



ARQUS ClusterMap

UGR Bibliometric reports - Part II

Granada team:

This bibliometric report has been elaborated by the Research Evaluation Unit at the University of Granada and its technical staff: **Daniel Torres-Salinas** (supervision), **Carmen Huertas-García** (documentalist), **Claudia Ríos-Gómez** (documentalist) and **Wenscelao Arroyo-Machado** (data manager).

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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 Wroclaw, Granada, Graz, Leipzig, Lyon, Minho, Padua 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 the 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 researcheres with the objective of stablish a directory that facilite future collaborations

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

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 October 2022 we retrieved all universities publications indexed in InCites from 2012 to 2021 filtering by document type (only articles, reviews and letters). For the InCites query, each university is composed of the following organizations:

- **Wroclaw** - University of Wroclaw
- **Granada** - University of Granada
- **Graz** - University of Graz
- **Leipzig** - Leipzig University
- **Lyon** - Université Claude Bernard Lyon 1
- **Minho** - Universidade do Minho
- **Padua** - University of Padua
- **Vilnius** - Vilnius University + Vilnius University International Business School

Bibliometric indicators

Main Indicators:

- Number of Documents: total number of articles, reviews and letters 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 total number 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. Total 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. Total number of 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).

Tabla 1. Position in international rankings ARQUS Alliance. General

University	Wroclaw	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius
Position	---	201-300	601-700	201-300	201-300	401-500	151-200	701-800

Color = Ranking position improved - orange

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

Field	Wroclaw	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius
Atmospheric Science	---	201-300	151-200	101-150	301-400	---	301-400	---
Chemistry	---	401-500	---	301-400	201-300	---	201-300	---
Earth Sciences	---	151-200	301-400	301-400	101-150	---	101-150	---
Ecology	401-500	301-400	401-500	39	101-150	---	151-200	---
Geography	---	---	---	201-300	201-300	---	201-300	---
Mathematics	301-400	76-100	---	---	76-100	---	201-300	---
Oceanography	---	151-200	---	---	---	---	---	---
Physics	---	201-300	---	---	51-75	401-500	35	401-500

Color = Position Top 100 - green square / Ranking position improved - orange

Tabla 3. Position in international rankings ARQUS Alliance. Engineering

Field	Wroclaw	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius
Aerospace Engineering	---	---	---	---	---	---	---	---
Automation & Control	---	---	---	---	---	---	51-75	---
Biomedical Engineering	---	201-300	---	201-300	201-300	151-200	201-300	---
Biotechnology	---	301-400	---	201-300	151-200	201-300	151-200	---
Chemical Engineering	---	401-500	---	---	201-300	---	301-400	---
Civil Engineering	---	---	---	---	---	76-100	151-200	---
Computer Science & Engineering	---	101-150	---	---	---	---	201-300	---
Electrical & Electronic Engineering	---	301-400	---	---	301-400	---	101-150	---
Energy Science & Engineering	---	---	---	---	---	---	201-300	---
Environmental Science & Engineering	---	301-400	401-500	301-400	201-300	---	301-400	---
Food Science & Technology	---	30	---	---	151-200	51-75	101-150	---
Instruments Science & Technology	---	201-300	---	---	---	---	101-150	---
Marine/Ocean Engineering	---	---	---	---	---	---	---	---
Materials Science & Engineering	---	---	---	401-500	---	401-500	401-500	---
Mechanical Engineering	---	---	---	---	201-300	301-400	101-150	---
Metallurgical Engineering	---	---	---	---	---	---	---	---
Mining & Mineral Engineering	---	---	---	---	---	---	---	---
Nanoscience & Nanotechnology	---	---	---	---	---	---	---	---
Remote Sensing	---	---	---	---	---	---	---	---
Telecommunication Engineering	---	---	---	---	---	---	76-100	---
Transportation Science & Technology	---	151-200	---	---	---	---	---	---
Water Resources	---	---	---	---	---	---	26	---

Color = Position Top 100 - green square / Ranking position improved - orange

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

Field	Wroclaw	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius
Agricultural Sciences	---	401-500	---	301-400	201-300	---	44	---
Biological Sciences	---	301-400	401-500	201-300	201-300	---	151-200	401-500
Human Biological Sciences	---	---	301-400	151-200	151-200	301-400	151-200	301-400
Veterinary Sciences	---	---	---	76-100	---	---	35	---

Color = Position Top 100 - green square / Ranking position improved - orange

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

Field	Wroclaw	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius
Clinical Medicine	---	---	---	301-400	301-400		151-200	401-500
Dentistry & Oral Sciences	---	151-200	---	151-200	---		201-300	---
Medical Technology	---	---	---	101-150	201-300		76-100	---
Nursing	---	101-150	---	---	---		---	---
Pharmacy & Pharmaceutical Sciences	---	201-300	---	301-400	151-200	301-400	201-300	---
Public Health	---	201-300	---	401-500	401-500		201-300	---

Color = Position Top 100 - green square / Ranking position improved - orange

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

Field	Wroclaw	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius
Business Administration	---	301-400	---	---	---	301-400	---	---
Communication	---	---	---	151-200	---	201-300	---	---
Economics	---	401-500	---	---	---		301-400	---
Education	---	301-400	401-500	---	---	301-400	151-200	---
Finance	---	---	---	---	---		---	---
Hospitality & Tourism Management	---	51-75	---	---	---		---	---
Law	---	201-300	---	---	---	101-150	---	---
Library & Information Science	---	38	---	---	---		---	---
Management	---	151-200	---	---	---		201-300	---
Political Sciences	---	---	---	301-400	---	301-400	---	---
Psychology	---	201-300	401-500	101-150	201-300	301-400	101-150	---
Public Administration	---	---	---	---	---		---	---
Sociology	---	---	---	---	---		---	---
Statistics	---	151-200	---	---	151-200		151-200	---

Color = Position Top 100 - green square / Ranking position improved - orange

The position of the universities in the Academic Ranking of World Universities (ARWU) has changed with respect to the *ARQUS ClusterMap: UGR Bibliometric reports - Part I*.

Regarding the general position of the universities, we can see an improvement in the University of Padua, going from the global position 201-300 to 151-200.

Natural Sciences. We found performance improvements in Atmospheric Sciences (Graz, Lyon), Earth Sciences (Graz, Leipzig), Ecology (Graz, Leipzig and Lyon), Geography (Leipzig), Mathematics (Lyon) and Physics (Lyon and Padua). The most significant improvement is found in Ecology (University of Leipzig), which rises from 101-150th to 39th place.

Engineering. There are performance improvements in Biomedical Engineering (Leipzig), Biotechnology (Lyon), Electrical and Electronic (Lyon), Environmental Science and Engineering (Graz, Leipzig), Food Science and Technology (Granada, Lyon). Among all universities, the University of Granada stands out in Food Science and Technology, ranking 30th.

Life Sciences. There are performance improvements in Agricultural Sciences (Padua), Biological Sciences (Granada), Human Biological Science (Graz, Lyon, Vilnius), Veterinary Sciences (Padua). The University of Padua stands out in Veterinary Sciences, rising from 76-100th to 35th position.

Medical Sciences. Universities of Padua and Vilnius has improved in Clinical Medicine, and University of Lyon has improved in Pharmacy. There are also improvements in Public Health (Granada, Lyon, Padua).

Social Sciences. We found performance improvements in Communication (Leipzig), Education (Padua), Hospitality & Tourism Management (Granada), Law (Granada), Political Sciences (Leipzig) and Psychology (Leipzig, Lyon). The University of Granada stands out in Hospitality & Tourism Management, rising from 201-300 to 51-75.

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

Tabla 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: 2012-2021					
University of Granada	29745	1,26	14910 - 53,20%	445 - 1,50%	15533 - 52,22%
University of Graz	9020	1,34	4286 - 52,54%	146 - 1,62%	5556 - 61,6%
University of Leipzig	25388	1,34	12053 - 50,46%	478 - 1,88%	12080 - 47,58%
University of Lyon	34304	1,36	19519 - 58,92%	607 - 1,77%	19012 - 55,19%
University of Minho	15958	1,19	7669 - 51,64%	217 - 1,41%	9236 - 57,53%
University of Padua	54525	1,59	29547 - 56,59%	1185 - 2,17%	29764 - 54,59%
University of Vilnius	10101	1,17	4088 - 42,78%	138 - 1,37%	5593 - 55,37%
University of Wroclaw	8946	0,87	3372 - 39,59%	52 - 0,56%	4084 - 45,28%
Period: 2017-2021					
University of Granada	16823	1,24	8613 - 53,92%	237 - 1,41%	9270 - 55,10%
University of Graz	4944	1,34	2262 - 50,12%	77 - 1,56%	3172 - 64,16%
University of Leipzig	14508	1,40	6714 - 48,83%	293 - 2,02%	7250 - 49,97%
University of Lyon	18737	1,35	10165 - 55,56%	329 - 1,76%	10711 - 57,16%
University of Minho	9125	1,15	4325 - 50,52%	102 - 1,12%	5429 - 59,50%
University of Padua	31896	1,62	16863 - 54,95%	725 - 2,27%	18176 - 56,99%
University of Vilnius	5812	1,18	2468 - 44,69%	74 - 1,27%	3374 - 58,05%
University of Wroclaw	4989	0,91	1915 - 40,55%	32 - 0,64%	2369 - 47,48%

Figure 1. Bar plot of universities total research production in 2017-2021 and 2012-2021 periods.

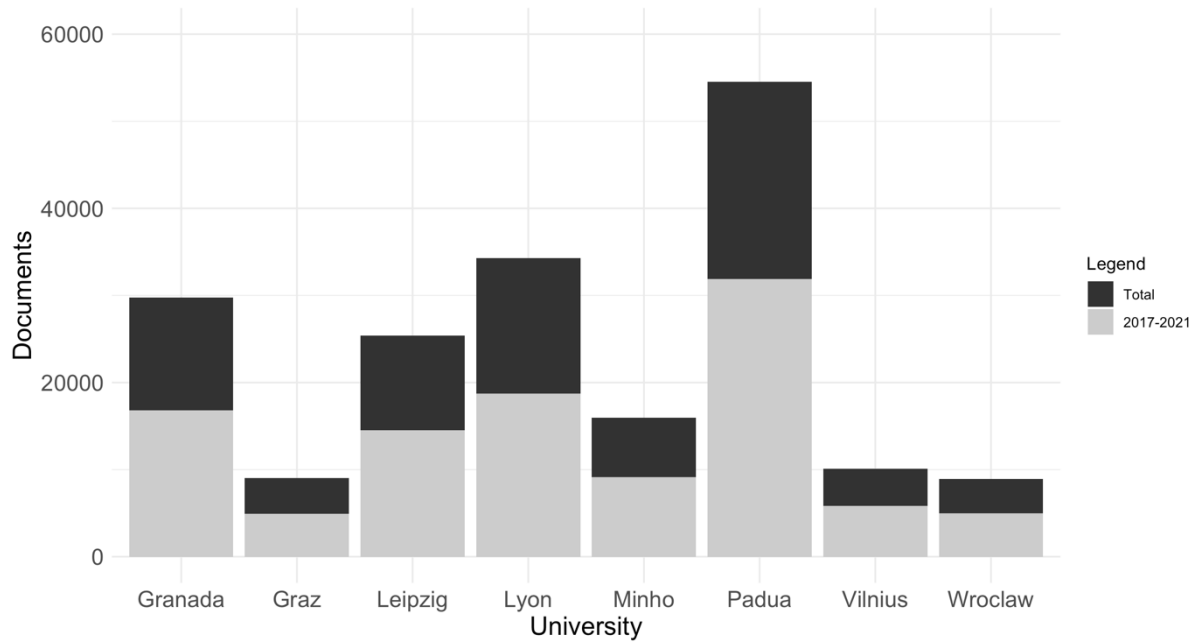


Figure 2. Line plot of the production trend and Category Normalized Citation Impact average of universities.

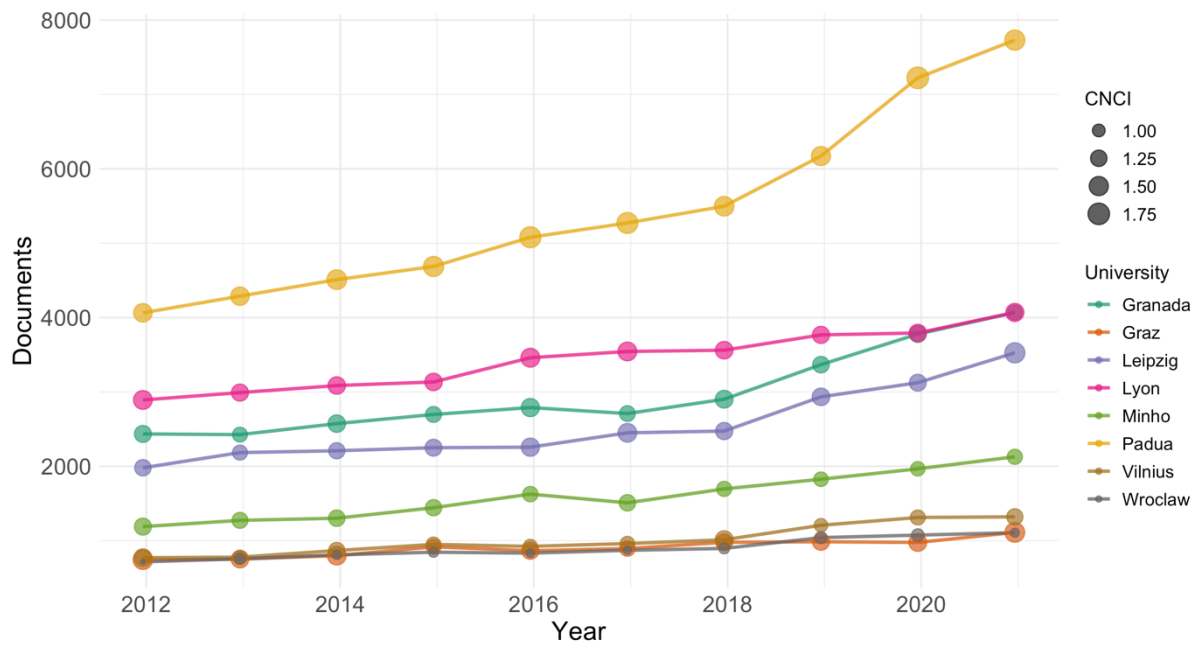


Figure 3. Strategy map according Category Normalized Citation Impact, Number of citable documents and publication years (points).

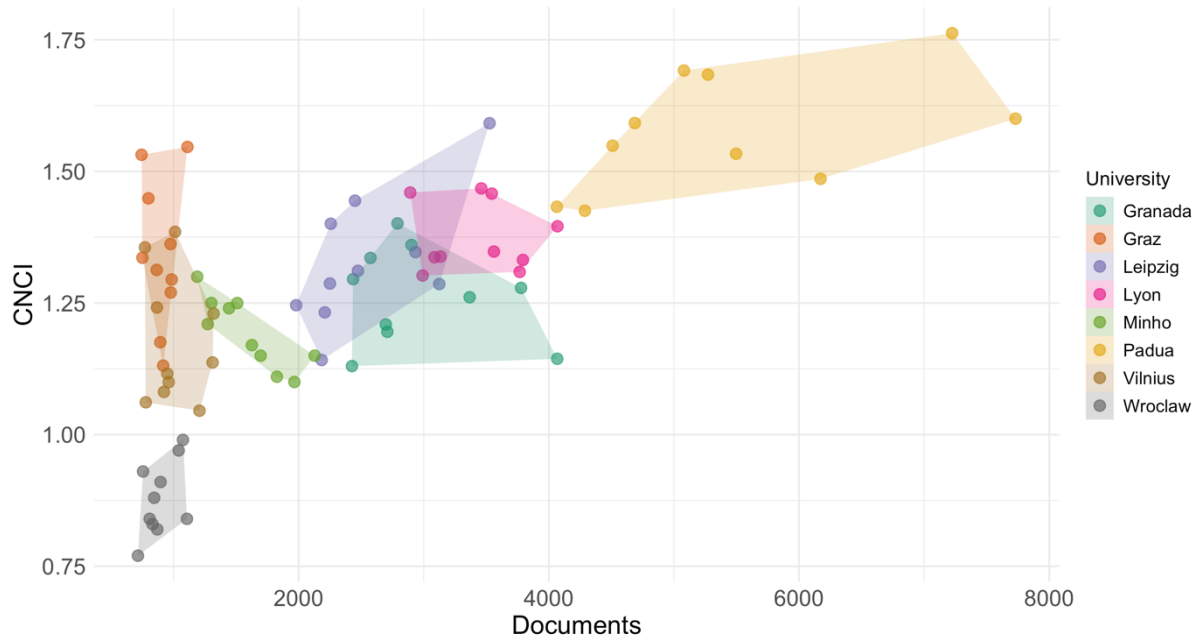
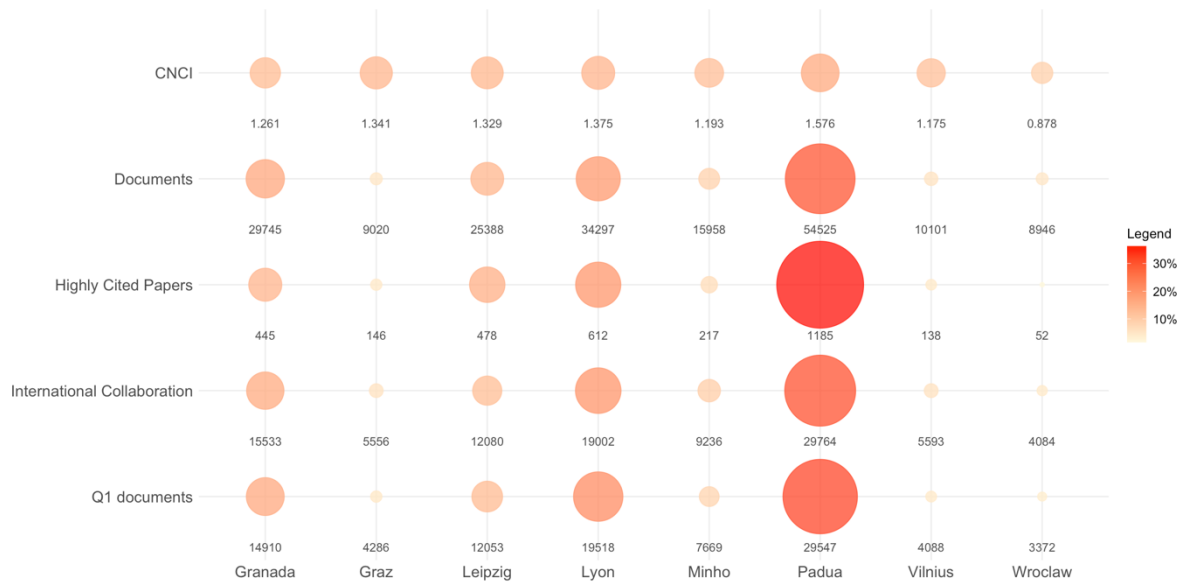


Figure 4. Overview of the main research indicators by university. Each point corresponds to the university percentage value in relation with the other ones in the same indicator. 2012-2021.



INDIVIDUAL RESEARCH PROFILES PER UNIVERSITY

University of Granada

Tabla 8. Main bibliometric indicators at the University of Granada

Date	Nr citable Documents	Category Normalized Citation Impact	Documents & % in Q1	Nr & % Highly Cited Papers	Nr and % International Collaboration
2012	2435	1,30	1218 - 53,89%	38 - 1,56%	1109 - 45,54%
2013	2426	1,13	1152 - 50,77%	29 - 1,20%	1081 - 44,56%
2014	2574	1,34	1275 - 53,48%	48 - 1,86%	1223 - 47,51%
2015	2697	1,21	1258 - 49,41%	43 - 1,59%	1343 - 49,80%
2016	2790	1,40	1394 - 53,78%	50 - 1,79%	1507 - 54,01%
2017	2709	1,20	1281 - 50,83%	30 - 1,11%	1486 - 54,85%
2018	2902	1,36	1438 - 53,34%	54 - 1,86%	1590 - 54,79%
2019	3367	1,26	1725 - 54,42%	56 - 1,66%	1884 - 55,95%
2020	3778	1,28	2039 - 56,29%	51 - 1,35%	2021 - 53,49%
2021	4067	1,14	2130 - 53,69%	46 - 1,13%	2289 - 56,28%
Total 2012-2021	29745	1,26	14910 - 53,20%	445 - 1,50%	15533 - 52,22%
Total 2017-2021	16823	1,24	8613 - 53,92%	237 - 1,41%	9270 - 55,10%
EU 2017-2021	3005292	1,17	1397998 - 50,28%	36367 - 1,21%	1523883 - 50,71%



Tabla 9. Summary by areas (Nr citable documents - %). Granada. 2017-2021

Health Sciences 4800 - 16,63%	Life Sciences 6509 - 22,55%	Physical / Engineering Sciences 12713 - 44,03%	Social Sciences / Humanities 4849 - 16,80%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Public, Environmental & Occupational Health 789 - 1,02	Environmental Sciences 1372 - 0,82	Physics, Particles & Fields 597 - 2,07	Psychology, Multidisciplinary 371 - 0,96
Nutrition & Dietetics 733 - 1,20	Biochemistry & Molecular Biology 603 - 1	Computer Science, Artificial Intelligence 582 - 2,05	Environmental Studies 350 - 1,04
Sport Sciences 486 - 2,08	Food Science & Technology 448 - 1,34	Mathematics 571 - 1,19	Education & Educational Research 253 - 0,90
Oncology 314 - 1,20	Pharmacology & Pharmacy 432 - 1,05	Material Sciences, Multidisciplinary 542 - 0,77	Psychiatry 221 - 1,49
Dentistry, Oral Surgery & Medicine 214 - 1,49	Neurosciences 347 - 1,06	Astronomy & Astrophysics 534 - 1,88	Information Science & Library Science 187 - 1,78

University of Graz

Tabla 10. Main bibliometric indicators at the University of Graz

Date	Nr citable Documents	Category Normalized Citation Impact	Documents & % in Q1	Nr & % Highly Cited Papers	Nr and % International Collaboration
2012	744	1,53	378 - 57,01%	14 - 1,88%	439 - 59,01%
2013	751	1,34	381 - 55,38%	8 - 1,07%	458 - 60,99%
2014	799	1,45	442 - 60,47%	15 - 1,88%	479 - 59,95%
2015	917	1,13	413 - 52,75%	15 - 1,64%	501 - 54,63%
2016	865	1,31	410 - 52,56%	17 - 1,97%	507 - 58,61%
2017	894	1,18	417 - 52,19%	9 - 1,01%	538 - 60,18%
2018	978	1,27	418 - 49,23%	13 - 1,33%	596 - 60,94%
2019	985	1,29	439 - 49,05%	18 - 1,83%	625 - 63,45%
2020	976	1,36	435 - 48,23%	17 - 1,74%	639 - 65,47%
2021	1111	1,55	553 - 51,78%	20 - 1,80%	774 - 69,67%
Total 2012-2021	9020	1,34	4286 - 52,54%	146 - 1,62%	5556 - 61,6%
Total 2017-2021	4944	1,33	2262 - 50,12%	77 - 1,56%	3172 - 64,16%
EU 2017-2021	3005292	1,17	1397998 - 50,28%	36367 - 1,21%	1523883 - 50,71%



Tabla 11. Summary by areas (Nr citable documents - %). Graz. 2017-2021

Health Sciences 618 - 7,37%	Life Sciences 2508 - 29,92%	Physical / Engineering Sciences 3314 - 39,53%	Social Sciences / Humanities 1943 - 23,18%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Public, Environmental & Occupational Health 83 - 1,76	Biochemistry & Molecular Biology 325 - 1,69	Astronomy & Astrophysics 333 - 1,11	Economics 153 - 0,89
Radiology, Nuclear Medicine & Medical Imaging 57 - 1,57	Environmental Sciences 287 - 1,16	Chemistry, Multidisciplinary 251 - 1,00	Psychology, Experimental 114 - 1,14
Sport Sciences 52 - 2,26	Neurosciences 217 - 1,36	Mathematics, Applied 208 - 0,98	Environmental Studies 109 - 1,68
Nutrition & Dietetics 49 - 1,24	Cell Biology 142 - 2,05	Geosciences, Multidisciplinary 203 - 1,34	Psychology, Multidisciplinary 98 - 1,26
Cardiac & Cardiovascular Systems 29 - 1,63	Plant Sciences 127 - 0,98	Mathematics 149 - 1,37	Philosophy 90 - 1,77

Leipzig University

Tabla 12. Main bibliometric indicators at the University of Leipzig

Date	Nr citable Documents	Category Normalized Citation Impact	Documents & % in Q1	Nr & % Highly Cited Papers	Nr and % International Collaboration
2012	1980	1,25	933 - 50,93%	33 - 1,67%	798 - 40,30%
2013	2184	1,14	1045 - 51,23%	27 - 1,24%	932 - 42,67%
2014	2209	1,23	1074 - 52,39%	40 - 1,81%	995 - 45,04%
2015	2250	1,29	1131 - 53,63%	40 - 1,78%	1015 - 45,11%
2016	2257	1,40	1156 - 54,94%	45 - 1,99%	1090 - 48,29%
2017	2450	1,44	1221 - 53,51%	63 - 2,57%	1205 - 49,18%
2018	2474	1,31	1169 - 51,07%	37 - 1,50%	1192 - 48,18%
2019	2934	1,35	1307 - 47,53%	68 - 2,32%	1462 - 49,83%
2020	3124	1,29	1410 - 47,33%	59 - 1,89%	1569 - 50,22%
2021	3526	1,59	1607 - 46,58%	66 - 1,87%	1822 - 51,67%
Total 2012-2021	25388	1,34	12053 - 50,46%	478 - 1,88%	12080 - 47,58%
Total 2017-2021	14508	1,40	6714 - 48,83%	293 - 2,02%	7250 - 49,97%
EU 2017-2021	3005292	1,17	1397998 - 50,28%	36367 - 1,21%	1523883 - 50,71%



Tabla 13. Summary by areas (Nr citable documents - %). Leipzig. 2017-2021

Health Sciences 6936 - 30,08%	Life Sciences 7099 - 30,79%	Physical / Engineering Sciences 5372 - 23,30%	Social Sciences / Humanities 3652 - 15,84%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Cardiac & Cardiovascular Systems 1004 - 2,77	Neurosciences 807 - 1,18	Chemistry, Multidisciplinary 488 - 0,84	Psychiatry 576 - 1,31
Oncology 810 - 1,35	Biochemistry & Molecular Biology 713 - 1,02	Materials Science, Multidisciplinary 442 - 0,90	Psychology, Clinical 204 - 0,93
Surgery 487 - 1,14	Clinical Neurology 494 - 1,42	Chemistry, Physical 421 - 0,71	Psychology, Multidisciplinary 198 - 1,82
Radiology, Nuclear Medicine & Medical Imaging 424 - 1,44	Endocrinology & Metabolism 435 - 1,43	Physics, Applied 312 - 1,06	Psychology 180 - 1,42
Hematology 313 - 1,98	Veterinary Sciences 419 - 0,76	Nanoscience & Nanotechnology 231 - 0,72	Psychology, Experimental 150 - 1,09

University of Lyon

Tabla 14. Main bibliometric indicators at the University of Lyon

Date	Nr citable Documents	Category Normalized Citation Impact	Documents & % in Q1	Nr & % Highly Cited Papers	Nr and % International Collaboration
2012	2892	1,44	1782 - 64,22%	52 - 1,8%	1486 - 51,38%
2013	2991	1,30	1790 - 62,3%	54 - 1,81%	1548 - 51,76%
2014	3086	1,33	1858 - 61,93%	58 - 1,88%	1615 - 52,33%
2015	3137	1,34	1838 - 60,56%	58 - 1,85%	1659 - 52,88%
2016	3461	1,45	2086 - 61,99%	56 - 1,62%	1993 - 57,58%
2017	3546	1,44	1978 - 58,02%	62 - 1,75%	2009 - 56,66%
2018	3563	1,34	1965 - 56,78%	60 - 1,68%	2056 - 57,7%
2019	3769	1,30	2025 - 55,19%	67 - 1,78%	2220 - 58,9%
2020	3792	1,32	2039 - 54,74%	68 - 1,79%	2157 - 56,88%
2021	4067	1,34	2158 - 53,51%	72 - 1,77%	2269 - 55,79%
Total 2012-2021	34304	1,36	19519 - 58,92%	607 - 1,77%	19012 - 55,19%
Total 2017-2021	18737	1,35	10165 - 55,65%	329 - 1,75%	10711 - 57,19%
EU 2017-2021	3005292	1,17	1397998 - 50,28%	36367 - 1,21%	1523883 - 50,71%



Tabla 15. Summary by areas (Nr citable documents - %). Lyon. 2017-2021

Health Sciences 5702 - 18,67%	Life Sciences 8682 - 28,43%	Physical / Engineering Sciences 14977 - 49,04%	Social Sciences / Humanities 1178 - 3,86%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Oncology 825 - 1,69	Biochemistry & Molecular Biology 892 - 1,07	Chemistry, Physical 1025 - 0,67	Psychiatry 256 - 0,88
Surgery 401 - 1,70	Neurosciences 846 - 1,25	Materials Science, Multidisciplinary 973 - 0,68	Economics 141 - 0,92
Radiology, Nuclear Medicine & Medical Imaging 374 - 1,40	Clinical Neurology 643 - 1,88	Astronomy & Astrophysics 902 - 2,51	Psychology 99 - 0,72
Infectious Diseases 291 - 1,54	Environmental Sciences 526 - 0,85	Physics, Particles & Fields 856 - 1,72	Psychology, Experimental 93 - 0,93
Hematology 283 - 1,45	Cell Biology 513 - 1,23	Chemistry, Multidisciplinary 781 - 0,81	Psychology, Multidisciplinary 69 - 0,96

University of Padua

Tabla 16. Main bibliometric indicators at the University of Padua

Date	Nr citable Documents	Category Normalized Citation Impact	Documents & % in Q1	Nr & % Highly Cited Papers	Nr and % International Collaboration
2012	4064	1,43	2338 - 60,57%	67 - 1,65%	1973 - 48,55%
2013	4288	1,43	2362 - 57,69%	76 - 1,77%	2063 - 48,11%
2014	4510	1,55	2526 - 59,41%	110 - 2,44%	2242 - 49,71%
2015	4687	1,59	2579 - 57,25%	96 - 2,05%	2462 - 52,53%
2016	5080	1,69	2879 - 59,87%	111 - 2,19%	2848 - 56,06%
2017	5272	1,68	2881 - 57,93%	118 - 2,24%	2993 - 56,77%
2018	5497	1,53	2929 - 56,21%	116 - 2,11%	3215 - 58,49%
2019	6172	1,49	3181 - 53,99%	122 - 1,98%	3579 - 57,99%
2020	7224	1,76	3833 - 54,84%	187 - 2,59%	4039 - 55,91%
2021	7731	1,60	4039 - 52,98%	182 - 2,35%	4350 - 56,27%
Total 2012-2021	54525	1,59	29547 - 56,59%	1185 - 2,17%	29764 - 54,59%
Total 2017-2021	31896	1,62	16863 - 54,95%	725 - 2,27%	18176 - 56,99%
EU 2017-2021	3005292	1,17	1397998 - 50,28%	36367 - 1,21%	1523883 - 50,71%



Tabla 17. Summary by areas (Nr citable documents - %). Padua. 2017-2021

Health Sciences 11799 - 22,83%	Life Sciences 13826 - 26,75%	Physical / Engineering Sciences 21080 - 40,78%	Social Sciences / Humanities 4983 - 9,64%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Oncology 1288 - 1,54	Biochemistry & Molecular Biology 1275 - 1,68	Astronomy & Astrophysics 2497 - 2,5	Psychiatry 519 - 2,21
Cardiac & Cardiovascular Systems 1092 - 1,87	Neurosciences 1196 - 1,46	Physics, Particles & Fields 1398 - 1,81	Psychology, Multidisciplinary 383 - 1,50
Surgery 843 - 1,72	Environmental Sciences 992 - 1,11	Materials Science, Multidisciplinary 1009 - 0,88	Psychology, Experimental 370 - 1,10
Gastroenterology & Hepatology 739 - 1,88	Clinical Neurology 891 - 1,73	Engineering, Electrical & Electronic 937 - 1,16	Economics 297 - 1,02
Hematology 718 - 1,32	Endocrinology & Metabolism 738 - 1,87	Chemistry, Multidisciplinary 906 - 0,86	Psychology, Clinical 200 - 1,34

University of Minho

Tabla 18. Main bibliometric indicators at the University of Padua

Date	Nr citable Documents	Category Normalized Citation Impact	Documents & % in Q1	Nr & % Highly Cited Papers	Nr and % International Collaboration
2012	1189	1,30	580 - 52,39%	20 - 1,68%	664 - 55,85%
2013	1273	1,21	632 - 53,42%	22 - 1,73%	655 - 51,45%
2014	1302	1,25	639 - 52,38%	30 - 2,3%	703 - 53,99%
2015	1443	1,24	714 - 52,27%	19 - 1,32%	817 - 56,62%
2016	1626	1,17	779 - 52,85%	24 - 1,48%	968 - 59,53%
2017	1509	1,25	718 - 52,72%	20 - 1,33%	889 - 58,91%
2018	1696	1,15	767 - 50,63%	18 - 1,06%	1038 - 61,2%
2019	1826	1,11	853 - 49,94%	15 - 0,82%	1109 - 60,73%
2020	1966	1,10	927 - 49,07%	25 - 1,27%	1174 - 59,72%
2021	2128	1,15	1060 - 50,79%	24 - 1,13%	1219 - 57,28%
Total 2012-2021	15958	1,19	7669 - 51,64%	217 - 1,41%	9236 - 57,53%
Total 2017-2021	9125	1,15	865 - 50,63%	102 - 1,12%	5429 - 59,57%
EU 2017-2021	3005292	1,17	1397998 - 50,28%	36367 - 1,21%	1523883 - 50,71%



Tabla 19. Summary by areas (Nr citable documents - %). Minho. 2017-2021

Health Sciences 1609 - 9,40%	Life Sciences 3857 - 22,54%	Physical / Engineering Sciences 9314 - 54,43%	Social Sciences / Humanities 2331 - 13,62%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Oncology 142 - 1,28	Environmental Sciences 411 - 0,92	Materials Science, Multidisciplinary 889 - 0,87	Psychiatry 157 - 1,31
Public, Environmental & Occupational Health 142 - 1,73	Biochemistry & Molecular Biology 401 - 1,03	Physics, Applied 490 - 0,92	Economics 155 - 0,84
Medicine, Research & Experimental 119 - 0,87	Biotechnology & Applied Microbiology 376 - 1,05	Engineering, Civil 444 - 1,10	Psychology, Multidisciplinary 147 - 0,76
Ophthalmology 100 - 1,57	Food Science & Technology 316 - 1,55	Chemistry, Multidisciplinary 436 - 0,91	Management 133 - 0,74
Surgery 93 - 1,80	Microbiology 311 - 1,05	Physics, Particles & Fields 422 - 1,91	Environmental Studies 129 - 1,03

Vilnius University

Tabla 20. Main bibliometric indicators at the University of Vilnius

Date	Nr citable Documents	Category Normalized Citation Impact	Documents & % in Q1	Nr & % Highly Cited Papers	Nr and % International Collaboration
2012	771	1,36	294 - 40,33%	13 - 1,69%	396 - 51,36%
2013	778	1,06	288 - 39,67%	12 - 1,54%	407 - 52,31%
2014	867	1,24	336 - 41,28%	17 - 1,96%	427 - 49,25%
2015	950	1,12	340 - 37,57%	13 - 1,37%	488 - 51,37%
2016	923	1,08	362 - 42,14%	9 - 0,98%	501 - 54,28%
2017	961	1,10	374 - 41,69%	13 - 1,35%	552 - 57,44%
2018	1012	1,39	430 - 44,61%	22 - 2,17%	618 - 61,07%
2019	1207	1,05	485 - 43,26%	12 - 0,99%	695 - 57,58%
2020	1312	1,14	599 - 47,77%	10 - 0,76%	757 - 57,7%
2021	1320	1,23	580 - 45,07%	17 - 1,29%	752 - 56,97%
Total 2012-2021	10101	1,17	4088 - 42,78%	138 - 1,37%	5593 - 55,37%
Total 2017-2021	5812	1,18	2468 - 44,69%	74 - 1,27%	3374 - 58,05%
EU 2017-2021	3005292	1,17	1397998 - 50,28%	36367 - 1,21%	1523883 - 50,71%



Tabla 21. Summary by areas (Nr citable documents - %). Vilnius. 2017-2021

Health Sciences 1542 - 15,98%	Life Sciences 1652 - 17,12%	Physical / Engineering Sciences 5296 - 54,87%	Social Sciences / Humanities 1162 - 12,04%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Oncology 151 - 1,05	Biochemistry & Molecular Biology 283 - 1,03	Physics, Particles & Fields 479 - 1,54	Economics 132 - 0,75
Surgery 149 - 1,10	Environmental Sciences 145 - 0,67	Materials Science, Multidisciplinary 401 - 0,81	Philosophy 103 - 0,81
Cardiac & Cardiovascular Systems 143 - 4,51	Immunology 105 - 1,85	Astronomy & Astrophysics 327 - 1,34	Psychiatry 91 - 2,12
Gastroenterology & Hepatology 85 - 1,71	Biophysics 93 - 1,37	Chemistry, Physical 319 - 0,56	Business 62 - 0,53
Public, Environmental & Occupational Health 80 - 1,11	Neurosciences 84 - 1,41	Physics, Applied 311 - 0,75	Humanities, Multidisciplinary 61 - 0,40

University of Wrocław

Tabla 22. Main bibliometric indicators at the University of Wrocław

Date	Nr citable Documents	Category Normalized Citation Impact	Documents & % in Q1	Nr & % Highly Cited Papers	Nr and % International Collaboration
2012	715	0,77	269 - 38,76%	1 - 0,14%	296 - 41,4%
2013	756	0,93	276 - 38,6%	5 - 0,66%	307 - 40,61%
2014	809	0,84	308 - 40,31%	6 - 0,74%	315 - 38,94%
2015	845	0,88	296 - 35,97%	4 - 0,47%	389 - 46,04%
2016	832	0,83	308 - 39,95%	4 - 0,48%	408 - 49,04%
2017	870	0,82	339 - 40,84%	4 - 0,46%	409 - 47,01%
2018	896	0,91	329 - 39,12%	7 - 0,78%	398 - 44,42%
2019	1041	0,97	374 - 37,85%	8 - 0,77%	503 - 48,32%
2020	1075	0,99	409 - 40,54%	7 - 0,65%	533 - 49,58%
2021	1107	0,84	464 - 43,98%	6 - 0,54%	526 - 47,52%
Total 2012-2021	8946	0,87	3372 - 39,59%	52 - 0,56%	4084 - 45,28%
Total 2017-2021	4989	0,91	1915 - 40,47%	32 - 0,64%	2369 - 47,37%
EU 2017-2021	3005292	1,17	1397998 - 50,28%	36367 - 1,21%	1523883 - 50,71%



Tabla 23. Summary by areas (Nr citable documents - %). Wrocław. 2017-2021

Health Sciences 330 - 4,18%	Life Sciences 2164 - 27,43%	Physical / Engineering Sciences 4443 - 56,33%	Social Sciences / Humanities 951 - 12,06%
Top 5 disciplines according to areas (Number of citable documents - CNCI)			
Oncology 53 - 0,84	Biochemistry & Molecular Biology 416 - 0,66	Chemistry, Multidisciplinary 388 - 0,61	Archaeology 54 - 1,05
Medicine, Research & Experimental 53 - 0,70	Zoology 225 - 0,59	Astronomy & Astrophysics 339 - 1,13	Psychology, Multidisciplinary 51 - 1,35
Public, Environmental & Occupational Health 46 - 0,86	Environmental Sciences 202 - 0,55	Physics, Particles & Fields 330 - 1,23	Anthropology 47 - 0,96
Nutrition & Dietetics 27 - 0,92	Plant Sciences 124 - 1,12	Chemistry, Physical 300 - 0,38	Political Science 46 - 0,51
Infectious Diseases 18 - 0,82	Cell Biology 108 - 0,60	Chemistry, Inorganic & Nuclear 245 - 0,95	History 45 - 1,14

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

Area	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius	Wroclaw
Health Sciences	16,63%	7,37%	30,08%	18,67%	9,40%	22,83%	15,98%	4,18%
Life Sciences	22,55%	29,92%	30,79%	28,43%	22,54%	26,75%	17,12%	27,43%
Physical / Engineering Sciences	44,03%	39,53%	23,30%	49,04%	54,43%	40,78%	54,87%	56,33%
Social Sciences / Humanities	16,80%	23,18%	15,84%	3,86%	13,62%	9,64%	12,04%	12,06%

Health Sciences

Date	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius	Wroclaw
2012	531	91	853	746	163	1500	114	28
2013	587	106	962	769	178	1639	141	35
2014	595	110	999	846	181	1645	152	44
2015	688	83	998	873	232	1703	179	54
2016	702	106	995	1028	273	1699	158	42
2017	759	126	1114	1040	240	1825	187	46
2018	792	122	1173	1004	322	1858	230	56
2019	942	115	1431	1100	349	2166	321	65
2020	1123	131	1569	1173	336	2879	408	77
2021	1184	124	1649	1385	362	3071	396	86
Total 2012-2021	7903	1114	11743	9964	2636	19985	2286	533
Total 2017-2021	4800	618	6936	5702	1609	11799	1542	330

Life Sciences

Tabla 26. Nr of citable documents ARQUS Alliance for the area of Life Sciences

Date	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius	Wroclaw
2012	879	418	1029	1422	492	1640	162	261
2013	884	357	1119	1371	526	1740	181	284
2014	1002	473	1218	1491	572	1937	171	312
2015	967	434	1229	1568	606	1918	235	352
2016	956	416	1214	1661	675	2087	241	379
2017	1081	454	1291	1646	639	2231	294	414
2018	1085	496	1191	1692	654	2430	278	374
2019	1232	491	1462	1690	769	2658	329	443
2020	1475	496	1446	1777	869	3073	340	449
2021	1636	571	1709	1877	926	3434	411	484
Total 2012-2021	11197	4606	12908	16195	6728	23148	2642	3752
Total 2017-2021	6509	2508	7099	8682	3857	13826	1652	2164

Physical / Engineering Sciences

Tabla 27. Nr of citable documents ARQUS Alliance for the area of Physical / Engineering Sciences

Date	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius	Wroclaw
2012	2113	559	900	2481	1293	2987	832	781
2013	1906	646	947	2668	1394	3075	838	791
2014	2040	556	965	2634	1287	3186	927	864
2015	2102	695	972	2607	1448	3393	1008	816
2016	2306	623	916	2815	1664	3722	936	769
2017	1947	628	1067	3012	1554	3614	944	760
2018	2155	667	1017	2898	1730	3911	952	838
2019	2652	622	1021	3037	1827	4242	1154	954
2020	2836	616	1112	2987	1955	4522	1117	929
2021	3123	781	1155	3043	2248	4791	1129	962
Total 2012-2021	23180	6393	10072	28182	16400	37443	9837	8464
Total 2017-2021	12713	3314	5372	14977	9314	21080	5296	4443

Social Sciences / Humanities

Tabla 28. Nr of citable documents ARQUS Alliance for the area of Social Sciences / Humanities

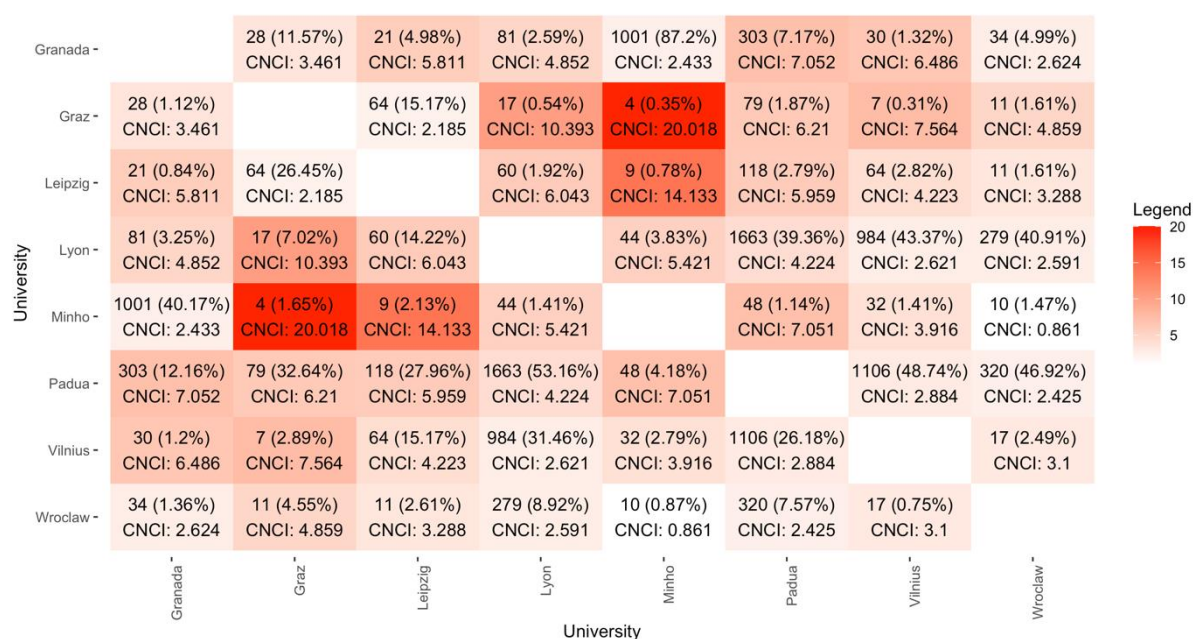
Date	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius	Wroclaw
2012	600	196	435	191	219	532	112	44
2013	680	172	479	180	255	561	119	55
2014	677	229	468	183	301	617	145	84
2015	653	347	489	181	340	643	127	88
2016	721	283	442	211	367	808	147	76
2017	783	317	564	175	423	817	158	120
2018	804	379	651	225	424	842	162	144
2019	1004	441	797	278	526	980	216	181
2020	1160	404	763	221	500	1173	322	249
2021	1098	402	877	279	458	1171	304	257
Total 2012-2021	8180	3170	5965	2124	3813	8144	1812	1298
Total 2017-2021	4849	1943	3652	1178	2331	4983	1162	951

5. Collaboration analysis**Collaboration general indicators**

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

Web of Science Category	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius	Wroclaw
2012-2021								
University of Granada	---	---	---	---	---	---	---	---
University of Graz	25	---	---	---	---	---	---	---
Leipzig University	21	64	---	---	---	---	---	---
University of Lyon	81	17	60	---	---	---	---	---
University of Minho	1001	4	9	44	---	---	---	---
University of Padua	286	79	118	1691	48	---	---	---
Vilnius University	29	7	64	984	32	1106	---	---
University of Wroclaw	34	11	11	279	10	323	17	---
2017-2021								
University of Granada	---	---	---	---	---	---	---	---
University of Graz	19	---	---	---	---	---	---	---
Leipzig University	10	45	---	---	---	---	---	---
University of Lyon	57	7	28	---	---	---	---	---
University of Minho	478	3	8	21	---	---	---	---
University of Padua	123	57	84	962	34	---	---	---
Vilnius University	18	4	49	532	22	639	---	---
University of Wroclaw	26	10	5	160	5	229	15	---

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.



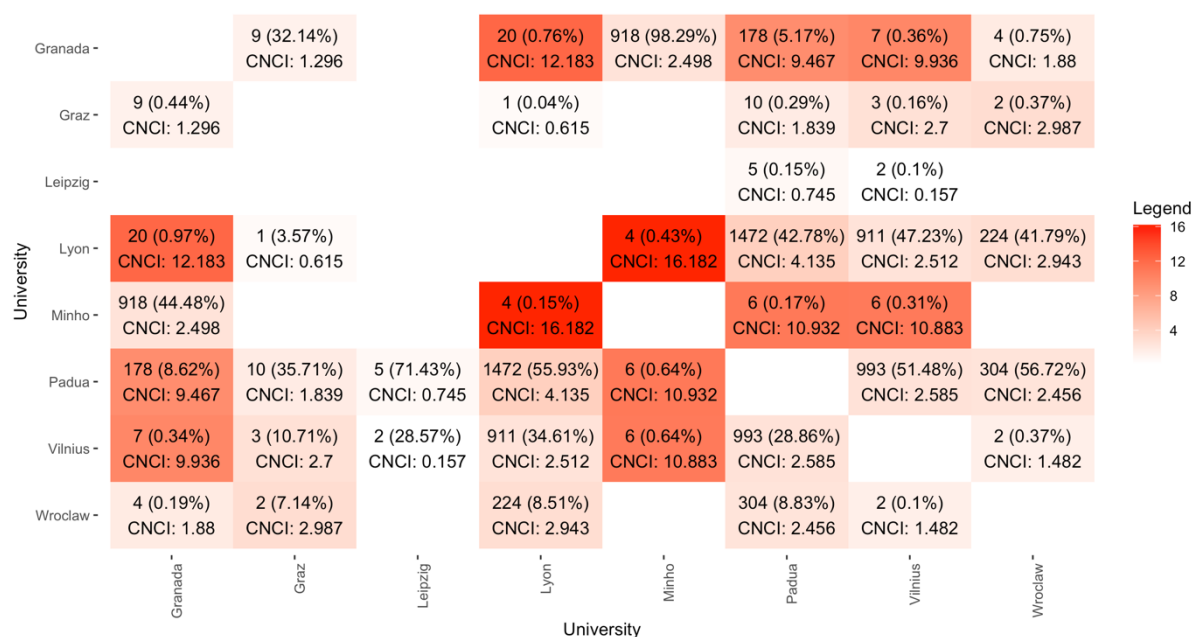
Collaboration Astronomy and Astrophysics / Physics

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

Tabla 30. Collaboration matrix ARQUS Alliance. Nr. of citable document

Web of Science Category	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius	Wroclaw
2012-2021								
University of Granada	---	---	---	---	---	---	---	---
University of Graz	9	---	---	---	---	---	---	---
Leipzig University	0	0	---	---	---	---	---	---
University of Lyon	20	1	0	---	---	---	---	---
University of Minho	918	0	0	4	---	---	---	---
University of Padua	178	10	5	1500	6	---	---	---
Vilnius University	7	3	2	911	6	993	---	---
University of Wroclaw	4	2	0	224	0	307	2	---
2017-2021								
University of Granada	---	---	---	---	---	---	---	---
University of Graz	7	---	---	---	---	---	---	---
Leipzig University	0	0	---	---	---	---	---	---
University of Lyon	18	1	0	---	---	---	---	---
University of Minho	430	0	0	2	---	---	---	---
University of Padua	60	5	3	833	4	---	---	---
Vilnius University	5	2	0	488	4	555	---	---
University of Wroclaw	3	2	0	132	4	218	2	---

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.



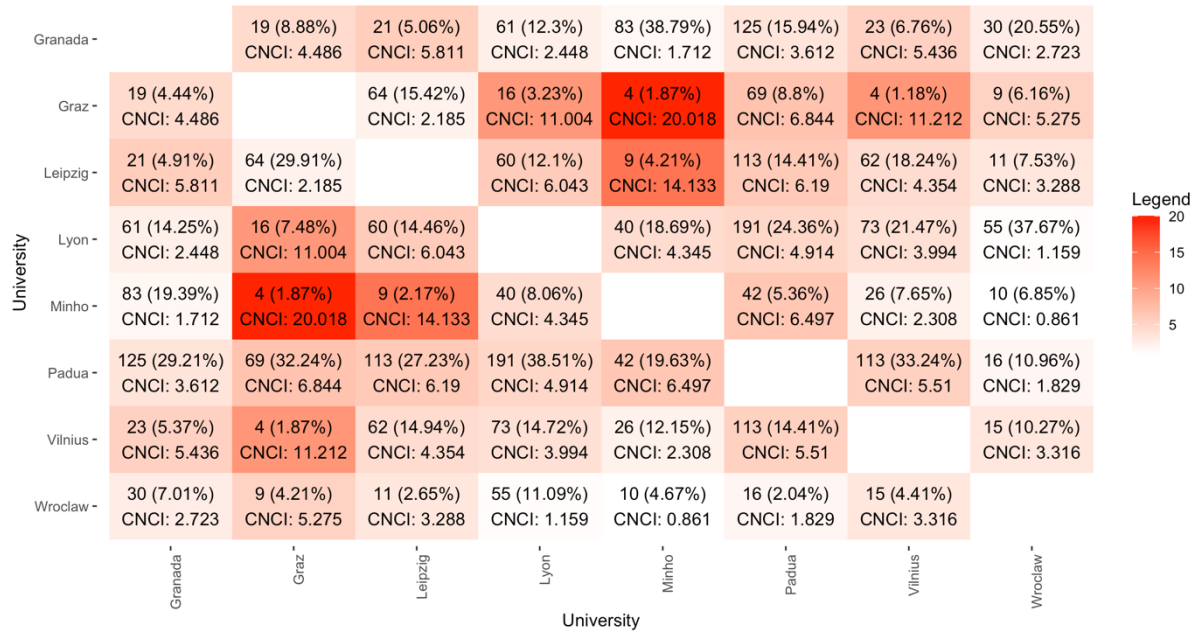
Collaboration without Astronomy and Astrophysics / Physics

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

Tabla 31. Collaboration matrix ARQUS Alliance. Nr. of citable documents

Web of Science Category	Granada	Graz	Leipzig	Lyon	Minho	Padua	Vilnius	Wroclaw
2012-2021								
University of Granada	---	---	---	---	---	---	---	---
University of Graz	19	---	---	---	---	---	---	---
Leipzig University	21	64	---	---	---	---	---	---
University of Lyon	61	16	60	---	---	---	---	---
University of Minho	83	4	9	40	---	---	---	---
University of Padua	124	69	113	191	42	---	---	---
Vilnius University	23	4	62	73	26	113	---	---
University of Wroclaw	30	9	11	55	10	16	15	---
2017-2021								
University of Granada	---	---	---	---	---	---	---	---
University of Graz	14	---	---	---	---	---	---	---
Leipzig University	10	45	---	---	---	---	---	---
University of Lyon	39	6	28	---	---	---	---	---
University of Minho	48	3	8	19	---	---	---	---
University of Padua	78	52	81	129	30	---	---	---
Vilnius University	14	2	49	44	18	84	---	---
University of Wroclaw	23	8	5	28	5	11	13	---

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.



Individual collaboration profile



Tabla 32. Collaboration matrix GRANADA
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Sciences	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2012-2021				
University of Graz	9	13	22	1
University of Leipzig	9	11	6	7
University of Lyon	37	18	53	2
University of Minho	32	29	1455	12
University of Padua	26	50	279	32
University of Vilnius	6	8	15	14
University of Wroclaw	1	21	24	9
2017-2021				
University of Graz	8	13	13	1
University of Leipzig	1	8	6	3
University of Lyon	22	13	38	2
University of Minho	18	23	651	4
University of Padua	16	36	120	24
University of Vilnius	2	7	11	9
University of Wroclaw	1	17	17	8



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

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2012-2021				
University of Graz	Obstetrics & Gynecology (3) Public, Environ. (3) Toxicology (2)	Environmental Sciences (3) Plant Sciences (2) Ecology (2)	Astronomy & Astr. (7) Physics, Part. & Fields (3) Water Resources (1)	---
Leipzig University	Public, Environ. (4) Surgery (1) Obstetrics & Gynecology (1)	Biochemistry & Mol. (2) Ecology (2) Biodiversity Conserv. (1)	Chemistry, Mult. (1) Crystallography (1) Materials Science, Mult. (1)	Psychology, Exper. (2) Psychiatry (1) Social Issues (1)
University of Lyon	Nutrition & Dietetics (14) Oncology (11) Hematology (5)	Cell Biology (2) Biology (2) Ecology (2)	Astronomy & Astr. (12) Geosciences, Mult. (5) Physic, Mult. (4)	Psychology, Clinical (1) Psychology, Bio. (1)
University of Minho	Oncology (15) Hematology (9) Public, Environ. (3)	Genetic & Heredity (3) Cell Biology (3) Immunology (3)	Physics, Particles & Fields (796) Astronomy & Astr. (321) Physics, Nuclear (202)	Art (4) Archaeology (4) Psychology, Clinical (1)
University of Padua	Public, Environ. (6) Medicine, Legal (4) Oncology (3)	Genetics & Heredity (6) Biochemistry & Mol. (5) Chemistry, Medicinal (5)	Astronomy & Astr. (149) Physics, Part. & Fields (22) Geochemistry & Geo. (15)	Psychology, Exper. (7) Psychology, Mult. (4) Psychiatry (2)
Vilnius University	Medicine, Legal (4) Dentistry, Oral Sur. (1) Oncology (1)	Biology (2) Behavioral Sciences (1) Biotech. & Applied Microb. (1)	Physics, Part. & Fields (4) Astronomy & Astr. (2) Computer Science, Infor. (2)	Psychiatry (5) Social Sciences, Bio. (3) Psychology, Mult. (2)
University of Wroclaw	Public, Environmental & Occup. Health (1)	Biochemistry & Molecular Biology (5) Ecology (3) Plant Sciences (2)	Chemistry, Inorganic & Nuclear (8) Chemistry, Mult. (6) Astronomy & Astrophysics (4)	Psychology, Social (3) Psychology, Multidisciplinary (2) Psychology, Applied (1)
2017-2021				
University of Graz	Public, Environ. (3) Obstetrics & Gynecology (2) Toxicology (2)	Environmental Sciences (3) Plant Sciences (2) Ecology (2)	Astronomy & Astr. (3) Physics, Part. & Fields (2) Water Resources (1)	---
Leipzig University	Obstetrics & Gynecology (1) Reproductive Biology (1) Surgery (1)	Biochemistry & Mol. (2) Ecology (2) Biodiversity Conserv. (1)	Chemistry, Mult. (1) Crystallography (1) Materials Science, Mult. (1)	Psychiatry (1) Psychology, Social (1) Social Issues (1)
University of Lyon	Nutrition & Dietetics (14) Oncology (4) Public, Environ. (2)	Environmental Sciences (2) Biology (2) Cell Biology (1)	Astronomy & Astr. (12) Physic, Multidisc. (3) Geosciences, Multidisc (3)	Psychology, Clinical (1) Psychology, Bio. (1)
University of Minho	Oncology (9) Hematology (5) Public, Environ. (1)	Environmental Sciences (3) Pharmacology & Pharmacy (3) Cell Biology (2)	Physics, Particles & Fields (369) Astronomy & Astr. (130) Physics, Nuclear (91)	Psychology, Clinical (1) Social Sciences, Bio. (1) Psychology, Bio. (1)
University of Padua	Public, Environ. (4) Medicine, Rsearch & Experimental (2) Oncology (1)	Cell Biology (4) Biochemistry & Mol. (3) Chemistry, Medicinal (3)	Astronomy & Astr. (38) Physics, Part. & Fields (21) Geochemistry & Geo. (7)	Psychiatry (2) Psychology, Mult. (4) Psychology, Social (2)
Vilnius University	Dentistry, Oral Sur. (1) Oncology (1)	Biology (2) Behavioral Sciences (1) Biotech. & Applied Microb. (1)	Physics, Part. & Fields (3) Astronomy & Astr. (2) Computer Science, Infor. (1)	Psychiatry (2) Psychology, Mult. (2) Psychology, Social (2)
University of Wroclaw	Public, Environmental & Occup. Health (1)	Ecology (3) Behavioral Sciences (2) Plant Sciences (2)	Chemistry, Mult. (6) Astronomy & Astr. (3) Chemistry, Inorganic & Nuclear (2)	Psychology, Social (3) Psychology, Applied (1) Social Sciences, Bio. (1)



Tabla 34. Collaboration matrix GRAZ
bold> CNCI > 1,25

Web of Science Category	Health Sciences	Life Sciences	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2012-2021				
University of Granada	9	13	22	1
University of Leipzig	26	39	19	11
University of Lyon	3	12	9	2
University of Minho	1	5	---	---
University of Padua	16	53	34	25
University of Vilnius	2	1	4	3
University of Wroclaw	---	15	3	4
2017-2021				
University of Granada	8	13	13	1
University of Leipzig	14	32	10	11
University of Lyon	---	8	7	---
University of Minho	1	4	---	---
University of Padua	14	39	18	19
University of Vilnius	2	---	3	2
University of Wroclaw	---	12	3	4



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

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2012-2021				
University of Granada	Obstetrics & Gynecology (2) Public, Environ. (2) Toxicology (2)	Environmental Sciences (2) Ecology (1) Food Science & Tech. (1)	Chemistry, Physical (5) Astronomy & Astr. (4) Materials Science, Mult. (3)	---
Leipzig University	Dermatology (3) Surgery (3) Oncology (2)	Biochemistry & Mol. (4) Ecology (3) Neurosciences (3)	Geosciences, Mult. (7) Mathematics, Applied (3) Paleontology (2)	Psychology (1) Psychology, Applied (1) Psychology, Exper. (1)
University of Lyon	Oncology (2) Dermatology (1)	Cell Biology (3) Neurosciences (2) Genetics & Heredity (1)	Nanoscience & Nanot. (2) Materials Science, Multidisciplinary (2) Chemistry, Physical (2)	Environmental Studies (1) Business, Finance (1)
University of Minho	Public, Environmental & Occupational Health (1)	Cell Biology (3) Microbiology (1) Environmental Sciences (1)	---	---
University of Padua	Nutrition & Dietetics (5) Obstetrics & Gynecology (4) Pediatrics (2)	Endocrinology & Met. (10) Biochemistry & Mol. (6) Cell Biology (6)	Astronomy & Astr. (9) Chemistry, Physical (3) Materials Science, Mult. (2)	Psychology, Exper. (4) Psychology, Mult. (3) Psychology (2)
Vilnius University	---	Cell Biology (1)	Astronomy & Astr. (3)	Psychology, Mult. (1)
University of Wroclaw	---	Ecology (6) Plant Sciences (4) Forestry (3)	Astronomy & Astr. (2) Geography, Physical (1)	Psychology, Social (1) Psychology, Mult. (1) Psychology, Bio. (1)
2017-2021				
University of Granada	Obstetrics & Gynecology (2) Public, Environ. (2) Toxicology (2)	Environmental Sciences (2) Ecology (1) Food Science & Tech. (1)	Astronomy & Astr. (4) Physics, Part. & Fields (1) Water Resources (1)	---
Leipzig University	Oncology (2) Dermatology (1) Anesthesiology (1)	Biochemistry & Mol. (4) Ecology (3) Neurosciences (2)	Geosciences, Mult. (5) Paleontology (1) Green & Sust. (1)	Linguistics (1) Psychology (1) Psychology, Applied (1)
University of Lyon	---	Neurosciences (2) Behavioral Sciences (1) Genetics & Heredity (1)	Materials Science, Mult. (2) Nanoscience & Nanot. (2)	---
University of Minho	Public, Environmental & Occupational Health (1)	Cell Biology (2) Microbiology (1) Environmental Sciences (1)	---	---
University of Padua	Nutrition & Dietetics (5) Obstetrics & Gynecology (3) Pediatrics (2)	Endocrinology & Met. (10) Biochemistry & Mol. (4) Cell Biology (4)	Astronomy & Astr. (5) Chemistry, Physical (1) Materials Science, Mult. (1)	Psychology, Exper. (2) Psychology, Mult. (2) Music (2)
Vilnius University	---	---	Astronomy & Astr. (2)	---
University of Wroclaw	---	Ecology (5) Plant Sciences (3) Forestry (2)	Astronomy & Astr. (2) Geography, Physical (1)	Psychology, Social (1) Psychology, Mult. (1) Psychology, Bio. (1)



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

Web of Science Category	Health Sciences	Life Sciences	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2012-2021				
University of Granada	9	11	6	7
University of Graz	26	39	19	11
University of Lyon	30	39	8	2
University of Minho	3	6	---	4
University of Padua	103	44	15	7
University of Vilnius	34	30	42	3
University of Wroclaw	5	7	5	2
2017-2021				
University of Granada	1	8	6	3
University of Graz	14	32	10	11
University of Lyon	9	22	5	---
University of Minho	3	6	---	2
University of Padua	72	34	6	7
University of Vilnius	31	24	20	3
University of Wroclaw	1	5	2	2



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

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2012-2021				
University of Granada	Public, Environ. (4) Surgery (1) Obstetrics & Gynecology (1)	Biochemistry & Molecular Biology (2) Ecology (2) Genetics & Heredity (2)	Crystallography (1) Materials Science, Mult. (1) Mathematics, Applied (1)	Psychology, Exper. (2) Psychiatry (1) Psychology, Social (1)
University of Graz	Surgery (4) Orthopedics (3) Urology & Nephrology (2)	Biochemistry & Mol. (7) Ecology (7) Neurosciences (6)	Geosciences, Mult. (8) Mathematics, Applied (3) Geography, Physical (2)	Psychology, Exper. (3) Psychology, Bio. (2) Psychology, Applied (1)
University of Lyon	Oncology (13) Public, Environmental & Occup. Health (3) Radiology, Nuclear. (3)	Genetics & Heredity (16) Ecology (6) Neurosciences (4)	Materials Sciences, Mult. (2) Geography, Physical (1) Geosciences, Mult. (1)	Psychiatry (2)
University of Minho	Public, Environ. (1) Pathology (1) Gastroent. & Hepatology (1)	Neurosciences (2) Genetic & Hereditary (1) Virology (1)	---	Psychiatry (1) History (1) Communication (1)
University of Padua	Cardiac & Cardio. (25) Radiology, Nuclear. (15) Oncology (11)	Genetics & Heredity (15) Pharmacology & Phar. (4) Immunology (4)	Physics, Mathematical (4) Physics, Fluids & Plasmas (3) Astronomy & Astr. (2)	Psychiatry (3) Psychology, Exper. (1) Psychology, Bio. (1)
Vilnius University	Cardiac & Cardio. (13) Oncology (6) Gastroenterology & Hep. (3)	Ecology (6) Environmental Sciences (3) Genetics & Heredity (2)	Chemistry, Physical (12) Materials Science, Mult. (11) Nanoscience & Nanot. (10)	Psychiatry (3)
University of Wroclaw	Tropical Medicine (2) Public, Environ. (1) Infections Diseases (1)	Parasitology (2) Ecology (2) Evolutionary Biology (1)	Chemistry, Inorganic & Nuclear (4) Geography, Physical (1)	Psychology, Exper. (1) Psychology, Biological (1)
2017-2021				
University of Granada	Surgery (1)	Biochemistry & Mol. (2) Ecology (2) Biodiversity Conserv. (1)	Crystallography (1) Materials Science, Mult. (1) Mathematics, Applied (1)	Psychology, Exper. (2) Psychiatry (1) Psychology, Social (1)
University of Graz	Oncology (2) Orthopedics (2) Medicine, Legal (2)	Biochemistry & Mol. (7) Ecology (5) Neurosciences (5)	Geosciences, Mult. (4) Chemistry, Analytical (1) Meteorology & Atm. (1)	Psychology, Exper. (3) Psychology, Bio. (2) Psychology, Applied (1)
University of Lyon	Oncology (3) Obstetrics & Gynecology (1) Urology & Nephrology (1)	Genetics & Heredity (6) Ecology (3) Clinical Neurology (3)	Materials Sciences, Mult. (2) Logic (1) Crystallography (1)	---
University of Minho	Public, Environ. (1) Pathology (1) Gastroenterology & Hepatology (1)	Neurosciences (2) Genetic & Hereditary (1) Virology (1)	---	Psychiatry (1) History (1)
University of Padua	Cardiac & Cardio. (20) Radiology, Nuclear. (11) Oncology (8)	Genetics & Heredity (11) Pharmacology & Phar. (4) Clinical Neurology (2)	Astronomy & Astr. (2) Physics, Condens. (1) Optics (1)	Psychiatry (3) Psychology, Exper. (1) Psychology, Bio. (1)
Vilnius University	Cardiac & Cardio. (13) Oncology (4) Gastroenterology & Hep. (3)	Ecology (5) Environmental Sciences (3) Immunology (2)	Chemistry, Physical (6) Materials Science, Mult. (5) Nanoscience & Nanot. (4)	Psychiatry (3)
University of Wroclaw	Tropical Medicine (1)	Ecology (2) Evolutionary Biology (1) Neurosciences (1)	Chemistry, Inorganic & Nuclear (1) Geography, Physical (1)	Psychology, Exper. (1) Psychology, Bio. (1)



Tabla 38. Collaboration matrix LYON
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Sciences	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2012-2021				
University of Granada	37	18	53	2
University of Graz	3	12	9	2
Leipzig University	30	39	8	2
University of Minho	28	13	35	2
University of Padua	71	72	2467	10
Vilnius University	12	9	1530	1
University of Wroclaw	5	7	5	2
2017-2021				
University of Granada	22	13	38	2
University of Graz	---	8	7	---
Leipzig University	9	22	5	---
University of Minho	13	7	15	2
University of Padua	54	46	1324	8
Vilnius University	6	6	790	1
University of Wroclaw	1	5	2	2



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

Web of Science Category	Health Sciences	Life Sciences	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2012-2021				
University of Granada	Nutrition & Dietetics (14) Oncology (11) Hematology (5)	Cell Biology (2) Biology (2) Ecology (2)	Astronomy & Astr. (12) Geosciences, Mult. (5) Physic, Mult. (4)	Psychology, Clinical (1) Psychology, Bio. (1)
University of Graz	Oncology (2) Dermatology (1)	Cell Biology (3) Neurosciences (2) Behavioral Sciences (1)	Nanosc. & Nanotech. (2) Material Sci., Mult. (2) Chemistry, Physical (2)	Environmental Studies (1) Business, Finance (1)
Leipzig University	Oncology (13) Public, Environmental & Occup. Health (3) Radiology, Nuclear. (3)	Genetics & Heredity (16) Ecology (6) Neurosciences (4)	Materials Sciences, Mult. (2) Geography, Physical (1) Geosciences, Mult. (1)	Psychiatry (2)
University of Minho	Oncology (10) Hematology (5) Allergy (4)	Cell Biology (3) Biochem. & Mole. Biol. (2) Immunology (2)	Engin., Electr. & Electron. (4) Physics, Part. & Fields (3) Engineering, Biomedical (3)	Psychology, Clinical (1) Psychiatry (1)
University of Padua	Oncology (21) Respiratory System (9) Gastroent. & Hepatology (7)	Genetic & Hereditary (9) Bioch. & Molec. Biology (9) Neurosciences (8)	Phys, Part. & Fields (1084) Astronomy & Astr. (642) Physics, Nuclear (412)	Psychology, Exper. (4) History & Philosophy of Science (2) Psychology, Clinical (1)
Vilnius University	Allergy (4) Oncology (2) Respiratory System (1)	Genetics & Heredity (3) Immunology (2) Cell Biology (1)	Physic, Part. & Fields (789) Astronomy & Astr. (331) Physics, Nuclear (241)	Psychology, Clinical (1)
University of Wroclaw	Tropical Medicine (2) Public, Environmental & Occup. (1) Infectious Diseases (1)	Parasitology (2) Ecology (2) Evolutionary Biology (1)	Chemistry, Inorganic & Nuclear (4) Geography, Physical (1)	Psychology, Exper. (1) Psychology, Bio. (1)
2017-2021				
University of Granada	Nutrition & Dietetics (14) Oncology (4) Public, Environ. (2)	Environmental Sciences (2) Biology (2) Cell Biology (1)	Astronomy & Astr. (12) Physic, Multidisc. (3) Geosciences, Multidisc (3)	Psychology, Clinical (1) Psychology, Bio. (1)
University of Graz	---	Neurosciences (2) Behavioral Sciences (1) Physiology (1)	Materials Science, Mult. (2) Nanosc. & Nanotech. (2) Chemistry, Physical (2)	---
Leipzig University	Oncology (3) Obstetrics & Gynecology (1) Urology & Nephrology (1)	Genetics & Heredity (6) Ecology (3) Clinical Neurology (3)	Materials Sciences, Mult. (2) Logic (1) Crystallography (1)	---
University of Minho	Oncology (4) Allergy (2) Health Care Scie. & Serv. (1)	Immunology (2) Cell Biology (1) Clinical Neurology (1)	Materials Sciences, Mult. (2) Physics, Part. & Fields (2) Medical Informatics (1)	Psychology, Clinical (1) Psychiatry (1)
University of Padua	Oncology (17) Respiratory System (7) Hematology (4)	Biochemistry & Molecular Biology (7) Genetics & Heredity (6) Neurosciences (5)	Physics, Part. & Fields (572) Astronomy & Astr. (351) Physics, Nuclear (215)	Psychology, Exper. (4) Psychology, Clinical (1) Psychology, Mathematical (1)
Vilnius University	Allergy (2) Urology & Nephrology (1) Geriatrics & Gerontology (1)	Immunology (2) Genetics & Heredity (2) Pharmacology & Pharmacy (1)	Physics, Part. & Fields (414) Astronomy & Astr. (155) Physics, Nuclear (122)	Psychology, Clinical (1)
University of Wroclaw	Tropical Medicine (1)	Ecology (2) Evolutionary Biology (1) Neurosciences (1)	Geography, Physical (1) Chemistry, Inorganic & Nuclear (1)	Psychology, Exper. (1) Psychology, Bio. (1)



Tabla 40. Collaboration matrix MINHO
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Sciences	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2012-2021				
University of Granada	32	29	1455	12
University of Graz	1	5	---	---
Leipzig University	3	6	---	4
University of Lyon	28	13	35	2
University of Padua	14	18	42	6
Vilnius University	20	10	10	9
University of Wroclaw	---	14	7	2
2017-2021				
University of Granada	18	23	651	4
University of Graz	1	4	---	---
Leipzig University	3	6	---	2
University of Lyon	13	7	15	2
University of Padua	11	16	24	5
Vilnius University	14	8	7	6
University of Wroclaw	---	10	1	2



Tabla 41. Collaboration matrix MINHO
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Sciences	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2012-2021				
University of Granada	Oncology (15) Hematology (9) Public, Environ. (3)	Genetic & Heredity (3) Cell Biology (3) Immunology (3)	Physics, Part. & Fields (796) Astronomy & Astr. (321) Physics, Nuclear (202)	Art (4) Archaeology (4) Psychology, Clinical (1)
University of Graz	Public, Environmental & Occup. Health (1)	Cell Biology (3) Microbiology (1) Environmental Sciences (1)	---	---
Leipzig University	Gastroenterology & Hepatology (1) Public., Environ. & Occup. Health (1) Pathology (1)	Neurosciences (2) Genetic & Heredity (1) Virology (1)	---	Psychiatry (1) History (1) Communication (1)
University of Lyon	Oncology (10) Hematology (5) Allergy (4)	Cell Biology (3) Biochem. & Mole. Biol. (2) Immunology (2)	Engin., Electr. & Electron. (4) Physics, Part. & Fields (3) Engineering, Biomedical (3)	Psychology, Clinical (1) Psychiatry (1)
University of Padua	Allergy (10) Pathology (2) Urology & Nephrology (1)	Immunology (7) Cell Biology (3) Food Science & Tech. (2)	Construction & Building Tec. (7) Engineering, Civil (6) Materials Science, Mult. (5)	Psychology, Clinical (2) Psychiatry (2) Communication (1)
Vilnius University	Allergy (14) Peripheral Vascular Disease (2) Cardiac & Cardiovascular Systems (2)	Immunology (8) Behavioral Sciences (1) Genetics & Heredity (1)	Physics, Part. & Fields (4) Physics, Multidisciplinary (2) Polymer Science (1)	Psychology, Clinical (2) Psychology, Developmental (2) Psychology, Multidisciplinary (1)
University of Wroclaw	---	Biotechnology & Applied Microbiology (3) Mycology (2) Microbiology (2)	Chemistry, Inorg. & Nuc. (1) Physics, Atomic, Molecular & Chemical (1) Materials Science, Mult. (1)	Social Sciences, Bio. (1) Psychology, Bio. (1)
2017-2021				
University of Granada	Oncology (9) Hematology (5) Public, Environ. (1)	Environmental Sciences (3) Pharmacology & Pharmacy (3) Cell Biology (2)	Physics, Part. & Fields (369) Astronomy & Astr. (130) Physics, Nuclear (91)	Psychology, Clinical (1) Social Sciences, Bio. (1) Psychology, Bio. (1)
University of Graz	Public, Environmental & Occup. Health (1)	Cell Biology (2) Microbiology (1) Environmental Sciences (1)	---	---
Leipzig University	Public, Environmental & Occup. Health (1) Pathology (1) Gastroenterology & hepatology (1)	Neurosciences (2) Genetic & Heredity (1) Virology (1)	---	Psychiatry (1) History (1)
University of Lyon	Oncology (4) Allergy (2) Health Care Scie. & Serv. (1)	Immunology (2) Cell Biology (1) Clinical Neurology (1)	Materials Sciences, Mult. (2) Physics, Part. & Fields (2) Medical Informatics (1)	Psychology, Clinical (1) Psychiatry (1)
University of Padua	Allergy (7) Pathology (2) Urology & Nephrology (1)	Immunology (6) Food Science & Tech. (2) Cell Biology (2)	Physics, Particles & Fields (4) Engineering, Civil (4) Materials Science, Comp. (3)	Psychology, Clinical (2) Psychiatry (2) Environmental Studies (1)
Vilnius University	Allergy (11) Nutrition & Dietetics (1) Peripheral Vascular Disease (1)	Immunology (7) Behavioral Sciences (1)	Physics, Particles & Fields (3) Materials Science, Mult. (1) Physics, Multidisciplinary (1)	Psychology, Developmental (2) Psychology, Clinical (2) Social Sciences, Bio. (1)
University of Wroclaw	---	Biotechnology & Applied Microbiology (3) Mycology (2) Microbiology (2)	Chemistry, Inorganic & Nuclear (1)	Social Sciences, Bio. (1)



Tabla 42. Collaboration matrix PADUA
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Sciences	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2012-2021				
University of Granada	26	50	279	32
University of Graz	16	53	34	25
Leipzig University	103	44	15	7
University of Lyon	71	72	2467	10
University of Minho	14	18	42	6
Vilnius University	92	28	1587	7
University of Wroclaw	1	8	509	5
2017-2021				
University of Granada	16	36	120	24
University of Graz	14	39	18	19
Leipzig University	72	34	6	7
University of Lyon	54	46	1324	8
University of Minho	11	16	24	5
Vilnius University	69	17	847	4
University of Wroclaw	---	6	356	5



Tabla 43. Collaboration matrix PADUA
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2012-2021				
University of Granada	Public, Environ. (6) Medicine, Legal (4) Oncology (3)	Genetics & Heredity (6) Chemistry, Medicinal (5) Biochemistry & Mol. (5)	Astronomy & Astr. (149) Physics, Part. & Fields (22) Geochemistry & Geo. (15)	Psychology, Exper. (7) Psychology, Mult. (4) Psychology, Social (3)
University of Graz	Nutrition & Dietetics (5) Obstetrics & Gynecology (5) Pediatrics (2)	Endocrinology & Met. (10) Cell Biology (9) Biochemistry & Mol. (8)	Astronomy & Astr. (10) Chemistry, Physical (3) Materials Science, Mult. (2)	Psychology, Exper. (6) Psychology, Mult. (4) Music (4)
Leipzig University	Cardiac & Cardio. (25) Radiology, Nuclear. (15) Oncology (11)	Genetics & Heredity (15) Endocrinology & Met. (4) Pharmacology & Phar. (4)	Physics, Mathematical (4) Physics, Fluids & Plasmas (3) Astronomy & Astr. (2)	Psychiatry (3) Psychology, Exper. (1) Psychology, Bio. (1)
University of Lyon	Oncology (21) Respiratory System (9) Gastroenterology & Hep. (7)	Biochemistry & Mol. (10) Genetics & Heredity (9) Neurosciences (8)	Physics, Part. & Fields (1085) Astronomy & Astr. (676) Physics, Nuc. (412)	Psychology, Exper. (4) History & Philo. (2) Psychology, Clinical (1)
University of Minho	Allergy (10) Pathology (2) Urology & Nephrology (1)	Immunology (7) Cell Biology (3) Food Science & Tech. (2)	Construction & Building Tec. (7) Engineering, Civil (6) Materials Science, Mult. (5)	Psychology, Clinical (2) Psychiatry (2) Communication (1)
Vilnius University	Allergy (20) Urology & Nephrology (14) Pediatrics (13)	Immunology (17) Genetics & Heredity (4) Cell Biology (2)	Physics, Part. & Fields (813) Astronomy & Astr. (394) Physics, Nuc. (242)	Psychiatry (1) Psychology, Clinical (1) Psychology (1)
University of Wroclaw	Urology & Nephrology (1)	Neurosciences (1) Forestry (1) Entomology (1)	Physics, Part. & Fields (196) Physics, Nuclear (137) Astronomy & Astr. (116)	Psychology, Exper. (1) Psychology, Bio. (1) Psychology (1)
2017-2021				
University of Granada	Public, Environ. (4) Medicine, Research & Experimental (2) Medicine, General & Int. (1)	Genetics & Heredity (5) Cell Biology (4) Biology (3)	Astronomy & Astr. (38) Physics, Part. & Fields (21) Physics, Mult. (6)	Psychology, Mult. (4) Psychiatry (2) Psychology (2)
University of Graz	Nutrition & Dietetics (5) Obstetrics & Gynecology (4) Pediatrics (2)	Endocrinology & Met. (9) Biochemistry & Mol. (5) Cell Biology (5)	Astronomy & Astr. (5) Chemistry, Mult. (2) Geosciences, Mult. (2)	Music (4) Psychology, Exper. (4) Psychology, Mult. (4)
Leipzig University	Oncology (17) Respiratory System (7) Gastroenterology & Hep. (4)	Biochemistry & Mol. (7) Genetics & Heredity (6) Endocrinology & Met. (5)	Astronomy & Astr. (2) Physics, Condens. (1) Optics (1)	Psychiatry (3) Psychology, Exper. (1) Psychology, Bio. (1)
University of Lyon	Oncology (17) Respiratory System (7) Gastroenterology & Hep. (4)	Biochemistry & Mol. (7) Genetic & Heredity (6) Endocrinology & Met. (5)	Physics, Part. & Fields (572) Astronomy & Astr. (379) Physics, Nuc. (215)	Psychology, Exper. (4) Psychology, Clinical (1) Psychology, Mathe. (1)
University of Minho	Allergy (7) Pathology (2) Urology & Nephrology (1)	Immunology (6) Food Science & Tech. (2) Cell Biology (2)	Physics, Particles & Fields (4) Engineering, Civil (4) Materials Science, Composites (3)	Psychology, Clinical (2) Psychiatry (2) Environmental Studies (1)
Vilnius University	Urology & Nephrology (13) Allergy (12) Pediatrics (9)	Immunology (10) Genetics & Heredity (4) Cell Biology (1)	Physics, Part. & Fields (440) Astronomy & Astr. (202) Physics, Nuc. (123)	Psychiatry (1) Psychology, Clinical (1) Psychology (1)
University of Wroclaw	---	Neurosciences (1) Forestry (1) Entomology (1)	Physics, Part. & Fields (135) Physics, Nuclear (108) Astronomy & Astr. (79)	Psychology, Exper. (1) Psychology, Bio. (1) Psychology (1)



Tabla 44. Collaboration matrix VILNIUS
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Sciences	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2012-2021				
University of Granada	6	8	15	14
University of Graz	2	1	4	3
University of Leipzig	34	30	42	3
University of Lyon	12	9	1530	1
University of Minho	20	10	10	9
University of Padua	92	28	1587	7
University of Wroclaw	---	7	8	9
2017-2021				
University of Granada	2	7	11	9
University of Graz	2	---	3	2
University of Leipzig	31	24	20	3
University of Lyon	6	6	790	1
University of Minho	14	8	7	6
University of Padua	69	17	847	4
University of Wroclaw	---	5	8	9



Tabla 45. Collaboration matrix VILNIUS
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2012-2021				
University of Granada	Medicine, Legal (4) Dentistry, Oral Sur. (1) Oncology (1)	Biology (2) Biochemistry & Mol. (1) Behavioral Sciences (1)	Physics, Part. & Fields (4) Astronomy & Astr. (2) Computer Science, Infor. (2)	Psychiatry (5) Social Sciences, Bio. (3) Psychology, Mult. (2)
University of Graz	Health Care Sciences & Services (1) Nutrition & Dietetics (1)	Cell Biology (1)	Astronomy & Astr. (3) Medical Informatics (1)	Psychiatry (1) Psychology, Clinical (1) Psychology, Mult. (1)
Leipzig University	Cardiac & Cardio. (13) Oncology (6) Gastroenterology & Hep. (3)	Ecology (6) Environmental Sciences (3) Genetics & Heredity (2)	Chemistry, Physical (12) Materials Science, Mult. (11) Nanoscience & Nanot. (10)	Psychiatry (3)
University of Lyon	Allergy (4) Oncology (2) Respiratory System (1)	Genetics & Heredity (3) Immunology (2) Cell Biology (1)	Physics, Part. & Fields (789) Astronomy & Astr. (331) Physics, Nuc. (241)	Psychology, Clinical (1)
University of Minho	Allergy (14) Peripheral Vascular Disease (2) Cardiac & Cardiovascular Systems (2)	Immunology (8) Behavioral Sciences (1) Genetics & Heredity (1)	Physics, Part. & Fields (4) Physics, Multidisciplinary (2) Polymer Science (1)	Psychology, Clinical (2) Psychology, Developmental (2) Psychology, Multidisciplinary (1)
University of Padua	Allergy (20) Urology & Nephrology (14) Pediatrics (13)	Immunology (17) Genetics & Heredity (4) Cell Biology (2)	Physics, Part. & Fields (813) Astronomy & Astr. (394) Physics, Nuc. (242)	Psychiatry (1) Psychology, Clinical (1) Psychology (1)
University of Wroclaw	---	Genetic & Heredity (1) Behavioral Sciences (1) Ecology (1)	Chemistry, Inorganic & Nuclear (2) Astronomy & Astr. (2) Geosciences, Mult. (2)	Psychology, Social (2) Political Science (1) Social Sciences, Bio. (1)
2017-2021				
University of Granada	Dentistry, Oral Sur. (1) Oncology (1)	Biology (2) Behavioral Sciences (1) Biotech. & Applied Microb. (1)	Physics, Part. & Fields (3) Astronomy & Astr. (2) Engineering, Electrical & Electronic (1)	Psychiatry (2) Psychology, Mult. (2) Psychology Social (2)
University of Graz	Health Care Sciences & Services (1) Nutrition & Dietetics (1)	---	Astronomy & Astr. (2) Medical Informatics (1)	Psychiatry (1) Psychology, Clinical (1)
Leipzig University	Cardiac & Cardio. (13) Oncology (4) Gastroenterology & Hep. (3)	Ecology (5) Evolutionary Sciences (3) Immunology (2)	Chemistry, Physical (6) Materials Science, Mult. (5) Nanoscience & Nanot. (4)	Psychiatry (3)
University of Lyon	Allergy (2) Urology & Nephrology (1) Geriatrics & Gerontology (1)	Genetics & Heredity (2) Immunology (2) Pharmacology & Phar. (1)	Physics, Part. & Fields (414) Astronomy & Astr. (155) Physics, Nuc. (122)	Psychology, Clinical (1)
University of Minho	Allergy (11) Nutrition & Dietetics (1) Peripheral Vascular Disease (1)	Immunology (7) Behavioral Sciences (1)	Physics, Part. & Fields (3) Materials Science, Mult. (1) Physics, Multidisciplinary (1)	Psychology, Developmental (2) Psychology, Clinical (2) Social Sciences, Bio. (1)
University of Padua	Urology & Nephrology (12) Allergy (11) Cardiac & Cardio. (5)	Immunology (9) Genetics & Heredity (3) Cell Biology (1)	Physics, Part. & Fields (381) Astronomy & Astr. (175) Physics, Nuc. (112)	Psychiatry (1) Psychology, Clinical (1) Psychology (1)
University of Wroclaw	---	Behavioral Sciences (1) Ecology (1) Evolutionary Biology (1)	Chemistry, Inorg. & Nuc. (2) Astronomy & Astr. (2) Geosciences, Mult. (2)	Psychology, Social (2) Political Science (1) Social Sciences, Bio. (1)



Tabla 46. Collaboration matrix WROCLAW
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Sciences	Physical / Engineering Sciences	Social Sciences / Humanities
Number of documents				
2012-2021				
University of Granada	1	21	24	9
University of Graz	---	15	3	4
University of Leipzig	5	7	5	2
University of Lyon	1	2	461	1
University of Minho	---	14	7	2
University of Padua	1	8	509	5
2017-2021				
University of Granada	1	17	17	8
University of Graz	---	12	3	4
University of Leipzig	1	5	2	2
University of Lyon	1	2	265	1
University of Minho	---	10	1	2
University of Padua	---	6	356	5



Tabla 47. Collaboration matrix WROCLAW
bold > CNCI > 1,25

Web of Science Category	Health Sciences	Life Science	Physical / Engineering Sciences	Social Sciences / Humanities
Main fields				
2012-2021				
University of Granada	Public, Environmental & Occup. Health (1)	Biochemistry & Molecular Biology (5) Ecology (3) Plant Sciences (2)	Chemistry, Inorganic & Nuclear (8) Chemistry, Mult. (6) Astronomy & Astrophysics (4)	Psychology, Social (3) Psychology, Mult. (2) Psychology, Applied (1)
University of Graz	---	Ecology (6) Plant Sciences (4) Forestry (3)	Astronomy & Astr. (2) Geography, Physical (1)	Psychology, Social (1) Psychology, Mult. (1) Psychology, Bio. (1)
Leipzig University	Tropical Medicine (2) Public, Environ. (1) Infections Diseases (1)	Parasitology (2) Ecology (2) Evolutionary Biology (1)	Chemistry, Inorganic & Nuclear (4) Geography, Physical (1)	Psychology, Exper. (1) Psychology, Bio. (1)
University of Lyon	Public, Environmental & Occup. Health (1)	Developmental Biology (1) Cell Biology (1)	Physics, Particles & Fields (160) Physics, Nuclear (96) Astronomy & Astr. (84)	Psychology, Experimental (1)
University of Minho	---	Biotechnology & Applied Microbiology (3) Mycology (2) Microbiology (2)	Chemistry, Inorganic & Nuclear (1) Physics, Atomic, Molecular & Chemical (1) Materials Science, Mult. (1)	Social Sciences, Bio. (1) Psychology, Bio. (1)
University of Padua	Urology & Nephology (1)	Neurosciences (1) Forestry (1) Entomology (1)	Physics, Particles & Fields (196) Physics, Nuclear (137) Astronomy & Astr. (116)	Psychology, Exper. (1) Psychology, Bio. (1) Psychology (1)
2017-2021				
University of Granada	Public, Environmental & Occup. Health (1)	Ecology (3) Behavioral Sciences (2) Plant Sciences (2)	Chemistry, Mult. (6) Astronomy & Astr. (3) Chemistry, Inorg. & Nuc. (2)	Psychology, Social (3) Psychology, Applied (1) Social Sciences, Bio. (1)
University of Graz	---	Ecology (5) Plant Sciences (3) Forestry (2)	Astronomy & Astr. (2) Geography, Physical (1)	Psychology, Social (1) Psychology, Mult. (1) Psychology, Bio. (1)
Leipzig University	Tropical Medicine (1)	Ecology (2) Evolutionary Biology (1) Neurosciences (1)	Chemistry, Inorg. & Nuc. (1) Geography, Physical (1)	Psychology, Exper. (1) Psychology, Bio. (1)
University of Lyon	Public, Environmental & Occup. Health (1)	Developmental Biology (1) Cell Biology (1)	Physics, Part. & Fields (96) Physics, Nuclear (65) Astronomy & Astr. (46)	Psychology, Exper. (1)
University of Minho	---	Biotechnology & Applied Microbiology (3) Mycology (2) Microbiology (2)	Chemistry, Inorg. & Nuclear (1)	Social Sciences, Bio. (1)
University of Padua	---	Neurosciences (1) Forestry (1) Entomology (1)	Physics, Part. & Fields (135) Physics, Nuclear (108) Astronomy & Astr. (79)	Psychology, Exper. (1) Psychology, Bio. (1) Psychology (1)

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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.