



ARQUS ClusterMap: in-depth analysis
of the status quo of research
connections within the cluster
UGR Bibliometric reports - Part I

GRANADA
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1. Introduction

The Arqus European University Alliance, which was formally established in Brussels on 27 November 2018, brings together the universities of Bergen, Granada, Graz, Leipzig, Lyon, Padova and Vilnius. A multilateral alliance of internationalized institutions that aspires to consolidate a joint governance structure to achieve a high level of integration in its members' policies and action plans for 2025 due to their prior experience in cooperation in order to:

- Enhance the education of critically engaged European and global citizens who are able and willing to contribute to a multicultural, multilingual and inclusive Europe which is open to the world;
- Increase and improve the joint research capacity of the partner universities;
- Better respond to the grand societal challenges of the 21st century in Europe and beyond.¹

There are a total of six action lines to reach this level of integration and achieve excellence in education and research. One of them is “*Research Support and Early Stage Researcher Development*”, which is coordinated by the Research Board, chaired by University of Graz. Its main objectives are:

- I. share best practice in research management and support;
- II. study the feasibility of sharing resources;
- III. promote joint doctoral initiatives and promote shared opportunities.

Among its planned activities the first one is *ClusterMap*, an in-depth analysis of the status quo of research connections within the cluster (alliance). So as part of that activity this report offers an initial study to observe their research status and collaborations for last 10 years. The main goals of the report are:

- Analyse the general research profile and publication trend of ARQUS' universities.
- Study the collaborations between universities and identify which are their main and common research areas in order to facilitate and promote collaborations between them.
- An in depth analysis of the the universities publication and specialization profiles according to areas and disciplines
- Identify and map outstanding researchers with the objective of establish a directory that facilitate future collaborations

To meet these objectives we have planned to deliver two reports. Table 1 shows the details of these reports.

¹ <https://www.arqus-alliance.eu/action-lines/research-support>

Table 1. Report's calendar and deliverables

	I. General data collaboration	II. Publications profiles and research Excellence
Description	Analyze the universities' positions in international rankings, research profile and main collaborations taking into account their research categories	Analyze the publication profile of the different universities. In this way, common research areas will be established. Likewise, the most relevant researchers from each university will be identified
Deadline	15 January 2020	15 March 2020
Highlights	Production trends and main collaborations by areas	Main specialization disciplines by universities. Directory of outstanding researchers
Data	Available	Available

2. Methodology

Information sources

The data for the position in international rankings has been obtained from ARWU, is the measure of the most prestigious universities globally. Since 2003 it has been evaluating the general performance of higher education institutions around the world and since 2017 it also provides specific analysis in 54 areas of knowledge, a classification that always precedes the publication of the general ranking that appears every year in mid-August.

ARWU uses six objective indicators to rank world universities, including the number of alumni and staff winning Nobel Prizes and Fields Medals, number of highly cited researchers selected by Clarivate Analytics, number of articles published in journals of Nature and Science, number of articles indexed in Science Citation Index - Expanded and Social Sciences Citation Index, and per capita performance of a university. More than 1800 universities are actually ranked by ARWU every year and the best 1000 are published.

For the publications data we used Web of Science's InCites, a database focus on organizations that makes it simple to analyse their activity and benchmark it against other ones. This selection is also due to its data quality, highlighting the organizations unification, coverage, including all publications in the Web of Science Core Collection, and access to citation, metrics and collaboration data.

In December 2019 we retrieved all universities publications indexed in InCites from 2010 to 2019, including Emerging Sources Citation Index, and filtering by document type (only articles, reviews and letters). In order to guarantee the correct downloading each dataset

was sent to the respective university managers, who verified that there were no errors in the data. So, for the InCites query, each university is composed of the following organizations:

- **Bergen** - University of Bergen
- **Granada** - University of Granada
- **Graz** - University of Graz
- **Leipzig** - University of Leipzig
- **Lyon** - Université Claude Bernard Lyon 1 + Université Jean Moulin Lyon 3 + Université Jean Monnet + ENS Lyon
- **Padua** - University of Padua
- **Vilnius** - Vilnius University + Vilnius University International Business School

All data collected for this report are available in a figshare project:

https://figshare.com/projects/ARQUS_ClusterMap_in-depth_analysis_of_the_status_quo_of_research_connections_within_the_cluster/74190. Every part has been divided into different dataset:

1. Part I - <https://doi.org/10.6084/m9.figshare.11620059.v1>

Bibliometric indicators

Main Indicators:

- **Number of Documents:** number of articles, reviews indexed in Web of Science.
- **Category Normalized Citation Impact** The Category Normalized Citation Impact (CNCI) of a document is calculated by dividing the actual count of citing items by the expected citation rate for documents with the same document type, year of publication and subject area. When a document is assigned to more than one subject area, an average of the ratios of the actual to expected citations is used. The CNCI of a set of documents, for example, the collected works of an individual, institution, or country, is the average of the CNCI values for all the documents in the set.

Complementary indicators:

- The Highly Cited Papers indicator shows the volume of papers that are classified as highly cited in the Clarivate Analytics service known as Essential Science Indicators (ESI). Highly Cited Papers in ESI are the top one percent in each of the 22 subject areas represented in the Web of Science, per year. They are based on the most recent 10 years of publications. Highly Cited Papers are considered to be indicators of scientific excellence and top performance and can be used to benchmark research performance against field baselines worldwide.
- **Documents in Q1 – Q4.** Number of documents that appear in a journal in a particular Journal Impact Factor Quartile in a given year. For instance, if a value of 100. is displayed, it

indicates that 100 documents in the set were published in journals of the specified Journal Impact Factor Quartile in that year.

- **Collaboration.** Papers that contain one or more international co-authors. The % of International Collaborations is the number of International Collaborations for an entity (as described above) divided by the total number of documents for the same entity represented as a percentage. The % of International Collaborations is an indication of an institution or author's ability to attract international collaborations.

Research areas schemas

- **GIPP Research Areas.** A very broad categorization. The GIPP schema comprises six broad disciplines but covers all fields of scholarly research. The GIPP schema is based on an aggregation of the Web of Science subject categories and contains significant overlap between disciplines. Initially developed as part of the Thomson Reuters Institutional Profiles project, the GIPP schema is also used in the Times Higher Education World University Rankings.
- **Web of Science Research Areas.** The Web of Science scheme comprises approximately 250 subject areas in science, social sciences, and arts & humanities. Many broad areas such as physics and materials science are represented by smaller subfields. Selecting subject areas from this list enables you to make comparisons in targeted areas such as Applied Chemistry or Geriatrics & Gerontology. To see the journals assigned to each category, click one of the following links:

3. General view

3.1 Position in international rankings

The data have been obtained from the Academic Ranking of World Universities (ARWU).

Table 1. Position in international rankings ARQUS Alliance. General

University	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
Position	301-400	201-300	401-500	201-300	CB 201-300 ENS 301-400	201-300	601-700

Note: The data corresponding to Lyon are classified in:
Claude Bernard Lyon 1 - CB / ENS Lyon - ENS

 **figshare** Data available: <https://ndownloader.figshare.com/files/21063696>

Table 2. Position in international rankings ARQUS Alliance. Natural Sciences

Field	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
Atmospheric Science	76-100	151-200	201-300	101-150	--	201-300	--
Chemistry	--	301-400	301-400	301-400	101-150 201-300	201-300	--
Earth Sciences	51-75	151-200	401-500	401-500	76-100 201-300 51-75	101-150	--
Ecology	201-300	301-400	--	101-150	151-200	151-200	--
Geography	76-100	151-200	--	--	151-200	101-150	--
Mathematics	301-400	76-100	301-400	151-200	101-150 101-150 27	151-200	401-500
Oceanography	8	101-150	--	--	--	--	--
Physics	201-300	151-200	--	--	76-100 301-400	37	401-500

Color = Position Top 100 - green square

Note: The data corresponding to Lyon are classified in:
Claude Bernard Lyon 1 - black text / ENS Lyon - blue text / Jean Monnet - red text

 **figshare** Data available: <https://ndownloader.figshare.com/files/21063705>

Table 3. Position in international rankings ARQUS Alliance. Engineering

Field	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
Aerospace Engineering	--	--	--	--	--	--	--
Automation and Control	--	--	--	--	--	43	--
Biomedical Engineering	--	201-300	--	--	151-200	201-300	--
Biotechnology	--	301-400	--	201-300	201-300	151-200	--
Chemical Engineering	--	301-400	--	--	151-200	201-300	--
Civil Engineering	--	201-300	--	--	--	101-150	--
Computer Science and Eng	301-400	76-100	--	--	301-400 401-500	151-200	--
Electrical and Electronic	--	151-200	--	--	401-500	76-100	--
Energy Science and Eng	--	--	--	--	301-400	151-200	--
Environmental Science and Eng	301-400	201-300	--	--	201-300	201-300	--
Food Science and Technology	--	37	--	--	--	76-100	--
Instruments Science and Tech.	--	201-300	--	--	76-100	45	--
Marine/Ocean Engineering	--	--	--	--	--	--	--
Materials Science and Eng	--	--	--	401-500	301-400	201-300	--
Mechanical Engineering	--	--	--	--	151-200	76-100	--
Metallurgical Engineering	--	--	--	--	--	--	--
Mining and Mineral Engineering	--	47	--	--	--	--	--
Nanoscience and Nanotech.	--	--	--	301-400	201-300	201-300	--
Remote Sensing	--	--	--	--	--	--	--
Telecommunication Engineering	--	--	--	--	--	51-75	--
Transportation Science	--	151-200	--	--	--	--	--
Water Resources	--	--	--	--	--	25	--

Color = Position Top 100 - green square

Note: The data corresponding to Lyon are classified in:

Claude Bernard Lyon 1 - black text / ENS Lyon - blue text / Jean Monnet - red text

 Data available: <https://ndownloader.figshare.com/files/21063693>

Table 4. Position in international rankings ARQUS Alliance. Life Sciences

Field	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
Agricultural Sciences	201-300	301-400	--	201-300	201-300 301-400	51-75	--
Biological Sciences	151-200	401-500	301-400	201-300	101-150 401-500 201-300	151-200	401-500
Human Biological Science	151-200	401-500	--	151-200	151-200 401-500 401-500	151-200	--
Veterinary Sciences	--	--	--	76-100	--	76-100	--

Color = Position Top 100 - green square

Note: The data corresponding to Lyon are classified in:

Claude Bernard Lyon 1 - black text / ENS Lyon - blue text / Jean Monnet - red text

 Data available: <https://ndownloader.figshare.com/files/21063699>

Table 5. Position in international rankings ARQUS Alliance. Medical Sciences

Field	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
Clinical Medicine	76-100	--	--	201-300	301-400	201-300	--
Dentistry and Oral Sciences	51-75	101-150	--	151-200	--	201-300	--
Medical technology	51-75	--	--	101-150	101-150	51-75	--
Nursing	101-150	101-150	--	--	--	--	--
Pharmacy	401-500	201-300	151-200	301-400	301-400	151-200	--
Public Health	42	301-400	--	301-400	--	301-400	--

Color = Position Top 100 - green square

Note: The data corresponding to Lyon are classified in:

Claude Bernard Lyon 1 - black text / ENS Lyon - blue text / Jean Monnet - red text

 Data available: <https://ndownloader.figshare.com/files/21063702>

Table 6. Position in international rankings ARQUS Alliance. Social Sciences

Field	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
Business Administration	--	301-400	--	--	--	301-400	--
Communication	151-200	201-300	--	201-300	--	--	--
Economics	201-300	301-400	--	401-500	401-500	201-300	--
Education	301-400	301-400	401-500	--	--	201-300	--
Finance	--	--	--	--	--	--	--
Hospitality and Tourism	--	201-300	--	--	201-300	--	--
Law	101-150	--	--	--	--	--	--
Library and Information Sci.	--	36	--	--	--	--	--
Management	--	151-200	--	--	--	151-200	--
Political Sciences	151-200	--	--	--	--	--	--
Psychology	301-400	151-200	401-500	201-300	301-400	101-150	--
Public administration	76-100	151-200	--	--	--	--	--
Sociology	151-200	--	--	--	--	--	--
Statistics	--	101-150	--	--	101-150 151-200	51-75	--

Color = Position Top 100 - green square

Note: The data corresponding to Lyon are classified in:

Claude Bernard Lyon 1 - black text / ENS Lyon - blue text / Jean Monnet - red text

 Data available: <https://ndownloader.figshare.com/files/21063708>

4. Individual research profiles and trends

In the following tables, you can see the data of the main indicators of scientific production for each university, in different periods of time and for each of the areas analyzed, including the different disciplines and a brief initial summary. In addition, the analyzed data is represented graphically.

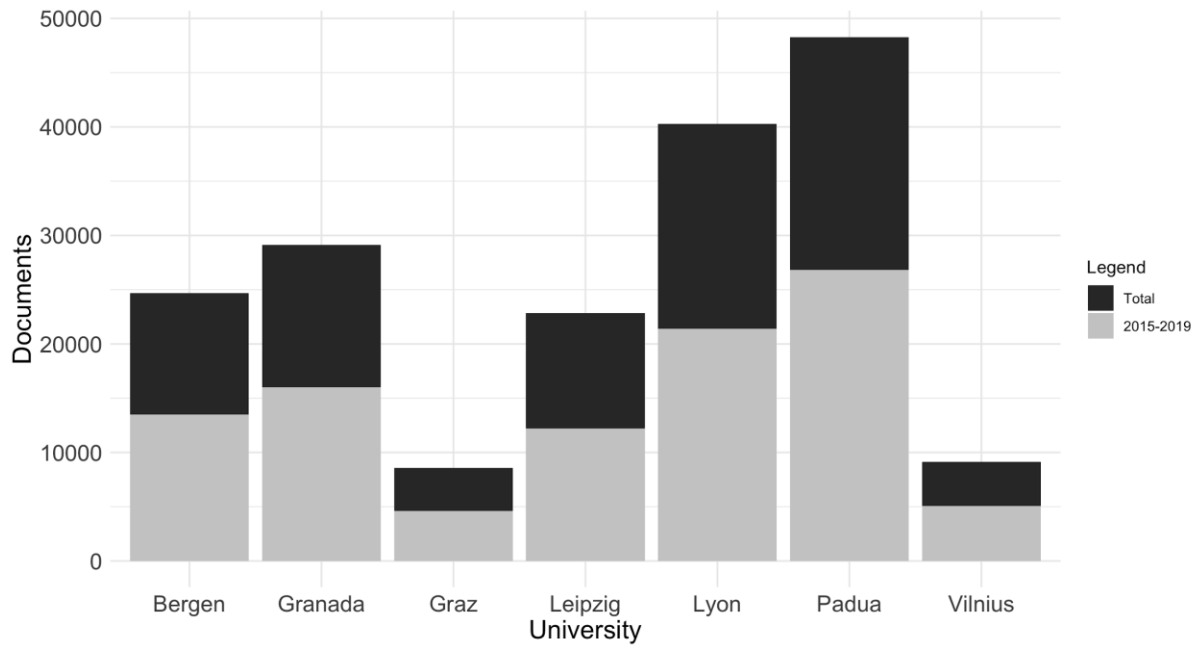
Summary

Table 7. Main bibliometric Indicators ARQUS Alliance

University	Nr citable Documents	Category Normalized Citation Impact	Nr and % Documents in Q1	Nr & % Highly Cited Papers	Nr and % International Collaboration
Period: 2010-2019					
University of Bergen	24687	1,75	9651 - 53,33%	573 - 2,32%	15590 - 63,15%
University of Granada	29122	1,25	10164 - 50,97%	412 - 1,41%	13115 - 45,03%
University of Graz	8591	1,32	3327 - 52,96%	138 - 1,61%	5007 - 58,28%
University of Leipzig	22845	1,33	8431 - 49,63%	413 - 1,81%	10124 - 44,32%
University of Lyon	40291	1,36	18392 - 58,49%	633 - 1,57%	21199 - 52,61%
University of Padua	48287	1,58	21247 - 57,25%	986 - 2,04%	24715 - 51,18%
University of Vilnius	9118	1,18	2723 - 39,75%	158 - 1,73%	4711 - 51,67%
Period: 2015-2019					
University of Bergen	13486	1,86	4751 - 53,11%	351 - 2,60%	8908 - 66,05%
University of Granada	16002	1,29	5038 - 51,04%	240 - 1,50%	7775 - 48,59%
University of Graz	4593	1,31	1516 - 49,92%	74 - 1,61%	2707 - 58,94%
University of Leipzig	12196	1,40	4131 - 50,84%	241 - 1,98%	5755 - 47,19%
University of Lyon	21394	1,37	8660 - 57,31%	336 - 1,57%	11818 - 55,24%
University of Padua	26818	1,67	10608 - 56,86%	566 - 2,11%	14684 - 54,75%
University of Vilnius	5073	1,21	1439 - 41,35%	90 - 1,77%	2774 - 54,68%

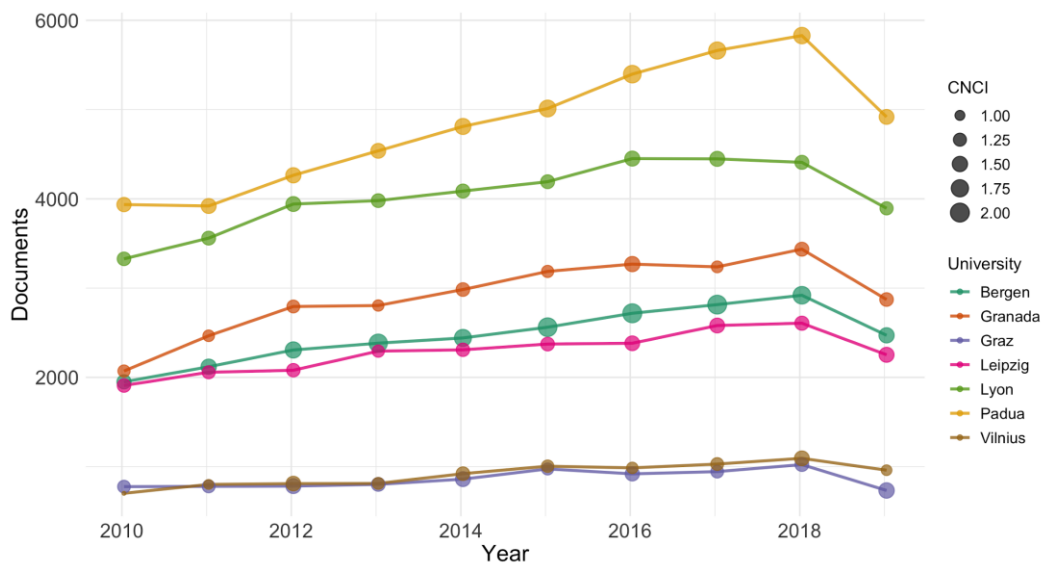
 Data available: <https://ndownloader.figshare.com/files/21063717>

Figure 1. Bar plot of universities total research production in 2015-2019 and 2010-2019 periods



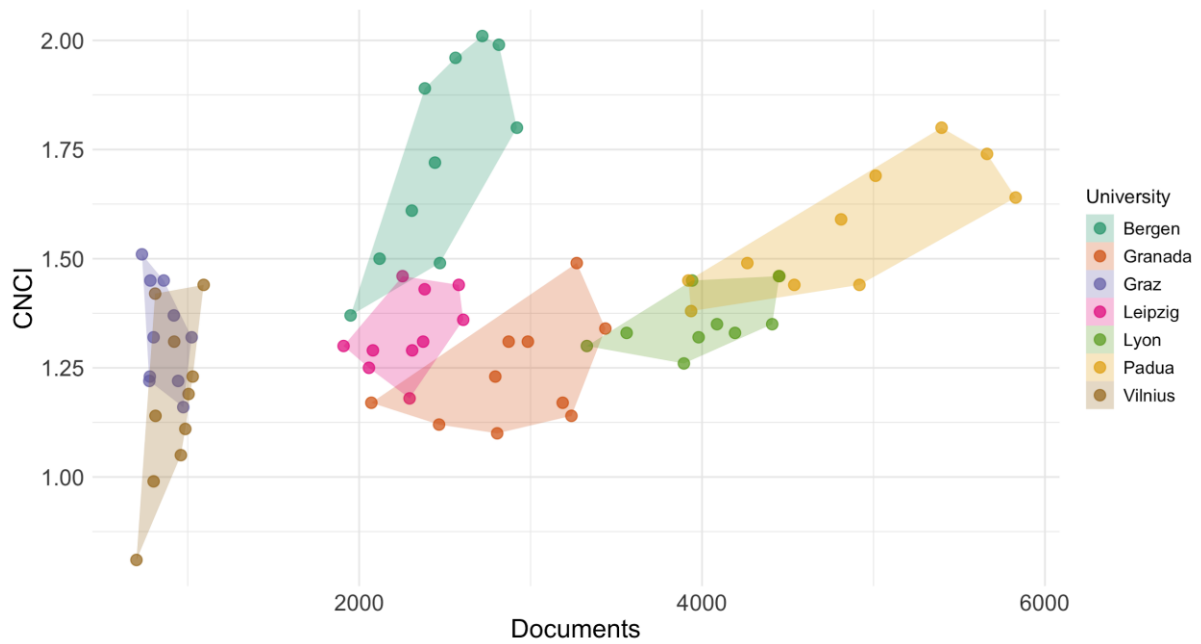
figshare Data available: <https://ndownloader.figshare.com/files/21063717>

Figure 2. Line plot of the production trend and Category Normalized Citation Impact average of universities



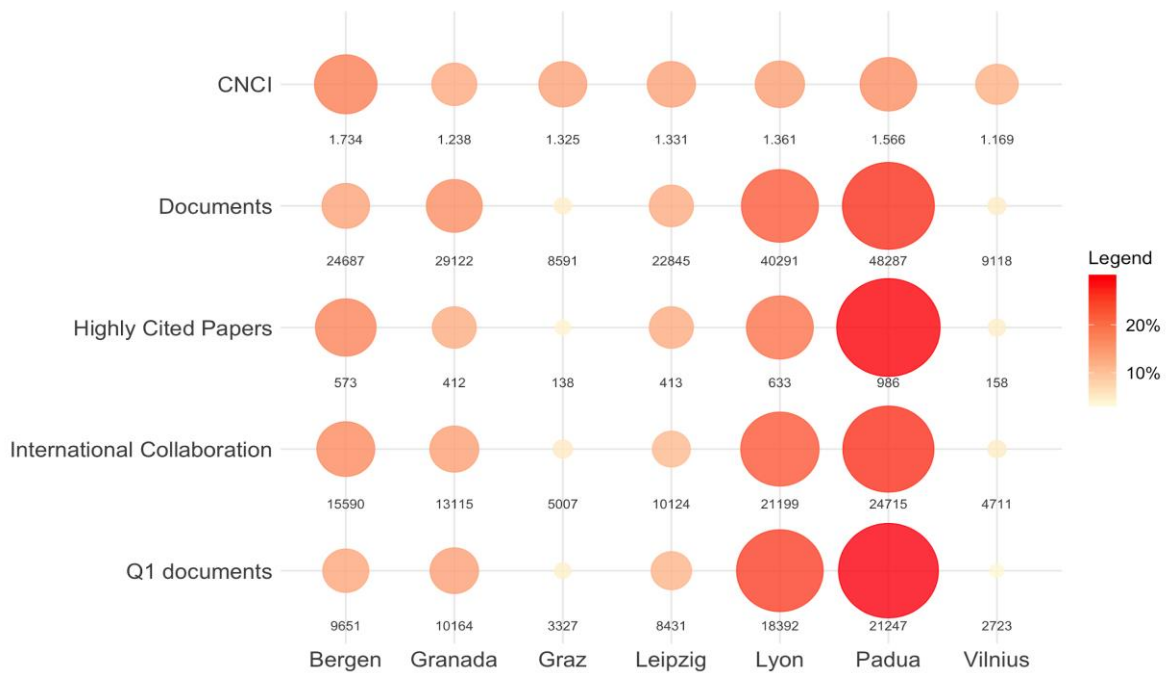
figshare Data available: <https://ndownloader.figshare.com/files/21063717>

Figure 3. Strategy map according Category Normalized Citation Impact, Number of citable documents and publication years (points)



figshare Data available: <https://ndownloader.figshare.com/files/21063717>

Figure 4. Overview of the main research indicators by university. Each point corresponds to the university percentage value in relation with the other ones in the same indicator. 2010-2019.



figshare Data available: <https://ndownloader.figshare.com/files/21063717>

INDIVIDUAL RESEARCH PROFILES PER UNIVERSITY

University of Bergen

Table 8. Main bibliometric indicators at the University of Bergen

Date	Nr citable Documents	Category Normalized Citation Impact	Documents in Q1	Nr & % Highly Cited Papers	International Collaboration
2010	1950	1,37	812 - 50,97%	28 - 1,44%	1099 - 56,36%
2011	2119	1,50	891 - 50,86%	33 - 1,58%	1209 - 57,06%
2012	2307	1,61	1042 - 55,37%	44 - 1,91%	1421 - 61,60%
2013	2383	1,89	1075 - 54,76%	63 - 2,64%	1443 - 60,55%
2014	2442	1,72	1080 - 55,07%	54 - 2,11%	1510 - 61,83%
2015	2562	1,96	1075 - 52,67%	65 - 2,54%	1646 - 64,25%
2016	2718	2,01	1213 - 55,11%	84 - 3,09%	1725 - 63,47%
2017	2815	1,99	1222 - 53,81%	67 - 2,38%	1851 - 65,75%
2018	2920	1,80	1241 - 51,03%	94 - 3,22%	1977 - 67,71%
2019	2471	1,49	--	41 - 1,66%	1709 - 69,16%
Total 2010-2019	24687	1,75	9651 - 53,33%	573 - 2,32%	15590 - 63,15%
Total 2015-2019	13486	1,86	4751 - 53,11%	351 - 2,60%	8908 - 66,05%
EU-2015-2019	3080261	1,14	973588 - 48,86%	31222 - 1,02%	1360734 - 44,18%

 figshare Data available: <https://ndownloader.figshare.com/files/21063717>



Table 9. Summary by areas (Nr citable documents - %). Bergen. 2015-2019

Health Sciences 5375 - 26,43%	Life Sciences 5568 - 27,38%	Physical / Engineering Sciences 6038 - 29,69%	Social Sciences / Humanities 3353 - 16,49%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Public, Environmental & Occupational Health 649 - 3,28	Clinical Neurology 505 - 1,69	Geosciences, Multidisciplinary 740 - 1,59	Psychiatry 492 - 2,31
Oncology 539 - 1,85	Biochemistry & Molecular Biology 475 - 1,47	Physics, Particles & Fields 644 - 2,59	Psychology, Multidisciplinary 184 - 1,18
Cardiac & Cardiovascular Systems 333 - 1,97	Neurosciences 468 - 1,73	Meteorology & Atmospheric Sciences 515 - 1,15	Political Science 155 - 1,57
Surgery 280 - 2,18	Marine & Freshwater Biology 348 - 1,26	Astronomy & Astrophysics 422 - 1,64	Psychology, Clinical 143 - 1,30
Pediatrics 225 - 2,15	Ecology 337 - 1,57	Oceanography 325 - 1,63	Education & Educational Research 125 - 1,62

 figshare Data available: <https://ndownloader.figshare.com/files/21063720>

University of Granada

Table 10. Main bibliometric indicators at the University of Granada

Date	Nr citable Documents	Category Normalized Citation Impact	Documents in Q1	Nr & % Highly Cited Papers	International Collaboration
2010	2071	1,17	762 - 48,63%	25 - 1,21%	759 - 36,65%
2011	2466	1,12	998 - 51,95%	21 - 0,85%	1001 - 40,59%
2012	2794	1,23	1110 - 51,94%	35 - 1,25%	1159 - 41,48%
2013	2805	1,10	1063 - 49,21%	34 - 1,21%	1138 - 40,57%
2014	2984	1,31	1193 - 52,21%	57 - 1,91%	1283 - 43,00%
2015	3187	1,17	1194 - 48,42%	48 - 1,51%	1419 - 44,52%
2016	3269	1,49	1317 - 53,10%	55 - 1,68%	1595 - 48,79%
2017	3238	1,14	1154 - 48,73%	36 - 1,11%	1563 - 48,27%
2018	3436	1,34	1373 - 53,72%	68 - 1,98%	1688 - 49,13%
2019	2872	1,31	--	33 - 1,15%	1510 - 52,58%
Total 2010-2019	29122	1,25	10164 - 50,97%	412 - 1,41%	13115 - 45,03%
Total 2015-2019	16002	1,29	5038 - 51,04%	240 - 1,50%	7775 - 48,59%
EU-2015-2019	3080261	1,14	973588 - 48,86%	31222 - 1,02%	1360734 - 44,18%

 Data available: <https://ndownloader.figshare.com/files/21063717>



Table 11. Summary by areas (Nr citable documents - %). Granada. 2015-2019

Health Sciences 3776 - 15,17%	Life Sciences 4977 - 20,00%	Physical / Engineering Sciences 10544 - 42,37%	Social Sciences / Humanities 5589 - 22,46%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Nutrition & Dietetics 616 - 1,11	Environmental Sciences 638 - 1,01	Physics, Particles & Fields 645 - 3,24	Education & Educational Research 672 - 0,75
Sport Sciences 466 - 1,30	Biochemistry & Molecular Biology 448 - 0,97	Astronomy & Astrophysics 528 - 3,56	Psychology, Multidisciplinary 301 - 0,79
Public, Environmental & Occupational Health 389 - 1,49	Pharmacology & Pharmacy 401 - 1,05	Computer Science, Artificial Intelligence 520 - 2,24	Humanities, Multidisciplinary 226 - 0,28
Oncology 257 - 1,13	Food Science & Technology 387 - 1,51	Mathematics 504 - 1,43	Social Sciences, Interdisciplinary 221 - 1,34
Dentistry, Oral Surgery & Medicine 252 - 1,74	Neurosciences 314 - 1,05	Mathematics. Applied 423 - 1,00	Psychiatry 194 - 1,57

 Data available: <https://ndownloader.figshare.com/files/21063720>

University of Graz

Table 12. Main bibliometric indicators at the University of Graz

Date	Nr citable Documents	Category Normalized Citation Impact	Documents in Q1	Nr & % Highly Cited Papers	International Collaboration
2010	776	1,22	331 - 53,91%	12 - 1,55%	422 - 54,38%
2011	779	1,23	357 - 55,52%	15 - 1,93%	453 - 58,15%
2012	782	1,45	357 - 55,78%	12 - 1,53%	449 - 57,42%
2013	801	1,32	361 - 54,53%	10 - 1,25%	477 - 59,55%
2014	860	1,45	405 - 59,04%	15 - 1,74%	499 - 58,02%
2015	974	1,16	379 - 50,67%	15 - 1,54%	521 - 53,49%
2016	919	1,37	366 - 50,07%	22 - 2,39%	534 - 58,11%
2017	944	1,22	370 - 49,40%	8 - 0,85%	559 - 59,22%
2018	1023	1,32	401 - 49,57%	15 - 1,47%	614 - 60,02%
2019	733	1,51	--	14 - 1,91%	479 - 65,35%
Total 2010-2019	8591	1,32	3327 - 52,96%	138 - 1,61%	5007 - 58,28%
Total 2015-2019	4593	1,31	1516 - 49,92%	74 - 1,61%	2707 - 58,94%
EU-2015-2019	3080261	1,14	973588 - 48,86%	31222 - 1,02%	1360734 - 44,18%

 figshare Data available: <https://ndownloader.figshare.com/files/21063717>



Table 13. Summary by areas (Nr citable documents - %). Graz. 2015-2019

Health Sciences 547 - 7,28%	Life Sciences 2148 - 28,60%	Physical / Engineering Sciences 3082 - 41,03%	Social Sciences / Humanities 1734 - 23,09%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Public, Environmental & Occupational Health 49 - 2,03	Biochemistry & Molecular Biology 299 - 1,48	Astronomy & Astrophysics 276 - 1,01	Economics 161 - 0,94
Radiology, Nuclear Medicine & Medical Imaging 48 - 2,09	Neurosciences 202 - 1,04	Chemistry, Multidisciplinary 205 - 0,94	Environmental Studies 101 - 1,42
Sport Sciences 44 - 1,96	Environmental Sciences 196 - 1,34	Mathematics, Applied 187 - 1,07	Psychology, Experimental 93 - 1,29
Nutrition & Dietetics 37 - 1,29	Cell Biology 129 - 2,88	Geosciences, Multidisciplinary 182 - 1,11	Language & Linguistics 84 - 0,99
Toxicology 35 - 1,72	Plant Sciences 129 - 1,18	Materials Science, Multidisciplinary 154 - 0,74	Psychology, Multidisciplinary 77 - 1,48

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University of Leipzig

Table 14. Main bibliometric indicators at the University of Leipzig

Date	Nr citable Documents	Category Normalized Citation Impact	Documents in Q1	Nr & % Highly Cited Papers	International Collaboration
2010	1909	1.30	761 - 46,63%	33 - 1,73%	782 - 40,96%
2011	2057	1.25	815 - 47,47%	37 - 1,80%	785 - 38,16%
2012	2080	1.29	841 - 48,92%	31 - 1,49%	819 - 39,38%
2013	2294	1.18	931 - 49,18%	30 - 1,31%	966 - 42,11%
2014	2309	1.29	952 - 50,08%	41 - 1,78%	1017 - 44,05%
2015	2373	1.31	1003 - 51,04%	41 - 1,73%	1054 - 44,42%
2016	2382	1.43	995 - 51,63%	48 - 2,02%	1138 - 47,77%
2017	2581	1.44	1055 - 50,17%	70 - 2,71%	1248 - 48,35%
2018	2607	1.36	1078 - 60,61%	44 - 1,69%	1230 - 47,18%
2019	2253	1.46	--	38 - 1,69%	1085 - 48,16%
Total 2010-2019	22845	1,33	8431 - 49,63%	413 - 1,81%	10124 - 44,32%
Total 2015-2019	12196	1,40	4131 - 50,84%	241 - 1,98%	5755 - 47,19%
EU-2015-2019	3080261	1,14	973588 - 48,86%	31222 - 1,02%	1360734 - 44,18%

 figshare Data available: <https://ndownloader.figshare.com/files/21063717>



Table 15. Summary by areas (Nr citable documents - %). Leipzig. 2015-2019

Health Sciences 5614 - 29,30%	Life Sciences 6064 - 31,65%	Physical / Engineering Sciences 4712 - 24,59%	Social Sciences / Humanities 2769 - 14,45%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Cardiac & Cardiovascular Systems 806 - 1,99	Neurosciences 766 - 1,26	Materials Science, Multidisciplinary 428 - 0,93	Psychiatry 488 - 1,36
Oncology 616 - 1,38	Biochemistry & Molecular Biology 592 - 1,06	Chemistry, Multidisciplinary 392 - 0,96	Psychology, Clinical 176 - 0,88
Surgery 458 - 1,30	Clinical Neurology 476 - 1,49	Chemistry, Physical 385 - 0,74	Psychology 153 - 1,38
Radiology, Nuclear Medicine & Medical Imaging 349 - 1,78	Endocrinology & Metabolism 420 - 1,36	Physics, Applied 298 - 1,09	Psychology, Experimental 128 - 1,26
Gastroenterology & Hepatology 254 - 1,92	Veterinary Sciences 397 - 0,87	Nanoscience & Nanotechnology 228 - 0,76	Psychology, Multidisciplinary 122 - 1,42

 figshare Data available: <https://ndownloader.figshare.com/files/21063720>

University of Lyon

Table 16. Main bibliometric indicators at the University of Lyon

Date	Nr citable Documents	Category Normalized Citation Impact	Documents in Q1	Nr & % Highly Cited Papers	International Collaboration
2010	3328	1,30	1656 - 56,65%	35 - 1,05%	1588 - 47,72%
2011	3560	1,33	1810 - 58,96%	51 - 1,43%	1734 - 48,71%
2012	3942	1,45	2071 - 61,53%	70 - 1,78%	1964 - 49,82%
2013	3980	1,32	2065 - 60,34%	62 - 1,56%	1988 - 49,95%
2014	4087	1,35	2130 - 60,00%	79 - 1,93%	2107 - 51,55%
2015	4192	1,33	2120 - 58,76%	76 - 1,81%	2153 - 51,36%
2016	4451	1,46	2291 - 59,71%	68 - 1,53%	2470 - 55,49%
2017	4448	1,46	2131 - 55,83%	81 - 1,82%	2461 - 55,33%
2018	4409	1,35	2118 - 55,01%	74 - 1,68%	2486 - 56,38%
2019	3894	1,26	--	37 - 0,95%	2248 - 57,73%
Total 2010-2019	40291	1,36	18392 - 58,49%	633 - 1,57%	21199 - 52,61%
Total 2015-2019	21394	1,37	8660 - 57,31%	336 - 1,57%	11818 - 55,24%
EU-2015-2019	3080261	1,14	973588 - 48,86%	31222 - 1,02%	1360734 - 44,18%

 figshare Data available: <https://ndownloader.figshare.com/files/21063717>



Table 17. Summary by areas (Nr citable documents - %). Lyon. 2015-2019

Health Sciences 5746 - 16,75	Life Sciences 8800 - 25,66	Physical / Engineering Sciences 17467 - 50,93	Social Sciences / Humanities 2286 - 6,66
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Oncology 756 - 1,72	Biochemistry & Molecular Biology 885 - 1,34	Chemistry, Physical 1147 - 0,70	Psychiatry 224 - 0,98
Surgery 435 - 1,66	Neuroscience 851 - 1,15	Astronomy & Astrophysics 1064 - 2,49	Economics 209 - 0,84
Radiology, Nuclear Medicine & Medical Imaging 364 - 1,32	Clinical Neurology 593 - 1,88	Materials Science, Multidisciplinary 1047 - 0,76	Psychology 120 - 0,76
Hematology 349 - 1,61	Microbiology 486 - 1,27	Physics, Particles & Fields 942 - 2,09	Developmental Biology 103 - 1,20
Infectious Diseases 295 - 1,32	Cell Biology 480 - 1,52	Chemistry, Multidisciplinary 796 - 0,98	Psychology, Experimental 93 - 1,14

 figshare Data available: <https://ndownloader.figshare.com/files/21063720>

University of Padua

Table 18. Main bibliometric indicators at the University of Padua

Date	Nr citable Documents	Category Normalized Citation Impact	Documents in Q1	Nr & % Highly Cited Papers	International Collaboration
2010	3936	1,38	1978 - 58,35	64 - 1,63	1827 - 46,42
2011	3920	1,45	1954 - 57,18	65 - 1,66	1768 - 45,10
2012	4264	1,49	2156 - 58,94	83 - 1,95	2008 - 47,09
2013	4538	1,44	2177 - 55,81	84 - 1,85	2112 - 46,54
2014	4811	1,59	2374 - 58,00	124 - 2,58	2316 - 48,14
2015	5012	1,69	2455 - 56,42	100 - 2,00	2535 - 50,58
2016	5397	1,80	2718 - 58,88	115 - 2,13	2929 - 54,27
2017	5662	1,74	2652 - 56,33	149 - 2,63	3081 - 54,42
2018	5829	1,64	2783 - 55,88	137 - 2,35	3307 - 56,73
2019	4918	1,44	--	65 - 1,32	2832 - 57,58
Total 2010-2019	48287	1,58	21247 - 57,25	986 - 2,04	24715 - 51,18
Total 2015-2019	26818	1,67	10608 - 56,86	566 - 2,11	14684 - 54,75
EU-2015-2019	3080261	1,14	973588 - 48,86	31222 - 1,02	1360734 - 44,18

 Data available: <https://ndownloader.figshare.com/files/21063717>



Table 19. Summary by areas (Nr citable documents - %). Padua. 2015-2019

Health Sciences 9221 - 21,94	Life Sciences 10677 - 25,41	Physical / Engineering Sciences 17857 - 42,50	Social Sciences / Humanities 4265 - 10,15
Top 5 disciplines according area (Number of citable documents - CNCI)			
Oncology 958 - 1,52	Biochemistry & Molecular Biology 978 - 1,63	Astronomy & Astrophysics 2290 - 2,65	Psychiatry 336 - 2,13
Cardiac & Cardiovascular Systems 867 - 2,50	Neuroscience 921 - 1,10	Physics, Particles & Fields 1321 - 2,02	Psychology, Multidisciplinary 293 - 1,85
Surgery 659 - 2,30	Clinical Neurology 727 - 1,47	Materials Science, Multidisciplinary 866 - 0,87	Psychology, Experimental 289 - 1,06
Hematology 628 - 1,19	Endocrinology & Metabolism 635 - 2,41	Engineering, Electrical & Electronic 825 - 1,39	Economics 247 - 1,25
Gastroenterology & Hepatology 558 - 1,95	Cell Biology 622 - 1,73	Physics, Nuclear 565 - 2,60	Psychology 173 - 1,07

 Data available: <https://ndownloader.figshare.com/files/21063720>

University of Vilnius

Table 20. Main bibliometric indicators at the University of Vilnius

Date	Nr citable Documents	Category Normalized Citation Impact	Documents in Q1	Nr & % Highly Cited Papers	International Collaboration
2010	701	0,81	226 - 38,63%	4 - 0,57%	314 - 44,79%
2011	801	0,99	235 - 35,07%	12 - 1,50%	362 - 45,19%
2012	810	1,42	263 - 38,73%	15 - 1,85%	403 - 49,75%
2013	812	1,14	254 - 37,80%	15 - 1,85%	412 - 50,74%
2014	921	1,31	306 - 40,06%	22 - 2,39%	446 - 48,43%
2015	1005	1,19	319 - 37,14%	18 - 1,79%	502 - 49,95%
2016	986	1,11	348 - 41,83%	9 - 0,91%	511 - 51,83%
2017	1029	1,23	360 - 41,62%	21 - 2,04%	568 - 55,20%
2018	1093	1,44	412 - 44,59%	29 - 2,65%	638 - 58,37%
2019	960	1,05	--	13 - 1,35%	555 - 57,81%
Total 2010-2019	9118	1,18	2723 - 39,75%	158 - 1,73%	4711 - 51,67%
Total 2015-2019	5073	1,21	1439 - 41,35%	90 - 1,77%	2774 - 54,68%
EU-2015-2019	3080261	1,14	973588 - 48,86%	31222 - 1,02%	1360734 - 44,18%

 Data available: <https://ndownloader.figshare.com/files/21063717>



Table 21. Summary by areas (Nr citable documents - %). Vilnius. 2015-2019

Health Sciences 1027 - 12,84%	Life Sciences 1324 - 16,56%	Physical / Engineering Sciences 4750 - 59,40%	Social Sciences / Humanities 896 - 11,20%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Oncology 119 - 1,14	Biochemistry & Molecular Biology 213 - 1,25	Physics, Particles & Fields 484 - 2,44	Economics 130 - 0,84
Surgery 99 - 1,08	Biotechnology & Applied Microbiology 87 - 1,28	Astronomy & Astrophysics 336 - 2,34	Philosophy 95 - 0,94
Cardiac & Cardiovascular Systems 94 - 2,58	Biophysics 78 - 1,13	Materials Science, Multidisciplinary 311 - 0,99	Business 78 - 0,78
Dentistry, Oral Surgery & Medicine 62 - 1,08	Genetics & Heredity 75 - 1,87	Chemistry, Physical 251 - 0,62	Humanities, Multidisciplinary 56 - 0,36
Medicine, Research & Experimental 54 - 1,13	Immunology 69 - 2,54	Physics, Applied 246 - 0,84	Psychiatry 52 - 2,32

 Data available: <https://ndownloader.figshare.com/files/21063720>

The main bibliometric indicators by university and for each of the areas analysed are analysed below

Table 22. Percentage of citable documents by area and university ARQUS Alliance. 2015-2019

Area	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
Health Sciences	26,43	15,17	7,28	29,30	16,75	21,94	12,84
Life Sciences	27,38	20,00	28,60	31,65	25,66	25,41	16,56
Physical / Engineering Sciences	29,69	42,37	41,03	24,59	50,93	42,50	59,40
Social Sciences / Humanities	16,49	22,46	23,09	14,45	6,66	10,15	11,20

 Data available: <https://ndownloader.figshare.com/files/21063714>

Health Sciences

Table 23. Nr of citable documents ARQUS Alliance for the area of Health Sciences

Date	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
2010	763	353	65	856	754	1405	91
2011	823	476	100	915	859	1435	104
2012	867	544	100	904	898	1557	119
2013	986	580	109	1036	901	1711	145
2014	956	603	115	1051	1002	1758	155
2015	1022	712	87	1082	1071	1809	181
2016	1083	726	112	1047	1234	1812	164
2017	1190	777	128	1176	1231	1911	193
2018	1112	841	124	1235	1153	1973	234
2019	968	720	96	1074	1057	1716	255
Total 2010-2019	9770	6332	1036	10376	10160	17087	1641
Total 2015-2019	5375	3776	547	5614	5746	9221	1027

 Data available: <https://ndownloader.figshare.com/files/21063714>

Life Sciences

Table 24. Nr of citable documents ARQUS Alliance for the area of Life Sciences

Date	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
2010	944	741	379	966	1347	1578	181
2011	1009	765	398	1083	1529	1656	146
2012	948	886	422	1044	1629	1665	160
2013	1002	912	363	1130	1587	1759	182
2014	1054	1020	482	1236	1684	1974	170
2015	1090	981	438	1239	1838	1959	240
2016	1134	947	412	1231	1825	2100	251
2017	1166	1071	452	1305	1804	2265	295
2018	1192	1064	490	1195	1817	2427	279
2019	986	914	356	1094	1516	1926	259
Total 2010-2019	10525	9301	4192	11523	16576	19309	2163
Total 2015-2019	5568	4977	2148	6064	8800	10677	1324

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Physical / Engineering Sciences

Table 25. Nr of citable documents ARQUS Alliance for the area of Physical / Engineering Sciences

Date	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
2010	873	1425	680	870	3114	2821	728
2011	1047	1849	612	936	3213	2749	835
2012	1273	2129	556	872	3387	3004	837
2013	1140	1920	653	910	3571	3116	852
2014	1171	2065	567	943	3552	3208	943
2015	1121	2135	698	962	3468	3442	1020
2016	1253	2331	637	921	3604	3759	937
2017	1179	1934	631	1048	3657	3608	949
2018	1338	2143	662	1008	3542	3877	959
2019	1147	2001	454	773	3196	3171	885
Total 2010-2019	11542	19932	6150	9243	34304	32755	8945
Total 2015-2019	6038	10544	3082	4712	17467	17857	4750

 figshare Data available: <https://ndownloader.figshare.com/files/21063714>

Social Sciences / Humanities

Date	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
2010	488	716	225	342	299	499	130
2011	533	838	215	448	371	562	144
2012	541	913	222	467	458	630	136
2013	581	1008	212	526	422	657	132
2014	633	1021	269	502	404	735	178
2015	589	1053	385	515	460	743	156
2016	698	1125	318	473	480	915	192
2017	745	1230	345	599	441	978	202
2018	726	1216	407	666	511	879	219
2019	595	965	279	516	394	750	127
Total 2010-2019	6129	10085	2877	5054	4240	7348	1616
Total 2015-2019	3353	5589	1734	2769	2286	4265	896

 figshare Data available: <https://ndownloader.figshare.com/files/21063714>

5. Collaboration analysis

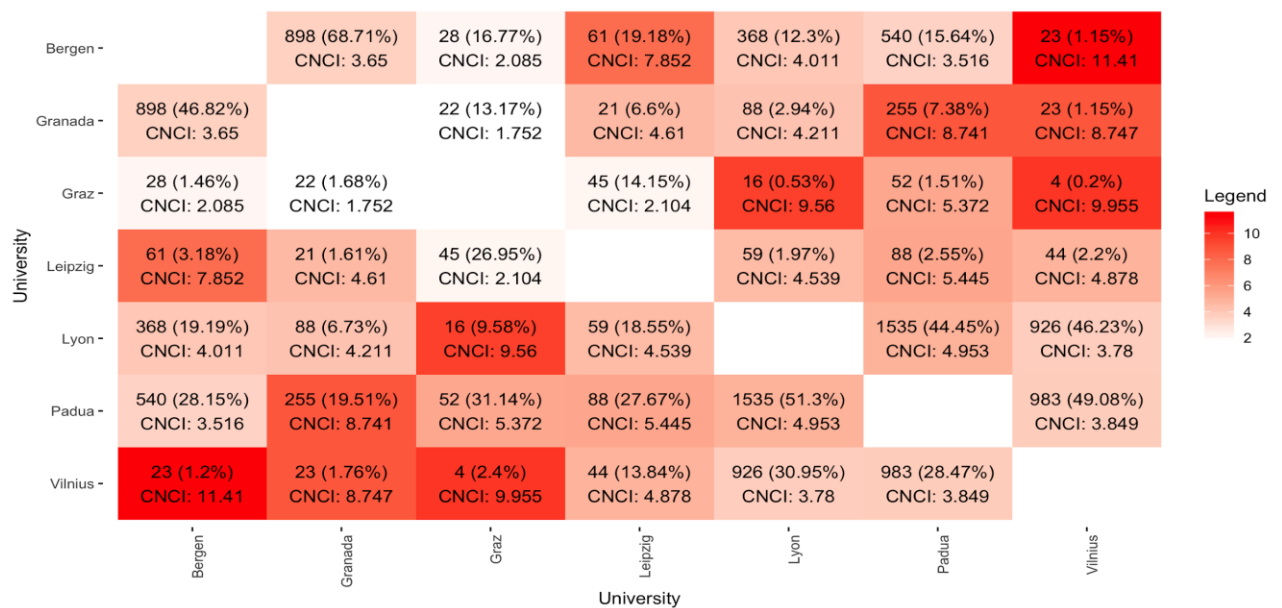
Collaboration general indicators

Table 27. Collaboration matrix ARQUS Alliance. Nr. of citable documents

Web of Science Category	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
2010-2019							
University of Bergen	---	---	---	---	---	---	---
University of Granada	898	---	---	---	---	---	---
University of Graz	28	22	---	---	---	---	---
University of Leipzig	61	21	45	---	---	---	---
University of Lyon	368	88	16	59	---	---	---
University of Padua	540	255	52	88	1535	---	---
University of Vilnius	23	23	4	44	926	983	---
2015-2019							
University of Bergen	---	---	---	---	---	---	---
University of Granada	538	---	---	---	---	---	---
University of Graz	9	11	---	---	---	---	---
University of Leipzig	48	12	20	---	---	---	---
University of Lyon	226	52	6	33	---	---	---
University of Padua	278	146	32	66	982	---	---
University of Vilnius	17	13	1	38	559	605	---

 Data available: <https://ndownloader.figshare.com/files/21063711>

Figure 5. Heat map of total universities collaborations. Percentage value corresponds to the distribution of the collaborations in the column and color indicates the CNCI average.



 Data available: <https://ndownloader.figshare.com/files/21063711>

Collaboration Astronomy and Astrophysics / Physics

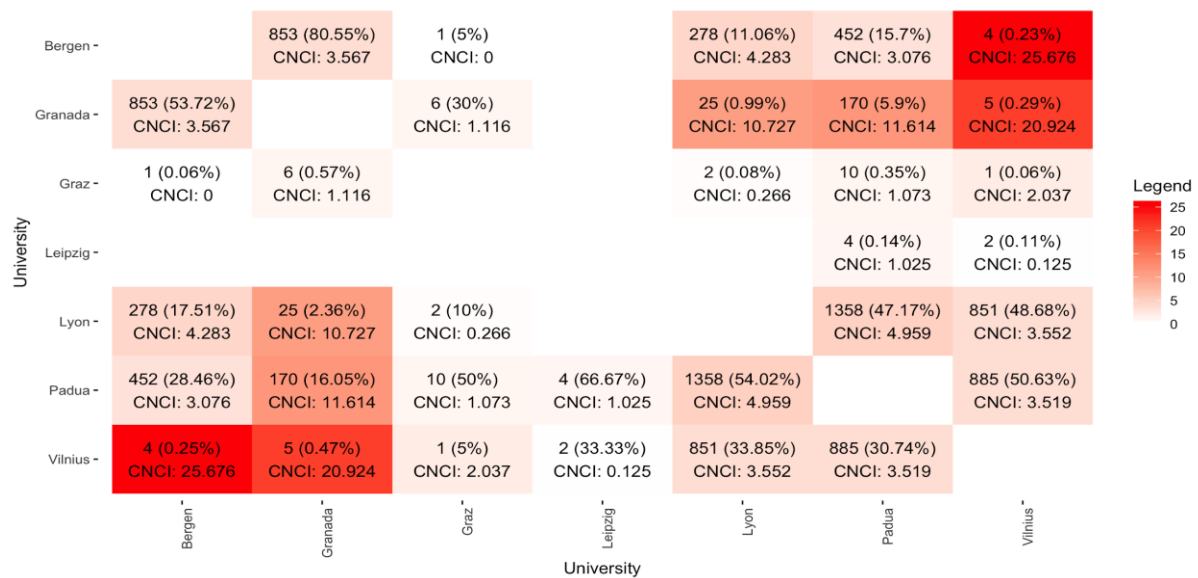
- Web of science categories included: PHYSICS PARTICLES FIELDS, ASTRONOMY ASTROPHYSICS, PHYSICS NUCLEAR & PHYSICS MULTIDISCIPLINARY

Table 28. Collaboration matrix ARQUS Alliance. Nr. of citable document

Web of Science Category	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
2010-2019							
University of Bergen	---	---	---	---	---	---	---
University of Granada	853	---	---	---	---	---	---
University of Graz	1	6	---	---	---	---	---
University of Leipzig	0	0	0	---	---	---	---
University of Lyon	278	25	2	0	---	---	---
University of Padua	452	170	10	4	1358	---	---
University of Vilnius	4	5	1	2	851	885	---
2015-2019							
University of Bergen	---	---	---	---	---	---	---
University of Granada	507	---	---	---	---	---	---
University of Graz	1	4	---	---	---	---	---
University of Leipzig	0	0	0	---	---	---	---
University of Lyon	171	17	5	0	---	---	---
University of Padua	231	92	4	4	886	---	---
University of Vilnius	4	5	0	1	522	549	---

 Data available: <https://ndownloader.figshare.com/files/21063711>

Figure 6. Heat map of universities collaborations in the categories of Astronomy and Astrophysics/Physics. Percentage value corresponds to the distribution of the collaborations in the column and color indicates the CNCI average.



 Data available: <https://ndownloader.figshare.com/files/21063711>

Collaboration without Astronomy and Astrophysics / Physics

- Web of science categories excluded: PHYSICS PARTICLES FIELDS, ASTRONOMY ASTROPHYSICS, PHYSICS NUCLEAR & PHYSICS MULTIDISCIPLINARY

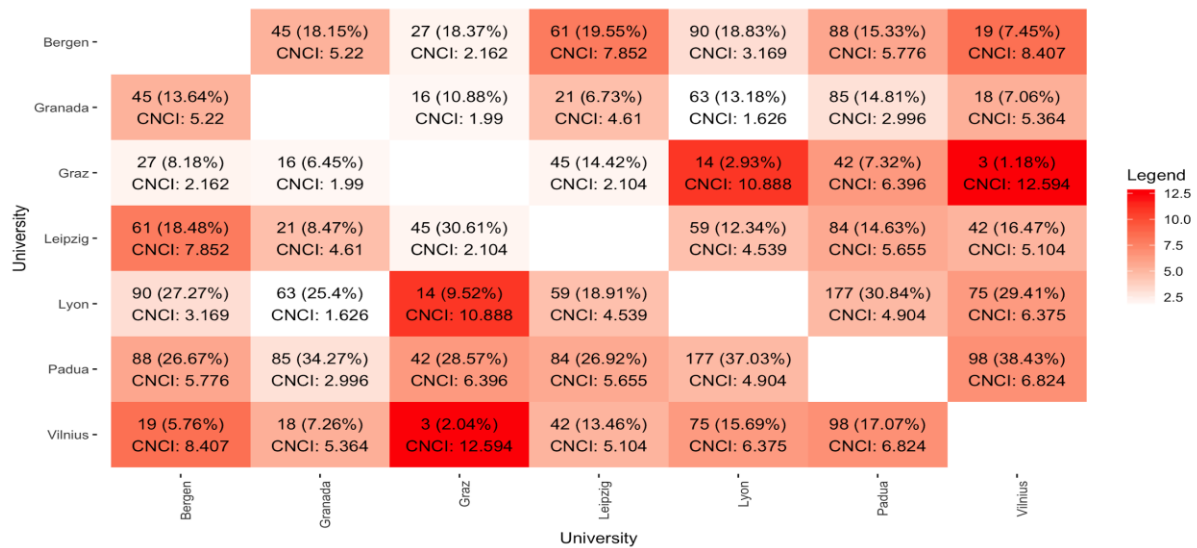
Table 29. Collaboration matrix ARQUS Alliance. Nr. of citable documents

Color = Category Normalized Citation Impact 0-1.00 (low) / 1.00 - 1.25 (medium) / > 1,25 (high)

Web of Science Category	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
2010-2019							
University of Bergen	---	---	---	---	---	---	---
University of Granada	45	---	---	---	---	---	---
University of Graz	27	16	---	---	---	---	---
University of Leipzig	61	21	45	---	---	---	---
University of Lyon	90	63	14	59	---	---	---
University of Padua	88	85	42	84	177	---	---
University of Vilnius	19	18	3	42	75	98	---
2015-2019							
University of Bergen	---	---	---	---	---	---	---
University of Granada	31	---	---	---	---	---	---
University of Graz	8	7	---	---	---	---	---
University of Leipzig	48	12	20	---	---	---	---
University of Lyon	55	35	5	33	---	---	---
University of Padua	47	54	28	62	96	---	---
University of Vilnius	13	8	1	37	37	56	---

 Data available: <https://ndownloader.figshare.com/files/21063711>

Figure 7. Heat map of universities collaborations excluding the categories of Astronomy and Astrophysics/Physics. Percentage value corresponds to the distribution of the collaborations in the column and color indicates the CNCI average.



 Data available: <https://ndownloader.figshare.com/files/21063711>

Individual collaboration profile



Table 30. Collaboration matrix BERGEN

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2010-2019				
University of Granada	7	15	874	3
University of Graz	0	17	12	1
University of Leipzig	26	29	10	3
University of Lyon	17	37	322	2
University of Padua	36	33	473	9
University of Vilnius	7	9	7	2
2015-2019				
University of Granada	6	10	520	3
University of Graz	0	5	4	0
University of Leipzig	21	20	7	3
University of Lyon	14	26	193	2
University of Padua	25	16	240	5
University of Vilnius	6	6	4	2

 Data available: <https://ndownloader.figshare.com/files/21063711>



Table 31. Collaboration matrix BERGEN
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2010-2019				
University of Granada	Rheumatology (2) Oncology (2) Nutrition & Dietetics (1)	Genetics & Heredity (4) Biochemistry & Mol. (4) Microbiology (2)	Physics, Part. (737) Astronomy & Astr. (313) Physics, Nuc. (199)	Psychiatry (3) Criminology & Penology (1)
University of Graz	---	Plant Sciences (11) Mycology (4) Environmental Sciences (3)	Meteorology & Atm. (4) Geosciences, Mult. (2) Mathematics, Applied (2)	Environmental Studies (1) Geography (1)
University of Leipzig	Cardiac & Cardio. (10) Radiology, Nuclear. (3) Public, Environmen. (2)	Genetics & Heredity (14) Endocrinology & Met. (5) Evolutionary Biology (3)	Acoustics (2) Geosciences, Mult. (2) Nanoscience & Nano. (2)	Psychiatry (1) Psychology, Applied (1) Management (1)
University of Lyon	Allergy (4) Respiratory System (3) Oncology (3)	Genetics & Heredity (9) Biochemistry & Mol. (9) Immunology (6)	Physics, Part. (195) Physics, Nuclear (124) Astronomy & Astr. (91)	Psychiatry (2)
University of Padua	Medical Laboratory. (8) Oncology (7) Pediatrics (4)	Genetics & Heredity (6) Biochemistry & Mol. (5) Endocrinology & Met. (4)	Physics, Part. (313) Astronomy & Astr. (226) Physics, Nuclear (148)	Psychology, Applied (3) Psychiatry (2) Psychology, Exper. (1)
University of Vilnius	Cardiac & Cardio. (2) Oncology (2) Radiology, Nuclear. (1)	Clinical Neurology (3) Cell Biology (2) Genetics & Heredity (1)	Physics, Part. (3) Geosciences, Mult. (2) Physics, Mult. (1)	Psychiatry (1) Information Science. (1)
2015-2019				
University of Granada	Rheumatology (2) Oncology (2) Public, Environmen. (1)	Genetics & Heredity (3) Microbiology (2) Immunology (2)	Physics, Part. (442) Astronomy & Astr. (166) Physics, Nuc. (106)	Psychiatry (3) Criminology & Penology (1)
University of Graz	---	Plant Sciences (3) Mycology (2) Genetics & Heredity (1)**	Geosciences, Mult. (1) Water Resources (1) Geology (1)	---
University of Leipzig	Cardiac & Cardio. (8) Radiology, Nuclear. (3) Public, Environmen. (2)	Genetics & Heredity (12) Endocrinology & Met. (4) Evolutionary Biology (2)	Acoustics (2) Multidisciplinary Sc. (1) Meteorology & Atm. (1)	Psychiatry (1) Psychology, Applied (1) Management (1)
University of Lyon	Allergy (4) Respiratory System (3) Oncology (3)	Biochemistry & Mol. (6) Immunology (6) Genetics & Heredity (5)	Physics, Part. (117) Physics, Nuclear (81) Astronomy & Astr. (54)	Psychiatry (2)
University of Padua	Medical Laboratory. (6) Pediatrics (4) Oncology (3)	Genetics & Heredity (3) Clinical Neurology (3) Cell Biology (2)	Physics, Part. (137) Physics, Nuclear (110) Astronomy & Astr. (85)	Psychiatry (1) Psychology, Exper. (1) Environmental Studies (1)
University of Vilnius	Cardiac & Cardio. (2) Radiology, Nuclear. (1) Anesthesiology (1)	Clinical Neurology (2) Cell Biology (1) Neurosciences (1)	Physics, Part. (3) Physics, Mult. (1)	Psychiatry (1) Information Science. (1)



Table 32. Collaboration matrix GRANADA

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2010-2019				
University of Bergen	7	15	874	3
University of Graz	4	4	17	0
University of Leipzig	7	8	2	6
University of Lyon	33	11	49	2
University of Padua	15	24	211	14
University of Vilnius	5	2	7	13
2015-2019				
University of Bergen	6	10	520	3
University of Graz	4	4	6	0
University of Leipzig	2	5	1	4
University of Lyon	28	6	23	1
University of Padua	11	18	119	3
University of Vilnius	4	1	6	5

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Table 33. Collaboration matrix GRANADA
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2010-2019				
University of Bergen	Rheumatology (2) Oncology (2) Nutrition & Dietetics (1)	Genetics & Heredity (4) Biochemistry & Mol. (4) Microbiology (2)	Physics, Part. (737) Astronomy & Astr. (313) Physics, Nuc. (199)	Psychiatry (3) Criminology & Penology (1)
University of Graz	Toxicology (2) Public, Environmen. (2) Obstetrics & Gyn. (1)	Environmental Sciences (2) Food Science & Tech. (1) Ecology (1)**	Chemistry, Physical (7) Materials Scien. (4) Chemistry, Mult. (3)	---
University of Leipzig	Public, Environmen. (4) Obstetrics & Gyn. (1) Reproductive Biology (1)	Biochemistry & Mol. (2) Pharmacology & Phar. (2) Ecology (1)**	Mathematical & Com. (1) Materials Scien. (1) Chemistry, Mult. (1)**	Psychology, Exper. (2) Psychiatry (1) Psychology, Social (1)**
University of Lyon	Nutrition & Dietetics (14) Oncology (9) Hematology (4)	Ecology (3) Biology (2) Plant Sciences (1)	Physics, Part. (10) Astronomy & Astr. (9) Physics, Mult. (6)	Education & Education. (1) Health Policy. (1)
University of Padua	Medicine, Legal (4) Oncology (3) Public, Environmen. (3)	Genetics & Heredity (4) Chemistry, Medicinal (3) Neurosciences (3)	Astronomy & Astr. (151) Geochemistry & Geo. (16) Mineralogy (14)	Psychology, Exper. (18) Psychology, Mult. (2) Psychology (2)
University of Vilnius	Medicine, Legal (4) Public, Environmen. (1)	Biochemistry & Mol. (1) Behavioral Sciences (1)	Physics, Part. (3) Computer Science. (2) Physics, Mult. (1)	Psychiatry (10) Social Sciences, Bio. (3) Health Policy. (1)
2015-2019				
University of Bergen	Rheumatology (2) Oncology (2) Public, Environmen. (1)	Genetics & Heredity (3) Microbiology (2) Immunology (2)	Physics, Part. (442) Astronomy & Astr. (166) Physics, Nuc. (106)	Psychiatry (3) Criminology & Penology (1)
University of Graz	Toxicology (2) Public, Environmen. (2) Obstetrics & Gyn. (1)	Environmental Sciences (2) Food Science & Tech. (1) Ecology (1)**	Astronomy & Astr. (3) Geography, Physical (1) Geosciences, Mult. (1)	---
University of Leipzig	Obstetrics & Gyn. (1) Reproductive Biology (1) Surgery (1)	Biochemistry & Mol. (2) Zoology (1) Ecology (1)	Materials Scien. (1) Chemistry, Mult. (1) Crystallography (1)	Psychiatry (1) Psychology, Social (1) Social Issues (1)
University of Lyon	Nutrition & Dietetics (14) Oncology (6) Dentistry, Oral Sur. (4)	Biology (2) Environmental Sciences (1) Cell Biology (1)	Astronomy & Astr. (9) Physics, Mult. (4) Physics, Part. (4)	Health Policy. (1)
University of Padua	Public, Environmen. (3) Medicine, Legal (3) Oncology (2)	Genetics & Heredity (3) Chemistry, Medicinal (3) Environmental Sciences (2)	Astronomy & Astr. (79) Mineralogy (10) Geochemistry & Geo. (9)	Psychiatry (1) Psychology (1) Psychology, Exper. (1)
University of Vilnius	Medicine, Legal (4)	Behavioral Sciences (1)	Physics, Part. (3) Physics, Mult. (1) Astronomy & Astr. (1)	Social Sciences, Bio. (3) Psychiatry (2) Psychology, Biological (1)



Table 34. Collaboration matrix GRAZ

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2010-2019				
University of Bergen	0	17	12	1
University of Granada	4	4	17	0
University of Leipzig	20	15	13	4
University of Lyon	4	5	6	2
University of Padua	8	24	18	6
University of Vilnius	0	1	1	2
2015-2019				
University of Bergen	0	5	4	0
University of Granada	4	4	6	0
University of Leipzig	5	12	5	4
University of Lyon	0	4	2	1
University of Padua	8	17	6	4
University of Vilnius	0	0	0	1



Table 35. Collaboration matrix GRAZ
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2010-2019				
University of Bergen	---	Plant Sciences (11) Mycology (4) Environmental Sciences (3)	Meteorology & Atm. (4) Geosciences, Mult. (2) Mathematics, Applied (2)	Environmental Studies (1) Geography (1)
University of Granada	Toxicology (2) Public, Environmen. (2) Obstetrics & Gyn. (1)	Environmental Sciences (2) Food Science & Tech. (1) Ecology (1)**	Chemistry, Physical (7) Materials Scien. (4) Chemistry, Mull. (3)	---
University of Leipzig	Cardiac & Cardio. (3) Dermatology (3) Surgery (3)	Biochemistry & Mol. (3) Ecology (3) Cell Biology (2)	Geosciences, Mult. (5) Mathematics, Applied (3) Polymer Science (1)	Education & Education. (1) Psychology, Exper. (1) Linguistics (1)
University of Lyon	Oncology (2) Respiratory System (1) Dermatology (1)	Cell Biology (2) Clinical Neurology (1) Neurosciences (1)	Geochemistry & Geo. (2) Astronomy & Astr. (2) Paleontology (1)	Environmental Studies (1) Business, Finance (1)
University of Padua	Obstetrics & Gyn. (4) Nutrition & Dietetics (3) Medicine, Research. (1)	Cell Biology (8) Biochemistry & Mol. (7) Endocrinology & Met. (6)	Astronomy & Astr. (10) Chemistry, Physical (4) Physics, Condensed. (2)	Psychology, Mult. (3) Psychology, Exper. (2) Psychology (2)
University of Vilnius	---	Cell Biology (1)	Astronomy & Astr. (1)	Psychology, Mult. (1) Social Sciences, Int. (1)
2015-2019				
University of Bergen	---	Plant Sciences (3) Mycology (2) Genetics & Heredity (1)**	Geosciences, Mult. (1) Water Resources (1) Geology (1)	---
University of Granada	Toxicology (2) Public, Environmen. (2) Obstetrics & Gyn. (1)	Environmental Sciences (2) Food Science & Tech. (1) Ecology (1)**	Astronomy & Astr. (3) Geography, Physical (1) Geosciences, Mult. (1)	---
University of Leipzig	Oncology (2) Dermatology (1) Hematology (1)	Biochemistry & Mol. (3) Ecology (3) Cell Biology (2)	Geosciences, Mult. (4) Green & Sustainable. (1)	Psychology, Exper. (1) Linguistics (1) Education & Education. (1)
University of Lyon	---	Cell Biology (1) Clinical Neurology (1) Neurosciences (1)	Chemistry, Physical (1) Materials Scien. (1) Nanoscience & Nano. (1)	Environmental Studies (1)
University of Padua	Obstetrics & Gyn. (4) Nutrition & Dietetics (3) Medicine, Research. (1)	Endocrinology & Met. (6) Cell Biology (5) Biochemistry & Mol. (5)	Astronomy & Astr. (4) Water Resources (1) Geosciences, Mult. (1)	Psychology, Mult. (2) Psychology, Exper. (1) Psychology (1)**
University of Vilnius	---	---	---	Social Sciences, Int. (1)



Table 36. Collaboration matrix LEIPZIG
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2010-2019				
University of Bergen	26	29	10	3
University of Granada	7	8	2	6
University of Graz	20	15	13	4
University of Lyon	21	32	7	2
University of Padua	63	23	11	2
University of Vilnius	11	18	17	1
2015-2019				
University of Bergen	21	20	7	3
University of Granada	2	5	1	4
University of Graz	5	12	5	4
University of Lyon	9	19	4	2
University of Padua	45	18	10	1
University of Vilnius	11	13	15	1

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Table 37. Collaboration matrix LEIPZIG
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2010-2019				
University of Bergen	Cardiac & Cardio. (10) Radiology, Nuclear. (3) Public, Environmen. (2)	Genetics & Heredity (14) Endocrinology & Met. (5) Evolutionary Biology (3)	Acoustics (2) Geosciences, Mult. (2) Nanoscience & Nano. (2)	Psychiatry (1) Psychology, Applied (1) Management (1)
University of Granada	Public, Environmen. (4) Obstetrics & Gyn. (1) Reproductive Biology (1)	Biochemistry & Mol. (2) Pharmacology & Phar. (2) Ecology (1)**	Mathematical & Com. (1) Materials Scien. (1) Chemistry, Mult. (1)**	Psychology, Exper. (2) Psychiatry (1) Psychology, Social (1)**
University of Graz	Cardiac & Cardio. (3) Dermatology (3) Surgery (3)	Biochemistry & Mol. (3) Ecology (3) Cell Biology (2)	Geosciences, Mult. (5) Mathematics, Applied (3) Polymer Science (1)	Education & Education. (1) Psychology, Exper. (1) Linguistics (1)
University of Lyon	Oncology (14) Radiology, Nuclear. (3) Public, Environmen. (3)	Genetics & Heredity (18) Ecology (6) Biochemistry & Mol. (5)	Geography, Physical (2) Geosciences, Mult. (2) Physics, Mathematical (2)	Psychiatry (2)
University of Padua	Cardiac & Cardio. (21) Radiology, Nuclear. (12) Oncology (9)	Genetics & Heredity (11) Immunology (3) Clinical Neurology (2)	Physics, Mathematical (4) Physics, Fluids & P. (3) Physics, Mult. (2)	Psychiatry (1) Social Sciences, Mat. (1) Business, Finance (1)
University of Vilnius	Cardiac & Cardio. (5) Oncology (3) Gastroenterology & H. (2)	Genetics & Heredity (3) Ecology (3) Virology (3)	Materials Scien. (10) Chemistry, Physical (10) Nanoscience & Nano. (9)	Psychiatry (1)
2015-2019				
University of Bergen	Cardiac & Cardio. (8) Radiology, Nuclear. (3) Public, Environmen. (2)	Genetics & Heredity (12) Endocrinology & Met. (4) Evolutionary Biology (2)	Acoustics (2) Multidisciplinary Sc. (1) Meteorology & Atm. (1)	Psychiatry (1) Psychology, Applied (1) Management (1)
University of Granada	Obstetrics & Gyn. (1) Reproductive Biology (1) Surgery (1)	Biochemistry & Mol. (2) Zoology (1) Ecology (1)	Materials Scien. (1) Chemistry, Mult. (1) Crystallography (1)	Psychiatry (1) Psychology, Social (1) Social Issues (1)
University of Graz	Oncology (2) Dermatology (1) Hematology (1)	Biochemistry & Mol. (3) Ecology (3) Cell Biology (2)	Geosciences, Mult. (4) Green & Sustainable. (1)	Psychology, Exper. (1) Linguistics (1) Education & Education. (1)
University of Lyon	Oncology (7) Hematology (3) Public, Environmen. (1)	Genetics & Heredity (9) Ecology (5) Biochemistry & Mol. (3)	Physics, Mathematical (2) Mathematics (1) Mathematics, Applied (1)	Psychiatry (2)
University of Padua	Cardiac & Cardio. (14) Radiology, Nuclear. (9) Ophthalmology (6)	Genetics & Heredity (9) Immunology (3) Endocrinology & Met. (2)	Physics, Mathematical (4) Physics, Fluids & P. (3) Physics, Mult. (2)	Psychiatry (1)
University of Vilnius	Cardiac & Cardio. (5) Oncology (3) Gastroenterology & H. (2)	Ecology (3) Genetics & Heredity (2) Biology (2)**	Materials Scien. (10) Chemistry, Physical (10) Nanoscience & Nano. (9)	Psychiatry (1)



Table 38. Collaboration matrix LYON

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2010-2019				
University of Bergen	17	37	322	2
University of Granada	33	11	49	2
University of Graz	4	5	6	2
University of Leipzig	21	32	7	2
University of Padua	46	44	1455	5
University of Vilnius	8	6	914	0
2015-2019				
University of Bergen	14	26	193	2
University of Granada	28	6	23	1
University of Graz	0	4	2	1
University of Leipzig	9	19	4	2
University of Padua	30	30	930	5
University of Vilnius	7	5	549	0

 Data available: <https://ndownloader.figshare.com/files/21063711>



Table 39. Collaboration matrix LYON
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2010-2019				
University of Bergen	Allergy (4) Respiratory System (3) Oncology (3)	Genetics & Heredity (9) Biochemistry & Mol. (9) Immunology (6)	Physics, Part. (195) Physics, Nuclear (124) Astronomy & Astr. (91)	Psychiatry (2)
University of Granada	Nutrition & Dietetics (14) Oncology (9) Hematology (4)	Ecology (3) Biology (2) Plant Sciences (1)	Physics, Part. (10) Astronomy & Astr. (9) Physics, Mult. (6)	Education & Education. (1) Health Policy. (1)
University of Graz	Oncology (2) Respiratory System (1) Dermatology (1)	Cell Biology (2) Clinical Neurology (1) Neurosciences (1)	Geochemistry & Geo. (2) Astronomy & Astr. (2) Paleontology (1)	Environmental Studies (1) Business, Finance (1)
University of Leipzig	Oncology (14) Radiology, Nuclear. (3) Public, Environmen. (3)	Genetics & Heredity (18) Ecology (6) Biochemistry & Mol. (5)	Geography, Physical (2) Geosciences, Mult. (2) Physics, Mathematical (2)	Psychiatry (2)
University of Padua	Oncology (9) Cardiac & Cardio. (5) Respiratory System (5)	Genetics & Heredity (8) Biochemistry & Mol. (6) Immunology (4)	Physics, Part. (980) Astronomy & Astr. (572) Physics, Nuclear (371)	Psychology, Exper. (2) History & Philoso. (2) Psychology (1)*
University of Vilnius	Allergy (4) Oncology (2) Respiratory System (1)	Immunology (2) Genetics & Heredity (2) Cell Biology (1)	Physics, Part. (723) Astronomy & Astr. (309) Physics, Nuclear (226)	---
2015-2019				
University of Bergen	Allergy (4) Respiratory System (3) Oncology (3)	Biochemistry & Mol. (6) Immunology (6) Genetics & Heredity (5)	Physics, Part. (117) Physics, Nuclear (81) Astronomy & Astr. (54)	Psychiatry (2)
University of Granada	Nutrition & Dietetics (14) Oncology (6) Dentistry, Oral Sur. (4)	Biology (2) Environmental Sciences (1) Cell Biology (1)	Astronomy & Astr. (9) Physics, Mult. (4) Physics, Part. (4)	Health Policy. (1)
University of Graz	---	Cell Biology (1) Clinical Neurology (1) Neurosciences (1)	Chemistry, Physical (1) Materials Scien. (1) Nanoscience & Nano. (1)	Environmental Studies (1)
University of Leipzig	Oncology (7) Hematology (3) Public, Environmen. (1)	Genetics & Heredity (9) Ecology (5) Biochemistry & Mol. (3)	Physics, Mathematical (2) Mathematics (1) Mathematics, Applied (1)	Psychiatry (2)
University of Padua	Oncology (6) Allergy (4) Respiratory System (4)	Biochemistry & Mol. (5) Genetics & Heredity (4) Neurosciences (4)	Physics, Part. (617) Astronomy & Astr. (394) Physics, Nuclear (239)	Psychology, Exper. (2) History & Philoso. (2) Psychology (1)*
University of Vilnius	Allergy (4) Oncology (2) Nutrition & Dietetics (1)	Genetics & Heredity (2) Immunology (1) Clinical Neurology (1)	Physics, Part. (454) Astronomy & Astr. (193) Physics, Nuclear (142)	---



Table 40. Collaboration matrix PADUA

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2010-2019				
University of Bergen	36	33	473	9
University of Granada	15	24	211	14
University of Graz	8	24	18	6
University of Leipzig	63	23	11	2
University of Lyon	46	44	1455	5
University of Vilnius	45	19	933	2
2015-2019				
University of Bergen	25	16	240	5
University of Granada	11	18	119	3
University of Graz	8	17	6	4
University of Leipzig	45	18	10	1
University of Lyon	30	30	930	5
University of Vilnius	37	13	564	1

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Table 41. Collaboration matrix PADUA
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2010-2019				
University of Bergen	Medical Laboratory. (8) Oncology (7) Pediatrics (4)	Genetics & Heredity (6) Biochemistry & Mol. (5) Endocrinology & Met. (4)	Physics, Part. (313) Astronomy & Astr. (226) Physics, Nuclear (148)	Psychology, Applied (3) Psychiatry (2) Psychology, Exper. (1)
University of Granada	Medicine, Legal (4) Oncology (3) Public, Environmen. (3)	Genetics & Heredity (4) Chemistry, Medicinal (3) Neurosciences (3)	Astronomy & Astr. (151) Geochemistry & Geo. (16) Mineralogy (14)	Psychology, Exper. (18) Psychology, Mult. (2) Psychology (2)
University of Graz	Obstetrics & Gyn. (4) Nutrition & Dietetics (3) Medicine, Research. (1)	Cell Biology (8) Biochemistry & Mol. (7) Endocrinology & Met. (6)	Astronomy & Astr. (10) Chemistry, Physical (4) Physics, Condensed. (2)	Psychology, Mult. (3) Psychology, Exper. (2) Psychology (2)
University of Leipzig	Cardiac & Cardio. (21) Radiology, Nuclear. (12) Oncology (9)	Genetics & Heredity (11) Immunology (3) Clinical Neurology (2)	Physics, Mathematical (4) Physics, Fluids & P. (3) Physics, Mult. (2)	Psychiatry (1) Social Sciences, Mat. (1) Business, Finance (1)
University of Lyon	Oncology (9) Cardiac & Cardio. (5) Respiratory System (5)	Genetics & Heredity (8) Biochemistry & Mol. (6) Immunology (4)	Physics, Part. (980) Astronomy & Astr. (572) Physics, Nuclear (371)	Psychology, Exper. (2) History & Philoso. (2) Psychology (1)*
University of Vilnius	Allergy (16) Urology & Nephrology (11) Pediatrics (6)	Immunology (12) Cell Biology (2) Biochemistry & Mol. (2)	Physics, Particles & F. (717) Astronomy & Astr. (348) Physics, Nuclear (224)	Psychiatry (1) Social Issues (1) Ethics (1)**
2015-2019				
University of Bergen	Medical Laboratory. (6) Pediatrics (4) Oncology (3)	Genetics & Heredity (3) Clinical Neurology (3) Cell Biology (2)	Physics, Part. (137) Physics, Nuclear (110) Astronomy & Astr. (85)	Psychiatry (1) Psychology, Exper. (1) Environmental Studies (1)
University of Granada	Public, Environmen. (3) Medicine, Legal (3) Oncology (2)	Genetics & Heredity (3) Chemistry, Medicinal (3) Environmental Sciences (2)	Astronomy & Astr. (79) Mineralogy (10) Geochemistry & Geo. (9)	Psychiatry (1) Psychology (1) Psychology, Exper. (1)
University of Graz	Obstetrics & Gyn. (4) Nutrition & Dietetics (3) Medicine, Research. (1)	Endocrinology & Met. (6) Cell Biology (5) Biochemistry & Mol. (5)	Astronomy & Astr. (4) Water Resources (1) Geosciences, Mult. (1)	Psychology, Mult. (2) Psychology, Exper. (1) Psychology (1)**
University of Leipzig	Cardiac & Cardio. (14) Radiology, Nuclear. (9) Ophthalmology (6)	Genetics & Heredity (9) Immunology (3) Endocrinology & Met. (2)	Physics, Mathematical (4) Physics, Fluids & P. (3) Physics, Mult. (2)	Psychiatry (1)
University of Lyon	Oncology (6) Allergy (4) Respiratory System (4)	Biochemistry & Mol. (5) Genetics & Heredity (4) Neurosciences (4)	Physics, Part. (617) Astronomy & Astr. (394) Physics, Nuclear (239)	Psychology, Exper. (2) History & Philoso. (2) Psychology (1)*
University of Vilnius	Allergy (12) Urology & Nephrology (10) Surgery (4)	Immunology (8) Cell Biology (1) Clinical Neurology (1)	Physics, Particles & F. (450) Astronomy & Astr. (221) Physics, Nuclear (139)	Psychiatry (1)

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Table 42. Collaboration matrix VILNIUS

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2010-2019				
University of Bergen	7	9	7	2
University of Granada	5	2	7	13
University of Graz	0	1	1	2
University of Leipzig	11	18	17	1
University of Lyon	8	6	914	0
University of Padua	45	19	933	2
2015-2019				
University of Bergen	6	6	4	2
University of Granada	4	1	6	5
University of Graz	0	0	0	1
University of Leipzig	11	13	15	1
University of Lyon	7	5	549	0
University of Padua	37	13	564	1

 Data available: <https://ndownloader.figshare.com/files/21063711>



Table 43. Collaboration matrix VILNIUS
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2010-2019				
University of Bergen	Cardiac & Cardio. (2) Oncology (2) Radiology, Nuclear. (1)	Clinical Neurology (3) Cell Biology (2) Genetics & Heredity (1)	Physics, Part. (3) Geosciences, Mult. (2) Physics, Mult. (1)	Psychiatry (1) Information Science. (1)
University of Granada	Medicine, Legal (4) Public, Environmen. (1)	Biochemistry & Mol. (1) Behavioral Sciences (1)	Physics, Part. (3) Computer Science. (2) Physics, Mult. (1)	Psychiatry (10) Social Sciences, Bio. (3) Health Policy. (1)
University of Graz	---	Cell Biology (1)	Astronomy & Astr. (1)	Psychology, Mult. (1) Social Sciences, Int. (1)
University of Leipzig	Cardiac & Cardio. (5) Oncology (3) Gastroenterology & H. (2)	Genetics & Heredity (3) Ecology (3) Virology (3)	Materials Scien. (10) Chemistry, Physical (10) Nanoscience & Nano. (9)	Psychiatry (1)
University of Lyon	Allergy (4) Oncology (2) Respiratory System (1)	Immunology (2) Genetics & Heredity (2) Cell Biology (1)	Physics, Part. (723) Astronomy & Astr. (309) Physics, Nuclear (226)	---
University of Padua	Allergy (16) Urology & Nephrology (11) Pediatrics (6)	Immunology (12) Cell Biology (2) Biochemistry & Mol. (2)	Physics, Particles & F. (717) Astronomy & Astr. (348) Physics, Nuclear (224)	Psychiatry (1) Social Issues (1) Ethics (1)**
2015-2019				
University of Bergen	Cardiac & Cardio. (2) Radiology, Nuclear. (1) Anesthesiology (1)	Clinical Neurology (2) Cell Biology (1) Neurosciences (1)	Physics, Part. (3) Physics, Mult. (1)	Psychiatry (1) Information Science. (1)
University of Granada	Medicine, Legal (4)	Behavioral Sciences (1)	Physics, Part. (3) Physics, Mult. (1) Astronomy & Astr. (1)	Social Sciences, Bio. (3) Psychiatry (2) Psychology, Biological (1)
University of Graz	---	---	---	Social Sciences, Int. (1)
University of Leipzig	Cardiac & Cardio. (5) Oncology (3) Gastroenterology & H. (2)	Ecology (3) Genetics & Heredity (2) Biology (2)**	Materials Scien. (10) Chemistry, Physical (10) Nanoscience & Nano. (9)	Psychiatry (1)
University of Lyon	Allergy (4) Oncology (2) Nutrition & Dietetics (1)	Genetics & Heredity (2) Immunology (1) Clinical Neurology (1)	Physics, Part. (454) Astronomy & Astr. (193) Physics, Nuclear (142)	---
University of Padua	Allergy (12) Urology & Nephrology (10) Surgery (4)	Immunology (8) Cell Biology (1) Clinical Neurology (1)	Physics, Particles & F. (450) Astronomy & Astr. (221) Physics, Nuclear (139)	Psychiatry (1)

 Data available: <https://ndownloader.figshare.com/files/21063711>

Table 44. Collaboration with ARQUS. Universities and Web of Science Category

Web of Science Category	N° Collaboration with ARQUS	Bergen	Granada	Graz	Leipzig	Lyon	Padua	Vilnius
Physics, Particles & Fields	7380	16,91%	10,28%	0,03%	0,00%	25,85%	27,33%	19,59%
Astronomy & Astrophysics	4078	15,47%	11,70%	0,42%	0,05%	24,10%	32,10%	16,16%
Physics, Nuclear	2586	18,21%	7,73%	0,00%	0,00%	27,88%	28,77%	17,40%
Physics, Multidisciplinary	1294	16,00%	8,35%	0,08%	0,31%	28,13%	30,29%	16,85%
Instruments & Instrumentation	450	13,56%	6,44%	0,44%	0,00%	32,22%	25,78%	21,56%
Genetics & Heredity	170	20,59%	5,88%	1,18%	28,24%	22,35%	17,65%	4,12%
Oncology	142	11,27%	9,86%	2,82%	21,13%	27,46%	21,13%	6,34%
Cardiac & Cardiovascular Systems	114	15,79%	0,00%	2,63%	34,21%	7,02%	29,82%	10,53%
Biochemistry & Molecular Biology	106	19,81%	10,38%	10,38%	13,21%	19,81%	22,64%	3,77%
Geochemistry & Geophysics	90	12,22%	23,33%	6,67%	1,11%	23,33%	33,33%	0,00%
Geosciences, Multidisciplinary	76	17,11%	14,47%	13,16%	13,16%	17,11%	21,05%	3,95%
Immunology	74	18,92%	2,70%	1,35%	9,46%	16,22%	29,73%	21,62%
Allergy	72	13,89%	0,00%	0,00%	5,56%	16,67%	34,72%	29,17%
Cell Biology	64	14,06%	3,13%	21,88%	9,38%	15,63%	25,00%	10,94%
Chemistry, Physical	62	6,45%	16,13%	19,35%	17,74%	11,29%	11,29%	17,74%
Materials Science, Multidisciplinary	60	3,33%	18,33%	10,00%	21,67%	13,33%	15,00%	18,33%
Psychiatry	54	16,67%	27,78%	1,85%	11,11%	7,41%	11,11%	24,07%
Ecology	52	11,54%	15,38%	11,54%	28,85%	21,15%	5,77%	5,77%
Public, Environmental & Occupational Health	48	10,42%	29,17%	6,25%	22,92%	14,58%	14,58%	2,08%
Nuclear Science & Technology	46	26,09%	0,00%	0,00%	0,00%	41,30%	28,26%	4,35%
Nutrition & Dietetics	46	6,52%	34,78%	6,52%	4,35%	32,61%	13,04%	2,17%
Neurosciences	44	18,18%	6,82%	11,36%	11,36%	20,45%	29,55%	2,27%
Urology & Nephrology	44	0,00%	2,27%	4,55%	18,18%	4,55%	45,45%	25,00%
Clinical Neurology	42	28,57%	0,00%	2,38%	9,52%	26,19%	21,43%	11,90%
Endocrinology & Metabolism	42	23,81%	2,38%	14,29%	16,67%	9,52%	33,33%	0,00%
Geology	42	21,43%	23,81%	7,14%	2,38%	19,05%	23,81%	2,38%
Hematology	42	0,00%	14,29%	4,76%	21,43%	26,19%	23,81%	9,52%
Mineralogy	42	0,00%	38,10%	0,00%	0,00%	16,67%	45,24%	0,00%

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PHOTO: Commissioned by Isabel and Fernando (the "Catholic Monarchs") in 1504, the Royal Hospital was designed by the architect Enrique Egas and building started in 1511. Over the years, it was used for a variety of purposes. Originally, it served as a hospital for the poor, pilgrims and soldiers who had been injured during the conquest of Granada. After 1536, however, it was also used as a prison for mad people, and San Juan de Dios was kept here for a time when he was considered to be insane. At a later date, it was also used to treat people from all over Spain who were suffering from venereal diseases (and syphilis in particular). It was one of the first buildings which the monarchs built in Granada and was situated outside the city walls. The building has now been taken over by the University of Granada and is the seat of the Vice-chancellor's Office and other university services.