9 67.6 65.7 66.1 66.7 64.6 68.4 67.7 68.2 68.5 The University of Tokyo 38.9 39.1 39.8 40.8 42.5 41.8 46.4 41.0 37.5 37.5 Waseda University 30.9 33.1 34.7 32.6 36.4 38.3 36.2 33.0 32.7 30.7 Waseda University 54.4 60.2 55.4 54.7 57.3 56.7 58.6 57.9 59.7 59.5 Keio University 32.1 29.5 29.0 29.2 32.9 35.2 33.8 32.1 29.6 29.8 Keio University 56.4 56.4 54.6 53.5 57.0 56.7 56.8 59.3 57.2 58.7 - Tokyo Institute of Technology 38.0 38.6 39.5 40.6 42.2 44.5 45.5 41.2 38.4 36.8 Tokyo Institute of Technology 65.8 65.2 62.4 65.6 64.9 64.1 67.3 67.4 67.7 66.1 Nagoya University 34.3 34.2 36.6 36.3 37.2 36.8 37.2 35.8 32.5 31.9 Nagoya University 61.8 63.0 63.7 63.1 60.5 58.2 63.2 62.0 60.7 60.9 Kvoto Universitv 36.9 37.1 37.9 38.6 41.3 42.5 44.1 40.0 36.7 34.8 62.8 65.0 62.5 63.7 63.3 63.1 65.8 66.7 65.6 64.9 Kvoto Universitv 34.0 34.8 34.9 36.0 37.7 38.5 39.7 35.8 33.3 32.7 61.8 65.1 59.8 60.0 59.5 59.2 62.5 61.7 60.8 60.7 Osaka University Osaka University Kyushu University 29.5 31.5 30.3 33.3 33.6 35.6 34.3 32.1 30.7 32.9 Kyushu University 54.7 56.9 55.5 57.3 55.8 55.4 57.8 58.2 57.7 59.4

(*1) RU11 (Research University 11) is a consortium that aims to develop academia via eleven universities: Hokkaido University, Tohoku University, University of Tsukuba, The University of Tokyo, Waseda University, Keio University, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, and Kyushu University. RU11 is composed of both national and private universities.

Metrics Details

Publication Type: Articles and Reviews; Journal Metric: CiteScore Percentile

*Source: Elsevier's "SciVal" (as of September 2021)

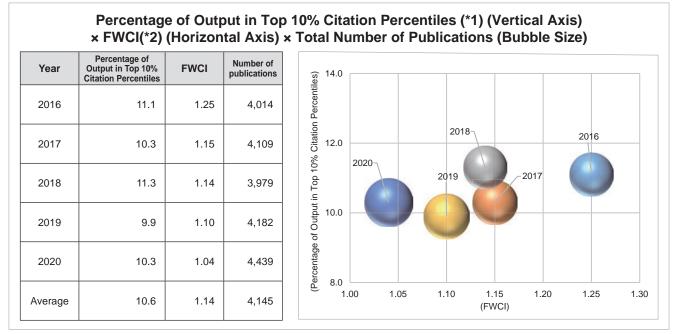
Overview and Comparisons with Other Universities Number of Faculty and Staff Members Number of Students

Admissions

University Hospital

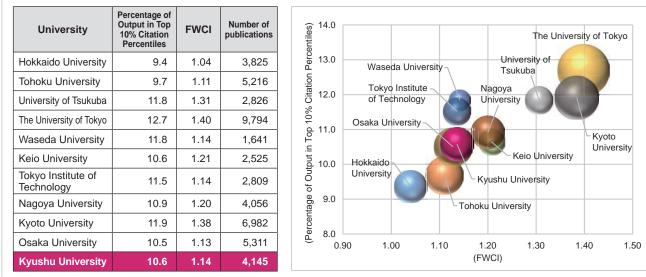
Overall Comparisons of Publication Quantity and Quality

♦Kyushu University♦ (2016-2020)



◆Comparison of RU11(*3)◆ (2016-2020 Average)

Percentage of Output in Top 10% Citation Percentiles (Vertical Axis) × FWCI (Horizontal Axis) × Total Number of Publications (Bubble Size)



(*1) Percentage of Output in Top 10% Citation Percentiles

This refers to the number of (field-weighted) publications in top 10% most cited worldwide. This figure indicates the proportion of papers, including the top 10%, based on the annual number of Scopus citations.

- (*2) FWCI (Field-Weighted Citation Impact) is the number of citations received by the publication, divided by the world average for the same type of publications in the same field and same publication year. An FWCI of 1 or higher means that the average impact is higher than the world average.
- (*3) RU11 (Research University 11) is a consortium that aims to develop academia via eleven universities: Hokkaido University, Tohoku University, University of Tsukuba, The University of Tokyo, Waseda University, Keio University, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, and Kyushu University. RU11 is composed of both national and private universities.

Metrics Details

Publication Type: Articles and Reviews; Self-citations: included; Field-weighted: yes

*Source: Elsevier's "SciVal" (as of September 2021)

Number of Faculty Number of Students

Admissions

University Hospital

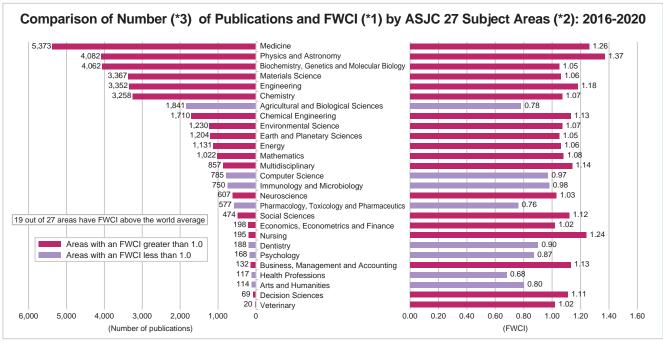
Income and Expenditure

Selection of Research Education Programs

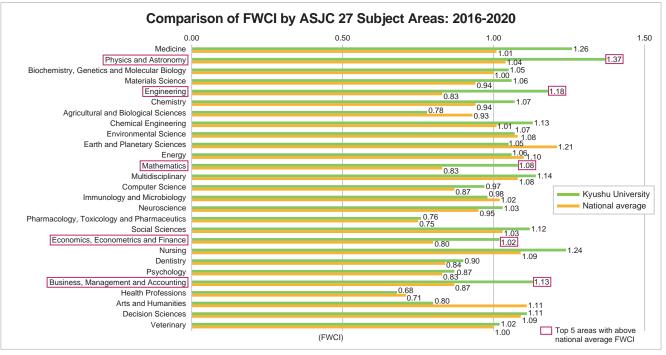
nternational

Comparison between Kyushu University and the National Average by ASJC* 27 Subject Areas: FWCI

Kyushu University



Comparison between Kyushu University and the National Averages



(*1) FWCI (Field-Weighted Citation Impact) is the number of citations received by the publication, divided by the world average for the same type of publications in the same field and same publication year. An FWCI of 1 or higher means that the average impact is higher than the world average.
(*2) The above impact set pacing are based on the AS IO ST (AS IO) of 1 or higher means that the average impact is higher than the world average.

(*2) The above journal categories are based on the ASJC 27 (ASJC: All Scopus Science Journal Classification) in Scopus.

(*3) A larger number of publications and higher FWCI indicates greater depth of research capability (i.e. that it is one of the university's strengths). A smaller number of publications and high FWCI often indicates that there is a specific faculty member with advanced research ability. In addition, when a specific faculty member belongs to a huge community of researchers, both the number of publications and FWCI are often higher.

Metrics Details

Publication Type: Articles and Reviews; Self-citations: included

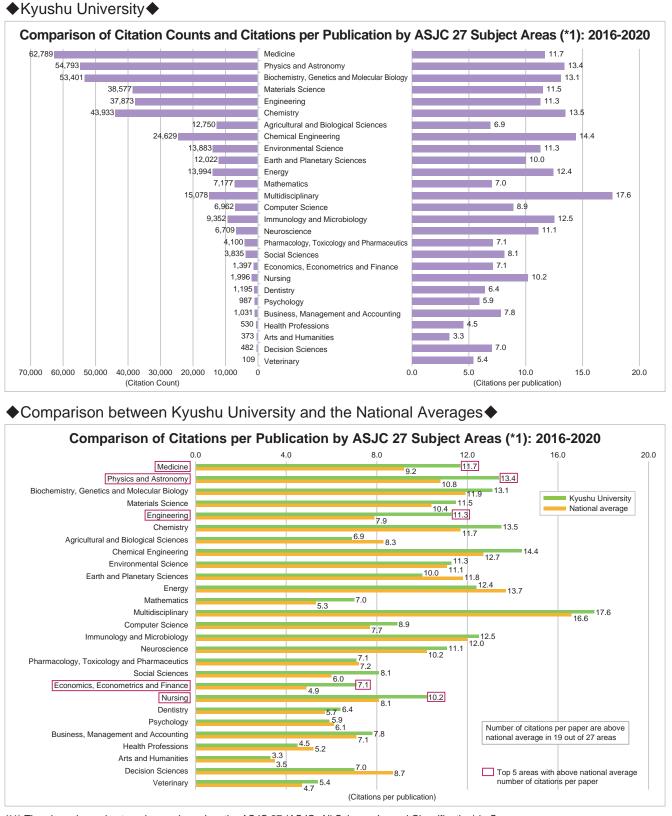
*Source: Elsevier's "SciVal" (as of September 2021)

Admissions

University Hospital

Income and Expenditure

Comparison between Kyushu University and the National Average by ASJC 27 Subject Areas: Citations per Publication



Metrics Details

Publication Type: Articles and Reviews; Self-citations: included

*Source: Elsevier's "SciVal" (as of September 2021)

Overview and Comparisons with Other Universities

Graduate D Conferi

erred

Career

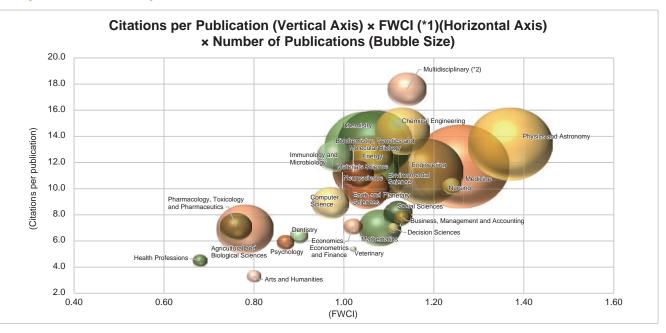
Admissions

nternational

Income and Expenditure

Selection of Research Education Programs

Comparison of Research Fields of Kyushu University Publications by ASJC 27 Subject Areas: 2016-2020



Comparison of Research Fields of Kyushu University Publications by ASJC 334 Fields: 2016-2020

Top 10 fields with high FWCI (*3)

Rank	ASJC 27 Subject Areas (*4)	ASJC 334 Fields (*4)	FWCI	Number of publications
1	Nursing	Psychiatric Mental Health	16.42	3
2	Medicine	General Medicine	6.19	195
3	Engineering	Engineering (miscellaneous) (*5)	3.52	201
4	Business, Management and Accounting	Business and International Management	3.26	21
5	Physics and Astronomy	Physics and Astronomy (miscellaneous) (*6)	3.14	389
6	Psychology	Applied Psychology	2.55	10
7	Veterinary	Equine	2.45	1
7	Veterinary	Small Animals	2.45	1
9	Nursing	Advanced and Specialized Nursing	2.25	22
10	Medicine	Hepatology	2.21	149

(*1) FWCI (Field-Weighted Citation Impact) is the number of citations received by the publication, divided by the world average for the same type of publications in the same field and same publication year. An FWCI of 1 or higher means that the average impact is higher than the world average.

(*2) Multidisciplinary field is one in which publications are carried in general scientific magazines such as Nature and Science.

(*3) 140 fields out of a total of 334 fields have FWCI above world average. Fields with high FWCI and a low number of papers indicate a strong ability to perform research amongst staff. Fields with a high FWCI and a high number of papers demonstrate a strong research ability overall (as a University).

(*4) The 27 subject areas and 334 fields is based on the Scopus ASJC categorization (ASJC: All Science Journal Classification). Translation assistance: NIAD-QE, the National Institution for Academic Degrees and Quality Enhancement of Higher Education (the major field categories are Elsevier translations)

(*5) Engineering (miscellaneous) refers to topics besides the following: Aerospace Engineering; Automotive Engineering; Biomedical Engineering; Civil and Structural Engineering; Computational Mechanics; Control and Systems Engineering; Electrical and Electronic Engineering; Industrial and Manufacturing Engineering; Mechanical Engineering; Mechanics of Materials; Ocean Engineering; Safety, Risk, Reliability, and Quality; Media Technology; Building and Construction; Architecture.

(*6) Physics and Astronomy (miscellaneous) refers to topics besides the following: Acoustics and Ultrasonics; Astronomy and Astrophysics; Condensed Matter Physics; Instrumentation; Nuclear and High Energy Physics; Atomic and Molecular Physics or Optics; Radiation; Statistical and Nonlinear Physics; Surfaces and Interfaces.

Metrics Details

Publication Type: Articles and Reviews; Self-citations: included

*Source: Elsevier's "SciVal" (as of September 2021)

Admissions

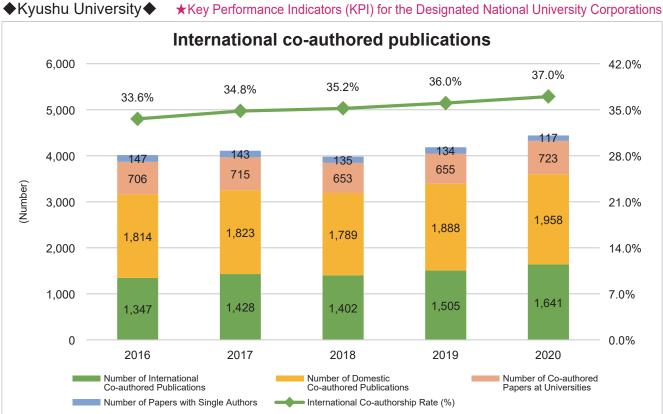
University Hospital

Number of Faculty Number of Students

Research

Selection of Research/ Education Programs

9-3. International Co-authored Publications



◆By Faculty◆ (2016-2020)

Rank	Faculty	Number of International Co-authored Publications (Total)	International Co-authorship Average Rate (%)
1	Faculty of Engineering	1,201	34.1
2	Faculty of Science	1,051	58.0
3	Faculty of Agriculture	706	41.6
4	Faculty of Medical Sciences	637	15.8
5	Faculty of Engineering Sciences	403	42.8
6	Faculty of Information Science and Electrical Engineering	329	37.1
7	Faculty of Pharmaceutical Sciences	166	26.7
8	Faculty of Dental Science	157	23.6
9	Faculty of Social and Cultural Studies	70	49.0
10	Faculty of Design	57	21.9
11	Faculty of Human-Environment Studies	50	36.5
12	Faculty of Economics	42	34.2
13	Faculty of Mathematics	37	23.6
14	Faculty of Languages and Cultures	5	21.7
15	Faculty of Law	4	50.0
16	Faculty of Humanities	3	10.7

Metrics Details

Publication Type: Articles and Reviews; Field-weighted: no

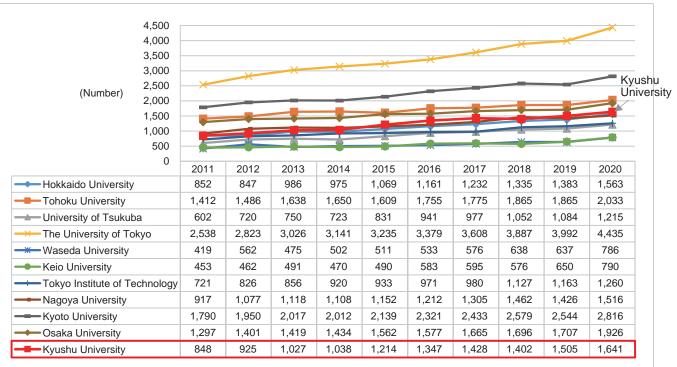
• Number of International Co-authored Publications (Total) includes articles and reviews which publicated in the period 2016-2020 by our research fellows as of April 1, 2021. (Includes publications from when employed at other organizations during the period 2016 to 2020.)

^{*}Source: Elsevier's "SciVal" (as of September 2021)

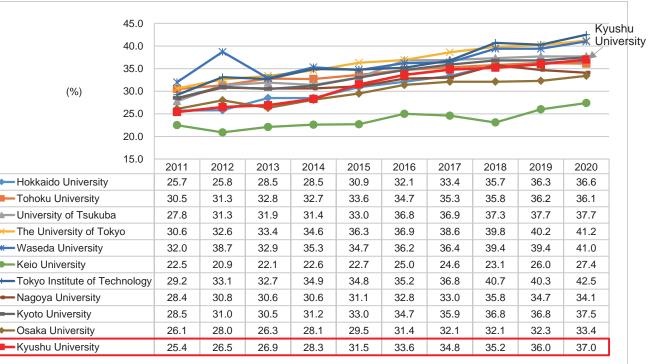
9-3. International Co-authored Publications (Continued)

◆Comparison of RU11 (*1)◆ (2011-2020)

Number of International Co-authored Publications



International Co-authorship Rate



(*1) RU11 (Research University 11) is a consortium that aims to develop academia via eleven universities: Hokkaido University, Tohoku University, University of Tsukuba, The University of Tokyo, Waseda University, Keio University, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, and Kyushu University. RU11 is composed of both national and private universities.

Metrics Details

Publication Type: Articles and Reviews; Field-weighted: no

*Source: Elsevier's "SciVal" (as of September 2021)

Admissions

Industry-University-Government Collaboration

Selection of Research Education Programs

International Co-authorship with Institutions Worldwide: 2016-2020

North America 2,888 papers co-authored with 677 institutions

Europe

2,966 papers co-authored with 1,415 institutions

Asia-Pacific 16,764 papers co-authored with 1,824 institutions Overview and Comparisons with Other Universities

Number of Faculty and Staff Members

Number of Students

Admissions

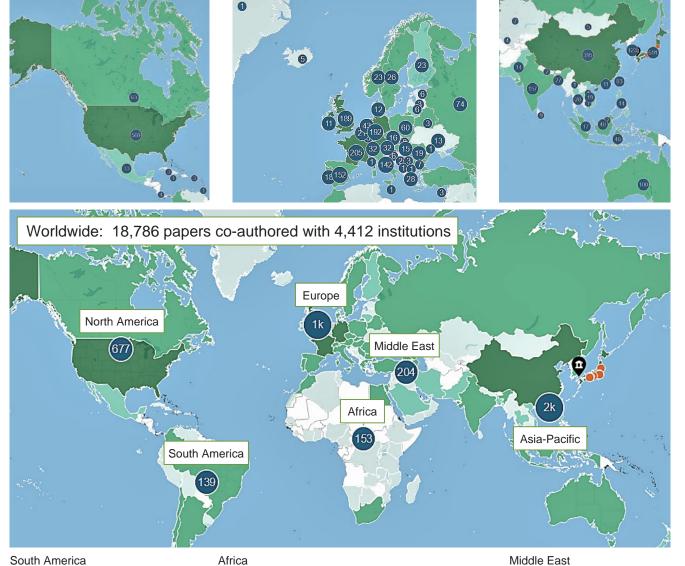
Enrollment

Graduate Confe

Degrees erred

r Paths and ment Status

Success in Qualification Examinations



South America 663 papers co-authored with 139 institutions



Africa 1,155 papers co-authored with 153 institutions



- Figures on the maps represent the number of institutions. Metrics Details
- Publication Type: All

*Source: Elsevier's "SciVal" (as of September 2021)

International

873 papers co-authored with 204 institutions

(2)1

19

1

53