

Synthetic Indicators of Spanish Universities

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The ISSUE (acronym for *Indicadores Sintéticos del Sistema Universitario Español*, in English Synthetic Indicators of the Spanish University System) project, developed by the Ivie (The Valencian Institute of Economic Research) and the BBVA Foundation, is an essential part of a program of activities carried out by both institutions to document and analyze the role of knowledge in social and economic development. This report presents the basic products of the project, U-Ranking and U-Ranking Volume, including the methodology and results for 2020 (8th edition).

The approach of ISSUE, the selection of variables on which the rankings compiled are based and the methodology used when treating the data have been thoroughly discussed by the Ivie team with a large group of experts on the assessment of universities, university information and management. We would like to thank these specialists from fourteen universities for their invaluable collaboration.

We would also like to acknowledge the support of the Valencian public universities in the initial stages of the project and the suggestions made by members of different Spanish universities since the presentation of the first results in June 2013, which have been followed with interest by many people. From then until March 2020, the U-Ranking website has received almost one million hits, many of which have resulted in calculating personalized rankings (more than 185,000). As well, nearly 60,000 downloads have been made of the different editions of the report. In addition, the project is being followed with interest from abroad: 29% of the visits to the website come from outside of Spain, the majority from Latin America and the United States which jointly represent almost one-fourth of total foreign visits. Visits from major European countries such as United Kingdom, France, Germany and Italy also have significant percentages. These data provide a stimulus to maintain the continuity of the project while making improvements.

We would like to give special thanks to the collaboration of the IUNE Observatory¹ in regard to research and innovation and technological development data. As well as participating in meetings on the availability and suitability of various sources and the problems of their treatment, the IUNE Observatory, and specially the INAECU team, directed by Professor Elías Sanz-Casado, have provided complete Bibliometric data regarding the research of all Spanish universities (based on information provided by Thomson-Reuters), from which many of the indicators relating to research have been calculated.

Also, the U-Ranking team acknowledges the cooperation of the General Secretariat of Universities and, in particular, the General Sub-Directorate of University Research Activity of the Spanish Ministry of Universities, which this year again has provided us access to the Integrated System of University Information (SIIU). In addition, the Ivie team would like to acknowledge the assistance of the Spanish Ministry of Science and Innovation which, through the State Bureau of Investigation, has provided information on the research resources available to universities. The institutional collaboration of all these bodies demonstrates their commitment to transparency and accountability, which are key elements in a sector in which public and private investment is as high as it is in university education.

The Ivie also acknowledges the important contributions made by the following people in developing the methodology of the project:

¹ The IUNE Observatory is the result of work carried out by a group of researchers from the universities that make up the "Alianza 4U" (Universidad Carlos III de Madrid, Universidad Autónoma de Madrid, Universitat Autònoma de Barcelona and Universitat Pompeu Fabra). The general coordinator of IUNE is Elías Sanz-Casado, professor at the Department of Librarianship and Documentation of the Carlos III University Carlos III in Madrid and director of INAECU (Research Institute for Higher Education and Science).

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The results of the U-Ranking project are, therefore, the results of the collaboration of many people and institutions that share the same interest in analyzing the performance of Spanish universities and facilitating comparable and synthetic images of them. Nevertheless, the indicators presented and the resulting conclusions are the sole responsibility of the U-Ranking team.

1. Introduction

This report presents the results of the research undertaken by the Ivie to develop the 8th edition of Synthetic Indicators of the Spanish Public University System (ISSUE), based on an analysis of university teaching activities and research, innovation and technological development.

The developed indicators provide the basis for different rankings compiling of universities. The first of these rankings is U-Ranking, which analyzes the performance of the University System, synthesizing the universities' achievements in teaching, research, innovation and technological development in a single index. The fact that a smaller university achieves good results is relevant, but we should not ignore that their impact on their environment may be far smaller than a large university with less outstanding results. For example, a university with 100 faculty members that produces 100 patents is more productive than one with 1,000 members that produces 500 patents. However, 500 patents will have more impact on the economy than 100. For this reason we provide a second global ranking. the **U-Ranking Volume**. considers the combined effect of both variables. results and size, and classifies the universities according to their total contribution to the universities' missions. In addition to these two general rankings, we construct other more specific ones: U-Ranking Dimensions, focused on the classification of universities in two dimensions that make up the mission of the universities (teaching and research innovation). Also, U-Ranking Degrees ranks the degrees offered by the different universities. providing useful information to potential students for their decision making in the choice of a University.

All of these rankings are approximations of university results, allowing them to be compared from different perspectives. Through such comparisons, synthetic indicators assess their performance by answering to relevant questions, such as the following:

- Which Spanish universities are the most productive or efficient? Which achieve the greatest volume of results? Do the universities at the top of these rankings coincide?
- Do the positions of Spanish universities in international rankings meet the criteria in terms of volume of activity or in terms of output? Are the positions of Spanish universities in the U-Rankings correlated with the best-known international rankings such as that of Shanghai, QS or THE²?
- Do the universities with the best research and innovation results stand out for their teaching results? Are both results correlated?
- Do universities maintain their positions over time or do they vary?
- Are the general rankings on university activities as a whole similar to those obtained when comparing specific qualifications? Is the internal heterogeneity of universities high?

The 8th edition of U-Ranking poses some new questions related to the main mission of universities, namely, to achieve the highest graduate employability rates possible, by equipping their students with the skills, knowledge, abilities and capacities needed to obtain a job that matches their degree. This edition includes an analysis of the performance of university institutions in terms of graduate employability, taking into consideration three indicators: percentage of graduates affiliated to the Spanish Social Security system, percentage of university graduates hired according to their educational level and graduate's average annual salary for the National Insurance contribution

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 $^{^2}$ Academic Ranking of World Universities (ARWU), QS World University Rankings and Times Higher Education World University Rankings.

calculation. With this in mind, the document will address the following questions:

- What is the general situation in Spain of university graduates in terms of employability?
- Do differences exist in employability depending on the degree studies?
- Are there any differences in employability of graduates between public and private universities?
- Which universities have better graduate employability rates in general and in each area of study?
- Is there a correlation between the quality of teaching of the universities included in U-Ranking and employability rates?

Answering all these questions could be of great interest to keep an updated vision of the Spanish public university system, identifying the strengths and weaknesses of each institution that forms part of it from a comparative perspective, classifying the position of universities within the university system. That is the purpose of this project and report, as noted in other studies carried out by the Ivie and the BBVA Foundation (Pérez y Serrano [Dirs.] et al. 2012; Aldás [Dir.] et al. 2016; Escribá, Iborra and Safón 2019; Pérez [Dirs.] et al. 2018), the Spanish University system is far from being homogenous. Not acknowledging its heterogeneity makes it difficult to assess. Thus, this assessment requires that the different specialization and changing characteristics of each university are taken into account, as well as their real possibility of competing in different areas.

Rankings as synthetic indicators of results

The performance of Spanish universities receives constant attention, and debates about the exploitation of the resources used and their results are increasingly frequent. The driving force behind this interest are the significant amount of resources currently dedicated to these activities and the recognition of the important role universities play in generating and transmitting knowledge, two key areas in the social and economic development of countries today.

In Spain, discussions about university results frequently focus on public universities. There are two reasons for this: the volume of their activity accounts for most of the Spanish university system and the origin of the majority of the resources used is public; the assessment of their results is therefore considered to be of general interest. There is also a more practical reason. In Spain, traditionally, it has been more feasible to assess the resources and results of public universities based on relatively homogeneous data, because until recently most of the numerous private universities (currently 36³) did not provide the necessary data to carry out analyses. However, the participation of private universities in public statistics and information systems is increasing, and a project such as U-Ranking, which aims to provide an overall view of the Spanish university system, should take on the challenge of including these institutions. In this regard, recent editions of U-Ranking included in the ranking system private universities which provided sufficient information of adequate quality, so that the data would be homogeneous with that of public universities in order to construct synthetic indicators.

As will be explained further in detail in the methodology section, due to the impossibility of continuing the use of the CRUE database to construct some of the variables, other sources of information have been used in the 8th edition of U-Ranking. The database has been revised because of this change, allowing to increase the number of private universities analyzed from 14 to 22. Thus, this edition of the U-Ranking assesses 66.6% of Spanish private institutions. All the universities have information on at least 18 of the 20 indicators used to calculate the synthetic index.

The published rankings include a list of the private universities that are not included because of lack

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³ The Universidad Tecnología y Empresa is not offering any degrees at the moment. Thus, 35 out of 36 private universities have been active during the 2019-20 academic year. In this academic year, ESIC and CUNEF, which were previously considered centers attached to public universities, have been recognized as universities.

⁴ CUNEF and ESIC are not considered since they were approved during the current academic course, nor is the Universidad Tecnología y Empresa due to lack of activity.

of comparable information. This means the reader has an enhanced overview of the system as a whole and will appreciate that if certain universities are not ranked, it is because they do not provide enough available information. If they did, they would probably rank below other universities that do exercise transparency by disclosing information to the ranking system. This hypothesis is confirmed in this edition, since the nine new universities that are included in the ranking are in fact located in the bottom positions of the global ranking.

Assessments to measure university results in many countries, as well as in Spain, are increasingly using rankings to classify institutions from different perspectives and with different criteria. Some international university rankings have found their place in debates about the quality of these institutions, becoming widely used references to assess the position of universities and national University systems. Thus, for example, the presence of 13 Spanish universities (16% of the total of 83 public and private Spanish universities) among the first 500 institutions of the world according to the Shanghai Ranking, with only one in the top 200, is a fact often mentioned as proof of the limited quality and insufficient international projection of our university system.

Researchers, public and private institutions, university associations, along with companies in information and media are increasingly taking more initiatives to compile rankings. The objectives and interests of such initiatives and their scope are diverse, both in terms of university activities studied (many rankings focus on research), as well as in terms of coverage (national and international), the data used and its treatment. Some recent reports (Rauhvargers 2011, 2013) stressed the importance of carefully assessing the criteria with which the rankings are compiled when demonstrating their significance and interpreting results. Accordingly, in 2015 IREG Observatory on Academic Ranking and Excellence developed a guide that provides recommendations to help stakeholders (students, higher education institutions, policymakers, etc.) interpret and use rankings appropriately.

Indeed, the rankings are a particular way to assess university results and their appeal lies in the fact that they offer simple and concise information. This facilitates comparisons while simplifying them and making them sensitive to the criteria and procedures followed when constructing indicators. It is for this reason that the value given to the rankings should not be separated from how they are compiled or from the metric used.

These precautions are not always present when using rankings. On the one hand, the reputation of a good position in a ranking turns them into an intangible asset to universities. Therefore, increasingly more universities develop strategies convey information about themselves (signaling) by advertising their more favorable results, and also to improve their positioning in the rankings. Certainly, the expected return of a good position in a ranking is significant, given that it can affect areas as diverse as recruiting attracting researchers, students. obtaining resources and the social projection of institutions.

On the other hand, the growing interest in these classifications is because they are perceived as useful tools (despite being imprecise) for various purposes and different stakeholder groups in universities as they:

- a) Provide the members of each university with external references on their strengths and weaknesses, contributing to the perception of their position.
- b) Offer the users of university services easy to interpret information in terms of attractiveness or quality of institutions.
- c) Provide comparative information to governments, with the possibility of being used to assign resources or for the accountability of universities to society.
- d) Complement the work of university quality assurance agencies and provide information to analysts interested in having homogenized indicators available.

Approach of the project

In Spain different university rankings are being regularly presented, compiled with diverse perspectives and methodologies. What sets this project apart is that its rankings (U-Ranking, U-Ranking Volume, U-Ranking Dimensions, U-Ranking Degrees) are developed according to criteria that respond to many recent international recommendations. One of them is that indicators should be created with the objective of studying university activities from a comprehensive approach, i.e. examining teaching, research, and innovation and technological development activities. Another important feature, is that it offers rankings by degrees (U-Ranking Degrees) giving guidance to students when choosing what to study.

The criteria used in developing U-Ranking that should be noted are:

- Offering multiple university rankings, in which university activities are examined from a general perspective, as well as in specific fields (teaching or research and innovation), but also in terms of the performance achieved (U-Ranking) or the total output (U-Ranking Volume) of each university.
- Taking into account the perspectives and interests that potential users of the data have when using the rankings. In particular, special attention has been paid to the importance that many people give to specific areas of activity, such as degrees, when comparing universities. To deal with this concern, a web tool has been developed which enables users to create personalized rankings in terms of Bachelor's degrees (U-Ranking Degrees). It has been designed to guide students, families and counsellors when choosing a university in which to study. The advantage of recognizing that users have different preferences is that the following problem can be avoided when constructing synthetic indicators: excessive dependence on experts' opinions (subjective and sometimes contentious) regarding the weights that should be attributed to teaching or research.

The project therefore offers two different products:

- A general collection of rankings on Spanish universities, based on the criteria of the project's team and the experts consulted, allowing each institution to be compared with others from different points of view: U-Ranking, U-Ranking Volume and U-Ranking Dimensions.
- A web tool that provides personalized rankings for different Bachelor's degrees, grouped according to area of study and which allows universities to be compared taking into account the interests and criteria of each user (mainly students enrolling in universities, their parents or school counselors) on their choice of studies, the regions considered and the importance given to teaching and research and innovation: U-Ranking Degrees.

It is important to note that all the classifications are obtained from a common basis: the data correspond to the same set of variables, addressed separately in the ranking and the same methodology has been followed when treating and aggregating variables, except obviously with regard to decisions taken by users when creating their *personalized* rankings.

The 8th edition of the U-Ranking Project corresponding to 2020 offers, as in previous editions, the general rankings U-Ranking, U-Ranking Volume and U-Ranking Dimensions as well as personalized rankings for Bachelor's degrees. However, this edition includes a series of methodological changes that have been implemented in order to guarantee the continuity and stability of the ranking which are briefly summarized in the following paragraphs and more in detail in the methodology section of this report.

The information supplied in previous editions by CRUE through its reports La Universidad Española en Cifras and Informe de Investigación y Transferencia de Conocimiento de las universidades españolas (I+TC) was not made available for this edition. For this reason, alternative sources of information have been used to obtain the data and subsequently to calculate the indicators. Most of the information from CRUE has been replaced by data from the Spanish Ministry of Universities' Integrated System of University Information (SIIU).

U-Ranking 2020 combines research and innovation carried out by Spanish universities in one dimension. The dimension innovation and technological development is no longer analyzed separately given the instability and lack of data, since four of the five indicators were previously provided by CRUE are no longer available for this edition. The number of national patents per professor indicator, which was evaluated in previous editions as part of innovation, is now included in research.

As a result of these changes, the U-Ranking synthetic index is calculated from 20 indicators — ten to evaluate teaching performance and ten for research and innovation— instead of the previously used 25. Thus, despite the changes, it allows to maintain a balance in the number of indicators per dimension.

The use of SIIU as the main source of information and the elimination of some of the innovation and technological development indicators, which were more unstable and heterogeneous among universities, has made it possible to increase the number of private universities considered in this edition, from 14 to 22. Another three private institutions that were included in previous editions have not been included this year because, following the criteria mentioned, they lack sufficient information to calculate the indices.

The recent editions of U-Ranking rely on the collaboration with the Spanish Ministry of Universities, allowing access to the Integrated System of University Information (SIIU). The SIIU is a web-based platform that collects, processes, analyzes and disseminates data of the Spanish university system providing homogeneous and comparable statistical information of the Spanish universities. This platform provides information on the degrees offered by each university, in which schools they are taught, students in each degree and full-time equivalent teaching staff, students in international mobility programs, as well as detailed information by degree on success, performance and drop-out rates and percentage of foreign students in each degree. Since new information is continuously being added and updated in the SIIU, U-Ranking can rely on this source to access other indicators that can be expected to become more accurate over time. Through the SIIU, the Spanish Ministry aims to make the university system more transparent, so that citizens and researchers alike can analyze it, draw their own conclusions and generate proposals for improvement. Thus, the SIIU is a tremendously valuable project, which is a result of the necessary commitment on behalf of the majority of universities and public administrations that allows society to know the reality and performance of the university system, a system that is vital for economic and social development and in which a large amount of resources are allocated.

One of U-Ranking's main objectives is to provide the most useful and detailed information as possible for the different target publics which are potential users. Consequently, the project includes additional information both in the ranking of universities and in the ranking by degree:

a) Ranking of universities

A university ranking allows to observe the relative position of one institution with respect to others, but it is not easy for university managers or researchers to analyze in depth the performance of a specific university, to assess the aspects in which it stands out or its distance from the average of the system or from a certain university that is taken as a reference. For this reason, the www.u-ranking.es website also offers a panel of indicators⁵ for each University, which is a file containing the values for each of the 20 indicators used and the mean value of the universities so that managers can observe the relative distance to the average of the system and use the data file to make a direct comparison with other universities. The added value⁶ of the indicators is presented on a scale of 0 (minimum value obtained by a university of the system) to 100 (value given to the university that scores the most). In this way, it facilitates the comparison between very different indicators and it offers a general profile of each university. Each panel of indicators also shows the university's position in U-Ranking, U-Ranking Volume and U-Ranking Dimensions, along with basic information regarding its year of foundation, ownership, number of students, teachers and degrees,

⁵ See appendix 3 for the panel of indicators of the 70 universities analyzed.

⁶ Without distinction by areas of study, fields of knowledge or degrees.

among other data. In addition, U-Ranking 2020 incorporates an analysis with respect to the information published by the Ministry of Universities in collaboration with the Spanish Social Security system on the employability rate of university students who graduated during the 2013-14 academic course. Likewise, each university includes a graph with the main indicators of employability of their graduates in 2018, that is, 4 years after graduating, as well as the position of each university according to the synthetic index of employability calculated in this report.

b) Personalized university rankings by degree:

As with the ranking of universities, the user can consult, once his or her personalized ranking has been calculated, the employability indicators per degree. Thus, for the degrees for which there is information —approximately 1,800 degrees from the 2,638 degrees analyzed— data is given on the percentage of 2013-14 academic course graduates affiliated to the Spanish Social Security system in 2018, as well as the percentage of university graduates hired according to their educational level.

Structure of the document

After this introduction, the rest of this document is divided into four chapters, as follows. Chapter 2 describes the methodology used to prepare the various rankings. Chapter 3 describes the approach adopted to allow users to personalize the rankings and the online tool constructed to present the results to students. Chapter 4 presents an analysis of the main aggregate results, putting special emphasis on the comparison of the U-Rankings with the main international reference ranking (ARWU). It also provides an analysis of the sensitivity of our results to changes in any of the assumptions used in preparing the rankings. The results are compared at the level of the university systems of the different autonomous communities. This 8th edition focuses on graduate employability, with a comparative analysis by type of universities and areas of study, presenting a synthetic index of graduate employability in 2018 based on a) rate of affiliation to the Spanish Social Security system b) average salary for the National Insurance contribution calculation c) percentage of university graduates hired according to their educational level. These indexes allow to present six rankings of employability by university and for each one of the five areas of study considered. summarizes chapter 5 characteristics and results of the project.

2. Methodology

The starting point of the U-Ranking project was an in-depth look at the most important national and international rankings that are available, so as to identify possible ways of reducing their shortcomings. The most significant problems of rankings arise in the following areas: (1) university activities studied, (2) disaggregation by subject or type of studies, (3) data availability and use, (4) methodological rigor in the treatment of data and construction of indicators, (5) recognition of the user's perspective when creating and providing data, and (6) user-friendly tools to select their preferences in the rankings.

The project has studied the shortcomings in all these areas and this chapter describes how they have been addressed.

2.1. THE DESIGN OF RANKINGS

In the first editions of the ISSUE project, and due to its novelty, an entire chapter was dedicated to the limitations of rankings and the improvements that a new tool like this one should include. The reader can view previous reports —found on the U-Ranking website (www.u-ranking.es)— for a detailed analysis of these aspects, which are summarized in this edition.

The development and use of rankings entails a number of **risks** that should be forewarned. First of all, it is not wise to orient strategies focused on improvements of variables studied, instead of to the problems that underlie them: the improvement of the institutions should be based on principles of efficiency and the results are reflected in the indicators. For university administrators, the important thing is to generate policies that will make their institution improve in teaching, research and knowledge transfer, trusting that if the ranking is well designed (as U-Ranking is), those improvements will be reflected in the indicators used to prepare the ranking. The opposite approach, i.e., trying to improve the indicators so as

to improve an institution's place in the ranking, is not only misguided but doomed to failure.

The use of indicators that are not very robust, with values highly sensitive to the criteria of measuring the variables and aggregation procedures, and that focus on what should be measured and not only on what can be measured, must be avoided. Finally, a very common risk of rankings is to focus only on the elite (world-class universities) forgetting the rest. This may inadequately compare institutions with very different specializations and resources.

Some of the published rankings show **limitations** that users should be aware of. In the case of universities outside the circle of the great universities, many rankings are exclusively based on indicators which focus on research activity and unreliable reputation factors. For example, the exclusive use of these indicators to rank Spanish universities is in many cases inappropriate and risky, leading to wrong conclusions.

In the first three U-Ranking reports, a detailed review of the issues to be considered in the design of a good ranking was carried out and applied to the project. In this report it is not necessary to repeat the aforementioned analysis in detail, however, we summarize some of the most relevant aspects:

- The study Principles of Berlin on University Rankings (Centrum für Hochschlentwicklung, CHE 2006) stresses, among other recommendations, to indicate clearly what the target audience of the ranking is, to be clear about what each indicator measures to be methodologically scrupulous, to focus on the outcomes rather than inputs and to maintain a high ethical standard, given the responsibility and impact that rankings have.
- The results of discussions held by the European University Association and the International group of Experts in Rankings (CHE

2006) insist on the importance of providing a vision of all the institutions, addressing their multidimensional nature and diversity, respecting the user's perspective and maintaining the independence and temporal sustainability of the ranking.

The U-Ranking project expressly includes all the principles which were recently discussed internationally and proposed by the EU. The following sections detail the many aspects that have been taken into account when working with these criteria

2.2. ACTIVITIES STUDIED

One of the main failings of certain rankings in providing a general assessment of universities, particularly international ones, is that the activities are examined from a very partial perspective. The problem stems from the limited data availability on the results of teaching activities, and innovation and development technology, which are far less abundant than research.

In fact, most of the important rankings focus on analyzing research, taking little account of another significant function of universities which is teaching and barely considering technological development activities, despite their increasing importance. The rankings which are biased towards research are frequently interpreted as representative of university activity as a whole and they may not be.

There are three possible reasons for this: 1) the data available is used and, without a doubt, the abundance, quality and homogeneity of data on research is much greater than in the other two areas; 2) research activity is considered the most important distinctive element of universities in the last two centuries; and 3) the opinion holds that the research quality of professors is a proxy variable for other areas, and therefore it is enough to observe the results in this area to predict the others.

The first reason is practical, but can induce bias by omission in indicators and rankings. The second needs some clarification in that it is a powerful argument regarding postgraduate studies but less so in relation to the degree, especially in mass university systems, such as those of most developed countries today. In fact, in many of these systems there is a significant concentration of research activity in a small number of universities, while in a large number of institutions there is fundamentally teaching activity. The third reason is a hypothesis, which validity should be tested by developing indicators for all activities and testing whether the correlation between teaching and research results is high. If the validity of this hypothesis is not tested, and given that the intensity of university teaching specialization, research and innovation and technological development varies greatly⁷, overlooking the direct indicators of teaching and innovation and technological development can bias the rankings. To the extent that the results of U-Ranking show a low correlation between teaching and research and knowledge transfer, the importance of including teaching and research innovation indicators becomes more relevant, in fact, they are considered the cornerstone of U-Ranking since its start.

Therefore, it is important to take advantage of the data available on university activity in the field of teaching, and innovation and technological development, so that the rankings reflect university activity as a whole more accurately. In addition, this also allows us to recognize the different specialization profiles of universities, as some focus more on basic research (as occurs in many of those most often included in the world rankings), others on higher education and professional development, and others on applied innovation and technological research, development. Currently, the public homogeneous data available on the innovative activity of Spanish universities does not allow a independent evaluation of rigorous, performance in the area of knowledge transfer. For this reason, "Research and Innovation" is considered a single dimension, which includes one of the indicators most commonly associated with innovation: patents.

Studying the different activities of the universities is a first step in the direction of addressing the different perspectives on university systems and the different interests that potential users of the

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⁷ See Pérez and Serrano (dirs.) (2012, ch. 1 and 4).

rankings may have. Thus, a degree student probably shows greater interest in teaching, while a postgraduate student and teachers focus more on aspects related to the quality of research. If the data focuses solely on research results then these distinct approaches cannot be carried out accurately.

The U-Ranking system specifically studies these two categories of university activities, analyzing the data available on each of them in Spain. The national dimension of the project ensures that reasonably homogeneous data is available with a set of variables representing the activity of Spanish public universities and two-thirds of private universities. In the future, it would certainly be desirable that data on the rest of the private universities were available with a guarantee of similar quality and homogeneity as those included in the ranking, which would improve the scope of the project.

The total amount of 70 universities included in the ranking is sufficiently high for the data available to allow a contrast of the hypothesis to which we referred earlier: if research results can predict correctly those of teaching or not. The project has examined this specific objective, with the results presented in Section 4.

2.3. DISAGGREGATION OF ACTIVITIES

A further shortcoming noticed when analyzing current rankings is that many deal with universities in a unitary manner, not recognizing the diversity of areas in which these institutions can offer professional development or conduct research or innovation. This problem needs little explanation: to be more useful, a ranking has to inform as far as possible the user on specific areas or scientific fields of their interest, since universities may not be homogeneous in the quality of each of their areas.

It is for this reason that a ranking system can be improved if it provides data disaggregated by areas of study, fields of knowledge or specific degrees. This last level of detail could be very significant for students, given that their fundamental interest is generally linked to the quality of the specific studies that they want to pursue.

For the disaggregation, the U-Ranking project had to work in several directions. Firstly, it followed the criteria that it is important to start with the most disaggregated data available, maintaining its detail whenever possible, so as not to lose the wealth of its heterogeneity. Secondly, the disaggregated data had to be homogenized properly before adding it to the indicators. And third, the problems of combining (for the construction of some of the indicators studied) the data disaggregated according to scientific fields or degrees with other data aggregated at university or area of study level had to be solved. When there is no disaggregated data, or its disaggregation makes no sense, the aggregated data has been allocated to the various elements of the set, following the criteria considered more reasonable in each case.

Addressing the above problems is not technically considered to be trivial. For example, in the case of the rankings on specific Bachelor's degrees of Spanish universities, to deal with data on areas with different levels of disaggregation a series of matrices have been created that connect them. In order to do this, accurate connections had to be established between university, area of study, Web of Science category, areas of the National Evaluation and Foresight Agency (ANEP) and Bachelor's degrees.

In allocating research results to each degree, the starting point was data disaggregated by the Web of Science categories (more than 250 items). Given that one classification is not perfectly nested in another, both classifications have been connected, and the two types of errors that could be made have been taken into account:

- Inclusion error. That is, attributing to a given degree the research carried out by teachers from other areas. For example, attributing to the Pharmacy degree of a given university, the research in "Hematology" that has actually been conducted by teachers from the Faculty of Medicine and who only teach in Medicine.
- 2. Exclusion error. That is, excluding research by teachers in areas that are not exactly the subject of the degree courses they teach in, as a result of being too restrictive when allocating areas to degrees. For example, if in Economy we only allocate the category

"Economics", then important research may be missed in the area of "Business and Finance", theoretically closer to Business Administration degrees but also carried out by economists who teach in the degree of Economy.

These problems do not have a perfect solution and we had to choose one of the alternatives. We have opted for a more inclusive criterion: when in doubt about whether to associate a category or scientific field to a degree we have chosen to include it, minimizing exclusion errors on the grounds that they are more serious errors.

2.4. INDICATORS, AREAS AND DIMENSIONS

The main pillar of a ranking system is the rigor of the procedure followed when dealing with existing problems so that the created classification is based on appropriate data and is treated with reasonable methodological criteria. Many of the rankings have clear shortcomings in this aspect, which international literature has analyzed in detail.

The U-Ranking system considers that a university ranking should consider all their activities and be structured according to the two following major dimensions:

- Teaching
- Research and innovation

The assessment of each of these dimensions can take into account multiple areas of activity. However, many experts agree that an excessive number of indicators obscure the meaning of a ranking and complicate the construction of synthetic indices, a complex matter as it is. Following a criterion of (relative) simplicity, four areas have been studied in each of the dimensions aforementioned:

- Access to financing
- Output obtained
- Quality (particularly in the results and in some cases, resources and processes)
- Internationalization of the activities

The main reference to assess universities should be the results, but these can be studied both from the perspective of total volume as well as from the perspective of their quality. If there were a market that assessed the differences in quality, then results showing a higher quality would have a higher price. These prices hardly exist in the area of public universities. The differences in rates, currently very diverse between regions and degrees, respond in many cases to factors that have nothing to do with quality. However, some indicators can supplement, in part, this limited information. Thus, for example, there are indicators on the quality of teaching and research and also on a very relevant feature today regarding the specialization (and quality) of universities: their internationalization.

However, as we pointed out in the introduction, the assessment of the quality of the output is incomplete if we want to take into account the impact of the university system on its environment. A university can generate high-quality results, but if its size is very small, its contribution to technological development or to the production of human capital through its graduates may have a much smaller influence on the productive environment than a university with somewhat lower levels of quality in its output but a significantly larger size. This obliges us to introduce also the size factor in the rankings system, thus generating U-Ranking Volume.

Each of the four areas mentioned has been analyzed using a series of indicators. Depending on the availability and suitability of data, between one and three indicators have been taken into account for each area in the dimension that is being studied.

Table 1 shows the indicators studied, after analyzing the availability of data and discussing alternatives with the group of experts working on the project. Agreements were reached by analyzing the suitability of each indicator in capturing significant data on the area and dimension it forms part of it.⁸ It is important to stress that the data used is obtained from sources allowing the project database

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⁸ In order to ensure the transparency of the process in developing indicators, the definition of each indicator, its source and its time frame are all included in appendix 1 and in the following website of the project: www.u-ranking.es.

and the rankings based on it not to require universities to provide data directly to U-Ranking.

The logic underlying this selection of indicators, disclosed in summary form, is the following:

Teaching

- Teaching resources are characterized by budgetary allocations per student, and faculty and research staff per student, with special attention paid to faculty members with PhD.
- Teaching output is measured by using results obtained by students, analyzing how many students undergo evaluation, how many succeed in those evaluations and how many drop out.
- The quality of teaching is very difficult to observe at present, but we studied as a proxy
 the quality of students measured by the cutoff mark of each area and the percentage of
 postgraduate students.
- The internationalization of teaching is shown by the percentage of foreign students and the percentage of students in participating in mobility programs.

Research and innovation

- The research process is characterized by data referring to two types of resources: competitive public funds raised and the provision of research staff, scholarships and qualified technical support.
- Output is accounted for by citable papers published in each area and the number of doctoral theses, which are an indicator of the training activity of a researcher in a given area. The number of patents is also included in this area.
- The quality of the research is reflected in the impact the publications have and the citations that these papers generate.

 Finally, a greater proportion of international publications, international co-authoring and the percentage of research funds from external sources indicate a greater international vocation in research activity.

As shown in table 1, U-Ranking 2020 is calculated based on 20 indicators, ten for the evaluation of teaching results and another ten for research and innovation activity. In the case of U-Ranking Universities, 16 of the 20 indicators are obtained by areas of study and the remaining four for the university as a whole. However, the level of detail increases in the case of the U-Ranking Degrees (see chapter 3), where five of the ten indicators of teaching are obtained for each degree and five of the ten indicators of research and innovation are classified by degree groups, that is, an aggregation in 122 groups of the 3,359 degrees and double degrees offered by the Spanish universities analyzed.

Due to the changes introduced in this edition, the number of indicators as well as some of the sources from which they are obtained have changed compared to last year's edition. Table 2 shows the variations in the set of indicators. There are 20 indicators instead of 25 to assess the performance of universities. Most of the indicators that were previously calculated with data from CRUE have been obtained in this edition through SIIU. In addition, data from the European Commission's Horizon 2020 Dashboard platform, the Iberian Balance Analysis System (SABI) database and the transparency website section of private universities or audited documents with information on their income have also been used. However, no alternative public and homogeneous data was available for four of the five indicators used to evaluate technological innovation and development, so, this information has not been included in this edition. Likewise, indicator for sexenios (monetary compensation received for research activity based on six-year periods) has not been included since it does not apply to private universities.

Table 1. List of			
Dimension	Area	Indicator	Level
		Faculty member per 100 students	Area of study
	Resources	Budget per student	University
		Percentage of faculty member with PhD	Area of study
	Production	Success rate	Area of study
Teaching		Evaluation rate	Area of study
reacting		Drop-out rate	Area of study
	Ouglitu	Percentage of postgraduate students	Area of study
	Quality	Cut-off mark ¹	Area of study
	Internationalization	Percentage of foreign students	Area of study
	Internationalization	Percentage of students in foreign exchange programs	University
	Resources	Competitive public resources per faculty member with PhD	Area of study
		Contracts with PhDs, research grants and technical support over total budget	Area of study
	Production	Citable documents with ISI reference per faculty member with PhD	Area of study
		Number of patents per 100 faculty members with PhD	University
Research and		Number of thesis defended per 100 faculty members with PhD	University
innovation	Quality	Mean impact factor	Area of study
		Percentage of publications in the first quartile	Area of study
		Citations per document	Area of study
	Internationalization	H2020 European research funds per faculty member with PhD	University
		Percentage of publications with international co-authorship	Area of study

 $^{^{\}rm 1}\,{\rm Mark}$ of the last student who gained admission to a degree with limited places.

Source: Own elaboration

Table 2. Comparison of the indicators used in U-Ranking 2019 and U-Ranking 2020

	Area	U-RANKING 201 Indicator	Source	U-RANKING 20	720
	Area		Source		
				Indicator	Source
		Faculty member per 100 students	SIIU - CRUE		SIIU
	Resources	Budget per student	SIIU - CRUE		SIIU
		Percentage of faculty member with PhD	CRUE		SIIU
	Production	Success rate	SIIU		SIIU
S NG		Evaluation rate	SIIU		SIIU
TEACHING		Drop-out rate in the first year	SIIU	Total drop-out rate	SIIU
F		Percentage of postgraduate students	SIIU		SIIU
	Quality	Cut-off mark1	SIIU		SIIU
		Percentage of foreign students	SIIU		SIIU
	Internationalization	Percentage of students in foreign exchange programs	CRUE	Percentage of students in interna- tional mobility programs	SIIU
	Resources	Competitive public resources per faculty member with PhD	State Bureau of Investigation /CRUE		State Bureau of Investigation /SIIU
		Contracts with PhDs, research grants and technical support over total budget	State Bureau of Investigation /CRUE		State Bureau of Investigation /SIIU
	Production	Citable documents with ISI reference per faculty member with PhD	IUNE/CRUE		IUNE/SIIU
		Total sexenios¹ over possible sexenios	CRUE	Number of national patents per 100 faculty members with PhD	IUNE/SIIU
RESEARCH		Number of thesis defended per 100 faculty members with PhD	MECD/CRUE		SIIU
Ä	Quality	Mean impact factor	IUNE		IUNE
		Percentage of publications in the first quartile	IUNE		IUNE
		Citations per document	IUNE		IUNE
	Internationalization	European or international research funds per faculty member with PhD	CRUE	H2020 European research funds per faculty member with PhD	European Commis- sion
		Percentage of publications with interna- tional co-authorship	IUNE		IUNE
ENT	Resources	Income from licenses per 100 faculty members with PhD	CRUE(OTRIs) and MECD		
INNOVATION AND TECHNOLOGICAL DEVELOPMENT		Income from reference consultancy contracts per 100 faculty members with PhD	CRUE(OTRIs) and MECD		
INNOVATION AND DLOGICAL DEVELOI		Income from CPD ² courses per faculty member with PhD	CRUE and MECD		
NOLOGI	Production	Number of national patents per 100 faculty members with PhD	IUNE (INVENES and MECD)	Included with research	
TECH	Internacionalization	Triadic patents per 100 faculty members with PhD	CRUE(OTRIs) and MECD		
SIZE VARIABLES		Full-Time Equivalent Faculty member with PhD (PDETC)	CRUE	Full-Time Equivalent Faculty member with PhD (PDETC)	SIIU
		Official degree, official master and doctorate students	SIIU +CRUE	Official degree, official master and doctorate students	SIIU
		Settled income	CRUE	Settled income	SIIU/SABI/WEB

¹ Monetary compensation received for research activity based on the last six years. ² Continuing professional development.

Source: Own elaboration.

2.5. TIME COVERED BY THE DATA

University rankings aspire to offer an image of the current position of each institution, though they should not be conceived of as a snapshot of a given year. Many indicators have the character of a flow, and as such, can present high variability from year to year, both in the quality of the information and in the distance between the actual reality and what the information reflects, given the delays in information availability. In addition, other indicators reflect the accumulation of results over long periods of time.

The rankings referred to usually recognize this problem by taking comparison periods longer than a single year, either using moving averages and even considering the complete history of the University (as in the case of the treatment of the Nobel Prize and Fields Medal winners in the Shanghai Ranking). Considering multi-year periods when elaborating the indicators provides greater interannual stability of the rankings and permits specific random disturbances to be smoothed out by considering a longer time range.

Our approach follows this criterion, considering that one cannot reasonably expect abrupt

changes in the universities' real situation, so the ranking should avoid giving that impression. Therefore, as information has become available, we have converged towards a 6-year moving average for nearly all the indicators. All of the indicators on research and innovation are already calculated as a mean of six years, except for the EU H2020 research funds with cover five years. Furthermore, since the 6th edition, teaching results are reached using data by university from six academic years, except for the three exclusions mentioned in table 3.

Table 3 shows the updating in terms of years and time series registered by the indicators used in the ranking for 2020. All the indicators include an additional year compared to the previous edition, covering data for the majority of indicators up to 2018.

In sum, the methodology on which the calculation of the U-Ranking system is based leads one to expect that the rankings of universities will not present sudden changes from one year to another. The existence of an inertia in the rankings seems to be a desirable property, since the quality of university institutions does not change radically in the short term, though some of their annual results may do so.

Table 3. Time series used in the 2020 U-Ranking				
Dimension	Area	Indicator	Period	
Teaching	Resources	Faculty member per 100 students Budget per student Percentage of faculty member with PhD	2012-13 to 2017-18 2012 to 2017 2012-13 to 2017-18	
	Production	Success rate Evaluation rate Drop-out rate	2012-13 to 2017-18 2012-13 to 2017-18 2009-10 to 2013-14	
	Quality	Percentage of postgraduate students Cut-off mark ¹	2012-13 to 2017-18 2019-20	
	Internationalization	Percentage of foreign students Percentage of students in foreign exchange programs	2012-13 to 2017-18 2014-15 to 2017-18	
	Resources	Competitive public resources per faculty member with PhD Contracts with PhDs, research grants and technical support over total budget	2013 to 2018 2013 to 2018	
Research and	Production	Citable documents with ISI reference per faculty member with PhD Number of patents per 100 faculty members with PhD Number of thesis defended per 100 faculty members with PhD	2013 to 2018 2013 to 2018 2013 to 2018	
Innovation	Quality	Mean impact factor Percentage of publications in the first quartile Citations per document	2013 to 2018 2013 to 2018 2013 to 2018	
	Internationalization	H2020 European research funds per faculty member with PhD Percentage of publications with international co-authorship	2014 to 2018 2013 to 2018	

Source: Own elaboration

2.6. CRITERIA FOR THE CONSTRUCTION OF INDICATORS

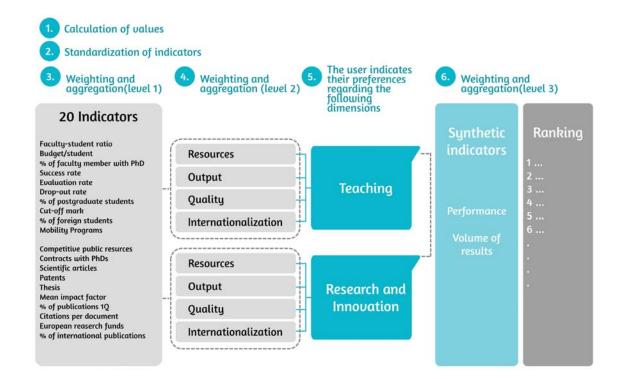
Key to being able to trust the meaning of the rankings is that the processes on which their elaborations are based should be transparent and respect the foundations established by statistical publications for the construction of indicators. In this regard, the project team contacted specialists in the subject and analyzed the methodological principles established in the specialized literature, especially in the *Handbook on constructing composite indicators: methodology and user guide* (Nardo et al. 2008).

The underlying process of drawing up any of the rankings of universities constructed is structured according to the following six steps —the fifth one being unnecessary in the case of the partial

rankings of teaching and research and innovation:

- 1. Preparation of the data bank
- 2. Standardization of indicators
- 3. Weighting and aggregation of indicators within the areas of each dimension
- Weighting and aggregation of area indicators, within the dimensions
- 5. Weighting and aggregation of the dimensions
- 6. Obtaining of rankings

The following scheme graphically illustrates the time sequence of the steps. To complete each of them it is necessary to solve technical problems, as described and indicated below.



2.6.1. Constructing the database and missing data

The starting point for any ranking is to have available the necessary information on the variables to be considered in order to construct each indicator. The data used for the synthetic indices are obtained from public information systems and statistical sources. The main source of information is the Integrated System of University Information (SIIU) of the Spanish Ministry of Universities. The Bibliometric data regarding the research performance of all Spanish universities (based on information provided by Thomson-Reuters, Clarivate) and on patents has been provided by the INAECU research team in charge of the IUNE Observatory. Information has also been collected from the State Bureau of Investigation on competitive resources and research contracts. Information on European research funds has been obtained from the European Commission's Horizon 2020 Dashboard.

In previous editions, U-Ranking obtained much of the information needed to calculate the indicators from the CRUE database. However, the Institution's new regulation for data transfer does not allow access to this information in 2020, requiring the use of other more open data sources in order to continue evaluating the performance of Spanish universities. For data on the revenue of private universities, public annual accounts and other information from each university's website section on transparency have been used.

The data has been collected with the maximum level of disaggregation available (area of study, degree, area or field of study, ANEP areas), so that the standardizations within each field make the results more comparable.

The initial indicators of the ranking are obtained from the database, and when the information allows it, they are calculated by area of study. This disaggregation is available for 16 of the 20 indicators. In the case of the remaining four indicators, the value of the university for all the areas of study is considered.

A first technical problem to be solved is the treatment of the data missing from certain universities in some of the variables to be used. Such gaps may be due to several factors, whether technical (an error in loading the data), or of availability (the university may not have generated certain information or not done so in time) and even strategic (a university may opt not to give certain information because it is not in its interests to do so).

Not facing this problem rigorously would condition the comparability of the universities, the quality of the aggregate indices, and the final results. The methodology applied and the new sources of information used have reduced the percentage of indicators with missing values to 1.1%, thus, no further treatment is required to compensate the absence of data. The following are the criteria that have led to this methodological approach:

Firstly, given that U-Ranking takes into account the specialization by areas of study of the different universities and operates in most indicators with this level of disaggregation, it is important to distinguish whether a possible lack of data is due to the absence of activity in that particular area -for example, a university does not register drop-out rates in Sciences because it does not offer classes for that area of study— or due to one of the reasons stated above. Therefore, the first step in identifying the missing data is to determine which areas of study are offered by a university. The following criteria are established to identify the areas of study in each university that are non-existent or of little importance for evaluating its performance:

- a) The teaching dimension does not take into account those areas of study in which a university does not offer degrees during the 2019-20 academic year.
- b) In the case of research activity dimension, the areas of study with no full-time equivalent faculty members with PhD are not considered.

As table 4 shows, during the 2019-20 academic year, 25 universities did not offer Science degrees, 11 did not offer Arts and Humanities, 8 Health Sciences, and 4 Engineering and Architecture.

Table 4. Number of universities with no activity in teaching or research by area of study Public Private Total universities universities Arts and Humanities 10 Social studies and Legal studies n n 0 Teaching 25 With no degree offers in **Engineering and Architecture** 0 4 4 2019-20 **Health Sciences** 4 8 Total 8 40 48 Arts and Humanities 0 8 8 Research and Social studies and Legal studies 0 1 1 innovation With no full-time Sciences O 19 19 equivalent faculty **Engineering and Architecture** n 3 3 member with PhD (on average in the last **Health Sciences** 3 6 years) Total 34 35 1

Source: Integrated System of University Information (SIIU) (Spanish Ministry of Universities) and own elaboration

Secondly, it should be noted that the indicators are based on the calculation of moving averages, 6 years for most cases. If a university does not present any data for the years considered, an average is estimated with data from the available years, thus, reducing the chances of a variable with no data.

In addition, for indicators in which there are a greater number of universities without data, the information is constructed from exhaustive administrative registers, so if a university does not appear it is because it has no activity or no results in that area and therefore its value is 0. This information is based on competitive resources and research contracts from the State Bureau of Investigation, national patents granted from the INVENES database or income data from the European Commission's H2020 projects.

Closely linked to the previous reasons is the improvement in the sources of information and their consolidation over time in the collection of university data.

Finally, the minimum requirement for a university to be evaluated in U-Ranking is that it has at least 18 of the 20 indicators used to calculate the synthetic index, as well as the three variables that measure size (student body, full-time equivalent faculty members with PhD and consolidated revenues).

After applying these criteria, the number of data missing is considerably reduced. Out of the 5,880 indicators in U-Ranking 2020, 63 values are missing, which represents 1.1% of the total. Thus, in addition to a detailed analysis of the list of arguments cited, it has been verified that the results do not suffer substantial differences if the missing values are not estimated. Therefore, the decision to not estimate the missing data proves to be the most accurate, since it is robust with the methodology applied previously while it simplifies the calculation method, making it easier to reproduce the ranking.

Treatment of the outliers can be done once the database from which the various indices are obtained is available. An outlier is considered to be any variable that is outside the interquartile range, i.e. those values not included within the interval defined by the percentile value 25 minus one and a half times the interquartile range and the percentile value 75 plus one and a half times the interquartile range of this same ratio. These values are corrected by assigning them the

maximum or minimum value —depending on the case— of this interval.

2.6.2. Standardization of indicators

One of the pillars upon which the construction of synthetic indicators rests is the proper standardization of the information, that is, its transformation in order to homogenize it and make possible its comparison and aggregation. There are numerous systems of standardization, such as the Gaussian (subtracting from each variable its arithmetic mean and dividing by its standard deviation), relative order (ordering the values according to their relative value), distances from the mean or the median, and the ratio between the variable and its mean or its median.

The standardization chosen must be in consonance with the method of aggregation to be used subsequently. Because as a general rule the geometric aggregation method has been chosen, requiring the value of the standardized variables to be positive, we must exclude the Gaussian and absolute distances from the mean and from the median, which necessarily generate negative values, as alternatives of standardization.

For this reason, the standardization method chosen is the calculation of the ratio between the variable and its median. Taking into account that the median is the value separating each distribution into two halves, the standardized results will be centered on the value 1: values below the median are bounded between 0 and 1, while those above will be greater than 1.

As previously highlighted, one of the key aspects of U-Ranking is that its methodology takes into account the different areas of study of the universities. Thus, whenever information by areas of study is availabe, each indicator in level I is calculated for each area of study and university. Subsequently, each one of the 5 indicators per area of study is standardized by dividing by the median of its area and finally the 5 standardized indicators of each university are aggregated by calculating the arithmetic average weighted by the weight of the student body in each area and university (if the indicator belongs to the teaching dimension) or by the weight of

the faculty members with PhD (if it belongs to the research and innovation dimension).

2.6.3. Weighting and aggregation of indicators within an area

Once the 20 standardized indicators for each university is obtained, they are aggregated to obtain a first synthetic indicator for each area. Thus, for example, to obtain the value of the indicator for the *quality* area in the *Research* dimension we aggregate the standardized values of the *Mean impact factor of publications* and the *Percentage of publications in the first quartile*.

As in the case of standardization, there exist numerous aggregation procedures, such as the arithmetic, the geometric or those based on factor analysis. The choice of one method or the other has implications in the substitutability of the indicators or the importance of extreme values (both large and small). The aggregation criterion chosen implies a weighting of the indicators, which is important to bear in mind.

It must be taken into account that some universities might have zeros in some indicator of a specific area (for example, they may not possess *Patents*). For this reason we have opted in this phase for an arithmetic aggregation, ruling out the geometric aggregation because the presence of a zero in the product would cause the whole area analyzed to take a nil value.

As the weighting of the indicators shows the importance assigned to each variable when aggregating it into a synthetic indicator, we also reflect on this question. This is a classic problem in the construction of synthetic indices and generally requires a judgment on the relative importance of each element. In the case of economic aggregates the weights are offered by prices —which reflect the market valuation of the goods, services or factors exchanged— but in many other cases there are no prices and the indicators have to be constructed following other criteria, frequently based on subjective opinions.

There are three possible approaches to weighting: 1) assignation of identical weights (which also implies a judgment, since the weight of one indicator is conditioned by the number of indicators included); 2) reference consultation

among experts to identify the most widely held opinions (by means of surveys or methods such as the Delphi); 3) weighting according to the user's preferences. These three alternatives have been used in each case according to the level of aggregation to be achieved.

At this first level of aggregation (changing of simple indicators into synthetic indicators for each area) we have opted for the first system, that is, equal weighting. This is because in most cases the indicators capture different aspects of the area analyzed, but there are no clear arguments for granting one of them greater or lesser importance. Also, the nature of the information captured in each indicator is fairly homogeneous and in that case there is less interest in giving greater weight to one indicator or another, because in many cases they are correlated. This occurs, for example, in the case of the mean impact of publications index and the percentage of these in the first quartile. Consequently, the different simple indicators will enter into the calculation of the arithmetic mean with the same weight.

2.6.4. Weighting and aggregation of the area indicators within each dimension

At the second level of aggregation the indicators of the different areas are grouped into an indicator for each of the dimensions considered: teaching and research and innovation and technological development. At this stage there are reasons for following a different criterion, as after the arithmetic aggregation of the previous stage no area indicator presents zeros.

This stage proceeds by means of a *geometric* aggregation method. Among the most interesting properties of geometric aggregation is that it

limits the substitutability among the components that it aggregates. In other words, geometric aggregation penalizes those universities that have neglected any of the four transversal areas (*Resources, Output, Quality, Internationalization*) as against those that attend to them in a balanced manner.

One reason for using weights instead of an equal distribution is that if all the areas were aggregated with the same weight, this being a geometric mean the number of areas considered would influence the result. For example, if we had decided to group the indicators of quality and internationalization in a single area, their influence on the dimension would have been less than if considered separately. Another reason is that, unlike what occurred with the basic indicators, in this case there may be reasons to grant different values to each of the areas. Thus the decisions on the number of areas to be considered and their weights are relevant, and we have preferred to ask experts about the importance that should be given to each area. To make this valuation easier we followed the criterion that the number of areas should be small, and similar within each dimension. Table 5 shows the weights given to the different areas by the experts consulted. Regarding the weight to be given to each area within each dimension at this second level of aggregation, we are inclined to carry out a survey of university experts, by applying the Delphi method, instead of choosing to give them the same weight, as in the previous stage⁹.

⁹ Two rounds of consultations were carried out, after which a 2.1 percentage point reduction was obtained in the average interquantile range.

Table 5. Weights by area				
	Resources	Production	Quality	Internacionalization
Teaching	25.4	30.4	23.9	20.3
Research an innovation	20	30	30	20

Source: Own elaboration.

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2.6.5. Weighting and aggregation of the dimensions to obtain the rankings

The last phase of the methodology establishes how the different rankings of the project are drawn up. This offers university rankings for each of the two dimensions separately, so it is no longer necessary to take any further step beyond those described in the above sections. On the other hand, to draw up the rankings combining the two dimensions it is necessary to perform a new geometric aggregation, deciding the most reasonable criteria for doing so.

In the transition from the dimensions to the final ranking we consider that the importance attributed to each dimension can be different depending on the interests of the people contemplating the ranking, that is, of its potential users: students, researchers, managers, society. For this reason, we have come to the conclusion that the user's perspective can be the key to giving more or less importance to each of the dimensions. It could be unconvincing to impose weights from a specific standpoint —for example, that of a group of experts, who consider that research is the most important—. For individuals with another standpoint, such as students or careers guidance staff, it is more important to attend to the teaching aspects, while for firms the capacity of technological transfer.

After due reflection, therefore, we have opted to consider two alternatives.

1. First, U-Ranking Degrees offers the option of the system earlier described as personalized ranking, based on the user's own preferences. We understand that in this case users are more likely to seek to compare the universities with fairly closely defined interests and diverse criteria, probably different from those of the experts. For this reason, with the help of a web tool, users can decide the importance for them of each of the two dimensions when placing the degrees in order, and the tool automatically offers them the ranking corresponding to the preferences revealed by the user.

To apply this first approach we have considered various alternatives for the choice of weights by the user. We opted for the procedure known as Budget Allocation Process, that is, for the distribution by the user of 100 points among the dimensions to be valued. This method, widely used in marketing to find out a consumer's valuation of the characteristics of a product, has the principal advantage of forcing the user to adopt a more active and reflexive position by distributing points, being therefore more aware of the opinion that he/she displays.

2. Second, for the general rankings (U-Ranking and U-Ranking Volume), corresponding to the universities' activities as a whole, the two dimensions are weighted on the basis of the experts' opinions, according to a survey such as that mentioned above when aggregating areas into dimensions, and a Delphi process to achieve convergence among the experts' opinions.

The weights to be given to teaching and research and innovation are, respectively, 56% and 44%. These weights are included as a default option for calculating the personalized rankings when the user does not enter any preferences of his/her own.

2.7. PERFORMANCE RANKINGS *VS.* VOLUME RANKINGS

When comparing universities, it is relevant whether or not their size is taken into account. Making one choice or the other is not in itself a methodological advantage or failure, but implies adopting a particular perspective which affects the rankings and must be borne in mind when interpreting the results.

In the same way as when analyzing the activity of a firm or a country we can consider its volume of output or its achieved performance, and both positions are reasonable, the same occurs in the case of analysis of the results of universities. Neither of the two approaches is, a priori, more valid than the other, and the choice depends on the intended use of the results. The per capita GDP is more useful than total GDP when comparing the quality of life between countries or regions, but the volume or the growth of GDP are also important for explaining, for example,

the employment generated. So, although in some cases the performance reached to obtain the results may be more important than their volume, in other cases the size may also be relevant. A very productive and at the same time large university is more beneficial to society than one that offers the same level of productivity but has a small size; likewise, a very large university with a poor level of results is a much bigger problem than a small university with the same level of results.

2.7.1. Interest of the two approaches

Another reason to pay attention to this aspect is that the existing rankings adopt on occasions an approach based on the performance by which the results are obtained and in other cases deal with the volume of results. For example, some of the most cited international rankings —especially, the Academic Ranking of World Universities (ARWU), known as the Shanghai Ranking— are volume rankings.

The Shanghai Ranking can be said to be one rather of volume, because most of the variables from which it is built —number of Nobel prizewinners or Fields medalists among their exstudents or staff, widely cited researchers, publications in Nature or Science, articles published in indexed journals— are not relativized by the size of the university. Such variables make up the greater part of the weight in the ranking, while only one indicator (academic performance) is expressed in *per capita* terms. So, the universities' positions are conditioned both by their quality and by their size, both qualities being necessary for reaching good positions in this ranking.

Other rankings, on the other hand, make their comparisons from the point of view of quality. Such is the case of the QS World Universities Ranking, whose indicators are taken from surveys of academic reputation or are variables standardized by size. There are rankings that expressly contemplate both approaches, and make differentiated comparisons based on quality or on the total volume of results, as does

the I-UGR Ranking¹⁰ of research results (www.rankinguniversidades.-es).

The reason for acknowledging the interest of both approaches is that the size of institutions can be relevant for valuing the contributions of the universities, but correcting the results for size permits us to compare the universities from a perspective that makes them, in a certain sense, more homogeneous. However, given that, as we said earlier, for the university system as a whole it makes a difference whether a university with high (low) productivity is large or small, we must consider whether universities would have the same position in the performance rankings as in the production volume rankings and bring out the specific significance of each ranking. To sum up:

- The rankings of volume of production are based on indicators not relativized by size, and depend on both the university's performance and its size. Thus, a university may generate a greater volume of research results than another of smaller size, even though the second is more productive.
- The performance rankings are based on indicators of results corrected by size, and seek to measure the output per unit of inputs or resources used. For example, scientific output is measured as a function of the number of faculty members with PhD and the teaching results are relativized by the number of students. This enables some smaller universities to obtain a better final result in the ranking than other much larger ones.

An interesting question is whether size influences performance positively or negatively, that is, whether performance/efficiency increases or decreases with the size of the university. In the first case, the universities' positions in the rankings of volume would be favored by two factors (size and performance). The testing of the two hypotheses is an empirical matter, which can be analyzed by drawing up both types of rankings using the same approach, as will be presented later.

¹⁰ This ranking was last updated in 2014.

2.7.2. Treatment of the size of universities

The selection of simple indicators with which we started implies that all are relativized depending on the variable considered most appropriate (students, faculty members, budget, etc.), so that size does not have a direct influence on the results. Consequently, the general scheme of the methodology described leads to measuring each university's results independently of its size, so these are performance rankings. Therefore, to construct volume rankings, the size variable has to be added to the indicators hitherto described. This task has been undertaken following the criteria detailed below.

The first criterion for introducing the role of size is to preserve, as far as possible, the methodological homogeneity of both rankings, calculating them on the basis of the same set of indicators and with the same aggregation criteria. For this reason the ranking of volume was not drawn up simply by not relativizing those indicators that can be expressed in total terms—for example, reflecting the income from patents or the doctoral theses read without dividing them by the number of faculty members with PhD— as the Shanghai Ranking does.

It is not reasonable to proceed in that way because some variables cannot be presented in absolute terms, being rates or indices, such as the percentage of publications in the first quartile or the mean impact of publications factor.

If some variables are expressed in absolute terms and others are not, the relative importance of the size within the results would fall only on the variables that can be expressed in absolute terms. In that case, the importance accorded to size would depend implicitly on the proportion of variables that can be expressed in absolute terms. For example, in the variables considered in our study only 14 of the 20 indicators finally used could be expressed in absolute terms, which would be equivalent to the acknowledged importance of size being 52%. This percentage would be arbitrary because it would reflect the number of indicators that form part of the database expressed in absolute terms.

This solution is unsatisfactory, and we have explored other alternatives for introducing size. The

option chosen consists of calculating the total volume of results of each university by multiplying the performance index by a measure of size. We have considered three indicators of the size of a university: the number of faculty members, the number of students, and the budget. Each one has its specificities and can be a better proxy of different aspects of the university's activity that do not have the same importance in each of them. To avoid skewing the size proxy in one or other direction in the most general indices — which could favor some institutions by giving greater weight to one of the aspects— we have taken as indicator of size the standardized arithmetic mean of the three variables.

2.8. U-RANKING WITHIN THE SCOPE OF NEW TRENDS

Recently, there is an increasing interest in the development of composite indicators and in the amount of different methodologies available to synthesize large heterogeneous databases into understandable and interpretable indicators. In addition, there are a number of statistical techniques that can be applied at different stages in the development of composite indicators; some are very simple, while others very complex. Although, there is no widely-accepted methodology among researchers, some common steps are recommended in their construction. It is not unusual to find different rankings for the same set of objects (countries, regions, universities...), without knowing exactly the reasons behind the differences, whether it is because of the original simple indicators, the weights, the standardization, the aggregation, the imputation, the treatment of outliers, etc.

The U-Ranking project is not any different and it seems only natural, therefore, to explore the various ways that exist to elaborate synthetic indicators and rankings in order to examine its sensitivity. One alternative that seems to have recently become popular is the use of techniques based on non-compensatory aggregation methods.

For example, Goerlich (2020) extensively discusses these methodologies based on the Social Choice Theory and Multicriteria Evaluation Theo-

ry. As explained by the author, among the advantages of using these methods, it is worth noting, first, that the compensation of indicators for obtaining a result is not allowed and, second, that it avoids many of the decisions in the previous data treatment that are necessary in the construction of composite indicators, such as the treatment of outliers, standardization, or the imputation of missing values. On the other hand, one of the disadvantages in using these methods is that they imply leaving aside the cardinal information and obtaining only ordinal information. Another inconvenience is their greater computational complexity and the possibility of having non-unique solutions, which would force to look for a criterion of selection of the optimal ranking in case this situation occurs.

Goerlich (2020) makes an application of this methodology to the determination of a ranking of the Spanish universities from the original U-Ranking data (Pérez and Aldás [dirs.] 2019). As a result, the changes between the results obtained and those offered by U-Ranking 2019 are due not only to the aggregation method, but also to the previous data processing.

Despite the multiple changes introduced, there are no substantial alterations with respect to those offered by U-Ranking 2019, especially at the endpoints of the distribution. For the overall performance ranking the correlation between both rankings is 0.87.

The greatest variations are produced in universities located mostly towards the middle of the distribution, which shows how difficult it is to sort intermediate positions in order.

Furthermore, a considerably large number of changes in order occur among private universities, which tend to show their greater volatility compared to public universities. It could be partly due to their greater specialization in certain dimensions, notably teaching, and to the fact that various aggregation criteria are sensitive to the degree of specialization of the universities.

2.9. PRIVATE UNIVERSITIES

U-Ranking 2020 analyzes 48 public and 22 private universities. Private universities are an important part of the Spanish university system. As shown in figure 1, they have experienced a large growth in the last twenty years, quadrupling in number to 36 institutions out of the 86 that make up the Spanish university system today (see panel a), after ESIC and CUNEF, two centers previously considered centers attached to public universities, were recognized as universities. Likewise, the number of Bachelor's and Master's students has quintupled, from 52,000 to more than 278,000 students in the 2018-2019¹¹ academic year, which represents 18,5% of university students studying in Spain, compared to 4% 24 years ago.

An important characteristic of the private universities, apart from their relative youth, is their smaller size. If we compare the number of private universities as a percentage of the total (42%) and the number of private university students as a percentage of the total (18.5%), it becomes clear that private universities are generally smaller. Another distinctive feature is greater degree of specialization in postgraduate studies. The private universities have placed great emphasis on master's degrees, as the makeup of their students shows. Whereas the proportion of master's students in public universities is 11%, in the private universities it is 28.3%. Indeed, one in three master's students in Spain studies at a private university.

Due to the idiosyncrasies of private universities, one of the indicators defined in the methodology, "Cut-off marks" (Teaching), is not applicable to these institutions. Students must pass a university admissions test (PAU) and upper secondary education tests in order to study a de-

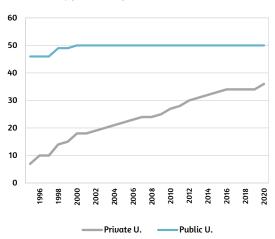
¹¹ Data on students in the last academic year does not include students from ESIC and CUNEF, since information on these universities has not yet been provided by the Ministry as they were recognized as universities in 2019.

¹² The cut-off mark is the mark of the last student who gained admission to a degree with limited places. This mark is only a guideline and varies from one year to the next, depending on the number of free places and the marks of the students registered.

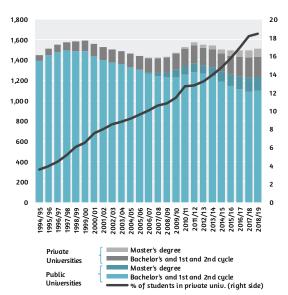
gree regardless of whether it is offered by a public or private university. However, for private universities, the mark obtained does not always constitute a criterion of admission, since they have their own procedures, based on specific tests, personal interviews and academic record.

Figure 1. Evolution of the number of universities and students. 1994/95 to 2018/19 academic years

a) Number of public and private universities



b) University students by level of studies and type of university. 1994/95 to 2018/19 academic years (number and percentage)



Note: Student data for the 2018/19 academic course are provisional.

Source: Registro de Universidades Centros y Titulaciones (2020) and Spanish Ministry of Universities (Estadística de Estudiantes, several years). As a result, private universities do not publish cut-off marks for their degrees.¹³ Therefore, for private universities this variable will be set at 5.

All these things considered, U-Ranking 2020 has reviewed all the information available for private universities following the criteria of including those institutions which can provide at least 18 out of the 20 indicators considered for the public system¹⁴, as well as the three variables that measure size (student body, full-time equivalent faculty members with PhD and consolidated revenues). As a result, in the 8th edition of U-Ranking the following private universities are analyzed:

- Mondragon Unibertsitatea
- Universidad a Distancia de Madrid
- Universidad Alfonso X el Sabio
- Universidad Camilo José Cela
- Universidad Cardenal Herrera-CEU
- Universidad Católica de Valencia San Vicente Mártir
- Universidad de Deusto
- Universidad de Navarra
- Universidad Europea de Canarias
- Universidad Europea de Madrid
- Universidad Europea de Valencia
- Universidad Internacional de La Rioja
- Universidad Internacional de Valencia
- Universidad Internacional Isabel I de Castilla
- Universidad Nebrija
- Universidad Pontificia Comillas
- Universidad San Pablo CEU
- Universitat Abat Oliba CEU
- Universitat Internacional de Catalunya
- Universitat Oberta de Catalunya
- Universitat Ramon Llull
- Vic-Universitat Central de Catalunya

¹³ For private universities, the cut-off mark for each degree is 5 since the prerequisite is to pass the university admissions test.

¹⁴ Since the indicators are based on moving averages, the requirement has been for each of the chosen indicators to have information that would enable to calculate them.

In comparison with the 2019 edition, U-Ranking 2020 includes nine private universities: Universidad Europea de Madrid, Universidad Internacional de Valencia, Universitat Abat Oliba CEU, Universidad Europea de Canarias, Universidad Europea

pea de Valencia, Universidad Alfonso X el Sabio, Universidad Camilo José Cela, Universidad Isabel I de Castilla and Universidad Internacional de La Rioja. However, the Universidad Francisco de Vitoria is no longer included.

3. User personalized rankings

The aggregation of information on each of the aspects of a complex problem when evaluating it synthetically may depend on the user. In the case of the universities, there are different dimensions in their performance, but also different profiles of users interested in them: undergraduate or postgraduate student, teacher, manager, member of the governing team or of the Board of Directors, head of university policy in the Public Administration, journalist, interested citizen, etc. The importance granted by each to the different activities of the universities may be different and their interest may focus on one or more of their activities. For example, students are likely to focus on aspects of the university related with the degree that they wish to study and teachers may focus more on research.

Given the high number of users that might value the universities' activity from a particular viewpoint, it makes sense to consider the possibility of drawing up personalized rankings, established taking into account the interest of the user. The U-Ranking project considers this question for the case of Bachelor's degrees, in order to offer a tool that provides information on the ranking of degrees to students, their families and careers advisers, personalized according to their specific interests.

3.1. EXAMPLES OF PERSONALIZED RANKINGS

Constructing synthetic indicators acknowledging the preferences of users has been available only recently, thanks to the interactivity permitted by web tools. Through them, the user can value for him/herself each one of the dimensions considered, indicating which areas he/she wants to consider and which are the most important for him/her. Web technology allows these preferences revealed by the users to be

incorporated and combined with other elements contributed by the experts, such as the selection of variables and aggregating them in intermediate indicators according to criteria as described in section 2.

Two interesting examples of this approach, referring to very distinct areas, are those corresponding to the "Talent Attractiveness" Index, developed by the OECD, and the CHE Ranking, a ranking of university degrees drawn up by the German Center for Higher Education.

The OECD (2020) draws up a synthetic index that ranks countries according to their ability to attract and retain talent based on three types of migrants: university students, entrepreneurs and workers with higher education. The index rates country performance based on different dimensions: quality of opportunities, income and taxes, future prospects, family environment, skills, inclusion and quality of life. In order to calculate the index, the user must specify the importance they give to each one of the dimensions considered.

Experts prepare the set of relevant dimensions and variables and, once the user has introduced his/her valuation of each area, the web tool shows a synthetic index of talent attraction that takes into account the importance given by the user, as well as the category it belongs to.

A similar approach is used by one of the university rankings analyzed, the CHE Ranking, drawn up by Germany's Center for Higher Education for the journal *Zeit*. In this case, the student who wishes to choose a degree should select the subject he/she wishes to study, the type of course that interests him/her and the aspects that he/she considers most important (the teaching, the subsequent employment opportunities, research, etc.). Based on these preferences, a personalized university ranking is created.



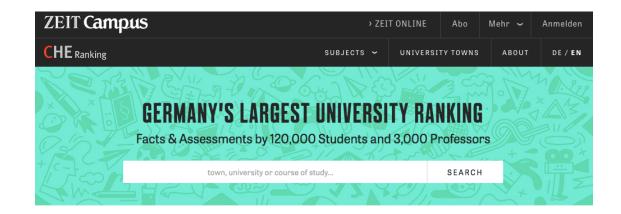
Rank your priorities and see how countries compare

more attractive

Enter your preferences!

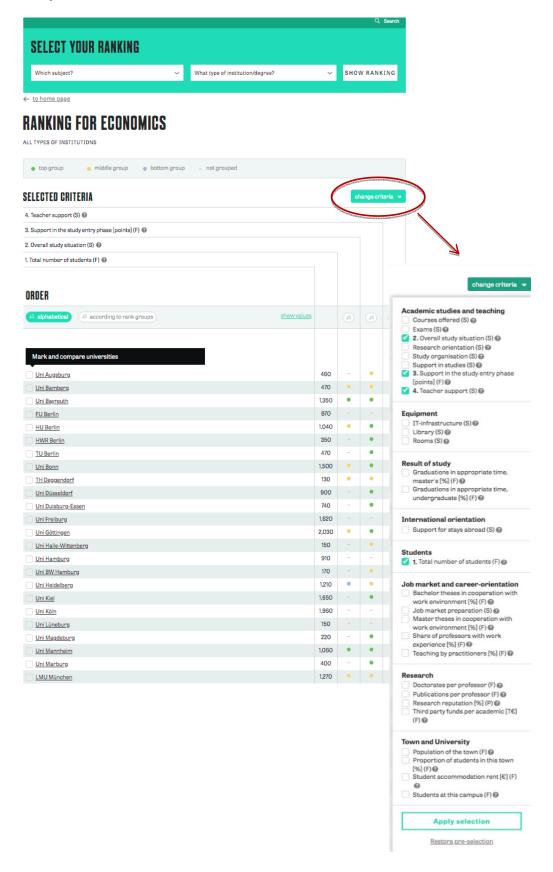
Category:







Example:



3.2. DESCRIPTION OF THE WEB TOOL FOR GENERATING PERSONALIZED RANKINGS OF DEGREES

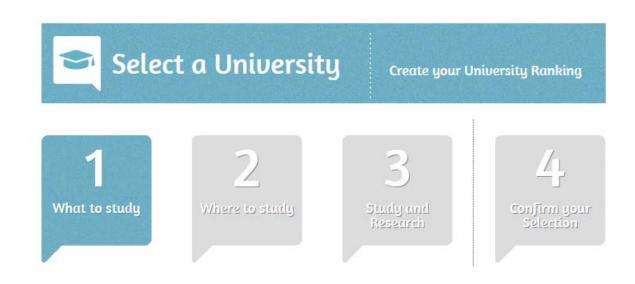
This personalized rankings approach has been used in the U-Ranking project to arrange degrees in order, constructing rankings of universities for the different Bachelor's degrees. In the future it is intended to extend this approach to other university activities, in particular to Master's degrees, when the necessary databases are available.

The value of a tool like this depends much on the effort made to facilitate its use. The objective of U-Ranking is to present a simple intuitive tool to minimize the number of clicks needed to obtain the relevant information, which is above all the corresponding ranking. This ease of use must be present both when limiting the degrees to be compared and when permitting the user to declare his/her preferences in order to draw up the personalized rankings.

The opinion as to when a user-friendly procedure has been achieved must also take into account the user's point of view. Therefore, to harmonize the tool with the most frequent potential users we performed trials among students of 17-18 years, who are less familiar with the concepts of the university world than the experts participating in the project. On the basis of these trials the necessary corrections were made to the tool in order to adapt it better to students and make understanding of the results easier.

The tool is presented on the screen of the project's website via the *Select University* tab. When this part of the screen is clicked, it shows the three questions that must be answered in order to obtain a ranking of universities by degrees adapted to the interests of the student in three aspects:

- What to study
- Where to study
- Study and research



When each of the three questions are clicked, a selection box opens in which the user has to choose, respectively:

- The Bachelor's degree or degrees that he/she wishes to study
- The autonomous community or regions whose universities he/she wants to compare
- The importance for the user of the teaching and research and innovation.

The user can choose either one or several options in the first two questions (one or several degrees; one, several or all of the autonomous communities).

To avoid having to make the choice among the thousands of different Bachelor's degrees offered by Spanish universities, the first selection window shows 3,359 degrees offered by 70 universities analyzed and grouped into 26 families of degrees.

When one of these areas is clicked, a drop-down list is displayed showing the Bachelor's degrees that it contains. Thus, for example, when "Artistic Studies" is selected the Bachelor's degrees included in this family of degrees are displayed.

The names of the degrees that appear in the drop-down list are not exhaustive or literal either, as those Bachelor's degrees with very similar names have been grouped, as for example "Humanities" and "Humanities and social studies" have been grouped under the name "Humanities Degrees". In this way the initial more than 3,359 Bachelor's degrees have been reduced to 123, to make the user's decision easier. However, irrespective of this initial reduction, the final results show the complete title of the degree, as well as the center where it is taught in case there are various options.

Choose or find a degree 🝳

You can select various degrees from different areas of study

Artistic Studies
➡ Philology, Literature, Languages and Translation
Humanities, History and Philosophy
Communication and Documentation Sciences
Education, Sport and Exercise Sciences
Early Childhood Education Degrees
Pedagogy Degrees
Primary Education Degrees
Social education Degrees
Sport and Exercise science Degrees
Low
Economics and Business
Social Studies and Administrative Science
Geography and Planning
Human Resources and Labour relations
■ Biological Sciences
Physics
Geology and Environment
■ Mathematics
→ Chemistry
Computer Science
Civil Engineering and Architecture
Industrial Engineering
Agrtfood Engineering
→ Nursing and Podiatry → Nursing and Podiatry
+ Pharmacy
+ Physiotherapy
→ Medicine and Dentistry
Other Health Sciences
Psychology
→ Veterinary Veterinary

The second step is to choose the autonomous community or regions that are being considered as places in which to study. For this, the user must mark those chosen on the following table, one of the options being "Any region". The option of restricting the search to specific autonomous communities is a response to the fact that many students do not contemplate geographical mobility as an alternative, or contemplate it restrictively. In this case, their interest will be to know which of the studies offered are valued best in the territories that the student is considering. Anyway, complementary information is offered to position their options relative to the remaining offers of the Spanish University System.

Thirdly, the user must declare his/her preferences with regard to the importance given to study and research when valuing the universities' profiles, assigning the 100 points available to him/her according to the weight he/she wishes to grant to teaching and to research.

As the user chooses the degrees and the autonomous communities of his/her interest and distributes the 100 points among the two dimensions in such a way as to reflect his/her preferences, those decisions are registered in the boxes below. Once the information is introduced in the three fields, the "Create your own ranking" button appears on screen.

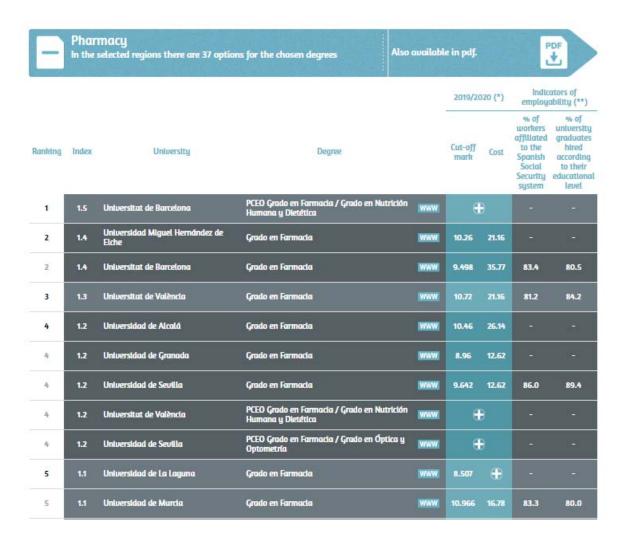
Choose where you want to study

You can select several regions

Any region
Andalusia
Aragon
The Canary Islands
Cantabria
Castile and Leon
Castile-La Mancha
Catalonia
Madrid
Navarre
The Valencian Community
Extremadura
Galicia
The Balearic Islands
La Rioja
The Basque Country
Asturias
Murcia



Create your own ranking



When this button is clicked the personalized ranking corresponding to the selection criteria introduced is displayed, showing in order the corresponding Bachelor's degrees of the universities that offer those studies in the territories considered. The user is also informed that there are other options in addition to those selected in the same family of degrees, in case he/she is interested. This more complete set of alternatives is offered in a pdf file.

The first column shows the position of each degree considered in the personalized ranking. The second shows the value of the index reached for each specific degree. As we observe in the example, various Bachelor's degrees can occupy the same position in the ranking, since the indices are rounded to one decimal because greater precision is not considered to reflect, more accurately, differences among the degrees.

Next to the names of the Bachelor's degrees appears a link to the web address of each university. In addition, the cut-off mark of the last year, the price per credit on first registration, and information on the centers which impart the degree. The last columns on the right show the information on graduate employability which will be described in the next section.

Table 6 shows the level of disaggregation of each of the indicators included in the calculation of the personalized ranking of degrees¹⁵. These indicators are the same twenty as those used to calculate the rankings by institutions. The sources and the years used are both the same; however, the level of disaggregation varies.

40

¹⁵ The dimensions, areas, and indicators used, as well as the definition of the indicators, sources, and period coincide with what is described in Annex 1 (overall ranking). As shown in the table, the only variation is in the column of level of disaggregation.

While the indicators in the general ranking are collected at area of study or university level, more disaggregated information is used for the personalized ranking when available. Thus, 9 of the 20 indicators involved in the calculation of the synthetic index of each degree are analyzed at the level of degree or group of degrees. It should be noted that the only difference with regard to the methodology of the general ranking is that the standardization of the indicators of the personalized ranking of degrees is done by groups of degrees, not by area of study. In other words, the reference group for each degree would be the one that belongs to the same family of degrees and therefore, it is the median value of this family that is used for the standardization.

To sum up, the web tool for constructing personalized rankings is easy to use, very flexible, and is underpinned by a rigorous methodology identical to the one described in previous sections on how general rankings are constructed. Therefore, it is a complement to the latter with a high potential for students, families and careers counselors, as well as for the universities themselves. The more than 185,000 personalized rankings that have been calculated testify to the level of interest in the tool. For this interest in the tool to be effective, it is essential to keep all the supporting information up-to-date and to constantly incorporate improvements, taking the users' experience into account. This work is currently underway and U-Ranking 2020 includes information on graduate employability.

Table 6. Indica degree	tors and level of dis	saggregation of the information used for the ranking by	
Dimension	Area	Indicator	Level
Teaching	Resources	Faculty member per 100 students Budget per student Percentage of faculty member with PhD	Area of study University Area of study
	Production	Success rate Evaluation rate Drop-out rate	Bachelor's Degree Bachelor's Degree Bachelor's Degree
	Quality	Percentage of postgraduate students Cut-off mark	Area of study Bachelor's Degree
	Internationalization	Percentage of foreign students Percentage of students in foreign exchange programs	Bachelor's Degree University
	Resources	Competitive public resources per faculty member with PhD Contracts with PhDs, research grants and technical support over total budget	Area of study Area of study
Research and	Production	Citable documents with ISI reference per faculty member with PhD Number of patents per 100 faculty members with PhD Number of thesis defended per 100 faculty members with PhD	Area of study University Area of study
	Quality	Mean impact factor Percentage of publications in the first quartile Citations per document	Group of degrees Group of degrees Group of degrees
	Internationalization	H2020 European research funds per faculty member with PhD Percentage of publications with international co-authorship	University Group of degrees

3.3. COMPLEMENTARY INFORMATION ON GRADUATE EMPLOYABILITY

Graduate employability according to the degrees offered by a university influences the users' valuations of its services. In particular, the costs of accessing the services can condition decisions affecting their demand. This seems to be indicated by, for example, the distribution of foreign students of the Erasmus program. For this reason, it has been considered appropriate to include information on environmental variables as a complement to that offered by the rankings.

The demand for a university can be reinforced if it offers degrees with a favorable employability outlook, especially if a certain degree has better employability results than those of the same degree in another university. Consequently, this edition of U-Ranking offers employability indicators instead of environmental data as in previous editions.

An analysis of graduate employability is carried out with data from the report "Inserción laboral de los egresados universitarios" (Ministry of Universities 2019) on the Spanish Social Security system affiliation rates of university students who graduated during the 2013-14 academic course and on the labor market access of these graduates during the four years after their graduation (2015 to 2018). In 2015, the Ministry published its first report with employability data along with the corresponding indicators on graduates from the 2009-10 academic course, focusing on 1st and 2nd cycle students. Now with its 2019 publication, the Ministry makes two-wave data sets available. The continuity of this project will allow information on graduate employability at degree level, which is very useful for users, to be updated on a regular basis.

The data analyzed in U-Ranking 2020 focuses on the employment situation of university graduates four years after obtaining their degree, and on two indicators of degree employability: a) percentage of university graduates affiliated to the Spanish Social Security system and working over total number of graduates four years after graduating and b) percentage of graduates affiliated to the Spanish Social Security system and hired according to their educational level four years after graduating. Information on the average salary for the National Insurance contribution calculation used in this report to calculate the synthetic indicator of employability is not available at degree level.

Data on employability is presented as a supplementary to the ranking of degrees. The web tool offers the value of the degree for each one considered, with information on approximately 1,800 degrees.

The same as in previous editions, the 2020 edition also includes the price per credit for over 3,359 Bachelor's degrees analyzed by U-Ranking, based on university statistics provided by the Spanish Ministry of Universities (2020a). These prices, despite the maximum limit set by the Spanish Ministry, can vary depending on the autonomous community, the university, the cycle —Bachelor, Master, Doctorate— the level of experimentality of the degree and the ownership of the center offering that degree. As can be appreciated in table 7, the current range of fees by regions is considerable, even more if differences of experimentality and cycle are considered.

For this reason, it can be considered relevant that the user of U-Ranking will be able to know the price per credit at first registration for each Bachelor's degree. The prices included in U-Ranking correspond to those established for the academic year 2019-2020. Also, the cost was included by degree course or by credit offered by private universities when available on their web pages.

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¹⁶ U-Ranking also includes Bachelor's degrees imparted by private centres attached to public universities. In general, the price of these degrees includes an extra cost above public prices.

Table 7. Public price per credit at the time o (€/credit)	f first enrollment by reg	yion. 2019-2020 acad	demic year
- Region	Average price	Min. price	Max. price
Andalusia	12.62	12.62	12.62
Aragon	18.74	13.70	23.39
Asturias	16.28	11.50	20.93
The Balearic Islands	16.13	11.59	20.82
The Canary Islands	12.60	10.18	15.69
Cantabria	13.03	10.28	16.07
Castile-La Mancha	15.81	12.13	18.87
Castile and Leon ¹	21.78	16.22	28.74
Catalonia ²	33.52	25.27	39.53
The Valencian Community	17.33	13.86	21.16
Extremadura	14.74	10.31	18.51
Galicia	11.89	9.85	13.93
Madrid	24.03	21.39	26.14
Murcia	15.58	14.38	16.78
Navarre	19.65	16.25	23.05
Basque Country	16.88	14.08	19.84
La Rioja	19.77	14.60	23.51
UNED ³	15.52	13.00	21.60

⁽¹⁾ Castile and León subdivides the level 2 subject groups into subgroups B1 and B2 and the level 3 groups into subgroups C1 and C2. These prices have been weighted in calculating the average.

Source: Ministry of Universities (2020a).

⁽²⁾ The government of Catalonia has extended the Equidad grants (which offer reductions in the standard price per credit for degree students) to Master's degree courses that give access to regulated professional activities, based on the level of household income, so that the resulting prices, after deducting the grant, are those set out in Annex 5 of the Price Decree, in accordance with the terms and conditions stated in the call for applications.

⁽³⁾ UNED organizes its degrees in four groups with different prices on first enrollment, within each group, depending on the subject of study. These prices have been weighted in calculating the average.

4. Main results

This chapter offers the principal results obtained in this 8th edition of U-Ranking, corresponding to 2020, in which the general rankings and the personalized rankings of Bachelor's degrees have been updated. All the rankings are available at the project website www.u-ranking.es.

The 2020 rankings will be analyzed in this section from six different perspectives in order to emphasize the contribution made by the project and its methodology: a) comparing them with other rankings already known in order to evaluate their similarities and differences; b) assessing the sensitivity of the results to changes in some of the hypotheses put forward, specifically the relative weights assigned to the teaching and research activities, and the importance of considering or not the size of the university; c) comparing the 2019 results with those of the 2020 edition; d) examining the differences in the performance of the various regional university systems; e) and finally, this edition offers employability data in 2018 of university students who graduated during the 2013-14 academic course in Spanish universities.

4.1. U-RANKING

Table 6 offers the ranking of 70 Spanish universities classified according to their indices of performance (U-Ranking). Keeping in mind that performance is the relationship between the volume of the results of the universities in the areas analyzed and the resources used to accomplish them, i.e. if two universities generate the same results, the one that makes use of less resources to achieve them will have a higher performance. The order is based on the value of the synthetic indicator obtained by each university, offered in the second column. This indicator has been rounded to one decimal as a greater detail of the index would not reflect more accurately the differences among universities, given the set of decisions adopted in the process of construction of indicators already described.

As shown in the table, various universities obtain the same index and therefore present the same position in the ranking. As a result of this criterion, the 70 universities are grouped into 12 levels of performance. Those universities with the same index have been ordered alphabetically within their group.

In table 8, universities that are 15 years or younger are marked with an asterisk (*), so the reader can put into context the results in the following sense. While a university must be able to show its teaching potential since the start, because its graduates must acquire all the competences associated to a degree, however, most results in research and innovation require a longer amount of time in order to create research teams and obtain equipment and infrastructures, well as the needed organizational requirements to develop their full potential. Pointing out the universities with 15 years or less of existence allows the reader to better understand why the results for these vounger universities in research and transfer are often lower.

In this sense, the following paragraphs will detail the cardinal and ordinal aspects of the universities that constitute noteworthy differences.

Table 8 includes at the end a list of the universities that have not been analyzed because of insufficient information to construct the indices. The six universities that have existed for less than 15 years are marked with an asterisk. The purpose of including this group is to highlight the transparency of the universities that are included in the rankings, as they generate and disclose the information required in order to be included, regardless of their final position. When interpreting the results of a university included in the ranking, it is important to bear in mind, therefore, that a large part of the private university system is not included due to lack of information. Any university in the ranking could conceivably have an indeterminate number of universities below the lowest level (12) in the current ranking. This fact is confirmed by this

Universitu	Rankina	Index	Universitu	Rankina	Index	Universitu	Rankina	Index
Universitat Pompeu Fabra	1	1.5	U. de Santiago de Compostela	5	1.1	Universidad Cardenal Herrera-CEU	8	0.8
Universidad Carlos III de Madrid	2	1.4	Universidade de Viao	5	1.1	Universidad Europea de Madrid	8	0.8
Universitat Autònoma de Barcelona		1.4	Universitat de Girona	5	1.1	UNED	8	0.8
Universitat Politècnica de Catalunya		1.4	Universitat de les Illes Balears	5	1.1	Universidad Nebrija	8	0.8
Universitat Politècnica de València		1.4	Universitat Jaume I de Castellón	5	1.1	Universidad Internacional de La Rioja*	9	0.8
Universidad Autónoma de Madrid	3	1.3	Universidad de Cádiz	6	1.0	Universidad A Distancia de Madrid*	10	0.7
Universidad de Cantabria	3	1.3	Universidad de León	6	1.0	Universidad Católica de Valencia	10	0.6
Universidad de Navarra	3	1.3	Universidad de Málaga	6	1.0	Universidad Alfonso X El Sabio	11	0.5
Universitat de Barcelona	3	1.3	Universidad de Malaga	6	1.0	· ·	11	0.5
Universitat Rovira i Virgili	3	1.3	Universidad de Salamanca	6	1.0	Universidad Camilo José Cela Universidad Europea de Canarias*	11	0.5
Universitat Robira i Virgili Universidad de Alcalá		1.2	Universidad de Saidmanca	6	1.0	Universidad Internacional Valenciana*	11	0.5
Universidad de Alcala Universidad de Deusto	4	1.2	Universidad de Sevilla Universidad de Valladolid	6	1.0	Universitat Abat Oliba CEU	11	0.5
		1.2	Universidad Pública de Navarra	6				
U. Miguel Hernández de Elche Universidad Pablo de Olavide					1.0	Universidad Europea de Valencia* U.Internacional Isabel I de Castilla*		0.4
		1.2	Universidad Rey Juan Carlos		1.0		12	0.4
Universidad Politécnica de Madrid		1.2	Universidad San Pablo-CEU		1.0	IE Universidad Universidad Católica de Ávila		
Universitat de Lleida		1.2	Universidade da Coruña		1.0			
Universitat de València		1.2	Vic-Universitat Central de Catalunya	6	1.0	Universidad Católica San Antonio		
Universitat Ramon Llull	4	1.2	Universidad de Castilla-La Mancha	7	0.9	Universidad del Atlántico Medio*		
Universidad Complutense de Madrid	5	1.1	Universidad de Extremadura	7	0.9	Universidad Europea del Atlántico*		
Universidad de Alicante	5	1.1	Universidad de Huelva	7	0.9	Universidad Europea Miguel de Cervant		
Universidad de Almería	5	1.1	Universidad de Jaén	7	0.9	Universidad Fernando Pessoa-Canarias	*	
Universidad de Burgos	5	1.1	Universidad de La Laguna	7	0.9	Universidad Francisco de Vitoria		
Universidad de Córdoba	5	1.1	U. de Las Palmas de Gran Canaria	7	0.9	Universidad Internacional de Andalucía	ı	
Universidad de Granada	5	1.1	Universidad de Murcia	7	0.9	Universidad Internacional Menéndez Pe	layo	
Universidad de La Rioja	5	1.1	Universidad Pontificia Comillas	7	0.9	Universidad Loyola de Andalucía*		
Universidad de Zaragoza	5	1.1	U. Internacional de Catalunya	7	0.9	Universidad Pontificia de Salamanca		
Universidad del País Vasco	5	1.1	Universitat Oberta de Catalunya	7	0.9	Universidad San Jorge*		
Universidad Politécnica de Cartagena	5	1.1	Mondragon Unibertsitatea		0.8	Universidad Tecnología y Empresa*		

Note: Universities are ordered from the highest to the lowest index value. Universities with the same index value are ordered alphabetically. The 14 universities listed in the last column have not been analyzed due to lack of data.

year's edition in which seven of the nine new universities included for the first time are found in the low end of the ranking.

Regarding the results, an aspect worth mentioning is that the range of the index from which this ranking is derived continues to show, as in previous editions, significant differences in performance among Spanish universities, with the most productive ones having results that are three times higher than those in end positions. The leading group in U-Ranking is made up of 18 universities occupying the first to the fourth positions (various universities share the same position), increasing their results to 20% above the national average. These universities are: Universitat Pompeu Fabra in first place, followed in second place by Universidad Carlos III de Madrid, Universitat Autònoma de Barcelona, Politècnica de Catalunya and Politècnica de València.. The third place corresponds to the first private university on the list, Universidad de Navarra, along with four public ones: Universidad Autónoma de Madrid, Universidad de Cantabria, Universitat de Barcelona and Universitat Rovira i Virgili. The fourth place is occupied by eight universities:

Alcalá, Miguel Hernández de Elche, Pablo Olavide, Politécnica de Madrid, Universitat de Lleida, Universitat de València and two other private universities, Deusto and Universitat Ramon Llull.

In fifth place, still above the average, are fifteen universities. Other groups of universities with similar levels of performance are: twelve that share sixth place (equivalent to the average of the system), ten in seventh position, five others are found in eighth place, including Universidad Europea de Madrid which has been analyzed for the first time this year, one in ninth and two in tenth place. Five newly added universities occupy the eleventh place, and two, the twelfth place.

If we take a look at the universities in the top four places, they are basically the same universities as in the 2019 edition¹⁷, with the exception of the inclusion of the Universidad

^{*}Universities 15 years or younger. Source: BBVA Foundation-Ivie

¹⁷ In the 2019 ranking, 16 universities were placed between the first and fifth positions.

Pablo de Olavide, Universidad de Deusto and Universitat Ramon Llull, and Universidade Santiago de Compostela, which now occupies the fifth place.

In sum, the 2020 U-Ranking results reveal stability, in spite of the changes in the methodology followed and the change in the data sources used to construct the indicators.

4.2. U-RANKING VOLUME

Table 9 shows the index and the ranking of the 70 Spanish public universities according to their volume of results (U-Ranking Volume), which differs from that of performance because it is obtained by calculating the size of each university. The underlying idea that justifies the

need for a volume index is that a small university can also have a great performance (i.e., its researchers can publish almost all of their articles in first quartile [Q1] journals), but if its size is very small, the impact on the environment and university system as a whole will be limited. In turn, a very large university may have a low performance rate (i.e., the percentage of articles published in Q1 journals is small), but if its size makes the total output bigger (the total number of published Q1 articles is higher), its total impact can be significantly relevant.

Unlike the performance ranking, in which universities are grouped in 12 levels, in U-Ranking Volume, the 70 universities analyzed are ordered in 32 different positions, indicating the greater heterogeneity in the university system in terms of the size-performance binomial, adding variability to the ranking.

Hada and to	Rankina	In day	Universitu	Rankina	In day	Universitu	Rankina	Index
University	Kanking 1	Index	University Universidad de Extremadura		Index			
Universidad Complutense de Madrid	•	5.6		19	1.3	Universidad de La Rioja	28	0.4
Universitat de Barcelona	2	4.7	Universidade da Coruña	19	1.3	Universidad Internacional de La Rioja*	28	0.4
Universidad de Granada	_	4.2 4.1	Universitat Pompeu Fabra	19	1.3	Mondragon Unibertsitatea	29	0.3
Universidad de Sevilla Universitat de València		4.1 4.1	U. de Las Palmas de Gran Canaria Universidad de Navarra	20	1.2 1.2	Universidad Alfonso X El Sabio	29	0.3
Universitat de Valencia Universidad del País Vasco	5			20		U. Internacional de Catalunya	29	0.3
	-	3.9	Universitat Rovira i Virgili	20	1.2	Vic-Universitat Central de Catalunya	29	0.3
Universitat Autònoma de Barcelona	6	3.5	Universidad de Cantabria	21	1.1	Universidad Camilo José Cela	30	0.2
Universidad Politécnica de Madrid	7	3.4	Universitat Jaume I de Castellón	21	1.1	Universidad Nebrija	30	0.2
Universitat Politècnica de València	7	3.4	Universitat Ramon Llull	21	1.1	Universidad A Distancia de Madrid*	31	0.1
Universitat Politècnica de Catalunya	8	3.3	U. Miguel Hernández de Elche	22	1.0	U.Internacional Isabel I de Castilla*	31	0.1
Universidad Autónoma de Madrid	9	3.0	Universitat de Girona	22	1.0	Universidad Internacional Valenciana*	31	0.1
Universidad de Zaragoza		2.8	Universitat Oberta de Catalunya	22	1.0	Universidad Europea de Canarias*	32	<0,1
UNED	10	2.8	Universidad de Almería	23	0.9	Universidad Europea de Valencia*		<0,1
Universidad de Málaga	11	2.4	Universidad de Jaén	23	0.9	Universitat Abat Oliba CEU	32	<0,1
U. de Santiago de Compostela	12	2.3	Universidad Pablo de Olavide	23	0.9	IE Universidad		
Universidad Carlos III de Madrid	13	2.0	Universitat de les Illes Balears	23	0.9	Universidad Católica de Ávila		
Universidad de Murcia	13	2.0	Universidad de Deusto	24	0.8	Universidad Católica San Antonio		
Universidad de Alicante		1.9	Universidad de León	24	0.8	Universidad del Atlántico Medio*		
Universidad de Salamanca	14	1.9	Universidad Europea de Madrid	24	0.8	Universidad Europea del Atlántico*		
Universidad de Oviedo	15	1.8	Universitat de Lleida	24	0.8	Universidad Europea Miguel de Cervant	tes	
Universidad Rey Juan Carlos	15	1.8	Universidad de Huelva	25	0.7	Universidad Fernando Pessoa-Canarias	*	
Universidad de Valladolid	16	1.7	Universidad Pública de Navarra	25	0.7	Universidad Francisco de Vitoria		
Universidad de Alcalá	17	1.6	Universidad de Burgos	26	0.6	Universidad Internacional de Andalucía	ı	
Universidad de Castilla-La Mancha	17	1.6	Universidad San Pablo-CEU	26	0.6	Universidad Internacional Menéndez Pe	layo	
Universidade de Vigo	17	1.6	Universidad Politécnica de Cartagena	27	0.5	Universidad Loyola de Andalucía*		
Universidad de Cádiz	18	1.4	Universidad Pontificia Comillas	27	0.5	Universidad Pontificia de Salamanca		
Universidad de Córdoba		1.4	Universidad Cardenal Herrera-CEU	28	0.4	Universidad San Jorge*		
Universidad de La Laguna	18	1.4	Universidad Católica de Valencia	28	0.4	Universidad Tecnología y Empresa*		

Note: Universities are ordered from the highest to the lowest index value. Universities with the same index value are ordered alphabetically. The 14 universities listed in the last column have not been analyzed due to lack of data.

*Universities 15 years or younger.

Source: BBVA Foundation-Ivie

As can be seen in table 9, the Universidad Complutense de Madrid leads by a large margin, with an index of 5.6, almost one point higher than the university in second place, Universitat de Barcelona (4.7). The Universitat de Barcelona itself has a half a point higher index than the one in third place, Universidad de Granada (4.2). In fourth place are Universidad de Sevilla and Universitat de València. They are followed by Universidad del País Vasco and Universitat Autònoma de Barcelona in fifth and sixth place, respectively. In seventh place are the two Polytechnics of Madrid and Valencia. The Politécnica de Catalunya and Universitat Autònoma de Madrid occupy the eighth and ninth positions, respectively. Finally, Universidad de Zaragoza and UNED complete the 10 universities at the top of the ranking. These thirteen top universities are the same ones located at the top of the 2019 edition.

Between the eleventh and nineteenth place are 18 public universities. The rest are shown below, most of them grouped in levels shared by at least three or more universities.

The ranking by volume shows the smaller size of the private universities compared to the public ones. Due to their smaller size, they rank lower in the ranking by volume of results than in the ranking by performance. Thus, in table 9, it can be observed that all the private universities are located in the lower half of the list. The highest-ranking private universities in terms of volume of results when combining better results and larger size are Universidad de Navarra and Universitat Ramon Llull.

4.3. U-RANKING VOLUME VS. U-RANKING PERFORMANCE

The comparison of the above two tables indicates that the differences between the U-Ranking Volume and U-Ranking, which measures the performance, are substantial. But both approaches can be useful, depending on the question to be answered.

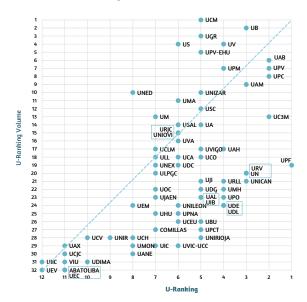
The differences in the values of the indicators are much greater in the volume ranking due to the importance of size. The indicator of total results ranges from 5.6 to 0.1, very much wider than for the indicator of performance, which goes from 1.5 to 0.4.

Figure 2 combines the two types of rankings and facilitates the comparison of the position of each university in both. The results of U-Ranking Volume, which depend on the size, are shown on the vertical axis, while on the horizontal axis the results of U-Ranking, which measures the performance and corrects the effects of size, are seen.

The universities are ordered from top to bottom on the first and from right to left on the second. In each case the scale is different, to reflect that each ranking establishes a different number of groups of universities with the same index. As can be observed, the dispersion of points in the figure is significant and reflects that there is no definite correlation between the two rankings. Therefore, size does not seem, in general, to have any positive or negative influence on performance.

Figure 2. U-Ranking vs. U-Ranking Volume of the Spanish public universities

Position in each ranking



Note: See appendix 2 for a list of abbreviations. Source: BBVA Foundation-Ivie.

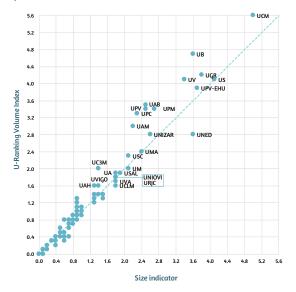
In the top part of the figure are the universities the highest output: Universidad Complutense, Universitat de Barcelona. Universidad de Granada, Universidad de Sevilla, Universitat de València, Universidad de Granada, Universidad de Sevilla, Universidad del País Vasco, Universitat Politècnica de València, Universitat Autònoma de Barcelona, Universidad Politécnica de Madrid, Universitat Autònoma de Barcelona, Universitat Politècnica de Catalunya, Universidad Autónoma de Madrid, Universidad de Zaragoza and UNED.

However, not all of these large universities show a good performance (see right side of figure), while other smaller ones do stand out in this regard. An example of the former case is UNED, a large university with a great volume of results that is placed among the top 13 universities in U-Ranking Volume. An example of the latter is the Universitat Pompeu Fabra, which shows the highest performance in U-Ranking, as well as other very productive medium- or small-sized universities such as Universidad Carlos III, Universitat Rovira i Virgili, Universidad de Cantabria and Universidad de Navarra, whose output places them around the middle of U-Ranking Volume.

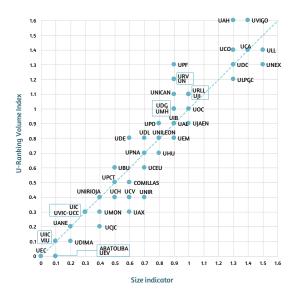
In fact, examples of higher or lower performance can be found among universities of very different sizes. Figure 3 shows the relationship in panel a (all the universities) and b (universities with a U-Ranking Volume index inferior to 1.6) between size on the horizontal axis and the index of U-Ranking Volume for each university on the vertical axis. Those situated above the diagonal achieve results higher than the average performance, the gradient of the vector radius joining each position to the origin being the measure of their performance.

Figure 3. U-Ranking Volume vs. Size indicator

a) Total



b) Universities with a U-Ranking Volume Index below 1.6



Note: The size indicator is a standard arithmetic mean of the teachers, students and budget of each university. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie

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¹⁸ As mentioned previously, the indicator of size is the result of calculating the standardized arithmetic mean of the number of students, faculty members and budget of each university.

4.4. U-RANKING VS. SHANGHAI RANKING

Many universities are interested in being compared with the best in the world, thus explaining the increasing popularity attained by some international rankings. In view of the importance given to these popular references, the question arises whether U-Ranking offers different or similar results in comparison to international ones. As an external reference for comparison, we will consider the Academic Ranking of World Universities (ARWU), also known as the Shanghai Ranking, which without a doubt has become the most widely known to date.

Since the 2017 edition, the Shanghai Ranking publishes the ranking of the top 1,000 universities. In the last edition of ARWU, 38 Spanish universities (37 public and 1 private) have been included among these 1,000. ARWU presents an individual positioning system for the first 100 universities, the next 100 appear in groups shared by 50 universities (101 to 150 and 151 to 200), and from position 201 onwards the universities are grouped in sections of 100.

In the latest edition, as can be seen in figure 4, 13 Spanish universities appear among the top 500. All except one, Universitat de Barcelona, are located below the 200th place. Spain appears in the seventh position in the figure when considering the 1,000 universities of the ranking. When only the first 500 universities are considered, Spain's position improves since, despite the fact that only 16% of Spanish universities are in the Top500, 46% appear in the complete ranking¹⁹.

The positioning system by groups published in the ranking makes it impossible to compare with U-Ranking, but it is possible to obtain an individual ranking of the 38 universities which are among the top 1,000 in the world on the basis of five standardized indicators disseminated by ARWU. Once the Spanish universities have been sorted by means of this calculation, a comparison between U-Ranking and the international ranking

can be made (see figures 5 and 6). However, a recent study (Docampo 2017) offers a version of the 2016 Shanghai Ranking adapted to the Spanish universities that includes the majority of the private and public universities, allowing a better comparison.

The results of U-Ranking Volume and Shanghai Ranking are much more similar than if we compare our two U-Rankings with each other, as shown in the following figures. The reason is that ARWU uses indicators that, in general, do not minimize because of size. Only one of the six indicators it uses, with a weight of 10%, takes into account size measured by full-time equivalent faculty members. Figure 5 represents on the horizontal axis the position of the Spanish universities in U-Ranking Volume and the vertical represents the Shanghai Regardless of the different number of levels that each ranking sets, both offer a similar order, and therefore the universities are mostly grouped around areas I and III of the figure.

The universities located in area II of the figure are comparatively better situated in our ranking. The case of the Universidad de Málaga stands out, occupying a clearly better position in U-Ranking Volume than in that of Shanghai Ranking. The universities in area IV, on the contrary, are comparatively better placed in the Shanghai Ranking. The common denominator in many cases is that these are small but more productive universities, such as Pompeu Fabra or Universidad de Oviedo, whose greater efficiency already became apparent in the U-Ranking's measurement of performance.

In figure 5, the universities that are among the Top 500 of the Shanghai Ranking 2019 are highlighted with dark squares. Almost all are among the top places of U-Ranking Volume: Universitat de Barcelona, Universidad Complutense de Madrid, Universidad de Granada, Autónoma de Madrid, Universitat Autònoma de Barcelona, Universitat Politècnica de València, Universitat de València, Universidad de Sevilla, Universidad de País Vasco and Universidad de Zaragoza. Three universities, Universidad de Oviedo, Universitat Pompeu Fabra and Universitat de les Illes Balears are located in more discrete positions of U-Ranking Volume.

¹⁹ Neither CUNEF and ESIC are considered because they were approved during the current course, nor the Universidad Tecnología y Empresa since they have no activity.

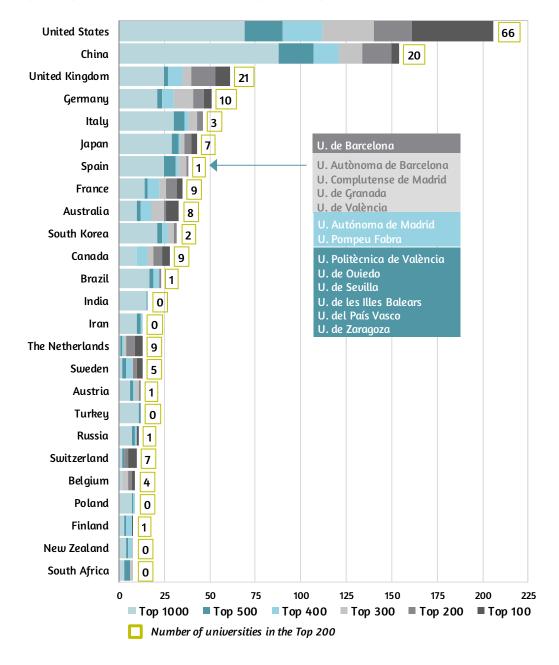
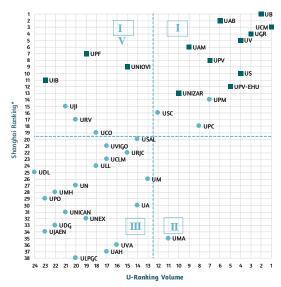


Figure 4. Spanish universities in the 201 Shanghai Ranking

Note: Ordered from the countries' highest to lowest number of universities in the Top 1,000.

Source: Academic Ranking of Word Universities (CWCU 2019).

Figure 5. U-Ranking Volume vs. Shanghai Ranking*
Position in each ranking



Note: Results correspond to an adaptation for 38 Spanish universities that appear in the ranking based on their score in the 5 indicators used and their relative position with respect to the university with the highest score. See appendix 2 for a list of abbreviations.

■ Universities in the Shanghai Ranking Top 500 2019.

Source: BBVA Foundation-Ivie and ARWU (CWCU 2019).

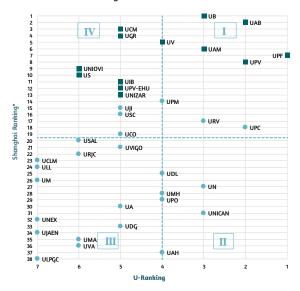
The differences with ARWU are much more substantial in the case of the U-Ranking of performance (figure 6) since the Shanghai Ranking scarcely corrects the indicators used to take into account the size and, therefore, it is more a ranking of volume of results than of performance.²⁰

To view the position of universities that stand out in both U-Rankings (performance and volume) and their position in the Shanghai Ranking, the shaded area in figure 7 shows the fifteen universities that stand out in U-Ranking, both for their high performance and their great volume of results. The universities listed in the 2019 Shanghai Ranking are highlighted in red.

The shaded area contains all the universities also highlighted by the Shanghai Ranking, except for two, Universidad de Oviedo and Universitat de les Illes Balears. Both have been included this year in the Top 500 of the 2019 Shanghai Ranking and are located in intermediate positions in U-Ranking. On the other hand, three universities

²⁰ As an example, the Shanghai Ranking uses as an indicator of teachers' quality the number of teachers who have received a Nobel Prize or a Fields Medal, not this number divided by the number of professors of the university. appear in prominent positions in U-Ranking (shaded area) but not in the Shanghai Top 500 of the 2019 Ranking: Universidad Carlos III and Politécnica de Madrid, which have not yet been included in the Top 500 of the international ranking, and Universitat Politècnica de Cataluña, which has not been included since 2016.

Figure 6. U-Ranking vs. Shanghai Ranking*
Position in each ranking



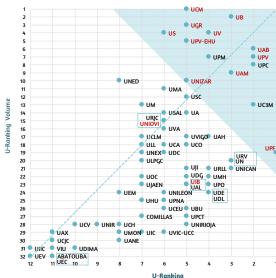
Note: Results correspond to an adaptation for 38 Spanish universities that appear in the ranking based on their score in the 5 indicators used and their relative position with respect to the university with the highest score. See appendix 2 for a list of abbreviations.

■ Universities in the Shanghai Ranking Top 500 2019.

Source: BBVA Foundation-Ivie and ARWU (CWCU 2019).

Figure 7. U-Ranking and the Spanish universities in the Top 500 of Shanghai Ranking

Position in each ranking



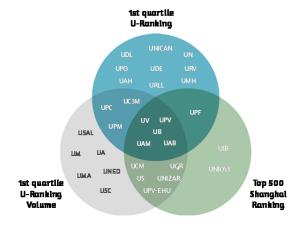
Note: Spanish universities in the Top 500 of the Shanghai Ranking are marked in red. See appendix 2 for a list of abbreviations.

 $\it Source: BBVA$ Foundation-Ivie and ARWU (CWCU 2019).

To illustrate at the same time the extent to which the three rankings compared generate different groupings of the universities a Venn diagram can be used that represents the ones that form part of the first quartile in each of the classifications and the intersections among the three.

In the center of the diagram (figure 8) appear the five universities situated in the first quartile in the three rankings, namely, Universitat de Barcelona, Universitat de València, Universitat Autònoma de Barcelona, Universidad Autónoma de Madrid and Universitat Politècnica de València. Nine other universities are in the first quartile in two of the rankings: Universitat Pompeu Fabra, in Shanghai and U-Ranking; Complutense Universidad de Madrid, Universidad de Granada, Universidad de Sevilla, Universidad de Zaragoza and Universidad del País Vasco-EHU, in Shanghai and U-Ranking Volume; Universidad del País Vasco-EHU, and, in Shanghai and U-Ranking Volume; and the Polytechnics of Cataluña and Madrid, along with Universidad Carlos III, **U-Ranking** (performance) and U-Ranking Volume. Finally, sixteen universities stand out by only one of the three criteria considered.

Figure 8. U-Rankings vs. Shanghai Ranking



Note: The 13 Spanish universities in the Top 500 of the Shanghai Ranking 2019 and the first 19 and 18 universities in U-Ranking Volume and U-Ranking are included.

See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie and ARWU (CWCU 2019).

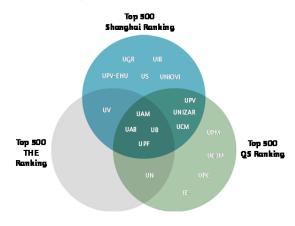
results important In sum, these show coincidences between the rankings identifying the universities that stand out, but also significant differences that reflect the different approach of each ranking. It is especially interesting to observe that of the thirteen universities that the Shanghai Ranking places in its Top 500, five also appear in the first quartile of our two rankings, in the intersection of the three circles of the diagram; four other ones are found in the two top positions in the ranking of performance (Universitat Pompeu Fabra, Universitat Autònoma de Barcelona and Universitat Politècnica de València) and volume (Universitat de Barcelona).

Therefore, it can be said that, of the thirteen Spanish universities included in the Top 500 of the Shanghai Ranking, ten are found in our first quartile because of their greater volume of results according to U-Ranking Volume and six our most productive universities among to U-Ranking of performance. Consequently, our classifications, especially of volume, present a substantial harmony with those of the Shanghai Ranking, strengthens their interest as instruments for identifying best practice. They also allow us to see that there may be differences in the rankings according to the perspective with which they were drawn up, and at the same time indicate that some universities are well positioned from any perspective.

4.5. COMPARISON OF RESULTS WITH OTHER INTERNATIONAL RANKINGS

Although the Shanghai Ranking is consolidating its influence as the most cited international indicator, there exist other initiatives of high international repute, such as the Times Higher Education (THE) or the QS Ranking. The principal differences between these two and the Shanghai Ranking are that they (i) try to measure the role of teaching and (ii) incorporate subjective valuations based on surveys of international employers and experts. The results for the Spanish universities in the three initiatives present similarities but also some differences, as shown in figure 9.

Figure 9. Comparison of the results of three international rankings. 2019-2020



Note: See appendix 2 for a list of abbreviations.

Source: ARWU (CWCU 2019), THE (2020) and QS (2020).

In the intersection of the three rankings we find a set of four universities (Universidad Autónoma de Madrid, Universitat Autònoma de Barcelona, Universitat de Barcelona and Universitat Pompeu Fabra) which appear systematically in the top positions of our rankings and also belong to the group of universities at the *frontier* of figure 7 — that is, those universities that are not dominated by hardly any other university—. Among the universities that belong to the Top 500 of THE or the Top 500 of the QS Ranking, only Universidad de Navarra is not on the efficient frontier of U-Ranking.

These results again confirm the presence of a group of Spanish universities in the top positions within our university system, regardless of the prism with which it is analyzed and that the discrepancies between our ranking and any of the well-known international rankings are not any greater than those among them.

4.6. RESEARCH *VS.* TEACHING: SENSITIVITY ANALYSIS

One of the biggest problems inherent to any composite indicator is the effect of the relative weight of the elements composing it. The U-Ranking methodological expressly considers that teaching and research and innovation can have different importance for each user of the universities' services. This is acknowledged by allowing a web tool to draw up personalized

rankings that take into account each user's preferences in this sense.

The question posed in this section is how much the general rankings of the universities would change if the weights allocated to teaching and to research were to change. In the results presented above the weights used to calculate the rankings were those obtained by applying the Delphi method that captures the opinions of the experts who collaborated in the project as well as other available information.²¹

Given that other experts or users of rankings could have different valuations of the weights that should be assigned to different activities, we should analyze whether the results are sensitive or not —in the latter case we will say that they are *robust*— to changes in the weights.

Would the results change much if a greater weight was granted to research, as in other well-known rankings? Can a university occupy a high place in a ranking if the weights of teaching and research and innovation change to better suit its strengths? The answers to these questions are important in assessing whether the results of a ranking are reliable, in other words, if they are over sensitive to the arbitrary nature of the weight assigned to research or any other university activity. As we shall see, the answer to each question is very different.

Most rankings place great emphasis on research because the information on the results of this activity is abundant and seems more precise and reliable. This bias tendency, based on "using what can be measured", is attempted to be minimized by arguing that teaching and research are highly correlated, and this hypothesis has barely been tested due to a lack of indicators of teaching results. Thus, studying the sensitivity of the rankings to changes in the weight of teaching and research and innovation allows us to analyze

2

²¹ The weights used are 56% for teaching, 34% for research and 10% for innovation and technological development. The weights were established on the basis of the opinion of the experts consulted, and agree practically with the distribution of resources among the teaching, research and transfer activities in the universities' budgets. It also reflects an intensity of research activity in accordance with the results of the Spanish universities: if we consider that in the top universities of the world by their research results these activities had a weight of 85-90%, the corresponding figure for the Spanish universities would be 35%.

whether the results of universities in both activities are indeed correlated or whether these one-dimensional rankings would be offering a partial view that should be recognized.

That the research dimension is easier to measure should not be an excuse to not measure the quality of teaching. Likewise, the existence of a positive correlation between the quality of teaching and that of research should not hide the fact that disparity is also possible: if for the same level of research quality there are different teaching results between two universities, ignoring this information biases the results in favor of one and against the other.

To value the effect of the selection of the weights given to teaching and to research and innovation we performed an analysis of sensitivity to their variations on the ranking of performance. We calculated three rankings that are differentiated by the very different relative weights of research and of teaching and innovation:

- Option 1: Teaching 30% / Research and innovation 70%
- Option 2: Teaching 70% / Research and innovation 30%
- U-Ranking 2020: Teaching 56% / Research and innovation 44%

Figure 10 shows the effect on the position in the ranking of each of Spain's 70 universities analyzed when the weight of research and innovation varies, according to the three weightings chosen.

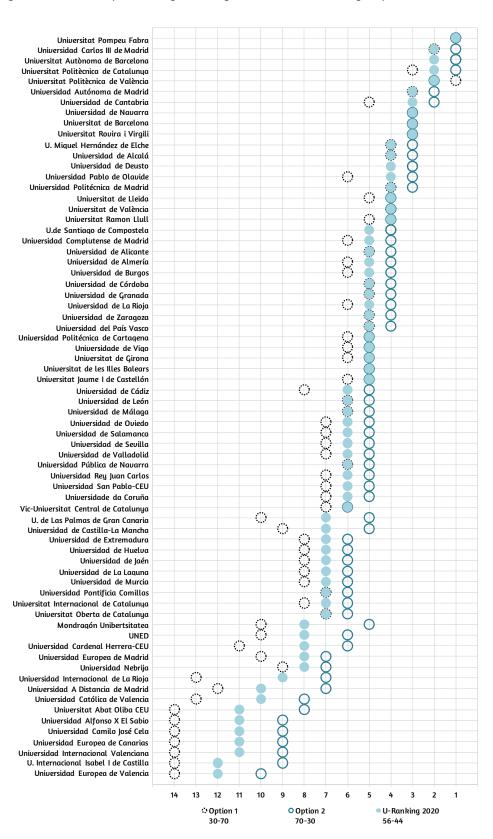
The changes in position in the ranking are visible by right to left movements of the solid-colored circle that represents the position with the weights of U-Ranking 2020 which are characterized by:

If the weight of research and innovation were to increase to 70% (option 1), the gaps in the results would widen, generating 14 levels in the ranking instead of the current 12, but the maximum variations would be in general 3 places and 4 in the case of 1 university. The main pattern of these changes is that the worsening in the position in the ranking is greater for private universities, because they have less research tradition. The Universidad Internacional de La Rioja would fall 4 places, 8 of the 22 private universities included in the ranking would fall 3 places, another 10 would fall 2 places, Vic-Universitat Central de Catalunya would lose 1 place and the Universitat Oberta de Catalunya along with the Universidad Deusto would remain in the same position. In the case of public universities, the variations would be moderate and imply changes of, maximum, 1 place: 25 of the 48 universities would lose 1 place, 19 would maintain their position and 4 (Universitat Autònoma de Barcelona, the Polytechnics of Madrid and Catalonia and Universidad de Burgos) - would move up 1 place in the ranking.

On the other hand, if the weight given to research and innovation were reduced to 30% (option 2), there would be only a few improvements in position. Note that the ranking generates 12 levels, instead of 11, because, as will be explained in section 4.7, the differences in teaching performance are less than the differences in research performance. As the weight given to teaching increases, the number of groups decreases. Thus, 41 of the 70 universities would improve at least one position, including all private universities given their higher degree of teaching specialization. Four private universities —Universidad de Nebrija, UDIMA, Universidad Europea de Valencia and Universidad Europea de Canarias would improve 3 places. And 11 other private ones would go up 2 places. Public universities that improve their position would rise 1 place at the most.

These result reveals a pattern of sensitivity of the ranking to changes in weights: because of their high degree of specialization in teaching, private universities are much more sensitive than public universities to increases in the weight of research and innovation.

Figure 10. Evolution of U-Ranking according to variations in the weight of research and innovation



Note: Universities are ordered by their position in the global performance ranking with the following weights: 56/44. Source: BBVA Foundation-Ivie.

Thus, the rankings are sensitive to changes in the weights given to teaching and to research and innovation, if we compare weightings as different as those corresponding to our options 1 and 2. However, a university does not pass from the top places to the bottom ones no matter how substantial the changes in the weights may be, although, it is true that some can improve in the ranking if greater importance is accorded to teaching or research.

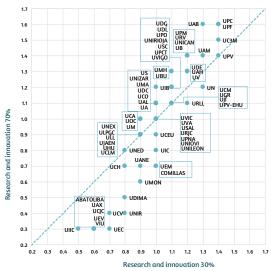
We must consider that, as with any type of measuring instrument, the sensitivity to changes is desirable. If the instrument is insensitive to the weights that reflect different attribution of importance to different factors, it would not be useful, since, if it does not react to changes in the weights, it cannot be expected to react to changes in indicator levels, which is what makes a university better or worse in the ranking. In this sense, U-Ranking proves to be tolerant to moderate changes in the weights, but reacts to very significant changes.

If instead of focusing on the analysis of sensitivity of the ranking, in other words, in the positions of the universities, we consider the values of the index by which U-Ranking is obtained, we observe that their stability when changing the weights of teaching and research and innovation is very notable. Figure 11 presents the synthetic indicator from which U-Ranking is derived for research and innovation weights of 30% and 70%. It shows that a drastic change in the weights would cause an increase of only three decimal points for Universitat Autònoma de Barcelona and two decimal points for Universitat Pompeu Fabra, Universitat Politècnica de Catalunya, Universidad Miguel Hernández de Elche, Universidad de Burgos and Universitat de les Illes Balears, improving their index. In the opposite direction, if the index were to worsen, thirteen private universities would fall by three decimal point, such as Abat Oliba CEU, Camilo José Cela, Alfonso X el Sabio, Internacional Valenciana, Europea de Valencia, Europea de Madrid, Universidad a Distancia de Madrid, Mondragon and Pontificia de Comillas. The indices of the Universidad Internacional de La Rioja and Universidad Europea de Canarias would fall by four decimal points.

To offer another sample of the stability of the groups of universities, the Venn diagram in figure 12 presents the results of the U-Ranking for the three weights described above. Based upon the value of the index, each circle contains the dominant universities. Looking at the diagram we see that changing the weights does not alter the index so much as to cause the appearance or disappearance of universities in those top positions. In extreme cases where a small value is given to research and innovation (30%) two private universities, Navarra and Ramon Llull, would rise to the top positions. On the other end, in which more weight is given to research, these private universities would leave the first positions and Universidad de Burgos and Universidad Miguel Hernández de Elche would then appear among the top places. This last one, along with the Universitat de Lleida and Universidad Pablo de Olavide, would be included in the group at the top of the ranking if the weight of research and innovation were 44%.

Figure 11. U-Ranking for two different weights in research

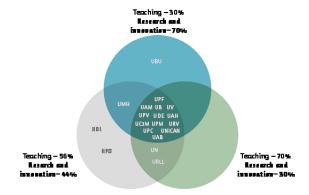
Weights of Teaching/Research and Innovation: 70/30 $\,$ us. 30/70. Index



Note: See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie.

Figure 12. Effects of the change in the weight given to research in U-Ranking on the top-ranking universities. Top universities according to different weights given



Note: The first 15 universities are included in the case of research and innovation weights of 30% and 70%, and the first 18 with a weight of 44%.

See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie.

4.7. TEACHING AND RESEARCH AND INNOVATION RANKINGS

The methodology used constructs indicators with the results of the universities in teaching and research and innovation, which are then aggregated to draw up the two global rankings presented (U-Ranking and U-Ranking Volume). The results for each university in each of the two dimensions can be arranged in order to obtain a teaching ranking and a research and innovation ranking. Each of them can be calculated according to both variants: volume of results and performance.

Figure 13 shows by means of box plots the distribution corresponding to the indices of the different dimensions and the global index of a university in the case of performance (panel a) and volume of results (panel b). It shows the distributions for the university system as a whole and for public vs. private universities. The extremes of the black lines represent the maximum and minimum values reached by the indices in each dimension and define the range of variation of the index; the top of the central box indicates the 75% percentile and the 25% percentile is marked by the bottom of the box, so that between them is situated 50% of the distribution (interquartile range). The border between the two parts of the box defines the median value. From the comparative analysis of the panels, four essential features stand out:

- The comparison of panels *a* and *b* permits us to observe that the differences between the public universities are much greater if their volume of results is analyzed instead of their performance. This feature is observed in both dimensions, but is greater in research and innovation activities than in teaching. Given the total weight of public universities in the university system, this pattern applies to the average of the system.
- In private universities, since they all have a smaller size, the situation is the opposite, and the volume index has much greater homogeneity than the performance index.
- Differences in performance are greater in research than in teaching for both public and private universities. Thus, the range of the teaching index is 0.6 points and 1.7 for research.
- The median for the total number of universities in the distribution of the indices is 1 (see figure 13, panels a1 and b1). However, when we analyze private universities (figure 13, panels a3 and b3), we clearly observe the difference that exists in specialization to which we have been making reference. Fixing our attention on the indices of performance, we observe that the median is higher than the average of the system in teaching and half in research and innovation.

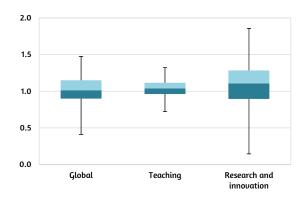
Table 10 shows the coefficients of correlation between teaching and research and innovation in the different rankings and corresponding performance indices. Once again, we can observe that the behavior is different depending on whether a university is private or public. While the correlation is high and fairly homogeneous among dimensions in the public universities, in private universities the correlation is found at 0.3.

These results suggest that complementarity exists among teaching and research activities, but it is much higher in public universities than in private ones. If the university system as a whole is analyzed, the existence of groups of institutions with different characteristics that result from the coexistence of private and public institutions cannot be ignored, as analyzed by Aldás (Dir.) (2016). If we did, it could lead to biases in the analysis of the reality of the university system.

Figure 13. U-Ranking. Distribution of the indices obtained in each dimension

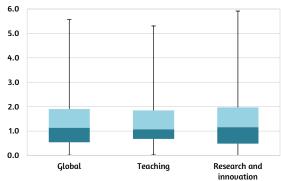
a) U-Ranking (performance)

a1. Total universities

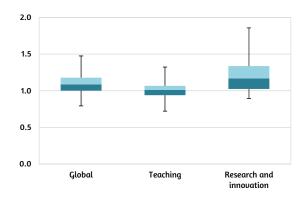


b) U-Ranking Volume

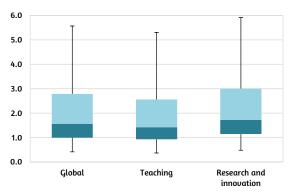
b1. Total universities



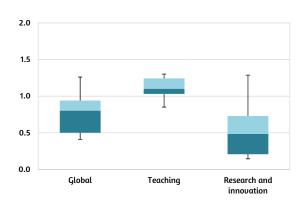
a2. Public universities



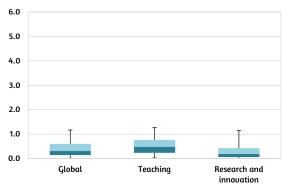
b2. Public universities



a3. Private universities



b3. Private universities



Source: BBVA Foundation-Ivie.

Table 10. Correlation coefficients of the indices and rankings for each dimension

	Ranking	Index
Total universities	0.08	0.15
Public universities	0.74	0.70
Private universities	0.31	0.33

Note: The ranking values are calculated by means of a Spearman correlation coefficient and the index values by means of a Pearson correlation coefficient.

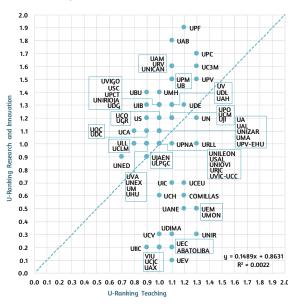
Source: BBVA Foundation-Ivie.

A validation of these differences can be obtained by checking if the hypothesis that research results can predict correctly those of teaching is true or not, this being the assumption of many rankings that concentrate exclusively on the research dimension. Therefore, the rates of performance in research and innovation are represented against the rates of performance in teaching (figure 14, panel a). We can see that this relationship is practically insignificant, since the coefficient of determination of the regression line is below 1%.

Figure 14. U-Ranking. Teaching vs. Research and innovation

Index

a) Public and private universities

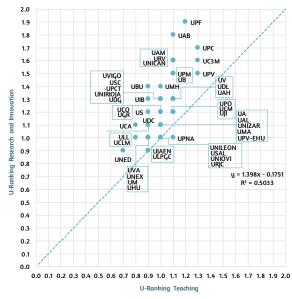


If we examine the heterogeneity of the universities and focus the analysis only on the public system (figure 14, panel b), the adjustment between the synthetic indices of teaching and research and innovation improves and reaches a coefficient of

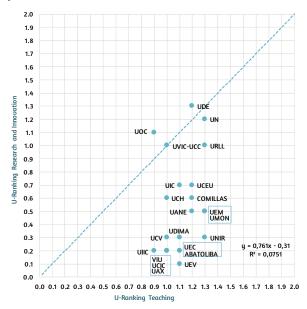
Figure 14. U-Ranking. Teaching vs. Research and innovation (cont.)

Index

b) Public universities



c) Private universities



Note: See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie.

determination of 0.50, giving evidence of stronger relationship than in the private system but, in any case, limited. In the subset of private universities, the relationship is even smaller than for the overall system (figure 14, panel c).

Finally, after describing the results of the rankings of teaching and research and innovation, tables 11 and 14 present in detail the results of the rankings for each of the dimensions drawn up for all Spanish universities (U-Ranking of teaching and research and innovation and U-Ranking Volume for each of the aforesaid dimensions). In the performance ranking a well-defined pattern of teaching specialization of private universities can be seen: all improve when comparing their position in teaching ranking with the global ranking and

worsen when considering the research ranking. That pattern is also shown in panel c of figure 14: almost all the private universities are located below the diagonal because their research rate is lower than their teaching rate (the only exceptions being Universitat Oberta de Catalunya and Universidad de Deusto, which have a research index that is higher than the teaching index). On the other hand, in the case of the public universities the opposite happens in the majority of cases.

University	Ranking	Index	University	Ranking	Index	University	Ranking	Index
Mondragon Unibertsitatea	1	1,3	U. Internacional de Catalunya	3	1,1	Universidad de Huelva	5	0,9
Universidad Carlos III de Madrid		1,3	Universitat Jaume I de Castellón		1,1	Universidad de Jaén		0,9
Universidad de Navarra		1,3	Universitat Rovira i Virgili		1,1	U. de Las Palmas de Gran Canaria		0,9
Universidad Europea de Madrid		1,3	Universidad Alfonso X El Sabio	4	1,0	Universidad de Murcia		0,9
Universidad Internacional de La Rioja*		1,3	Universidad Camilo José Cela	4	1,0	Universidad de Sevilla		0,9
Universitat Politècnica de Catalunya		1,3	Universidad Cardenal Herrera-CEU	4	1,0	Universidad de Valladolid		0,9
Universitat Politècnica de València		1,3	Universidad Católica de Valencia	4	1,0	U. Internacional Isabel I de Castilla*		0,9
Universitat Ramon Llull		1,3	Universidad de Alicante	4	1,0	Universidade da Coruña		0,9
Universidad de Deusto	2	1,2	Universidad de Almería	4	1,0	Universitat de les Illes Balears		0,9
Universidad Nebrija	2	1,2	Universidad de Córdoba	4	1,0	Universitat Oberta de Catalunya	5	0,9
Universidad Pontificia Comillas	2	1,2	Universidad de Granada	4	1,0	Universidad de Cádiz	6	0,8
Universidad San Pablo-CEU	2	1,2	Universidad de La Rioja	4	1,0	Universidad de Castilla-La Mancha	6	0,8
Universitat Pompeu Fabra	2	1,2	Universidad de León	4	1,0	Universidad de La Laguna	6	0,8
Universidad A Distancia de Madrid*		1,1	Universidad de Málaga	4	1,0	UNED	7	0,7
Universidad Autónoma de Madrid		1,1	Universidad de Oviedo	4	1,0	IE Universidad		
Universidad Complutense de Madrid		1,1	Universidad de Salamanca	4	1,0	Universidad Católica de Ávila		
Universidad de Alcalá		1,1	Universidad de Zaragoza	4	1,0	Universidad Católica San Antonio		
Universidad de Cantabria		1,1	Universidad del País Vasco	4	1,0	Universidad del Atlántico Medio*		
Universidad Europea de Canarias*		1,1	Universidad Internacional Valenciana*	4	1,0	Universidad Europea del Atlántico*		
Universidad Europea de Valencia*		1,1	U. Miguel Hernández de Elche	4	1,0	Universidad Europea Miguel de Cervan	ites	
Universidad Pablo de Olavide		1,1	U. Politécnica de Cartagena	4	1,0	Universidad Fernando Pessoa-Canarias	s*	
Universidad Politécnica de Madrid		1,1	Universidad Rey Juan Carlos	4	1,0	Universidad Francisco de Vitoria		
Universidad Pública de Navarra		1,1	U. de Santiago de Compostela	4	1,0	Universidad Internacional de Andalucío	a	
Universitat Abat Oliba CEU		1,1	Universidade de Vigo	4	1,0	Universidad Internacional Menéndez P	elayo	
Universitat Autònoma de Barcelona		1,1	Universitat de Girona	4	1,0	Universidad Loyola de Andalucía*		
Universitat de Barcelona		1,1	Vic-Universitat Central de Catalunya	4	1,0	Universidad Pontificia de Salamanca		
Universitat de Lleida		1,1	Universidad de Burgos		0,9	Universidad San Jorge*		
Universitat de València		1,1	Universidad de Extremadura		0,9	Universidad Tecnología y Empresa*		

Note: Universities are ordered from the highest to the lowest index value. Universities with the same index value are ordered alphabetically. The 14 universities listed in the last column have not been analyzed due to lack of data.

^{*}Universities 15 years or younger. Source: BBVA Foundation-Ivie

Table 12. U-Ranking of Spanish U	niversities.	Research	and innovation					
University	Ranking	Index	University	Ranking	Index	University	Ranking	Index
Universitat Pompeu Fabra	1	1,9	Universitat Jaume I de Castellón	8	1,2	Universidad Pontificia Comillas	13	0,6
Universitat Autònoma de Barcelona	2	1,8	Universidad de Alicante	9	1,1	Mondragon Unibertsitatea	14	0,5
Universitat Politècnica de Catalunya	3	1,7	Universidad de Almería	9	1,1	Universidad Europea de Madrid	14	0,5
Universidad Autónoma de Madrid	4	1,6	Universidad de Cádiz	9	1,1	Universidad Nebrija	14	0,5
Universidad Carlos III de Madrid	4	1,6	Universidad de Málaga	9	1,1	Universidad A Distancia de Madrid*		0,3
Universidad de Cantabria	4	1,6	Universidad de Zaragoza	9	1,1	Universidad Católica de Valencia		0,3
Universitat Rovira i Virgili	4	1,6	Universidad del País Vasco	9	1,1	Universidad Internacional de La Rioja*	15	0,3
Universidad Politécnica de Madrid		1,5	Universidade da Coruña	9	1,1	Universidad Alfonso X El Sabio	16	0,2
Universitat de Barcelona		1,5	Universitat Oberta de Catalunya	9	1,1	Universidad Camilo José Cela	16	0,2
Universitat Politècnica de València	5	1,5	Universidad de Castilla-La Mancha	10	1,0	Universidad Europea de Canarias*	16	0,2
Universidad de Burgos	6	1,4	Universidad de Extremadura	10	1,0	U. Internacional Isabel I de Castilla*	16	0,2
U. Miguel Hernández de Elche	6	1,4	Universidad de Huelva	10	1,0	Universidad Internacional Valenciana*	16	0,2
Universidad de Alcalá		1,3	Universidad de La Laguna	10	1,0	Universitat Abat Oliba CEU	16	0,2
Universidad de Deusto		1,3	Universidad de León	10	1,0	Universidad Europea de Valencia*	17	0,1
Universidad de La Rioja		1,3	Universidad de Murcia	10	1,0	IE Universidad		
U. Politécnica de Cartagena		1,3	Universidad de Oviedo	10	1,0	Universidad Católica de Ávila		
U. de Santiago de Compostela		1,3	Universidad de Salamanca	10	1,0	Universidad Católica San Antonio		
Universidade de Vigo		1,3	Universidad de Valladolid	10	1,0	Universidad del Atlántico Medio*		
Universitat de Girona		1,3	Universidad Pública de Navarra	10	1,0	Universidad Europea del Atlántico*		
Universitat de les Illes Balears		1,3	Universidad Rey Juan Carlos	10	1,0	Universidad Europea Miguel de Cervant	tes	
Universitat de Lleida		1,3	Universitat Ramon Llull	10	1,0	Universidad Fernando Pessoa-Canarias	*	
Universitat de València	7	1,3	Vic-Universitat Central de Catalunya	10	1,0	Universidad Francisco de Vitoria		
Universidad Complutense de Madrid	8	1,2	Universidad de Jaén	11	0,9	Universidad Internacional de Andalucío	ı	
Universidad de Córdoba	8	1,2	U. de Las Palmas de Gran Canaria	11	0,9	Universidad Internacional Menéndez Pe	layo	
Universidad de Granada	8	1,2	UNED	11	0,9	Universidad Loyola de Andalucía*		
Universidad de Navarra	8	1,2	Universidad San Pablo-CEU	12	0,7	Universidad Pontificia de Salamanca		
Universidad de Sevilla	8	1,2	U. Internacional de Catalunya	12	0,7	Universidad San Jorge*		
Universidad Pablo de Olavide	8	1,2	U. Internacional Isabel I de Castilla*	13	0,6	Universidad Tecnología y Empresa*		

Note: Universities are ordered from the highest to the lowest index value. Universities with the same index value are ordered alphabetically. The 14 universities listed in the last column have not been analyzed due to lack of data.

Source: BBVA Foundation-Ivie

^{*}Universities 15 years or younger.

University	Rankina	Index	Universitu	Rankina	Index	Universitu	Rankina	Index
Universidad Complutense de Madrid	1	5.3	Universitat Ramon Llull	17	1.3	Universidad Cardenal Herrera-CEU	25	0.5
Universitat de Barcelona	2	4.1	Universidad de Cádiz	18	1,2	Universidad de Burgos	25	0,5
Universidad de Granada	3	4.0	U. de Las Palmas de Gran Canaria	18	1,2	U. Politécnica de Cartagena	25	0,5
Universidad del País Vasco	4	3.8	Universidad de Navarra	18	1.2	Universidad Camilo José Cela	26	0,4
Universitat de València	4	3,8	Universidad Europea de Madrid	18	1,2	Universidad de La Rioia	26	0.4
Universidad de Sevilla	5	3.6	Universidade da Coruña	18	1,2	Universidad Nebrija	27	0.3
Universitat Politècnica de València	6	3.3	Universitat Jaume I de Castellón	19	1.1	U. Internacional de Catalunya	27	0.3
Universidad Politécnica de Madrid	7	2.9	Universitat Pompeu Fabra	19	1.1	Vic-Universitat Central de Catalunya	27	0.3
Universitat Politècnica de Catalunya	7	2.9	Universitat Rovira i Virgili	20	1.0	Universidad A Distancia de Madrid*	28	0.2
Universitat Autònoma de Barcelona	8	2.8	Universidad de Almería	21	0.9	Universidad Europea de Valencia*	29	0,1
Universidad Autónoma de Madrid	9	2.6	Universidad de Cantabria	21	0.9	U. Internacional Isabel I de Castilla*	29	0.1
Jniversidad de Zaragoza	9	2,6	Universidad de Jaén	21	0,9	Universidad Internacional Valenciana*	29	0,1
UNED	9	2,6	Universidad Internacional de La Rioja*	21	0,9	Universitat Abat Oliba CEU	29	0,1
Universidad de Málaga	10	2,2	U. Miguel Hernández de Elche	21	0,9	Universidad Europea de Canarias*	30	<0,
U. de Santiago de Compostela	11	2,0	Universidad Pablo de Olavide	21	0,9	IE Universidad		
Universidad Carlos III de Madrid	12	1,9	Universitat de Girona	21	0,9	Universidad Católica de Ávila		
Universidad de Murcia		1,9	Universitat Oberta de Catalunya	21	0,9	Universidad Católica San Antonio		
Universidad de Salamanca		1,9	Universidad de León	22	0,8	Universidad del Atlántico Medio*		
Universidad de Alicante	13	1,8	Universidad San Pablo-CEU		0,8	Universidad Europea del Atlántico*		
Universidad de Oviedo	13	1,8	Universitat de les Illes Balears		0,8	Universidad Europea Miguel de Cervant	es	
Universidad Rey Juan Carlos	13	1,8	Universidad de Deusto	23	0,7	Universidad Fernando Pessoa-Canarias	*	
Universidad de Valladolid	14	1,7	Universidad de Huelva	23	0,7	Universidad Francisco de Vitoria		
Universidad de Alcalá	15	1,5	Universidad Pontificia Comillas	23	0,7	Universidad Internacional de Andalucía		
Universidad de Castilla-La Mancha	15	1,5	Universidad Pública de Navarra	23	0,7	Universidad Internacional Menéndez Pe	layo	
Universidade de Vigo	16	1,4	Universitat de Lleida	23	0,7	Universidad Loyola de Andalucía*		
Universidad de Córdoba	17	1,3	Universidad Alfonso X El Sabio		0,6	Universidad Pontificia de Salamanca		
Universidad de Extremadura	17	1,3	Universidad Católica de Valencia	24	0,6	Universidad San Jorge*		
Universidad de La Laguna	17	1,3	Mondragon Unibertsitatea	25	0,5	Universidad Tecnología y Empresa*		

Note: Universities are ordered from the highest to the lowest index value. Universities with the same index value are ordered alphabetically. The 14 universities listed in the last column have not been analyzed due to lack of data.

*Universities 15 years or younger.

Source: BBVA Foundation-Ivie

University	Ranking	Index	University	Ranking	Index	University	Ranking	Index
Universidad Complutense de Madrid	1	5,9	Universidad de La Laguna	21	1,5	Vic-Universitat Central de Catalunya	31	0,3
Universitat de Barcelona		5,5	Universitat Rovira i Virgili	21	1,5	Mondragon Unibertsitatea	32	0,2
Universidad de Sevilla	3	4,7	Universidad de Cantabria	22	1,4	Universidad Católica de Valencia	32	0,2
Universitat Autònoma de Barcelona	4	4,6	Universidad de Extremadura	22	1,4	Universidad Internacional de La Rioja*	32	0,2
Universitat de València	5	4,5	Universidade da Coruña	22	1,4	U. Internacional de Catalunya	32	0,2
Universidad de Granada	6	4,4	U. de Las Palmas de Gran Canaria	23	1,2	Universidad A Distancia de Madrid*	33	0,1
Universidad del País Vasco	7	4,1	U. Miguel Hernández de Elche	23	1,2	Universidad Alfonso X El Sabio	33	0,1
Universidad Politécnica de Madrid	7	4,1	Universitat Jaume I de Castellón	23	1,2	Universidad Camilo José Cela	33	0,1
Universitat Politècnica de Catalunya	8	3,9	Universidad de Navarra	24	1,1	Universidad Nebrija	33	0,1
Universitat Politècnica de València	9	3,7	Universitat de Girona	24	1,1	Universidad Europea de Canarias*	34	<0,1
Universidad Autónoma de Madrid	10	3,6	Universitat de les Illes Balears	24	1,1	Universidad Europea de Valencia*	34	<0,1
UNED	11	3,2	Universitat Oberta de Catalunya	24	1,1	U. Internacional Isabel I de Castilla*	34	<0,1
Universidad de Zaragoza	12	2,9	Universidad de Almería	25	1,0	Universidad Internacional Valenciana*	34	<0,1
U. de Santiago de Compostela	13	2,8	Universitat Ramon Llull	25	1,0	Universitat Abat Oliba CEU	34	<0,1
Universidad de Málaga	14	2,6	Universidad de Jaén	26	0,9	IE Universidad		
Universidad Carlos III de Madrid	15	2,2	Universidad Pablo de Olavide	26	0,9	Universidad Católica de Ávila		
Universidad de Alicante		2,0	Universitat de Lleida	26	0,9	Universidad Católica San Antonio		
Universidad de Murcia	16	2,0	Universidad de Deusto	27	0,8	Universidad del Atlántico Medio*		
Universidad de Oviedo	17	1,9	Universidad de León	27	0,8	Universidad Europea del Atlántico*		
Universidad de Salamanca	17	1,9	Universidad de Burgos	28	0,7	Universidad Europea Miguel de Cervant	es	
Universidad de Castilla-La Mancha		1,8	Universidad de Huelva	28	0,7	Universidad Fernando Pessoa-Canarias	*	
Universidad de Valladolid		1,8	Universidad Pública de Navarra	28	0,7	Universidad Francisco de Vitoria		
Universidad Rey Juan Carlos		1,8	U. Politécnica de Cartagena	29	0,6	Universidad Internacional de Andalucía	l	
Universidade de Vigo	18	1,8	Universidad de La Rioja	30	0,5	Universidad Internacional Menéndez Pe	layo	
Universidad de Alcalá	19	1,7	Universidad Europea de Madrid	30	0,5	Universidad Loyola de Andalucía*		
Universitat Pompeu Fabra	19	1,7	Universidad San Pablo-CEU	30	0,5	Universidad Pontificia de Salamanca		
Universidad de Cádiz	20	1,6	Universidad Cardenal Herrera-CEU	31	0,3	Universidad San Jorge*		
Universidad de Córdoba	21	1,5	Universidad Pontificia Comillas	31	0,3	Universidad Tecnología y Empresa*		

Note: Universities are ordered from the highest to the lowest index value. Universities with the same index value are ordered alphabetically. The 14 universities listed in the last column have not been analyzed due to lack of data.

*Universities 15 years or younger.

Source: BBVA Foundation-Ivie

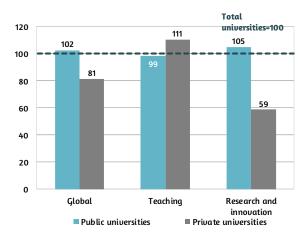
4.8. PUBLIC AND PRIVATE UNIVERSITIES' RESULTS COMPARED

The increased weight of private universities in the Spanish university system is making the comparison of the results depending on the ownership of the universities –public or private-much more relevant. It is undeniable that many variables may cause non-equivalent results: private universities are much younger on average, many are located in geographic areas with higher per capita income, a less diversified range of courses than the public system and also a smaller size. But to determine the differences in the results its necessary to find first evidence that these differences do exist. The indices of the U-Ranking system allow us to address this issue with accurate data.

Figure 15 shows the average results for U-Ranking indices for each one of the key dimensions —teaching and research and innovation—, as well as in the global index of results.

Figure 15. Average performance of the Spanish public and private universities

Total of universities = 100



Source: BBVA Foundation-Ivie.

If we take the average of the system as basis 100, built as an average weighted by the weight of the individual indices of universities, we observe that the performance of the private universities is 21 points less than the public system. This result is due, primarily, to a different specialization than other universities, much more focused on the teaching dimension, in which they achieve a greater performance than public universities. This teaching specialization goes in hand with research results that are well below those of the public universities (their performance being 46 points lower).

Averages may hide a more complex reality characterized by a great heterogeneity of results. This heterogeneity, which is shared by the private and public systems, is clearly visible in figure 16. In all the panels (global, teaching and research) we observe how the distribution of both types of universities along the range that represents the index indicates diversity in the results.

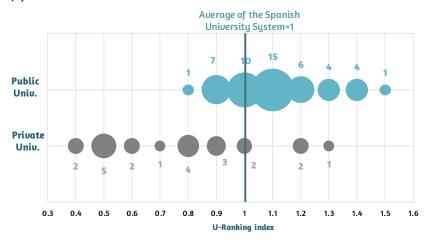
In panel a we observe that public universities are distributed along the values of the global index of U-Ranking, with 8 that are below average. In the case of the private ones, 17 of the 22 analyzed have lower values than the average, hence their lower overall performance. The situation is the opposite with the teaching dimension (panel b), where both groups maintain their heterogeneity, but the better performance of the private institutions can be seen by the fact that 64% of them (14) are above the average values, which is only true for 35% of the public universities. Panel c shows that research is dominated by public universities and only three private universities exceed the average of the system.

In short, the public and private systems are both heterogeneous with respect to the performance of the institutions that comprise them, there being a great diversity in the global, teaching and research and innovation results. However, the public system stands out with respect to private universities in their research achievements and innovation results. On the other hand, the teaching specialization of the private system achieves better results in this dimension.

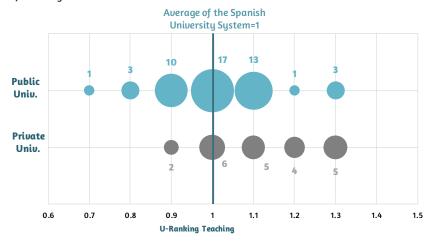
Figure 16. U-Ranking index of public and private universities, 2019

Index and number of universities with the same index

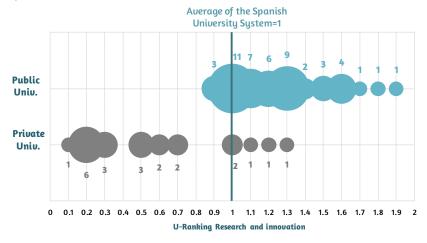
a) Global



b) Teaching



c) Research



Source: BBVA Foundation-Ivie.

4.9. U-RANKING 2019 AND 2020

The aim of this section is to evaluate the stability of results of the different editions of U-Ranking. Direct comparisons between the 2019 and 2020 editions of U-Ranking are difficult to make because of the inclusion or exclusion in each edition of private universities, depending on whether they were able to provide the necessary data. Such inclusions and exclusions could result in changes in a university's position in the ranking not because of its performance but because another university entered or exited the ranking. For that reason, we will calculate the correlation in the position occupied and also that of the indices, which is more indicative of the relationship between the two editions.

This exercise becomes more relevant in this year's edition bearing in mind the methodological changes introduced as a result of not having the information that was usually provided by the CRUE database to calculate the indicators. The main changes are: a) a reduction in the number of indicators from 25 to 20; b) the use of alternative sources of information -mainly provided by the SIIU from the Spanish Ministry of Universities-, which has allowed to analyze a greater number of private universities; and c) the combination of research with innovation and technological development, which is no longer considered a separate dimension. Despite all these changes, as shown below, the stability of the results obtained in previous editions is maintained.

The effects of the methodological changes on the results have been studied in depth, for example, the possible changes that would have occurred in the 2019 edition if the new indicators had been used instead has been analyzed in order to isolate the effect of the methodological changes. Subsequently, the results of the new indicators have been compared with data from 2019 and 2020. The result of the exercises carried out proves that the methodology in general is robust.

Consequently, the results obtained by U-Ranking 2020 are highly correlated with those presented in 2019. As table 15 shows, the coefficients of correlation between the indices and the rankings corresponding to the two editions are very high. All the correlations, both those referring to the positions in the ranking (Spearman) and to the values of the synthetic indicator (Pearson), are significant to 1% and, for the global index, present coefficients higher than 0.94 in all cases. This result is important because it means that the changes introduced and data updates have not significantly altered the results confirming the reliability of the methodology used.

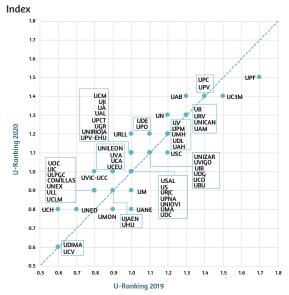
Table 15. Correlation coefficients of 2019 and 2020 U-Rankings				
	Performance		Volume	
	Ranking	Index	Ranking	Index
Global	0.94	0.92	1.00	0.99
Teaching	0.95	0.91	1.00	0.99
Research and Innovation	0.91	0.88	0.99	0.99

Note: The ranking values are calculated by means of a Spearman correlation coefficient and the index values by means of a Pearson correlation coefficient.

Source: BBVA Foundation-Ivie.

The close fit between the indicators of both editions of the rankings can also be appreciated in the figures which show on the horizontal axis the synthetic indicator of each university in 2020 and on the vertical axis the results for 2019, both for U-Ranking (figure 17) and for U-Ranking Volume (figure 18). As can be observed in the case of the volume index, there is a shift to the left, which is more pronounced in universities with a higher volume of results (higher index in U-Ranking 2020). In addition, nine new private universities have been in this year's edition. Although they are not included in the figure since they were not evaluated in 2019, they do affect the results in 2020. The new universities, due to their reduced size and/or lower results, decrease the average size of the group and therefore widen the gap with the larger universities. However, the correlation observed is very high.

Figure 17. U-Ranking (performance) of the Spanish public universities. 2019 and 2020



Note: Data on 9 private universities (Abat Oliba CEU, Alfonso X El Sabio, Camilo José Cela, Europeas de Canarias, Madrid y Valencia, Internacional Isabel I de Castilla, Internacional de La Rioja and Universidad Internacional Valenciana) analyzed for the first time in U-Ranking 2020, along with Universidad Francisco de Vitoria, which is no longer analyzed in this edition, is not included in the figure. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie.

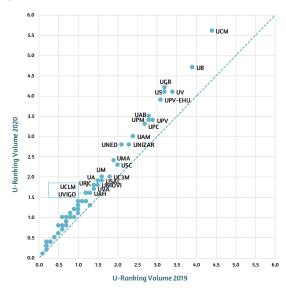
4.10. REGIONAL UNIVERSITY SYSTEMS

Universities undertake their teaching and research activities in a certain geographic context that influences them. On the one hand, if they are public, investment efforts as well as incentive policies, fees, quality assurance and plans to boost internationalization vary greatly from one region to another. On the other hand, the socioeconomic environments of each region are different: there are differences in the levels of income, the population's educational levels, type of industries, labor market, urbanization, etc. For all these reasons, it is interesting to analyze the performance of the so-called *regional university systems*.

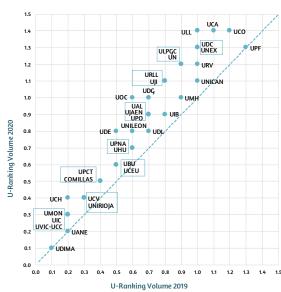
Figure 18. U-Ranking Volume of the Spanish public universities. 2019 and 2020

Index

a) Total



b) Universities with a less than 1.5 index in U-Ranking 2020

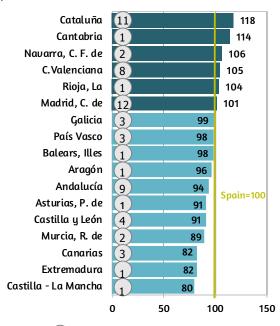


Note: Data on 9 private universities (Abat Oliba CEU, Alfonso X El Sabio, Camilo José Cela, Europeas de Canarias, Madrid y Valencia, Internacional Isabel I de Castilla, Internacional de La Rioja and Universidad Internacional Valenciana) analyzed for the first time in U-Ranking 2020, along with Universidad Francisco de Vitoria, which is no longer analyzed in this edition, is not included in the figure. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie.

Figure 19. Performance of the regional university systems in U-Ranking. 2020

Spain = 100



Number of universities considered

Note: On-line universities not included

Source: BBVA Foundation-luie.

Figure 19 shows the averages of the 2020 U-Ranking index of all universities, both public and private, of each autonomous community. The six distance-learning universities have been removed from this analysis because, given their teaching method, it would be difficult to assign their scope of action to a particular region.

The results show, firstly, large differences regarding performance among the regional university systems: the autonomous community with the highest performance exceeds by 38 percentage points the region with the lowest performance.

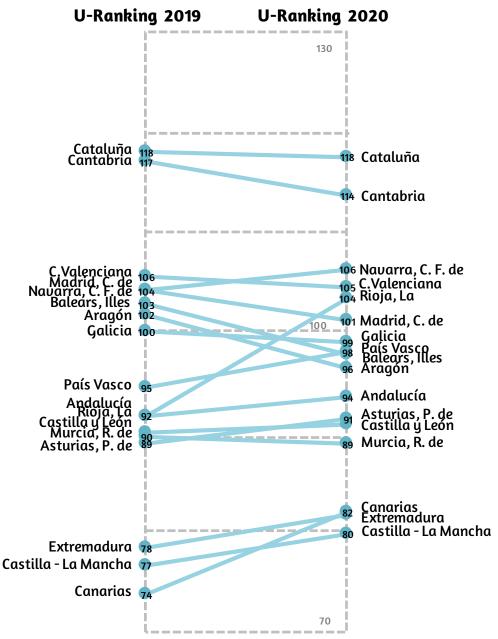
The best-performing university systems are those of Catalonia (11 of the universities analyzed in U-Ranking) and Cantabria (with just one university), which have performance indices of 18% and 14%, respectively. They are followed by Navarra (+6%), the Valencian Community (+5%), La Rioja (+4%) and Madrid (1%), all of which are above average.

Among the regional university systems with performance levels below the average, we can distinguish several levels: some do not reach 5%—Galicia, Balearic Islands, Basque Country and Aragon—, others are less than 10%—Andalusia, Asturias and Castile and Leon—. While other communities are over 10%, as is the cases of Murcia, Canary Islands, Extremadura and Castile-La Mancha.

When comparing the regional university systems, we must take into account that private universities, which on average have a lower performance, tend to be concentrated, as we already have seen, in regions with high levels of income and large potential markets. This is not to say, however, that the autonomous communities with more private universities rank lower, as those with the highest concentration of private universities (especially Madrid and Catalonia) also have a large number of strong public universities.

Figure 20 compares the results obtained by the autonomous communities in the 2019 edition with the results from the present edition. In general, we can highlight the stability of the results, but with some changes. The most outstanding movement corresponds to the growth of three regions that are in the end positions, -Extremadura, Castile-La Mancha and Canary Islands-, along with the rise in position of La Rioja (due to the intense patent activity carried out Universidad de La Rioja, one of the most outstanding universities of the Spanish university system), and the relative drop of Cantabria, Madrid, Aragon and Balearic Islands. However, not all the increases or decreases in performance with respect to the national average necessarily mean a change in the position of the ranking. Thus, Cantabria goes from an index of 117 in 2019 to 114 in 2020, but continues to head the ranking. A positive reading of the results is that they show, with respect to 2019, a convergence among regional systems, that is, the differences in performance among regions is reduced.

Figure 20. Evolution of the regional university systems. 2019 and 2020 $\mbox{\rm Spain}$ = 100



Note: On-line universities not included.

Source: BBVA Foundation-Ivie.

4.11. GRADUATE EMPLOYABILITY

As analyzed previously, U-Ranking takes a close look at Spanish universities, ranking them in order according to their performance in teaching and in research and innovation, as well as considering their overall results.

Some may question why an important aspect such as graduate employability is not included as an additional dimension of U-Ranking. There are several reasons that explain this, while at the same time, these same reasons lead us to consider its future inclusion. The first difficulty that arises is the methods used to measure employability. And, secondly, limitations exist in the information needed to carry out such a measurement.

Employability can be described as a set of skills, knowledge, abilities and capacities an individual needs to obtain a job and successfully perform the tasks that match with their degree. Measuring employability according to this definition can be challenging, since finding the indicators that collect the individual results of graduates is not an easy task.

The alternative for measuring employability that is followed in this report consists in the use of indicators linked to labor market access. This decision is not free of criticism and has its limitations. According to the above stated definition of employability, a university accomplishes its job by preparing students for the labor market, in other words, by improving their chances of being employed. But there are other factors that condition a student's successful access to the labor market, such as the economic cycle, unemployment rates, etc.

Why then should labor market access indicators be used as a proxy for employability? From all the existing approaches to measuring employability, we consider it to be the most adequate, while not forgetting that an indicator is not expected to give a precise measure of a concept, but rather that the concept is reflected by the indicator. For example, although the number of articles in the first quartile in itself is not a measure of the quality of the research, the higher the quality of research, the higher the number of articles will be. Something similar occurs with employability: assuming that labor market access

does not directly measure the employability of the indicator, it can be expected that the higher the graduate employability rate of a university, the better the labor market access will be, both in quantity and in quality.

This approach in the treatment of employability also allows us to contrast a series of hypotheses that will be dealt with in this report. Employability is a direct result of the teaching action, which in turn is also responsible for transmitting knowledge, skills and abilities to students. If labor market access is a good indicator of employability, a significant relationship should exist between the results of the teaching ranking and the proxy for employability through employability indicators.

The second problem that traditionally has hindered the inclusion of employability data in university rankings is the limited amount of information on labor market access, which was not available until recently. Fortunately, the Spanish Ministry of Universities, has published two consecutive reports (Ministry of Science, Innovation and Universities, 2019; Ministry of Education, Culture and Sports, 2016) with data on the rate of affiliation to the Spanish Social Security system of university students who graduated during the 2009-10 and 2013-14 academic courses, analyzing their labor market access 4 years after graduation, that is, from 2011 to 2014 and 2015 to 2018, respectively. These two studies allow us to envisage that, if the Ministry continues to update this information, employability can be consolidated as a consistent indicator, allowing us to include it as a dimension of U-Ranking.

In the 2017 edition of U-Ranking (Pérez et al. 2017), a first exercise was carried out to analyse employability with the proposed approach. However, the exercise presented in this edition includes important new features. Firstly, it uses the new edition of the study by the Spanish Ministry of Universities. Secondly, these two data samples correspond to significantly different economic cycles. The first report included data on graduates who had completed their studies during the most difficult time of the crisis in 2008 and the data in the second report corresponds to graduates who pursued their careers during the period of economic recovery. Thirdly, the types of degrees analyzed were also different, since the first study only included degrees previous to the implementation of the Bologna education system,

which were mostly five-year degrees, while the second study was made up of students who had finished their first- and second-cycle studies (92,211) and students who had obtained their degree after the Bologna reform (141,415). In fourth place, the 2017 U-Ranking project used only one indicator, namely, the affiliation rates of the Spanish Social Security system. However, as seen later on, this report generates a synthetic index from three indicators: percentage of workers affiliated to the Spanish Social Security system, percentage of university graduates hired according to their educational level and average annual salary for the National Insurance contribution base calculation by Bacherlor's degree. In other words, it offers a much more complete vision of graduate employability.

Employability: a descriptive approach

The ranking of universities according to graduate employability is based on the construction of a synthetic index using three indicators.

The affiliation rate is defined as the percentage of university graduates who are working and are affiliated to the Spanish Social Security system over the total number of university graduates 4 years after obtaining their degree. The data available allows us to analyze employability one and four years after graduating. We have chosen the second option because some degrees require additional education before working, such as a master's degree, or national tests to access a postgraduate specialization, for example, in the case of medicine. Thus, considering the results immediately after graduation would show a significantly lower employability rate than in reality exists when sufficient time is given to allow for the medium-term stabilization of these differential circumstances.

The percentage of university graduates hired according to their educational level is intended to proxy the adjustment between education and employment. It is defined as the percentage of graduates affiliated to the Spanish Social Security system in a category related to higher education, 4 years after graduating. This indicator proves that employability is important; however, if it focuses on graduates with jobs for which a university degree is not needed, it underlines a defect in the system that is worthwhile analyzing, such as the different types of degrees available.

The average annual salary for the National Insurance contribution base calculation for graduates who are working with a full-time contract 4 years after obtaining their degree gives us an approximation of the average annual income level of university graduates. It would therefore be an indicator of the labor market situation of graduates of a given degree and university. Only graduates with full-time contracts are included in the calculation.

Before explaining how these three indicators are combined into the synthetic index used to generate the ranking of universities according to employability, it is important to have an overview of the labor market access of university students who graduated in 2014 (since they are monitored during four years after graduation and the last data corresponds to 2018). The overview includes, not only the three indicators that are used to construct the ranking, but also all the indicators provided by the Spanish Ministry of Universities.

Figure 21 shows the situation of graduate employability, distinguishing between public and private universities, one and four years after graduation. Several conclusions can be drawn from the results. Firstly, the results show that approximately 50% of university graduates are already working one year after graduating, as can be seen from the Social Security affiliation rates; of these, over 50% have a permanent contract and more than 70% a full-time contract. In terms of employment and educational attainment, once again the percentage of members affiliated to the Social Security system in a category that matches their educational level is almost 50%. In summary, considering that many graduates opt to continue studying²², the employment figures in the first year after graduation show in general a rapid transition to the labor market with a full-time contract for 50% of graduates. However, improvements are still necessary in terms of job quality considering the high number of graduates with temporary contracts and

and, in particular, graduates who work abroad.

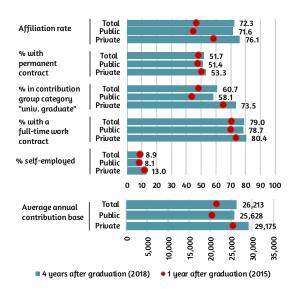
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The rate of affiliation is a conservative estimate of the percentage of graduates who find work or would find work if they were looking, not only because some decide to continue studying and do not actively look for work, but also because the Social Security affiliation rates leave out members of certain mutual societies

members affiliated to the Social Security system in a category below their educational level.

Figure 21. Employability indicators by type of university and one year and four years after araduation. 2013-14 cohort

(percentage and euros)



Source: Spanish Ministry of Universities (2019) and own elaboration.

Given that an analysis based on the situation of a person one year after graduation may contain, as we have pointed out, a lot of distorting information because some graduates opt to continue studying (not working does not indicate that a person is looking for a job but hasn't found one, it could be that a master's degree is required or, simply, that a person wants to pursue further education), it seems necessary to analyse the situation after a certain amount of time has passed and a person's situation is more stable. For example, 72.3% of graduates have already found work four years after graduation. However, we must keep in mind that this figure is a conservative estimate of the real affiliation rates, since it includes an adjustment in the National Insurance contribution group level because 60.7% of graduates are in groups that correspond with their educational level, and there is a slight increase to 79% in the number of those with full-time contracts. Nevertheless, there are no major changes in terms of graduates with permanent contracts, which continue to be close to 50%, indicating that the number of university graduates with temporary contracts is high.

Two variables that have not been commented yet but are very important are the percentage of graduates who are self-employed and the average annual salary for the National Insurance contribution base calculation of graduates who are employed by others. Only 8.9% of university graduates are self-employed, a figure which has not changed over the years. In itself, self-employment is not an indicator of better or worse quality of labor market access, but, as we will see later on, it is an option that is closely linked to certain areas of study, especially related to Health Sciences, where free professional practice is more common than in other areas.

The average annual Social Security contribution base of self-employed workers allows us to estimate the average income of graduates. One year after graduation, the Social Security contribution base is approximately 21,500 euros per year, while increasing significantly after four years reaching 26,213 euros. The increase is probably a joint result of several factors, such as, job promotion, changing to a better job, seniority increases and, to a lesser extent, given the behavior of this variable during the years analyzed, increase in salary due to inflation. In any case, data reveals the dynamic character of university graduates' wages which experience a significant increase in a short period of time, on average an 18% accumulated growth over a three-year period.

In addition, figure 21 allows us to see if there is a change in behavior in the variables depending on whether a person graduates from a public or private university. In general, the immediate affiliation rates, i.e., one year after graduation, are significantly higher in private universities than in public ones, but this difference decreases over time until it is reduced to 4.5 percentage points at four years of graduation. Although the differences in the weight of permanent contracts and full-time work between graduates from public and private universities are low, the differences among type of university in the percentage of graduates that are hired in the corresponding category after four years are very significant (over 15 percentage points higher in private universities) and also in the Social Security contribution base (3,547 euros annual difference).

We will consider several possible reasons for these differences between private and public universities. Among them, it is worth considering the following: a more personalized attention is given by private universities to their students after graduation, the existence of greater and more active alumni networks in private universities, a greater concentration in more prosperous geographic areas with a greater employer potential or, also, a greater offer by private universities of degrees with better employability rates since they are not subject to restrictions as is the case with public universities with a historical tradition and obligation to cover all areas of study.

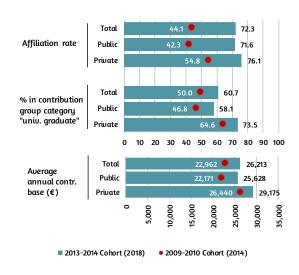
Labor market insertion is conditioned by many factors, not least of which is the economic cycle. In the 2017 edition of U-Ranking, a first analysis of employability was made based on labor market access data of 2009-10 graduates, of which the four years following their graduation coincided with the hardest-hit years of the economic crisis. In contrast, the group of graduates analyzed in this study have enjoyed four years of relative economic recovery and growth after their graduation in 2013-14. The question that arises almost immediately is whether or not this different economical context is reflected in the employability indicators.

Figure 22 shows the values of the three indicators used for the two cohorts analyzed in the two different editions of U-Ranking that consider employability. The results are very significant and prove the strong impact of the economic cycle on labor market insertion. For example, the cohort that enjoyed a better economic situation in the years following their graduation had 11% more graduates hired in a category equivalent to their educational level, a 28 point higher rate of affiliation and their average annual contribution base was also higher by 3,251 current euros.

This argument has been used frequently to question the use of labor market access as an employability indicator since it is considered to be the responsibility of the universities and not the economic cycle, which is not determined or controlled by the universities. However, the economic cycle is an environmental variable that is common to all universities and, therefore, affects them all. Thus, the different results obtained by the universities is a matter of different managerial decisions, without denying the fact that economic cycles or historical conditions are factors that cannot be modified in the short term, unlike their degree offer.

Figure 22. Employability indicators by type of university and four years after graduation. 2009-10 and 2013-14 cohorts

(percentage and euros)



Source: Spanish Ministry of Universities (2019) and own elaboration.

Going into greater detail, labor market access of graduates is not homogeneous for all degrees. A first approximation to the differences is offered in table 16, which shows the indicators used by area of study four years after graduation. It is true that the areas of study encompass various degrees, but it is a way of obtaining a certain balance between offering detailed data and making it easy to understand. In general, two areas of study, Engineering and Architecture and Health Sciences, usually present higher values in the indicators that make up the composite index used to generate the ranking.

By contrast, Arts and Humanities shows the worst results in Social Security affiliation rates, Social and Legal Sciences have the lowest percentage of graduates employed according to their educational level and the area of Sciences has the lowest average annual contribution base. The rest of the indicators offer slight differences that show particular aspects of graduates for each area of study, such as the important weight of temporary contracts and greater percentage of self-employed persons in Health Sciences and the larger number of part-time contracts among graduates of Arts and Humanities.

Table 16. Employability indicators in 2018 by type of university and area of studySituation of university graduates from the 2013-14 academic course four years after graduation

			Affiliation rate			
	Total	Arts and Humanities	Social and Legal Sciences	Science	Engineering and Architecture	Health Sciences
Total	72,3	57,0	71,5	68,6	77,7	76,8
Public	71,6	56,6	70,2	68,5	77,5	77,7
Private	76,1	64,9	76,7	72,0	79,4	73,2
		% in contributi	on group category	"univ. graduate"		
	Total	Artes y Humanities	Social and Legal Sciences	Science	Engineering and Architecture	Health Sciences
Total	60.7	52.5	50.0	61.0	68.3	86.6
Public	58.1	52.4	45.0	60.8	67.1	86.4
Private	73.5	54.3	68.9	65.9	77.2	87.3
			e annual contribu	tion base		
	Total	Arts and Humanities	Social and Legal Sciences	Science	Engineering and Architecture	Health Sciences
Total	26,213	23,424	24,880	22,031	28,894	28,286
Public	25,628	23,255	23,839	21,977	28,385	28,423
Private	29,175	26,023	28,657	23,775	32,662	27,568
		% w	ith a permanent co	ntract		
	Total	Arts and Humanities	Social and Legal Sciences	Science	Engineering and Architecture	Health Sciences
Total	51.7	40.3	53.4	38.0	67.2	33.0
Public	51.4	39.3	53.7	37.8	66.6	31.4
Private	53.3	59.8	52.0	46.5	71.2	40.3
			n a full-time work	contract		
	Total	Arts and Humanities	Social and Legal Sciences	Science	Engineering and Architecture	Health Sciences
Total	79.0	60.3	75.2	83.3	94.0	76.0
Public	78.7	59.4	74.2	83.1	93.9	77.1
Private	80.4	78.7	79.2	90.3	94.7	70.6
	% of s		kers affiliated to 1	the Social Security		
	Total	Arts and Humanities	Social and Legal Sciences	Science	Engineering and Architecture	Health Sciences
Total	8.9	10.6	7.2	4.4	9.6	13.9
Public	8.1	10.3	6.9	4.1	8.7	11.3
Private	13.0	15.7	8.5	11.4	16.1	24.8

When analyzing the differences between private and public universities, we see that, in broad terms, the results are consistent with those obtained when analyzing the aggregate data. Private universities tend to have better affiliation rates and also a higher rate of graduates employed according to their educational levels, as well as higher average annual contribution bases. However, Health Sciences is a significant exception, since it is the graduates of public universities in this area of study who have better employability rates and slightly higher wages, along with more workers with full-time contracts and a significantly lower number of self-employed workers. The analysis by areas of study offers a good overall view, since only five are considered,

yet it doesn't allow a greater detail because in many cases, degrees with very different characteristics are included in the same group. Table 17 offers a more detailed analysis, by grouping reasonably homogeneous degrees called *fields of* $study^{23}$ according to employability and ranking

²³ The data used on employability is from the database of the Spanish Ministry of Universities (2019) and differs from that offered in the "Report on labour insertion of university graduates, academic year 2013-14", which only offers information on graduates under 30 years of age, with results varying substantially in some fields of study. To reach our objective, we consider it more appropriate to examine all graduates, since, for example, online universities have a higher number of students over the age of 30.

Table 17. Employability indicators and synthetic index by area of study. Total universities Situation in 2018 of university graduates from the 2013-14 academic course

	University	A ffiliation	% in contribu-	Average annual			
Areas	University Graduates	Affiliation rate	tion group	contribution	Index	Ranking	
	Graduates	rate	category "univ. graduate"	base			
Medicine	5,571	91.0	99.6	34,347	1.41	1	
Podiatry	433	88.9	92.5	27,047	1.26	2	
Optics and Optometry	797	90.2	93.6	25,086	1.24	3	
Pharmacy	2,872	84.1	88.2	27,278	1.23	4	
Nursing	11,700	73.2	93.5	28,737	1.21	5	
Aeronautical engineering	1,543	73.2	84.4	32,117	1.21	6	
Dentistry	1,785	64.1	97.7	30,978	1.21	7	
Electrical engineering	1,686	85.0	74.3	30,007	1.20	8	
Energy engineering	141	80.9	79.8	28,943	1.19	9	
Engineering in industrial technologies	5.091	79.8	76.8	30,416	1.19	10	
Industrial organization engineering	1,073	79.6	69.2	32,867	1.18	11	
Industrial and automatic electronic engineering	2,525	83.8	70.4	30,617	1.18	12	
Software and application development	146	84.9	67.7	30,384	1.17	13	
Telecommunication engineering	2,335	80.9	72.0	29,996	1.17	14	
Mechanical engineering		84.1	69.9	29,439	1.17	15	
Nautical and maritime transport	3,861 242	64.1	74.8	35,436	1.16	16	
Naval and oceanic engineering	553	73.8	71.8	31,071	1.14	17	
Computer engineering	86	88.4	60.5	30,694	1.14	18	
Music	339	65.8			1.13	19	
Materials engineering	164	75.0	86.1 76.4	28,254	1.13	20	
Mining and Energy engineering	807	75.0	70.4	27,765	1.13	20	
Mathematics	840	74.0	73.2	30,154 28,119	1.13	22	
Primary education	19,624	76.4	75.3	27,364	1.13	23	
Electronic Engineering	743	83.3	61.1		1.12	24	
Physiotherapy				30,558			
Computing	3,426	77.1	89.9 59.9	22,209	1.12 1.12	25 26	
Sound and image engineering	6,672	84.6		30,150		27	
Enology	437 112	82.2	66.6	27,535	1.11	28	
Civil Engineering		83.0	66.7	26,801	1.10		
	5,332 631	71.6	72.3	28,347	1.10	29	
Speech therapy Agricultural and rural engineering		84.5	81.2	20,737	1.09	30 31	
	1,173	80.3	67.0	26,146	1.09		
Agricultural and agri-food engineering Social and Cultural Anthropology	417 612	83.7	63.9	24,856	1.07	32 33	
Biomedical and Health engineering		65.7	71.0	28,219	1.06		
	106	67.0	69.0	28,211	1.06	34	
Industrial chemical engineering	2,104	78.9	61.2	26,120	1.05	35	
Engineering geomatics, topography and cartography Statistics	806	75.6	63.2	26,418	1.05	36	
	240	80.0	55.2	27,638	1.04	37	
Physics Experied Languages and dislasts	914	66.3	79.0	23,201	1.03	38	
Spanish languages and dialects	1,990	60.7	72.6	26,620	1.02	39	
Forestry and woodland engineering Classical languages	765	75.0	64.3	24,266	1.02	40	
3 3	190	61.1	76.5	24,904	1.02	41	
Occupational therapy Veterinary	711	79.6	73.8	19,729	1.02	42	
3	1,423	73.9	79.4	19,639	1.02	43	
Architecture Technical architecture	3,839	61.0	76.1	24,768	1.02	44	
	3,849	75.4	60.2	24,648	1.01	45	
Protection of property and persons	44	88.6	48.7	25,505	1.00	46	
Biochemistry	832	69.8	73.3	21,386	1.00	47	
Human Nutrition and Dietetics	884	77.6	62.3	22,534	1.00	48	
Pedagogy	5,025	70.5	61.9	24,862	1.00	49	
Primar school teachern	12,644	74.5	59.2	24,477	0.99	50	
Multimedia engineering	41	80.5	51.5	25,872	0.99	51	
Social work	4,265	76.0	57.7	23,994	0.99	52	

Table 17. Employability indicators and synthetic index by area of study. Total universities Situation in 2018 of university graduates from the 2013-14 academic course (cont.)

			% in contribu-	Average annual		
Areas	University Graduates	Affiliation rate	tion group category "univ. graduate"	contribution base	Index	Ranking
Biotechnology	785	66.4	77.4	20,400	0.98	53
Biomedicine	250	68.4	71.4	21,007	0.98	54
Air transport services	104	75.0	48.7	27,283	0.97	55
Chemistry	1,971	74.6	60.0	21,977	0.96	56
Industrial design engineering and product develop-						
ment	946	77.7	50.9	24,738	0.96	57
Other teachers	1,393	73.2	54.3	24,548	0.96	58
Financial and Actuarial	158	81.7	38.8	29,650	0.95	59
English language	2,368	60.1	63.8	24,459	0.95	60
Engineering horticulture and gardening	255	78.0	50.8	22,997	0.94	61
Social Education	2,422	75.7	52.6	22,108	0.93	62
Food Science and Technology	572	77.8	50.6	22,184	0.93	63
Literature	99	53.5	56.6	27,229	0.91	64
Psychology	8,022	66.1	55.9	22,174	0.91	65
Geology						
	374	66.0	55.9	21,935	0.90	66
Law	15,958	55.9	55.5	26,008	0.90	67
Other foreign languages	557	50.8	59.6	25,934	0.89	68
Humanities	640	58.3	52.3	25,326	0.89	69
Information and documentation	484	75.2	43.5	22,590	0.88	70
Public policy and management	1,426	59.8	45.8	26,624	0.87	71
Administration and business	21,463	77.4	36.9	25,452	0.87	72
Marketing	948	74.8	35.7	27,035	0.87	73
Philosophy	809	56.1	51.8	24,465	0.86	74
Modern and applied languages	404	54.2	56.2	22,922	0.86	75
Biology	3,585	62.5	53.4	20,313	0.85	76
Environmental Science	1,864	66.8	46.7	21,735	0.85	77
Economy	4,104	72.6	36.6	25,190	0.85	78
Physical activity and sport	3,866	74.2	40.0	22,466	0.85	79
Sociology	817	64.5	41.3	22,874	0.82	80
Translation and interpretation	1,917	56.5	47.8	21,924	0.81	81
Labor relations and human resources	4,667	77.5	33.1	23,067	0.81	82
History	2,853	55.6	45.2	23,106	0.81	83
Journalism	3,870	69.2	38.8	20,914	0.80	84
Design	534	66.7	36.0	22,418	0.79	85
Advertising and Public Relations	3,154	74.5	30.7	22,198	0.77	86
Marine Science	212	57.6	46.7	18,572	0.77	87
International Relations	133	51.1	44.1	21,779	0.76	88
Geography and land planning	366	61.8	42.7	18,587	0.76	89
Audio-visual, image and multimedia	2,923	66.7	35.5	20,661	0.76	90
Geography	2,923	64.1	33.5	22,606	0.76	91
Communication	161	67.7	27.5	25,707	0.76	92
Finance and accounting	946	77.1	26.9	21,270	0.74	93
Conservation and restoration	165		46.6			93
Trade		53.3		17,209	0.73	
	399	71.9	24.7	23,713	0.73	95
History of Art Protocol and events	1,541	55.2	34.7	21,049	0.72	96
	51	66.7	26.5	22,251	0.71	97
Criminology	1,335	59.1	24.3	26,919	0.71	98
Fine arts	2,750	50.5	38.6	19,001	0.70	99
Management and public administration	605	71.6	19.6	22,793	0.66	100
Tourism	3,360	66.3	19.1	22,220	0.63	101

them quantitatively by affiliation rate and qualitatively according to the rate of graduates employed as university graduates and average contribution base. The values of each variable have been standardized in relation to their median and aggregated through a geometric mean of equal weights to generate the final index with which they have been ordered.

The results allow us to appreciate that, as can be seen from the analysis by areas, the fields of study with higher employability rates are related to Health and Engineering. In fact, the first 15 positions all correspond to these two areas. The annual Social Security contribution base exceeds 25,000 euros in all cases, with most averaging 30,000. In addition, they have a high affiliation rate of around 80%, with also approximately 80% of graduates on average working according to their educational level.

If we consider the last 15 fields of study, the diversity among the areas is greater, predominating those that correspond to Social Studies, such as Advertising and Public Relations, Audio-visual, Image and Multimedia and Tourism -which have the greatest number of graduates- and the area of Humanities, such as History of Art or Fine Arts, also with a large number of graduates. In general, they have an average employment rate of 63% (18 percentage points less than the average of the first fifteen), the rate of graduates with corresponding contracts is around 33%, that is, only one third of the graduates are hired with a contract that is in accordance with their educational level, which is around 50 percentage points less than in the first 15 fields, and the average annual contribution base is 21,000 euros, over 8,000 euros less than for the first 15 fields.

In general, this analysis shows how extremely important the choice of degree is for employability. Although not everything is based on employability, many factors must be considered when choosing a career. For example, some determining factors to be taken into account that explain a person's choice are vocation, type of degrees offered in a given area of residence, numerus clausus and family traditions. However, if employability is a top priority, the information provided in this report is very important to help

students choose what to study or school counselors when providing advice²⁴.

Employability: university ranking

The previous section offered a general description of the situation of university graduate employability, showing the differences that exist among areas of study and also fields of study.

The construction of a ranking based on the performance of universities in terms of graduate employability is carried out by integrating the three indicators described above (Social Security affiliation rate, percentage of graduates employed according to their qualifications and average contribution base), into a single synthetic index by which the institutions are ranked accordingly.

Figure 1 briefly illustrates the process. We begin with the value of the indicators in each area of study. This value is important because as mentioned before, some areas have a higher employability rate than others, so the degrees offered by a university will have an impact on its final performance, i.e., if the degrees offered are concentrated in areas of study with high employability rates, the university will have better employability results. However, by beginning the process with data by areas of study, a university's performance takes into account this composition and even if the degrees offered have high employability rates, if this data is lower than that of other universities in the same area of study, the index will reflect its lower relative performance.

Once the employability indicators by area of study are collected, given that the measuring units are different, they are standardized with respect to the median of each one of them and are aggregated into one, for each area, by means of a geometric average with equal weights for each indicator. In this way, an index of university performance in each area of study is obtained. To obtain the synthetic index by uni-

information is not available by degree.

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²⁴ In the ranking by degrees, along with the synthetic index of each degree, two indicators of labor market insertion are offered: a) affiliation rate b) percentage of affiliates hired as university graduates. The average annual contribution base is not included, since this

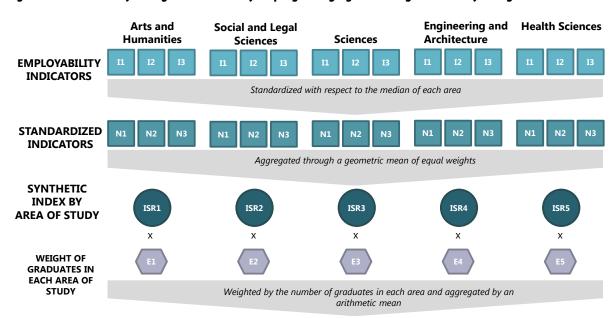
versity, the indices of each area of study are aggregated into one through an arithmetic mean weighted by the weight that each area has in the degrees of the university measured by the number of graduates in each one of them.

We will begin with an analysis of the ranking for each areas of study and then conclude with the aggregate of all of them. This analysis by area allows us to identify key elements that will allow a better interpretation of the final aggregate results.

Table 18 shows the performance results of universities in terms of employability in the area of

Arts and Humanities. It offers the values of the three indicators used, the synthetic index and the ranking constructed from it. It also offers the number of graduates that, in our opinion, is crucial for interpreting the performance of universities. To the extent that employability policies or alumni networks are expected to function, they will be very much conditioned by the size of the graduating cohort. Another piece of information that is also considered is the weight that the area of study analyzed has on the total number of graduates, since specializing in certain areas with greater employability prospects may be a natural tendency for younger universities that can choose which degrees to offer.

Figure 1. Estimation of the synthetic index of employability by university and area of study



ISG

GLOBAL SYNTHETIC INDEX

Source: own elaboration

Table 18. Employability indicators and synthetic index by university. Area of study: Arts and Humanities.

Situation in 2018 of university graduates from the 2013-14 academic course

	A	RTS AND HU	MANITIES				
University	University Graduates	% University Graduates	Affiliation rate	% in contri- bution group category "univ. graduate"	Average annual contribution base	Index	Ranking
La Rioja	205	22.0	66.3	90.4	29,811	1.38	1
Illes Balears (Les)	151	7.6	74.8	76.1	27,011	1.31	2
Oberta de Catalunya	139	4.7	69.1	65.6	33,776	1.31	3
Deusto	91	6.1	69.2	73.0	28,023	1.27	4
Nacional de Educación a Distancia	1,077	16.2	57.8	60.7	31,618	1.17	5
Rovira i Virgili	159	7.7	73.6	59.8	24,236	1.16	6
País Vasco/Euskal Herriko Unibertsitatea	615	8.0	64.9	58.7	26,472	1.14	7
València (Estudi General)	880	10.5	59.7	62.7	24,542	1.10	8
Extremadura	155	4.5	56.8	68.2	23,265	1.09	9
Lleida	98	7.0	60.2	55.9	22,467	1.03	10
Zaragoza	514	8.8	60.1	56.5	22,265	1.03	11
Alicante	538	12.5	58.2	57.2	22,507	1.03	12
Córdoba	305	10.2	54.4	57.0	23,624	1.02	13
Girona	129	6.1	69.0	48.3	21,759	1.02	14
Huelva	114	6.3	57.0	55.4	22,861	1.02	15
Autónoma de Barcelona	901	14.0	66.4	45.6	23,535	1.01	16
Jaume I de Castellón	172	8.9	66.9	47.8	21,825	1.01	17
Cádiz	195	5.9	49.7	60.8	22,657	1.00	18
Valladolid	377	7.0	55.4	54.6	22,639	1.00	19
Málaga	267	9.3	55.1	54.4	22,675	1.00	20
Camilo José Cela	191	4.8	67.5	45.0	22,364	1.00	21
Jaén	140	5.1	60.7	51.8	21,289	0.99	22
Granada	1,182	13.3	49.6	57.9	23,282	0.99	23
Barcelona	1,129	14.3	64.8	43.2	23,620	0.99	24
Pompeu Fabra	235	10.6	64.3	44.4	22,766	0.98	25
Ouiedo	314	8.4	55.4	53.5	20,918	0.97	26
Autónoma de Madrid	595	11.9	56.8	49.3	22,057	0.97	27
Miguel Hernández de Elche	203	9.4	53.7	48.6	23,096	0.96	28
Vic-Central de Catalunya	84	8.9	66.7	35.7	25,263	0.96	29
Alcalá	156	4.8	57.7	48.9	21,241	0.96	30
Murcia	614	12.9	52.8	51.4	21,834	0.95	31
Pablo de Olavide	175	12.3	52.0	55.0	20,552	0.95	32
Las Palmas de Gran Canaria	200	8.0	55.5	47.8	21,425	0.94	33
Sevilla	789	8.5	49.9	50.8	21,540	0.93	34
Santiago de Compostela	393	9.7	46.6	56.4	20,240	0.92	35
Complutense de Madrid	1,593	11.3	54.7	45.8	21,108	0.92	36
La Laguna	238	7.3	52.5	46.0	21,425	0.91	37
Salamanca	724	12.4	50.3	50.4	19,852	0.90	38
Castilla-La Mancha	382	7.0	52.4	45.0	19,737	0.88	39
Vigo	274	9.0	47.8	45.8	19,259	0.85	40
Politècnica de València	707	12.9	49.7	36.5	18,381	0.79	41

Two public universities, La Rioja and Illes Balears, lead the performance ranking for employability in Arts and Humanities. Moreover, this area of study has a very significant weight in the degrees offered by Universidad de La Rioja, since more than one fifth of its graduates study in this area, which as already discussed, has a difficult labor market access. A second characteristic that is noteworthy is the good performance results of two distance-learning universities, Oberta de Catalunya and UNED. In general, online universities always present good results in terms of employability because, given their teaching methods, they have a high number of students who combine work and study. Therefore, some of their students have already entered the labor market while studying to a greater extent than those students of on-site universities. Also worth noting is the low number of private universities in this area of study, not so much in the top positions where we find Oberta de Catalunya and Deusto, but in the overall ranking. The reason for this is that private universities try to avoid as much as possible degrees in Arts and Humanities, either because they know the demand is low or because they are aware of the existing challenges graduates face when finding a job.

Table 19 offers the same information for the area of study corresponding to Social and Legal Sciences. It is worth noting that this branch concentrates the greatest percentage of students and graduates and, therefore, has a significant weight in the general synthetic index. There are several conclusions that can be drawn from this. The first is that private universities take the lead in the top positions, the second is that in many of these private universities, the weight of this area of study is very high, that is, these universities concentrate their offer areas with a high demand, which is logical since it is financed by enrolment fees. In some cases, such as Universidad Internacional Isabel I de Castilla, Universidad Internacional de La Rioja, UDIMA or Abat Oliba CEU, all of the graduates of the cohort analyzed correspond to this branch. As with Arts and Humanities, and for the same reasons, distance-learning universities also appear in the top places of the classification.

Several reasons can be given for the good performance of private universities in the areas of study in which they mostly concentrate their degree offers. In the first place, since they do not receive public funds, their business model is based on enrolment fees. Given that student satisfaction is fundamental for them, a more personalized attention to issues related to labor market access is expected from them. Only to the extent that the results in this variable are satisfactory, a model focused on teaching will have the capacity to maintain the demand. This specialization was already observed when comparing the teaching and research rankings, in which the universities in the top places in teaching occupied the bottom places in research. In this task of accompanying graduates throughout their access to the labor market, private universities have traditionally made an efficient use of alumni networks. This strategy seems to be quite effective when the size of the institution is small. There are other hypothetical reasons that explain the good results of private universities in employability, one is for example the social background of their students who are able to pay higher fees. If their families have more resources, it can also be expected that they have better connections to help them find a job, keeping in mind that, in Spain, contacts (friends or family) are a key component of job search. Another reason may be that the results are influenced by the geographic location of private universities, since they tend to be concentrated in larger urban areas with higher paying jobs, such as Madrid, Barcelona and Valencia, clearly affecting the average contribution base indicator of their graduates.

Table 20 considers the same analysis but for Science, which in many cases bears similarities with Arts and Humanities. Teaching Science requires a large investment in equipment, laboratories, and consumables, and all of this for a much lower demand than that of Social Sciences. In this context, very few private universities appear, in the first places and in general, with the exception of Navarre, since the Central de Cataluña is semi-public/private institution. UNED, a public distance-learning university, appears in the top positions, confirming what was previously mentioned about the influence of the teaching modality on employability. The Universities of La Rioja, Zaragoza, Almería and Córdoba accompany Valladolid in the first places, although with a very different number of graduates. In general, the first ten positions are marked by high Social Security affiliation rates of over 80% and the first four places by average contribution bases that exceed 25,000 euros.

Table 19. Employability indicators and synthetic index by university. Area of study: Social and Legal Sciences. Situation in 2018 of university graduates from the 2013-14 academic course

SOCIAL AND LEGAL SCIENCES in contribu Average annual contribution base University Graduates Affiliation University Graduates Index Ranking Internacional Isabel I de Castilla 1.230 100.0 68.8 97.9 31,102 1.37 Camilo José Cela 3.451 86.1 82.3 87.3 28.448 1.36 Internacional de La Rioja 1.848 28.508 0.00 82.5 78.5 1.31 Pontificia Comillas 1.122 64.9 79.6 1.31 Mondragon Unibertsitatea 428 51.4 68.1 27,731 1.25 A Distancia de Madrid 149 00.0 71.8 64.5 33,436 1.24 6 Europea de Madrid 1.190 68.7 1.20 73.3 28,300 35.2 Ramon Llull 1.582 70.1 78.1 61.9 29,441 1.20 Internacional de Catalunya 416 59.5 82.0 66.3 26.087 1.20 Oberta de Catalunya Católica de Valencia S. Vicente Mártir 2.307 77.8 80.8 51.8 32.156 1.18 10 1.097 68.1 25,700 58.7 1.16 73.1 11 522 37.2 82.4 23,892 59.3 1.13 Vic-Central de Catalunya 515 54.5 82.1 56.0 25.246 1.13 13 Abat Oliba CEU 26.624 277 0.00 76.9 52.6 1.10 14 Nebrija 310 45.5 32,581 58.8 72.3 1.10 15 1.101 74.2 75.5 53.1 1.09 Deusto Illes Balears (Les) 1.111 55.8 81.2 52.2 24.803 1.09 17 UNED 4.358 65.7 66.3 52.1 30,126 1.08 18 Pública de Navarra 789 55.2 77.8 54.5 24,500 1.08 19 Cardenal Herrera-CEU 700 52.4 68.0 62.5 24,359 1.08 20 Valladolid 3.257 60.2 73.0 54.2 25,143 1.07 21 San Pablo-CEU 1.030 25.884 63.3 72.5 52.7 1.07 22 558 50.8 26,474 1.06 Navarra 33.0 71.7 23 Alfonso X El Sabio 113 83.2 53.2 21,558 1.05 Autónoma de Madrid 2.547 50.9 72.1 50.6 25.803 1.05 25 80.6 La Rioia 44.7 49.7 1.05 417 23,425 26 Carlos III de Madrid 1.630 59.6 49.6 26,569 1.04 27 69.5 Castilla-La Mancha 3.184 58.0 70.3 53.6 23,565 1.03 28 Rovira i Viraili 1.029 49.9 77.8 47.3 23.838 1.02 29 País Vasco/Euskal Herriko Unibertsitatea 3.361 25.381 43.6 77.3 44.4 1.02 30 Barcelona 4.034 51.0 78.9 42.4 25,913 1.02 31 Zaragoza 2.725 46.7 75.3 48.2 23,427 1.01 32 Pompeu Fabra 1.500 67.9 74.9 42.5 26.409 1.01 33 Autónoma de Barcelona 2.788 43.4 79.6 41.5 24,734 1.00 34 Salamanca 2.572 43.9 52.6 23,936 1.00 Politécnica de Madrid 183 4.3 82.5 39.1 24,164 0.98 36 València (Estudi General) 4.810 57.4 70.1 46.7 23,199 0.98 37 Las Palmas de Gran Canaria 1.496 60.0 69.6 44.9 24,316 0.98 38 2.571 54.1 66.6 0.97 Quiedo 1.663 44.3 69.1 48.1 22,649 0.97 40 Complutense de Madrid 8.352 59.3 69.9 45.1 23.855 0.97 41 Alicante 23,321 0.97 2.379 55.1 71.1 44.7 42 21,774 Santiago de Compostela 1.864 46.0 66.6 50.4 0.96 43 León 1.280 27.9 69.4 45.2 23,242 0.96 44 laume I de Castellón 1.174 60.5 74.3 43.9 22,199 0.96 45 Alcalá 1.423 42.0 23,561 0.96 43.5 72.9 46 23,430 Burgos 932 49.0 40.4 0.94 Girona 990 46.6 78.2 36.6 23.584 0.94 48 23,117 Cantabria 742 40.7 71.8 40.5 0.94 49 Pablo de Olavide 1.062 68.5 0.93 74.6 46.4 20,606 50 Rey Juan Carlos 3.463 73.4 37.1 23,805 78.8 0.93 Vigo 1.394 45.8 69.4 43.4 20,914 0.92 Granada 4.787 53.8 61.8 45.1 22,263 0.91 53 A Coruña 1.438 50.6 68.0 41.0 21,970 0.91 54 Politécnica de Catalunya 169 79.9 31.9 0.90 laén 1.548 56.4 43.1 21.611 0.90 Córdoba 21.692 1.507 50.4 64.8 41.1 0.89 57 Almería 1.495 76.0 40.4 21,299 0.89 66.4 58 La Laguna 1.680 69.0 38.3 21,513 0.89 Extremadura 1.691 49.0 65.0 40.8 21.233 0.88 60 Málaga 1.579 40.6 20,758 55.2 66.3 0.88 61 Miguel Hernández de Elche 796 36.9 71.9 35.3 21,711 0.88 Huelva 1.158 64.1 65.5 39.7 21,179 0.88 Sevilla 4.379 47.3 63.4 39.3 21.390 0.87 Politècnica de València 10.0 547 73.5 31.3 22,269 0.86 65 1.876 21,545 0.81 57.0 32.6 Politécnica de Cartagena

Table 20. Employability indicators and synthetic index by university. Area of study: Science. Situation in 2018 of university graduates from the 2013-14 academic course

		SCIENCE					
University	University Graduates	% University Graduates universidad	Affilia- tion rate	% in contribu- tion group category "univ. graduate"	Average annual contribu- tion base	Index	Ranking
Valladolid	231	4.3	86.6	85.0	23,777	1.25	1
La Rioja	61	6.5	85.3	67.3	25,623	1.18	2
UNED	324	4.9	67.3	67.4	30,727	1.16	3
Vic-Central de Catalunya	59	6.2	84.8	54.0	27,679	1.12	4
Zaragoza	401	6.9	77.6	72.7	21,660	1.11	5
Almería	48	2.4	77.1	64.9	21,530	1.06	6
Córdoba	265	8.9	73.2	67.0	21,696	1.06	7
País Vasco/Euskal Herriko Unibertsita- tea	442	5.7	77.2	63.3	21,726	1.06	8
Illes Balears (Les)	147	7.4	77.6	63.2	21,379	1.05	9
Jaume I de Castellón	39	2.0	82.1	46.9	25,878	1.03	10
Politècnica de València	262	4.8	70.6	68.1	20,474	1.03	11
Navarra	115	6.8	70.4	65.4	21,337	1.03	12
Barcelona	807	10.2	71.5	60.0	22,781	1.03	13
Santiago de Compostela	340	8.4	68.2	67.7	21,096	1.03	14
Miguel Hernández de Elche	115	5.3	68.7	67.1	21,002	1.02	15
Granada	737	8.3	64.3	69.6	21,426	1.02	16
Complutense de Madrid	1,076	7.6	66.9	61.8	22,531	1.01	17
Málaga	156	5.5	66.7	67.3	20,737	1.01	18
Girona	204	9.6	72.1	54.4	23,206	1.00	19
Alicante	258	6.0	65.5	65.1	20,983	1.00	20
La Laguna	172	5.3	63.4	64.2	21,899	1.00	21
Huelva	62	3.4	77.4	52.1	21,849	0.99	22
Murcia Castilla-La Mancha	360 180	7.6	65.6 71.7	62.7 61.2	21,123	0.99	23 24
Oviedo	326	8.7	61.4	66.0	19,645 21,257	0.98	25
València (Estudi General)	650	7.8	68.9	58.8	21,146	0.98	26
Sevilla	535	5.8	65.6	60.7	21,140	0.98	27
Cádiz	208	6.3	63.9	60.9	21,447	0.97	28
Extremadura	156	4.5	65.4	61.4	20,677	0.97	29
Autónoma de Barcelona	782	12.2	71.1	50.4	23,152	0.97	30
Rovira i Virgili	120	5.8	70.0	50.0	23,292	0.97	31
Salamanca	412	7.0	66.5	56.2	21,357	0.96	32
Alcalá	317	9.7	74.1	44.7	22,292	0.94	33
Autónoma de Madrid	707	14.1	60.7	55.2	21,758	0.93	34
Jaén	121	4.4	66.1	52.5	19,722	0.91	35
Rey Juan Carlos	146	3.3	71.2	40.4	21,279	0.88	36
León	217	4.7	65.9	49.0	18,607	0.87	37
Vigo	172	5.6	59.9	55.3	18,056	0.87	38
Pablo de Olavide	187	13.1	58.3	50.5	18,188	0.84	39
A Coruña	81	2.9	60.5	40.8	20,076	0.82	40

Table 21 shows the results for Engineering and Architecture with once again, a strong presence of private universities in top places. In some cases, such as University of Mondragon, there is a strong specialization in this branch (almost half of its graduates have studied a degree in that area of study). In other universities, the number of graduates in that area of study is not as pronounced, as is the case of Universitat de Vic-Central de Catalunya, Camilo José Cela or Ramon Llull. Although in many cases the size of the cohort is small, in others, e.g., Europea de Madrid, not only is the percentage important, but also the size of the cohort, with 1,183 graduates. As a reference, public universities that specialize in this area, namely, polytechnics have more than 3,000 graduates in this cohort. Among public universities, León, Autónoma de Madrid, Rey Juan Carlos, Salamanca, Illes Balears and Alcalá appear in high positions. In our opinion, most of the reasons that explain the positions in Social and Legal studies, are also valid for Engineering and Architecture.

Table 22 shows the results for the Health branch, which, as already mentioned, is the area of study that offers the best employability results compared to other areas. The first ten universities are characterized by an average contribution base of approximately 30,000 euros, with over 90% of its graduates employed according to their educational level. The level of specialization in Health in leading universities is very diverse. It is high in Internacional de Cataluña (40.5% of its graduates correspond to this branch), Navarra (24.3%) or Rovira i Virgili (22.3%) but significantly lower in others such as Pompeu Fabra (7.1%) or Pública de Navarra (8.3%). The presence of private universities in the top positions is much lower than in Social Sciences or Engineering, but one of them, Universidad de Navarra leads the ranking in Health.

Table 23 offers the overall ranking which takes into account the results obtained in each area of study mentioned in the previous paragraphs that are a fairly visual synthesis of the same. Considering that the area of study that has the highest percentage of graduates is Social and Legal Sciences, it is not surprising that the universities that appear in the top positions, all of them private, are those that obtain the best results. In short, a large part of the good employability results of a university can be explained by an overspecialization, along with, obviously, a good performance, in highly-demanded areas, as a consequence of its method of obtaining funds. Avoiding areas of study that have lower employability rates, such as Arts and Humanities, or those that require a greater investment in equipment, and therefore result in less profitability per student, such as Sciences, adds nuances to the global rankings.

In general, many of the patterns identified in the results by areas of study are also valid for the global ranking. For example, the presence of private universities in the top positions or the good results of online universities due to the fact that this teaching model preferred more often by students who want to combine their studies with a job they already have.

In addition a large part of the potential reasons that place universities with better employability in top positions can also be upheld and are possibly the key to explaining the results: specialization in areas of study with higher employability rates, geographic location of universities in cities of greater economic development with higher salaries and therefore higher contribution bases, which is one of the three indicators used, more graduates with a high social status and connections that facilitate job search, and smaller universities that make it easier to give a more personalized attention to graduates.

Table 21. Employability indicators and synthetic index by university. Area of study: Engineering and Architecture. Situation in 2018 of university graduates from the 2013-14 academic course

	ENG	INEERING AND	ARCHITECTUR	RE			
University	University Graduates	% University Graduates universidad	Affiliation rate	% in contribu-tion group category "univ. graduate"	Average annual contribution base	Index	Ranking
Mondragon Unibertsitatea	405	48,6	91,4	78,4	33,869	1,17	1
Nebrija	109	20,7	83,5	83,5	34,708	1,17	2
León	2,486	54,3	83,4	84,0	34,406	1,17	3
Vic-Central de Catalunya	105	11,1	92,4	65,0	34,913	1,11	4
Pontificia Comillas	371	21,5	76,0	81,2	33,538	1,11	5
Europea de Madrid	1,183	35,0	78,4	79,6	32,861	1,11	6
Alfonso X El Sabio	720	34,1	78,3	78,9	32,170	1,09	7
Camilo José Cela	224	5,6	74,6	83,8	31,019	1,09	8
Ramon Llull	328	14,5	76,5	74,1	33,528	1,08	9
Autónoma de Madrid	256	5,1	82,8	73,1	31,045	1,07	10
Rey Juan Carlos	332	7,6	86,5	68,3	31,164	1,07	11
Salamanca	1,020	17,4	81,7	74,4	30,040	1,06	12
Illes Balears (Les)	310	15,6	79,4	71,5	31,570	1,06	13
Alcalá	754	23,1	84,2	66,9	31,462	1,05	14
Oberta de Catalunya	377	12,7	84,9	58,8	35,452	1,05	15
Carlos III de Madrid	1,105	40,4	76,6	74,5	30,722	1,05	16
San Pablo-CEU	177	10,9	68,4	79,3	32,103	1,05	17
Rovira i Virgili	295	14,3	83,4	65,5	31,817	1,05	18
Deusto	195	13,1	87,2	68,8	28,606	1,04	19
Navarra	607	35,9	70,5	78,7	30,396	1,04	20
Valladolid	1,051	19,4	82,6	71,1	28,576	1,03	21
UNED	521	7,9	79,5	62,1	33,983	1,03	22
Pública de Navarra	521	36,5	87,9	67,7	28,033	1,03	23
Complutense de Madrid	451	3,2	80,7	67,3	30,135	1,03	24
País Vasco/Euskal Herriko Unibertsitatea	2,334	30,3	82,8	66,6	29,514	1,02	25
Politécnica de Catalunya	3,650	94,2	76,0	65,3	31,035	1,00	26
Politécnica de Madrid	4,066	95,7	71,5	72,1	29,484	1,00	27
Murcia	105	2,2	81,0	69,4	26,508	0,99	28
Miguel Hernández de Elche	416	19,3	80,8	67,6	27,077	0,99	29
Autónoma de Barcelona	427	6,7	83,6	55,7	31,627	0,99	30
València (Estudi General)	222	2,7	81,1	67,2	26,531	0,98	31
Vigo	962	31,6	81,2	67,9	26,218	0,98	32
Castilla-La Mancha	944	17,2	81,5	67,6	26,143	0,98	33
Burgos	813	42,7	79,2	64,1	27,396	0,97	34
Politécnica de Cartagena	731	89,1	76,7	69,0	25,884	0,97	35
Zaragoza	1,280	21,9	79,9	63,4	26,935	0,97	36
Málaga Barcelona	364	12,7	74,7	66,5	27,363	0,96	37
	163	2,1	79,1	57,4	29,813	0,96	38
Oviedo	1,035	27,6	78,9	61,7	27,556	0,96	39
Lleida Huelva	340 277	24,3 15,3	87,4	57,2	26,708 26,730	0,96	40 41
	601		78,3	63,1		0,96	41
Jaén Sevilla	2,182	21,9 23,6	80,7 73,4	64,3 67,6	25,416 26,370	0,95 0,95	42
Cantabria	786	43,1		66,9	26,370	0,95	45
Cádiz	495	15,1	72,7 75,0	62,5	26,882	0,95	45
La Rioja	250	26,8	75,0 84,0	54,3	26,876	0,94	45
Granada	984	11,1	66,3	73,3	25,453	0,94	47
Alicante	828	19,2	73,2	65,5	25,783	0,93	48
Córdoba	502	16,8	78,5	64,6	24,098	0,93	49
Las Palmas de Gran Canaria	337	13,5	73,9	62,3	26,477	0,93	50
Almería	177	9,0	85,3	59,6	23,885	0,93	51
A Coruña	1,042	36,7	73,9	65,2	24,882	0,92	52
Politècnica de València	3,972	72,4	73,5	62,3	25,675	0,92	53
Cardenal Herrera-CEU	94	7,0	62,8	72,9	25,636	0,92	54
Girona	367	17,3	84,7	47,6	28,370	0,91	55
La Laguna	575	17,6	72,9	61,6	25,056	0,91	56
Jaume I de Castellón	460	23,7	82,4	52,8	25,741	0,90	57
Santiago de Compostela	368	9,1	75,0	63,4	22,902	0,90	58
Pompeu Fabra	317	14,4	72,9	55,0	26,683	0,89	59
Extremadura	731	21,2	74,3	56,5	23,525	0,89	60

Source: Spanish Ministry of Universities (2019) and own elaboration $% \left(1\right) =\left(1\right) \left(1\right)$

Table 22. Employability indicators and synthetic index by university. Area of study: Health Sciences. Situation in 2018 of university graduates from the 2013-14 academic course

		HEALTH SCI	ENCES				
University	University Graduates	% University Graduates universidad	Affiliation rate	% in contribu-tion group category "univ. graduate"	Average annual contribution base	Index	Ranking
Navarra	412	24,3	87,9	94,5	32,394	1,13	1
País Vasco/Euskal Herriko Unibertsitatea	958	12,4	85,1	90,3	32,557	1,10	2
Cantabria	295	16,2	84,1	96,0	30,304	1,09	3
Pública de Navarra	119	8,3	84,9	96,0	29,053	1,08	4
Castilla-La Mancha	803	14,6	80,6	95,4	30,343	1,08	5
Pompeu Fabra	156	7,1	79,5	91,9	30,661	1,06	6
Zaragoza	918	15,7	82,6	91,8	29,486	1,06	7
Internacional de Catalunya	283	40,5	77,4	93,2	30,414	1,05	8
Valladolid Rovira i Virgili	495 460	9,1	79,2	92,4	29,801	1,05	9
Salamanca	1,133	22,3 19,3	82,4 79,3	85,5 90,8	30,722 29,866	1,05 1,05	10
Politécnica de Catalunya	54	1,4	92,6	86,0	26,880	1,05	12
San Pablo-CEU	421	25,9	83,9	91,5	27,421	1,03	13
Oviedo	415	11,1	77,8	94,4	28,597	1,04	14
Illes Balears (Les)	271	13,6	81,2	84,6	29,073	1,02	15
Miguel Hernández de Elche	627	29,1	83,3	83,7	28,454	1,02	16
Córdoba	410	13,7	74,6	92,2	28,797	1,02	17
Europea de Madrid	1,006	29,8	68,5	94,2	30,163	1,01	18
Santiago de Compostela	1,086	26,8	75,1	91,4	28,335	1,01	19
Autónoma de Barcelona	1,519	23,7	80,6	84,0	28,703	1,01	20
Sevilla	1,374	14,8	73,7	90,8	28,918	1,01	21
Vic-Central de Catalunya	182	19,3	81,9	83,2	28,229	1,01	22
Rey Juan Carlos	453	10,3	82,6	89,8	25,901	1,01	23
Las Palmas de Gran Canaria	459	18,4	79,3	89,6	26,927	1,01	24
Granada	1,207	13,6	73,2	90,4	28,871	1,01	25
Murcia	1,103	23,2	76,8	85,5	28,832	1,00	26
Cádiz	515	15,7	68,4	92,9	29,803	1,00	27
Alcalá	621	19,0	82,3	85,3	26,873	1,00	28
Complutense de Madrid	2,602	18,5	80,8	84,2	27,689	1,00	29
Extremadura La Laguna	718 610	20,8 18,6	75,6 75,9	92,8 86,8	26,790 28,033	1,00 1,00	30 31
Nebrija	108	20,5	80,6	90,8	25,226	0,99	32
Barcelona	1,778	22,5	81,8	78,3	28,494	0,99	33
València (Estudi General)	1,812	21,6	74,9	83,0	29,200	0,99	34
Autónoma de Madrid	896	17,9	78,6	84,4	27,320	0,99	35
Jaén	336	12,2	75,0	88,5	26,802	0,98	36
León	597	13,0	70,5	92,2	27,186	0,98	37
Alfonso X El Sabio	1,277	60,5	70,1	92,5	27,047	0,98	38
Lleida	442	31,5	80,5	78,1	27,582	0,97	39
Pontificia Comillas	235	13,6	75,7	88,8	24,784	0,96	40
Málaga	495	17,3	73,7	83,6	26,834	0,96	41
Vigo	244	8,0	75,0	91,3	24,054	0,96	42
Cardenal Herrera-CEU	542	40,6	68,8	92,5	25,681	0,96	43
Girona	436	20,5	67,4	78,2	30,951	0,96	44
Alicante	315	7,3	73,3	82,3	26,521	0,95	45
Ramon Llull	348	15,4	79,9	75,9	26,374	0,95	46
A Coruña Católica de Valencia San Vicente Mártir	280	9,9	83,2	87,9	21,435	0,94	47
Camilo José Cela	772 140	41,3 3,5	74,0 72,1	74,7 77,2	28,302 25,767	0,94 0,91	48
Burgos	157	8,3	85,4	67,9	22,225	0,88	50
Oberta de Catalunya	143	4,8	73,4	57,1	26,629	0,88	51
Almería	246	12,5	61,8	73,0	24,603	0,84	52
UNED	349	5,3	66,8	60,6	26,632	0,83	53
Deusto	96	6,5	63,5	67,2	20,342	0,77	54
Huelva	195	10,8	53,3	73,1	22,087	0,77	55
Jaume I de Castellón	97	5,0	65,0	49,2	17,753	0,67	56

Table 23. Synthetic index of employability by areas of study and global index of universities.

Situation in 2018 of university graduates from the 2013-14 academic course

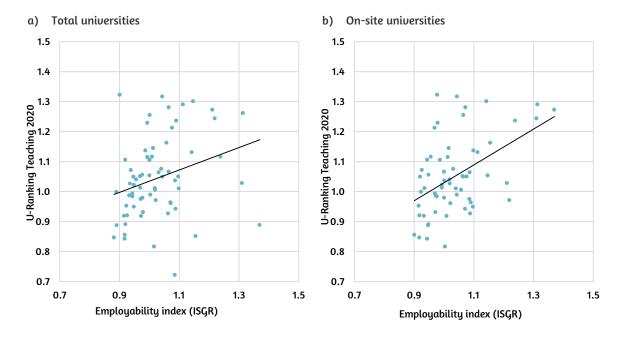
		Index	by area of study	1		Global	Index
University	Arts and Humanities	Social and Legal Sciences	Science	Enginerring and Architecture	Health Sciences	Index	Global ranking
Internacional Isabel I de Castilla	-	1,37	-	-	-	1,37	1
Internacional de La Rioja	-	1,31	-	-	-	1,31	2
Camilo José Cela	1,00	1,36	-	1,09	0,91	1,31	3
A Distancia de Madrid	-	1,24	-	-	-	1,24	4
Pontificia Comillas	-	1,31	-	1,11	0,96	1,22	5
Mondragon Unibertsitatea	-	1,25	-	1,17	-	1,21	6
Oberta de Catalunya	1,31	1,18	-	1,05	0,84	1,15	7
Ramon Llull	-	1,20	-	1,08	0,95	1,15	8
Internacional de Catalunya Europea de Madrid	-	1,20 1,20	-	1,11	1,05 1,01	1,14 1,11	9
La Rioia	1,38	1,05	1,18	0,94	1,01	1,10	11
Abat Oliba CEU	-	1,10	- 1,10	-	-	1,10	12
Nebrija		1,10	-	1,17	0,99	1,09	13
Illes Balears (Les)	1,31	1,09	1,05	1,06	1,02	1,09	14
Vic-Central de Catalunya	0,96	1,13	1,12	1,11	1,01	1,09	15
UNED	1,17	1,08	1,16	1,03	0,83	1,09	16
Deusto	1,27	1,09	-	1,04	0,77	1,08	17
León	-	0,96	0,87	1,17	0,98	1,07	18
Católica de Valencia San Vicente Mártir	-	1,16	-	-	0,94	1,07	19
Pública de Navarra	-	1,08	-	1,03	1,08	1,06	20
Navarra	-	1,06	1,03	1,04	1,13	1,06	21
Valladolid	1,00	1,07	1,25	1,03	1,05	1,06	22
San Pablo-CEU País Vasco/Euskal Herriko Unibertsitatea	-	1,07	- 100	1,05	1,04	1,06	23
Carlos III de Madrid	1,14	1,02 1,04	1,06	1,02 1,05	1,10	1,04 1,04	24 25
Rovira i Virgili	1,16	1,04	0,97	1,05	1,05	1,04	26
Lleida	1,03	1,13	-	0,96	0,97	1,03	27
Alfonso X El Sabio	-	1,05	-	1,09	0,98	1,02	28
Cardenal Herrera-CEU	-	1,08	-	0,92	0,96	1,02	29
Zaragoza	1,03	1,01	1,11	0,97	1,06	1,02	30
Castilla-La Mancha	0,88	1,03	0,98	0,98	1,08	1,02	31
Autónoma de Madrid	0,97	1,05	0,93	1,07	0,99	1,01	32
Barcelona	0,99	1,02	1,03	0,96	0,99	1,01	33
Salamanca	0,90	1,00	0,96	1,06	1,05	1,00	34
Politécnica de Catalunya	-	0,90	-	1,00	1,05	1,00	35
Autónoma de Barcelona	1,01	1,00	0,97	0,99	1,01	1,00	36
Politécnica de Madrid	-	0,98	-	1,00	-	1,00	37
Pompeu Fabra	0,98	1,01	-	0,89	1,06	0,99	38 39
València (Estudi General) Alcalá	1,10 0,96	0,98 0,96	0,98 0,94	0,98 1,05	0,99 1,00	0,99 0,99	40
Murcia	0,95	0,97	0,99	0,99	1,00	0,98	41
Oviedo	0,97	0,97	0,98	0,96	1,04	0,98	42
Complutense de Madrid	0,92	0,97	1,01	1,03	1,00	0,98	43
Las Palmas de Gran Canaria	0,94	0,98	-	0,93	1,01	0,97	44
Santiago de Compostela	0,92	0,96	1,03	0,90	1,01	0,97	45
Alicante	1,03	0,97	1,00	0,93	0,95	0,97	46
Cantabria	-	0,94	-	0,95	1,09	0,97	47
Miguel Hernández de Elche	0,96	0,88	1,02	0,99	1,02	0,96	48
Burgos	-	0,94	-	0,97	0,88	0,95	49
Girona	1,02	0,94	1,00	0,91	0,96	0,95	50
Granada	0,99	0,91	1,02	0,93	1,01	0,95	51
Rey Juan Carlos	4.00	0,93	0,88	1,07	1,01	0,94	52
Córdoba	1,02	0,89	1,06	0,93	1,02	0,94	53
Jaume I de Castellón Politécnica de Cartagena	1,01	0,96	1,03	0,90 0,97	0,67	0,94 0,94	54 55
Vigo	0,85	0,68	0,87	0,97	0,96	0,94	56
Jaén	0,99	0,92	0,87	0,98	0,98	0,93	57
Málaga	1,00	0,88	1,01	0,96	0,96	0,92	58
Sevilla	0,93	0,87	0,98	0,95	1,01	0,92	59
Pablo de Olavide	0,95	0,93	0,84	-	-	0,92	60
Extremadura	1,09	0,88	0,97	0,87	1,00	0,92	61
La Laguna	0,91	0,89	1,00	0,91	1,00	0,92	62
A Coruña	-	0,91	0,82	0,92	0,94	0,92	63
Politècnica de València	0,79	0,86	1,03	0,92	-	0,90	64
Huelva	1,02	0,88	0,99	0,96	0,77	0,89	65
Almería	-	0,89	1,06	0,93	0,84	0,89	66
Cádiz	1,00	0,81	0,97	0,94	1,00	0,88	67

At the beginning of this section we mentioned that labor market access, without strictly corresponding to employability, was the best possible indicator of it. Employability, described as the attainment of a set of competencies and skills an individual needs to obtain a job, is acquired from the action of universities, fundamentally from their teaching policies. U-Ranking has classified universities in this report according to their teaching quality based on a wide range of indicators. If this connection between teaching quality and employability exists, one would expect a similar relation between the teaching index published by U-Ranking and the employability results proxied by labor market access. It is evident that, as already pointed out, there are many other factors that determine labor market access besides employability, such as the economic cycle, the unemployment rate of university students in the geographic area of the university, the level of demand for highly qualified employment in the productive fabric of that same environment, among others. Although a perfect relationship among all these variables is not expected, a significant correlation is.

Figure 23, panel a, offers the relationship between the employability indices of each university, calculated with the described methodology and the 2020 U-Ranking teaching indicator. The level of correlation between both variables is ρ =0.29 (p<0.01), confirming the hypothesis.

As highlighted throughout the report, due to their teaching modality, distance-learning universities have a significant percentage of graduates who choose them precisely because they are already part of the labor market, and this data may create a certain distortion in the relationship between both variables. Therefore, panel b of the same figure shows the results of repeating the exercise but without the five online universities with data on labor market access. We now see that the level of relationship is reinforced (ρ =0.45; p<0.01) underlining the importance of teaching quality in employability.

Figure 23. Correlation between U-Ranking Teaching 2020 and the employability index



5. Conclusions

The aim of U-Ranking is to generate and the classifications analvze Spanish universities on the basis of broad data sets that consider the principal dimensions of their activities: teaching and research and innovation and technological development. This project builds two main rankings: U-Ranking, which correcting for the institutions' size, measures the performance of the Spanish universities and ranks them according to their level, and U-Ranking Volume, taking into account the size. The methodology used in U-Ranking is rigorous and is aligned with the recommendations of the recent international studies on this subject.

Aggregating the information on the results of the universities in different areas presents difficulties. Not considering them and contemplating the numerous indicators separately that can be contemplated is not a practical solution, since most people interested in comparing the universities do not want to face large and complex volumes of information. Students, faculty members, researchers, managers or politicians, and communications media appreciate having synthetic indicators available. The rankings —provided they are constructed with suitable criteria and clear metrics— are useful in this sense, because they condense the results of universities in several areas, reducing the effort that the users must make to obtain and analyze the information.

The U-Ranking indices permit to overcome both limitations in good measure by analyzing the teaching, research and innovation technological development all the public universities of Spain (48) and 22 private universities that offer the information needed to make the comparison. In the near future we will incorporate the rest of the private universities for which similar information is available to that used to analyze the 70 universities that are now included.

The rankings were constructed from 20 variables that take into account the following aspects: (i)

the universities' different missions (teaching and research, innovation and technological development); (ii) the existence of differences in the results of a university in the different areas of study; and (iii) the importance of considering the preferences of the users of university services when constructing some rankings.

The project has generated two general rankings of the universities —that of volume of results (U-Ranking Volume) and that of performance (U-Ranking)— as well as six partial rankings: teaching, research and innovation technological development, in terms both of volume and of performance. These eight profiles of each of the universities can be of interest for assessing them from different perspectives. In some cases the images of a university projected by each ranking are the same, and in others they are different. It corresponds to the users of the information —university or political leaders, researchers, students, analysts, etc.— to consider which of these images are the most relevant for their needs or interests.

Apart from improving and updating the information available, the main novelty in the 2020 edition is a new section that analyzes graduate employability.

The main results of the analysis of the 2019 edition of U-Ranking, are:

- 1. The synthetic indicators from which the rankings are obtained show that the differences in performance among universities are relevant: the level of the indicator of those with better results triples that of the universities with the lower performance levels.
- 2. The differences among universities in terms of volume of results are much higher, since they are influenced by performance and the different sizes of the universities.

- 3. Public universities dominate the Spanish university system. The universities Pompeu Fabra, Carlos III, Autónoma de Barcelona and the Polytechnic Universities of Catalunya and Valencia lead the 2020 U-Ranking. The first private university of the list appears in third place along with Autónomad de Madrid, Cantabria, Barcelona and Rovira i Virgili.
- 4. The leadership of some of these universities is especially outstanding in the research and innovation. More specifically, the Universitat Pompeu Fabra leads the research and innovation ranking, while a group of eight universities, of which five are private, head the teaching ranking: Mondragon, Carlos III, Navarra, Europea de Madrid, Internacional de La Rioja, Politécnica de Catalunya, Politécnica de Valencia and Ramon Llull.
- There is a group of universities, made up of institutions with varied profiles among which predominate those of larger dimension- that occupy the prominent places regarding volume of results and also performance. Most of them appear at the top 500 universities in the well-known international rankings, such as Shanghai, THE and QS. Thus, U-Ranking confirms that Spanish universities that frequently appear in the international rankings with greater volume of results are more productive. The reiterated signals of quality sent by these institutions allow us to identify them as the excellent Spanish universities, above and beyond any differences in classification criteria. Any effort to improve the positioning of Spanish universities at the international level should therefore focus on these institutions.
- 6. With regard to the private universities, we confirm their high specialization and remarkable performance in teaching which exceeds by 12% the Spanish average. Five out of the eight universities with a high level of performance in teaching are private. To evaluate this result in perspective, it is important to note that the private universities that have been included have higher indicators than the majority of the private ones not included due to lack of information, in view of the values which are

- available and the positions occupied by the new ones included for the first time in this year's edition. Thus, the average level of the teaching results of private universities could be lower if U-Ranking ever included all the private universities.
- 7. The specialization in teaching of the private universities has its counterpart in a worse position with respect to the public system regarding research performance: on average 46% less than the mean value of the university system, with the first private university (Deusto) appearing in seventh place in the research and innovation ranking. None of the 19 universities with best performance in research is private. Public universities present higher levels of performance in research, and innovation.
- Some international initiatives in this area are already very well-known —such as the Shanghai Ranking or THE— and have increased the visibility of the classifications of universities and the social demand for such rankings. But these rankings place the emphasis on the indicators of research and training of high international prestige, leaving out most of the activity of our university system, focused on the teaching of the Bachelor's degree and not really competing in these leagues. This orientation towards indicators of research is also characteristic of most of the existing national rankings, drawn up with quarantees of quality but considering indicators of the activities of universities that are too partial. Our results highlight the key importance of combining research performance with teaching performance measures. Using the former as a proxy for the latter offers a very biased view of reality because the correlation between the two measures is low. The incorporation of private universities further blurs the relationship between the two dimensions, owing to their combination of strong teaching performance and (in many cases) weak research performance, confirming the need to acknowledge the heterogeneity of the Spanish university system.
- 9. Differences in the results of the universities are also seen at regional level. Catalonia, Cantabria, Navarre, Valencian Community,

La Rioja and Madrid have the most productive university systems, with average performance levels higher than the whole of Spain. Differences in performance among the regional university systems are great: 38 percentage points between the best-performing region and the worst-performing region. The 2020 edition shows a significant convergence between regional systems, i.e. greater homogeneity in their performance results.

- 10. U-Ranking 2020 shows considerable stability in its results, compared with those obtained 2019 despite the important methodological changes introduced as a result of not having access to the previously used CRUE data. The migration to the data provided by SIIU from the Spanish Ministry of Universities has made it necessary to reduce the number of indicators from 25 to 20 and to combine research and transfer. but in return it has allowed access to additional information on a greater number of private universities.
- 11. Labor market insertion data of graduates has been used as a proxy for employability, using as indicators the values in 2018 of the affiliation rate to the Social Security system, the average contribution base and the graduates percentage of with work contracts that correspond to their educational level. The information is based on graduates from the 2013-14 academic course, that is, four years after graduation. Consequently, the ranking not only takes into account the indicators of the number of employed graduates, but also the quality of their labor market access.
- 12. According to the data, 72.3% of 2014 graduates were working in 2018, 60.7% of them according to their educational level and with an average annual contribution base of 26,213 euros.
- 13. The insertion results of private universities are, in general, better than those of public universities one year after graduation, but the differences diminish with time. Even so, four years after graduation, the affiliation rate of private university graduates is 4.5 percentage points higher, the percentage of

- graduates working with a contract according to their educational level is 15.4 points higher and their average annual contribution bases are 3,547 euros higher.
- 14. Some possible reasons behind the better results of private universities over public are: more personalized attention towards students and graduates, stronger and more active alumni networks, greater concentration in degrees with a better employability prospect since they do not have the function of a public service obliged to attend all areas of study, geographically located in more prosperous areas and graduates with a higher social status.
- 15. The employability results of the 2013-14 cohort examined in this report show significant improvements with respect to the 2009-10 cohort analyzed in a previous edition of U-Ranking, mainly due to different economic cycles. The first cohort analyzed (2009-10) corresponded to one of the worst moments of the economic crisis in Spain, while the other (2013-14) lived during a period of economic recovery. When comparing both cohorts four years after graduation, the 2013-14 graduates have better results: the affiliation rate of private university graduates is 28 percentage points higher, the percentage of graduates working with a contract according to their educational level is 10.7 points higher and their average annual contribution bases are 3,251 euros higher.
- 16. There are important differences in employability among graduates depending on the degree studied. Arts and Humanities shows the worst results in Social Security affiliation rates, Social and Legal Sciences have the lowest percentage of graduates employed according to their educational level and the area of Sciences has the lowest average annual contribution base.
- 17. By areas of study, the results of private universities are also better, with the exception of Health Sciences, in which graduates of public universities have better employability rates and higher incomes.

- 18. U-Ranking has developed a synthetic index from three indicators: percentage of workers affiliated to the Spanish Social Security system, percentage of university graduates hired according to their educational level and average annual salary for the National Insurance contribution base calculation. By means of these indicators, a university ranking is constructed based on overall graduate employability and by areas of study.
- 19. The Universities of La Rioja and Balearic Islands lead the employability ranking in Arts and Humanities, a large group of private universities take the lead in Social and Legal Sciences, both online, such as, Isabel I de Castilla and Internacional de La Rioja and traditional universities, such as, Camilo José Cela or Pontificia de Comillas. The Universities of Valladolid, La Rioja and UNED lead the results in Sciences, with very little presence of private universities, which once again take the lead (Mondragon and Nebrija) in Engineering and Architecture and again disappear in the Health ranking with the exception of Universidad de Navarra which leads it along with Basque Country, Cantabria and Pública de Navarra.
- 20. The large number of graduates of Social and Legal Sciences makes the overall ranking reflect the general pattern of this branch: private universities lead in the top positions and distance-learning universities also have a strong presence.

The important differences in employability among universities and degrees make it especially relevant for future students and their families to have access to this information. Evidently, employability is not the only factor to consider when deciding what to study, so is vocation or the available offer in a given province, given the low mobility tendency of our students, however, it is no less important for an adequate decision.

For this reason, U-Ranking 2020 includes employability indicators that provide information to interested parties when creating a personalized ranking according to choice of degree. This information is also very useful for university decision-makers and directors.

Appendix 1: Glossary of Indicators

Dimension	Area	Indicator and definition	Source	Period	Level
		Faculty member per 100 students: Full-time equivalent faculty and research staff in centers belonging to the University per 100 full-time equivalent students in studies of 1 st and 2 nd cycle, Bachelor's and Master's degrees and students in Doctoral degrees (all of these students registered in centers belonging to the University)	SIIU	2012-13 to 2017-18	Area of study
	Resources	Budget per student: Effective income of the University by number of full-time equivalent students in studies of 1 st and 2 nd cycle, Bachelor's and Master's degrees and of students in Doctoral degrees (all of these students registered in centers belonging to the University)	SIIU SABI WEB	2012-2017	University
		Percentage of faculty member with PhD: Full-time equivalent faculty members with PhD in centers belonging to the University over total full-time equivalent faculty and research staff in centers belonging to the University	SIIU	2012-13 to 2017-18	Area of study
		Success rate in Bachelor's degree studies: Number of credits passed by grade students registered in an academic year over total credits evaluated within the same course (excluding transfer and recognized credits)	SIIU	2012-13 to 2017-18	Area of study
eaching	Output	Evaluation rate in Bachelor's degree studies: Number of credits evaluated by grade students registered in an academic year over total credits registered within the same course (excluding transfer and recognized credits)	SIIU	2012-13 to 2017-18	Area of study
,		Overall drop-out rate in Bachelor's degree studies: Number of students registered in academic year t who, two years after registering in the first year of a degree, abandon it without graduating, over the total number of students registered in year t	SIIU	2009-10 to 2013-14	Area of study
	Quality	Percentage of postgraduate students: Full-time equivalent students registered in Master's degrees over the total number of full-time equivalent students registered in studies of 1 st and 2 nd cycle, Bachelor's and Master's degrees (all of these students registered in centers belonging to the University)	SIIU	2012-13 to 2017-18	Area of study
		Cut-off mark: Mark of the last general group ¹ student that gained admission to a degree with limited places	SIIU	2019-20	Area of study
		Percentage of foreign students: Non-Spanish students of 1 st and 2 nd cycle, Bachelor's and Master's degrees over the total number of students of 1 st and 2 nd cycle, Bachelor's and Master's degrees	SIIU	2012-13 to 2017-18	Area of study
	Internationalization	Percentage of students in international mobility programs: Number of Bachelor's and master's degree students who study abroad through a mobility program over total number of Bachelor's and master's degree students	SIIU	2014-15 to 2017-18	University

Appendix 1. Glossary of indicators and statistical sources of U-Ranking 2019 (continued)

Dimension	Area	Indicator and definition	Source	Period	Disaggregation
	Resources	Competitive public resources per faculty member with PhD: Competitive public resources for undirected research projects, including both projects and complementary actions and ERDF funds, over the total number of faculty members with full-time equivalent PhD	State Bureau of Investigation	2013 to 2018	Area of study
		Contracts with PhDs, research grants and technical support over total budget: Competitive resources obtained for research staff training, Juan de la Cierva, Ramón and Cajal and support technicians over total effective income	State Bureau of Investigation/ SIIU/SABI/WEB	2013 to 2018	Area of study
		Citable documents with ISI reference per faculty member with PhD: Documents with ISI reference published per faculty members with full-time equivalent PhD	IUNE (Thomson Reuters) SIIU	2013 to 2018	Area of study
	Output	Number of patents per 100 faculty members with PhD: Number of national patents granted to each Spanish university by the Spanish Patents and Trade Marks Office per 100 faculty members with PhD	IUNE (INVENES) SIIU	2013 to 2018	University
Research and		Doctoral theses read per 100 faculty members with PhD: Doctoral theses read per 100 faculty members with full-time equivalent PhD	SIIU	2013 to 2018	Area of study
Innovation		Mean impact factor: Mean impact factor of the publications with at least one author affiliated to the University	IUNE (Thomson Reuters)	2013 to 2018	Area of study
	Quality	Percentage of publications in the first quartile: Publications corresponding to journals in the first quartile of relevance within the Thomson Reuters classification by areas, over the total number of publications belonging to that area	IUNE (Thomson Reuters)	2013 to 2018	Area of study
		Citations per document: Citations received per document from the date of publication to the date of data gathering	IUNE (Thomson Reuters)	2013 to 2018	Area of study
	Internationalization	Horizon 2020 European research funds per faculty members with PhD: Funding received by the university from EU research funds (H2020 programme) per every 100 full-time equivalent faculty members with PhD	European Commission (H2020 Dashboard)	2014 to 2018	University
	memutonutzutton	Percentage of publications with international co-authorship: Publications with at least one co-author affiliated to a foreign institution over the total number of publications	IUNE (Thomson Reuters)	2013 to 2018	Area of study

¹General group: students finishing high school or students graduated in Advanced Vocational Training or foreign students.

Note: Faculty members with PhD used for calculating the indicators of Innovation and Technological Development are those in the following categories: Professor, University School Professor, Associate Professor, University School Associate Professor, and Assistant Professor, registered each year in the centers belonging to the public universities. In the case of private universities it considers university professors with permanent contracts registered each year.

Appendix 2: List of University Abbreviations

Abbreviation	University University	Type
ABATOLIBA COMILLAS	Universitat Abat Oliba CEU Universidad Pontificia Comillas	Private Private
JA	Universidad de Alicante	Private
	Universitat Autònoma de Barcelona	
Jab Jah	Universidad de Alcalá	Public Public
JAL		
	Universidad de Almería Universidad Autónoma de Madrid	Public
JAM JANE		Public Private
	Universidad Nebrija	
JAX JB	Universidad Alfonso X El Sabio Universitat de Barcelona	Private
JBU		Public
	Universidad de Burgos	Public
JC3M	Universidad Carlos III de Madrid Universidad de Cádiz	Public Public
JCA		
JCEU	Universidad San Pablo-CEU	Private
JCH	Universidad Cardenal Herrera-CEU	Private
JCJC	Universidad Camilo José Cela	Private
JCLM	Universidad de Castilla-La Mancha	Public
JCM	Universidad Complutense de Madrid	Public
ICO	Universidad de Córdoba	Public
ICV	Universidad Católica de Valencia San Vicente Mártir	Private
JDC	Universidade da Coruña	Public
JDE IDS	Universidad de Deusto	Private
JDG	Universitat de Girona	Public
JDIMA	Universidad A Distancia de Madrid	Private
JDL	Universitat de Lleida	Public
JEC	Universidad Europea de Canarias	Private
JEM	Universidad Europea de Madrid	Private
JEV	Universidad Europea de Valencia	Private
JGR	Universidad de Granada	Public
JHU	Universidad de Huelva	Public
JIB	Universitat de les Illes Balears	Public
JIC	Universitat Internacional de Catalunya	Private
JIIC	Universidad Internacional Isabel I de Castilla	Private
JJAEN	Universidad de Jaén	Public
JJI	Universitat Jaume I de Castellón	Public
JLL	Universidad de La Laguna	Public
JLPGC	Universidad de Las Palmas de Gran Canaria	Public
JM	Universidad de Murcia	Public
JMA	Universidad de Málaga	Public
JMH	Universidad Miguel Hernández de Elche	Public
JMON	Mondragon Unibertsitatea	Private
JN	Universidad de Navarra	Private
JNED	Universidad Nacional de Educación a Distancia	Public
JNEX	Universidad de Extremadura	Public
JNICAN	Universidad de Cantabria	Public
JNILEON	Universidad de León	Public
JNIOVI	Universidad de Oviedo	Public
JNIRIOJA	Universidad de La Rioja	Public
JNIR	Universidad Internacional de La Rioja	Private
JNIZAR	Universidad de Zaragoza	Public
JOC	Universitat Oberta de Catalunya	Private
JPC	Universitat Politècnica de Catalunya	Public
JPCT	Universidad Politécnica de Cartagena	Public
JPF	Universitat Pompeu Fabra	Public
JPM	Universidad Politécnica de Madrid	Public
JPNA	Universidad Pública de Navarra	Public
JPO	Universidad Pablo de Olavide	Public
JPV	Universitat Politècnica de València	Public
JPV-EHU	Universidad del País Vasco/Euskal Herriko Unibertsitatea	Public
IRJC	Universidad Rey Juan Carlos	Public
IRLL	Universitat Ramon Llull	Private
JRV	Universitat Rovira i Virgili	Public
JS	Universidad de Sevilla	Public
JSAL	Universidad de Salamanca	Public
JSC	Universidade de Santiago de Compostela	Public
JV	Universitat de València	Public
JVA	Universidad de Valladolid	Public
JVIC-UCC	Vic-Universitat Central de Catalunya	Private
JVIGO	Universidade de Vigo	Public
rigo	Universidad Internacional Valenciana	Private

Appendix 3: Universities' Panel of Indicators

- 1. Mondragon Unibertsitatea
- 2. Universidad A Distancia de Madrid
- 3. Universidad Alfonso X El Sabio
- 4. Universidad Autónoma de Madrid
- 5. Universidad Camilo José Cela
- 6. Universidad Cardenal Herrera-CEU
- 7. Universidad Carlos III de Madrid
- 8. U. Católica de Valencia S. Vicente Mártir
- 9. Universidad Complutense de Madrid
- 10. Universidad de Alcalá
- 11. Universidad de Alicante
- 12. Universidad de Almería
- 13. Universidad de Burgos
- 14. Universidad de Cádiz
- 15. Universidad de Cantabria
- 16. Universidad de Castilla-La Mancha
- 17. Universidad de Córdoba
- 18. Universidad de Deusto
- 19. Universidad de Extremadura
- 20. Universidad de Granada
- 21. Universidad de Huelva
- 22. Universidad de Jaén
- 23. Universidad de La Laguna
- 24. Universidad de La Rioja
- 25. U. de Las Palmas de Gran Canaria
- 26. Universidad de León
- 27. Universidad de Málaga
- 28. Universidad de Murcia
- 29. Universidad de Navarra30. Universidad de Oviedo
- 31. Universidad de Salamanca
- 32. Universidad de Sevilla
- 33. Universidad de Valladolid
- 34. *Universidad de Zaragoza*
- 35. Universidad del País Vasco

- 36. Universidad Europea de Canarias
- 37. Universidad Europea de Madrid
- 38. Universidad Europea de Valencia
- 39. Universidad Internacional de La Rioja
- 40. U. Internacional Isabel I de Castilla
- 41. Universidad Internacional Valenciana
- 42. U. Miguel Hernández de Elche
- 43. *UNED*
- 44. Universidad Nebrija
- 45. Universidad Pablo de Olavide
- 46. Universidad Politécnica de Cartagena
- 47. Universidad Politécnica de Madrid
- 48. Universidad Pontificia Comillas
- 49. Universidad Pública de Navarra
- 50. Universidad Rey Juan Carlos
- 51. Universidad San Pablo-CEU
- 52. Universidade da Coruña
- 53. *U. de Santiago de Compostela*54. *Universidade de Vigo*
- 55. Universitat Abat Oliba CEU
- 56. Universitat Autònoma de Barcelona
- 57. *Universitat de Barcelona*
- 58. *Universitat de Girona*
- 59. Universitat de les Illes Balears
- 60. *Universitat de Lleida*
- 61. Universitat de València
- 62. Universitat Internacional de Catalunya
- 63. Universitat Jaume I de Castellón
- 64. *Universitat Oberta de Catalunya*
- 65. Universitat Politècnica de Catalunya
- 66. Universitat Politècnica de València
- 67. Universitat Pompeu Fabra68. Universitat Ramon Llull
- 69. Universitat Rovira i Virgili
- 70. Vic-Universitat Central de Catalunya

MONDRAGON UNIBERTSITATEA



Year of foundation: 1997 Type of ownership: Private

Bachelor's degree students1: 3,895 Master's degree students1: 616

Faculty members1: 465

Administration and service staff1: 118

Budget2: 72,373,987€

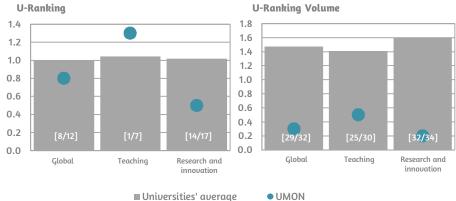
Bachelor's degrees and double degrees³: 17 (16+1)

Master's degrees3: 20

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

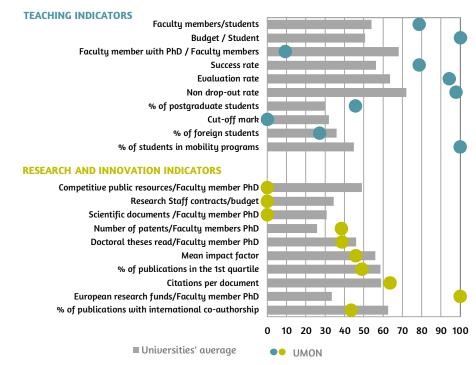
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

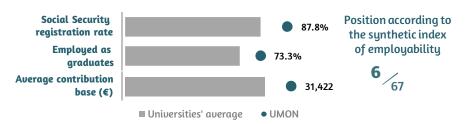
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities





UNIVERSIDAD A DISTANCIA DE **MADRID**



10 20 30 40 50 60 70 80 90 100

Year of foundation: 2008 Type of ownership: Private

Bachelor's degree students1: 3,648 Master's degree students1: 3,892

Faculty members1: 238

Administration and service staff1: 79

Budget2: 17,298,053€

Bachelor's degrees and double degrees3: 27 (25+2)

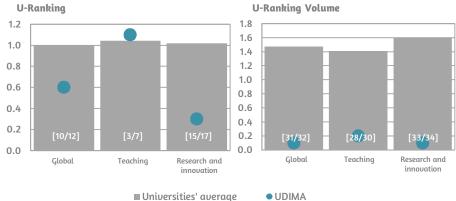
Master's degrees3: 37

Ranking

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

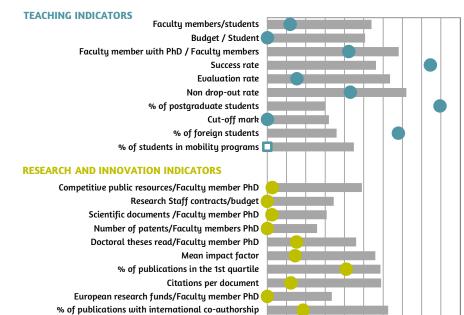
U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



U-Ranking 2020 indicators

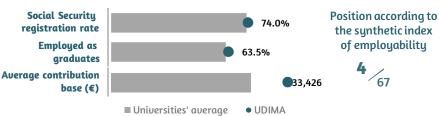
University with the minimum value=0; University with the maximum value=100







Situation in 2018 of graduates in 2013-2014 4 years after graduation



Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.





Source: Ministry of Universities

UNIVERSIDAD ALFONSO X EL SABIO



Year of foundation: 1994

Type of ownership: Private

Bachelor's degree students¹: 5,932 Master's degree students¹: 1,091

Faculty members1: 661

Administration and service staff1: 136

Budget2: 122,296,000€

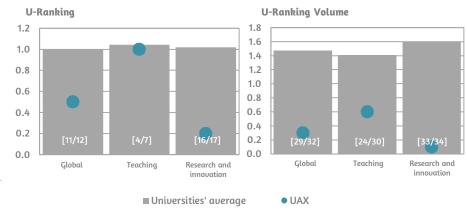
Bachelor's degrees and double degrees³: 52 (35+17)

Master's degrees3: 21

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

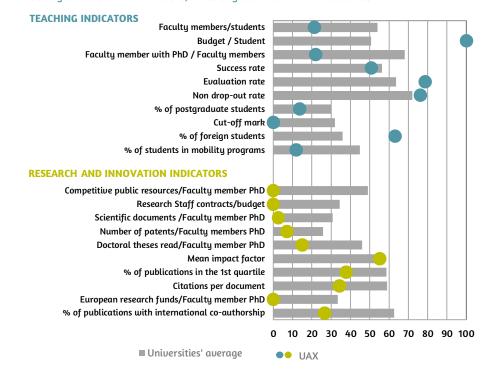
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100







Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

2867



UNIVERSIDAD AUTÓNOMA DE MADRID



Year of foundation: 1968

Type of ownership: Public

Bachelor's degree students¹: 21,113 Master's degree students¹: 3,060

Faculty members¹: 2,537

Administration and service staff1: 1,113

Budget2: 253,179,490€

Bachelor's degrees and double degrees3: 46 (39+7)

Master's degrees3: 86

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.8 4.0 1.6 3.5 14 3.0 1.2 25 1.0 2.0 0.8 1.5 0.6 1.0 0.4 0.5 0.2 [10/34] 0.0 0.0 Global Teaching Research and Global Teaching Research and innovation ■ Universities' average UAM

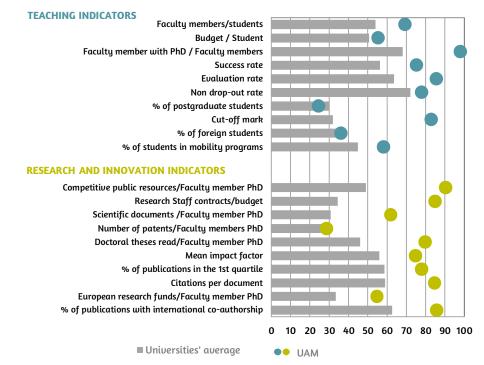
U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

U-Ranking 2020 performance and volume indices

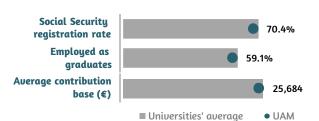
Index and postition in the ranking between brackets





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

32₆₇



UNIVERSIDAD CAMILO JOSÉ CELA



Year of foundation: 2000 Type of ownership: Private

Bachelor's degree students¹: 4,359 Master's degree students¹: 1,927

Faculty members1: 380

Administration and service staff¹: 144

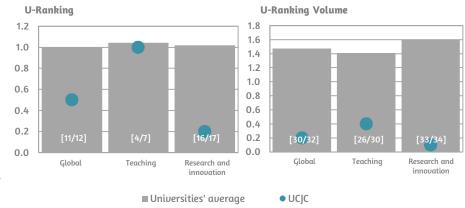
Budget2: 34,629,000€

Bachelor's degrees and double degrees3: 42 (27+15)

Master's degrees3: 27

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

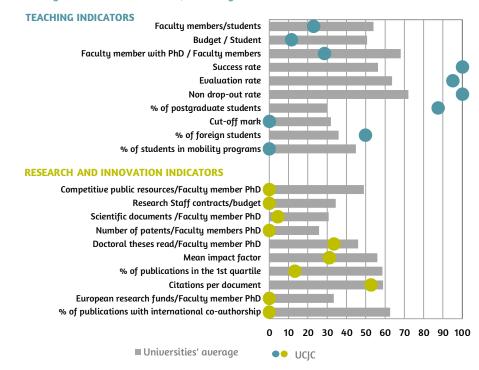
U-Ranking 2020 performance and volume indices *Index and postition in the ranking between brackets*



U-Ranking 2020 indicators

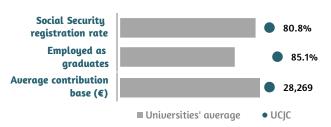
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

3 67



UNIVERSIDAD CARDENAL HERRERA CEU



Year of foundation: 2000 Type of ownership: Private

Bachelor's degree students¹: 7,525 Master's degree students¹: 1,240

Faculty members1: 987

Administration and service staff1: 334

Budget2: 76,618,938€

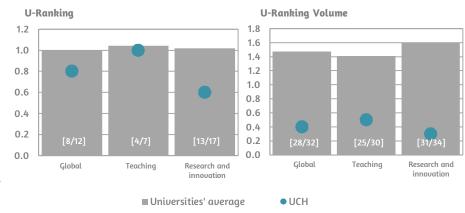
Bachelor's degrees and double degrees3: 48 (21+27)

Master's degrees3: 20

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

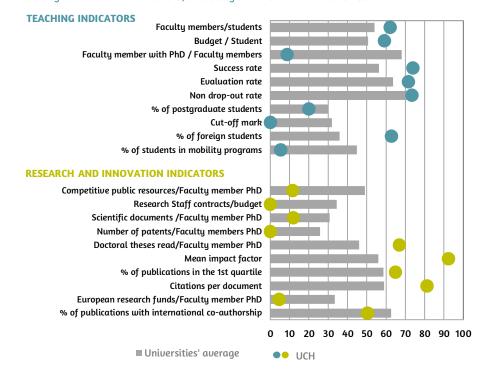
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

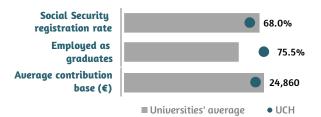
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

2967



UNIVERSIDAD CARLOS III



Year of foundation: 1989 Type of ownership: Public

Bachelor's degree students1: 15,679 Master's degree students1: 3,352

Faculty members1: 1,613

Administration and service staff1: 701

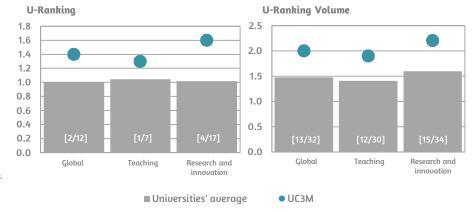
Budget2: 172,055,109€

Bachelor's degrees and double degrees3: 46 (35+11)

Master's degrees3: 76

Ranking

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

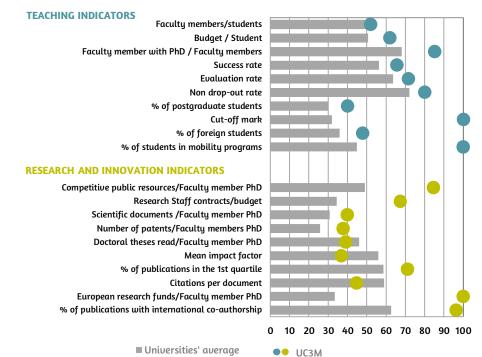


U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

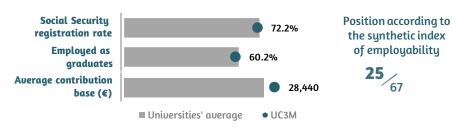
U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.



the synthetic index of employability



UNIVERSIDAD CATÓLICA DE VALENCIA SAN VICENTE MÁRTIR



Year of foundation: 2004 Type of ownership: Private

Bachelor's degree students1: 9,222

Master's degree students¹: Faculty members¹: 830

Administration and service staff¹: 416

Budget2: 71,879,997€

Bachelor's degrees and double degrees3: 48 (26+22)

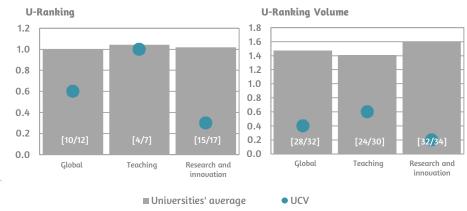
Master's degrees3: 41

Ranking

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

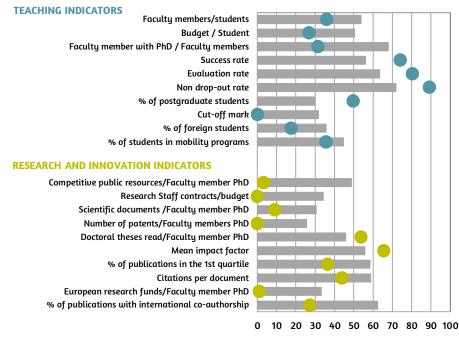
U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

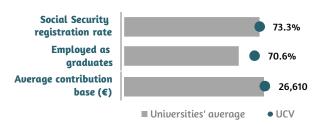


■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

19 67



UNIVERSIDAD COMPLUTENSE



Year of foundation: 1508 Type of ownership: Public

Bachelor's degree students1: 53,363 Master's degree students1: 7,587

Faculty members1: 5,939

Administration and service staff1: 3,314

Budget2: 528,704,130€

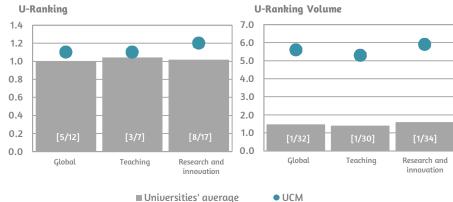
Bachelor's degrees and double degrees3: 90 (70+20)

Master's degrees3: 162

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



U-Ranking 2020 indicators

TEACHING INDICATORS

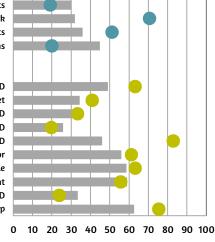
University with the minimum value=0; University with the maximum value=100





Competitive public resources/Faculty member PhD Research Staff contracts/budget Scientific documents /Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD

% of publications with international co-authorship

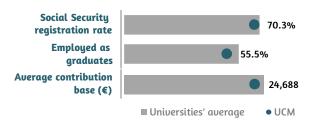


■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD DE ALCALÁ



Year of foundation: 1977

Type of ownership: Public

Bachelor's degree students¹: 13,824 Master's degree students¹: 2,673

Faculty members1: 1,691

Administration and service staff1: 808

Budget2: 156,514,789€

Bachelor's degrees and double degrees3: 43 (39+4)

Master's degrees3: 54

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.4 1.8 1.6 1.2 1.4 1.0 1.2 0.8 1.0 0.8 0.6 0.6 0.4 0.4 0.2 0.2 0.0 0.0 Global Teaching Research and Global Teaching Research and innovation

UAH

U-Ranking 2020 indicators

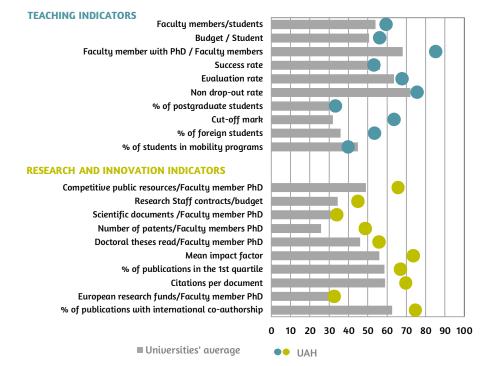
University with the minimum value=0; University with the maximum value=100

■ Universities' average

U-Ranking 2020 performance and volume indices

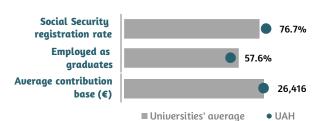
Index and postition in the ranking between brackets





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

40 67



innovation

UNIVERSIDAD DE ALICANTE



Year of foundation: 1979 Type of ownership: Public

Bachelor's degree students1: 21,679 Master's degree students1: 1,881

Faculty members1: 2,247

Administration and service staff1: 1,349

Budget2: 261,494,424€

Bachelor's degrees and double degrees3: 48 (44+4)

Master's degrees3: 55

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.2 2.5 1.0 2.0 0.8 1.5 0.6 1.0 0.4 0.5 0.2 [16/34] 0.0 0.0 Global Teaching Research and

■ Universities' average

Research and

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

Teaching

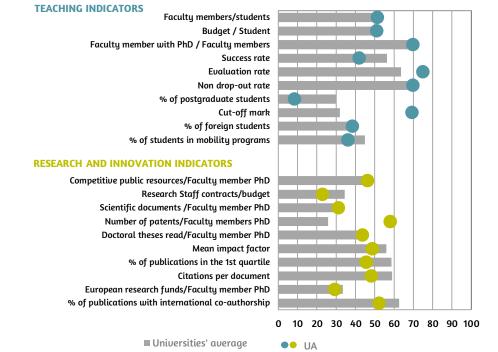
UA

U-Ranking 2020 indicators

Global

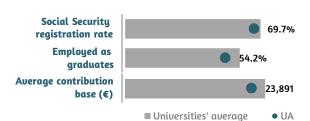
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD DE ALMERÍA



Year of foundation: 1993

Type of ownership: Public

Bachelor's degree students¹: 11,174 Master's degree students¹: 1,548

Faculty members1: 859

Administration and service staff1: 464

Budget2: 93,266,445€

Bachelor's degrees and double degrees3: 37 (33+4)

Master's degrees3: 45

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.2 1.8 1.6 1.0 1.4 0.8 1.2 1.0 0.6 0.8 0.6 0.4 0.4 0.2 0.2

0.0

■ Universities' average

Research and

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

Teaching

UAL

Global

Teaching

Research and

innovation

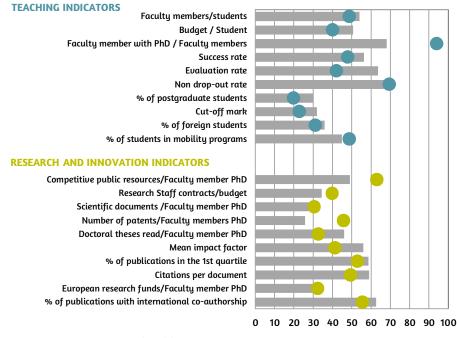
Ranking

U-Ranking 2020 indicators

Global

0.0

University with the minimum value=0; University with the maximum value=100



■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

66 67



UNIVERSIDAD DE BURGOS



Year of foundation: 1994

Type of ownership: Public

Bachelor's degree students¹: 6,277 Master's degree students¹: 523

Faculty members¹: 794

Administration and service staff1: 355

Budget²: 56,555,026€

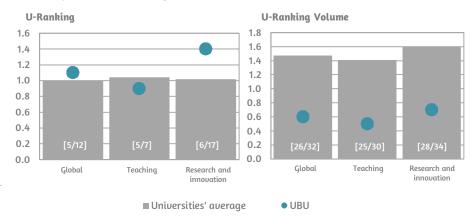
Bachelor's degrees and double degrees3: 31 (26+5)

Master's degrees3: 27

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

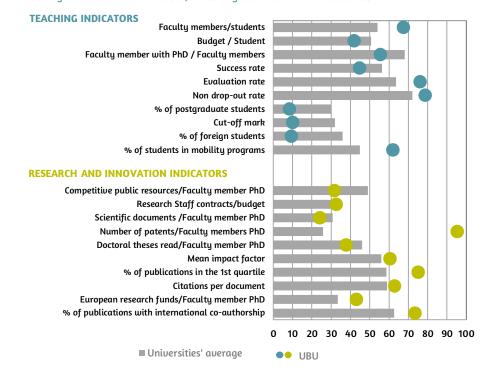
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

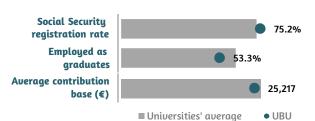
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

49 67



UNIVERSIDAD DE CÁDIZ



Year of foundation: 1979

Type of ownership: Public

Bachelor's degree students¹: 17,874 Master's degree students¹: 2,070

Faculty members¹: 1,697

Administration and service staff¹: 825

Budget2: 155,070,130€

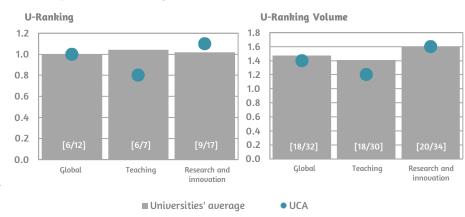
Bachelor's degrees and double degrees3: 66 (44+22)

Master's degrees3: 56

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

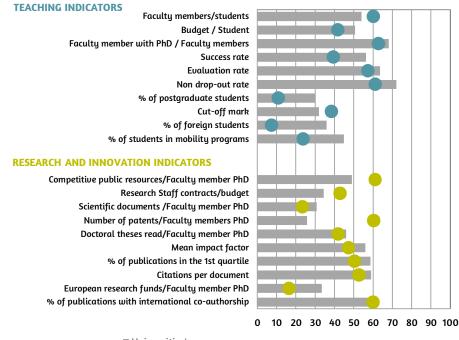
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100





■ Universities' average

•• UCA

Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

67



UNIVERSIDAD DE CANTABRIA



Year of foundation: 1972
Type of ownership: Public

Bachelor's degree students¹: 7,679 Master's degree students¹: 1,026

Faculty members¹: 1,205

Administration and service staff1: 610

Budget2: 107,708,840€

Bachelor's degrees and double degrees3: 28 (25+3)

Master's degrees3: 46

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.8 1.8 1.6 1.6 1.4 14 1.2 1.2 1.0 1.0 0.8 0.8 0.6 0.6 0.4 0.4 0.2 0.2 [22/34] 0.0 0.0 Global Research and Global Teaching Research and Teaching innovation

UNICAN

U-Ranking 2020 indicators

TEACHING INDICATORS

Index and postition in the ranking between brackets

University with the minimum value=0; University with the maximum value=100

■ Universities' average

U-Ranking 2020 performance and volume indices



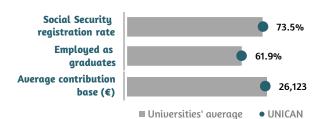
Faculty members/students Budaet / Student Faculty member with PhD / Faculty members Success rate **Evaluation** rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs **RESEARCH AND INNOVATION INDICATORS** Competitive public resources/Faculty member PhD Research Staff contracts/budget Scientific documents /Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD

■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



% of publications with international co-authorship

Position according to the synthetic index of employability

47₆₇

0 10 20 30 40 50 60 70 80 90 100



UNIVERSIDAD DE CASTILLA-LA MANCHA



Year of foundation: 1982

Type of ownership: Public

Bachelor's degree students¹: 21,876 Master's degree students¹: 1,851

Faculty members¹: 2,428

Administration and service staff1: 1,116

Budget2: 183,281,437€

Bachelor's degrees and double degrees3: 59 (52+7)

Master's degrees3: 39

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

1.2 2.0 1.8 1.0 1.6 1.4 0.8 1.2 0.6 1.0 0.8 0.4 0.6 0.4 0.2 0.2 [18/34] 0.0 0.0 Global Teaching Research and Global Teaching Research and innovation

■ Universities' average

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

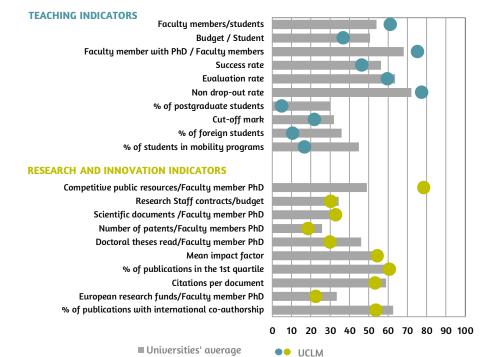
UCLM

U-Ranking Volume

Ranking

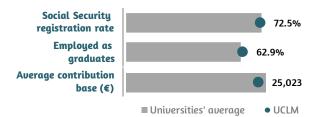
U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

31₆₇



UNIVERSIDAD DE CÓRDOBA



Year of foundation: 1972
Type of ownership: Public

Bachelor's degree students¹: 14,013 Master's degree students¹: 2,030

Faculty members¹: 1,403

Administration and service staff1: 768

Budget²: 163,875,161€

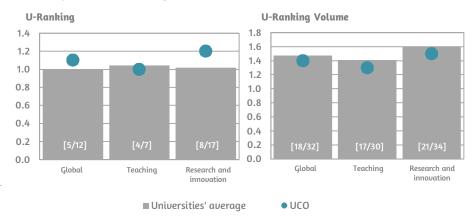
Bachelor's degrees and double degrees3: 46 (34+12)

Master's degrees3: 62

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

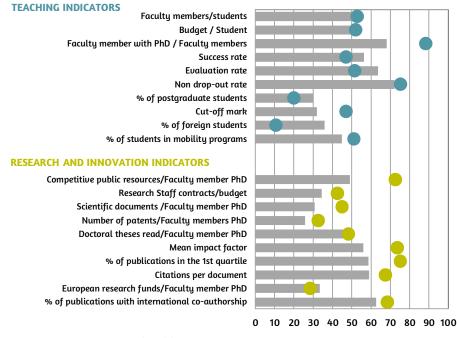
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100





■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

53



UNIVERSIDAD DE DEUSTO



Year of foundation: 1886

Type of ownership: Private

Bachelor's degree students¹: 7,343 Master's degree students¹: 1,658

Faculty members1: 604

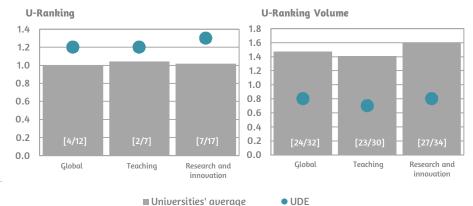
Administration and service staff1: 524

Budget2: 95,377,204€

Bachelor's degrees and double degrees3: 39 (26+13)

Master's degrees3: 42

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)



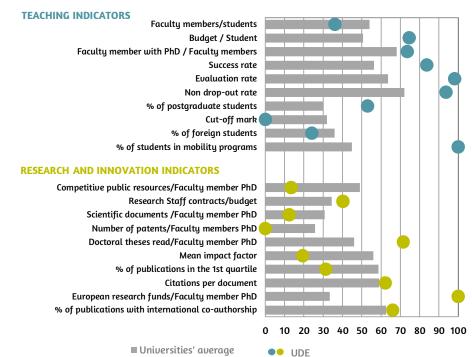
U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

U-Ranking 2020 performance and volume indices

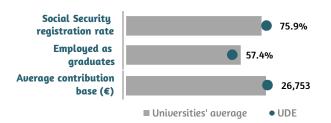
Index and postition in the ranking between brackets





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

17₆₇



UNIVERSIDAD DE EXTREMADURA



Year of foundation: 1973

Type of ownership: Public

Bachelor's degree students¹: 16,958 Master's degree students¹: 1,603

Faculty members¹: 1,820

Administration and service staff¹: 872

Budget²: 144,580,231€

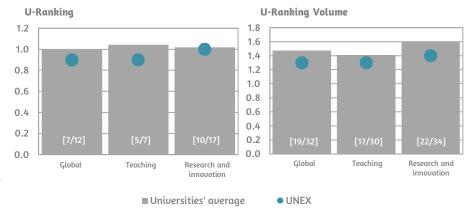
Bachelor's degrees and double degrees³: 71 (61+10)

Master's degrees3: 45

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

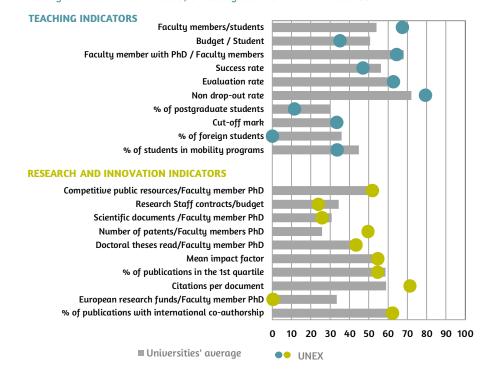
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

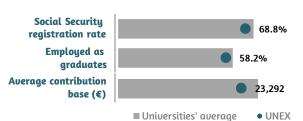
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

61/67



UNIVERSIDAD DE GRANADA



Year of foundation: 1531 Type of ownership: Public

Bachelor's degree students1: 43,010 Master's degree students1: 4,517

Faculty members1: 3,524

Administration and service staff¹: 2,336

Budget2: 379,427,593€

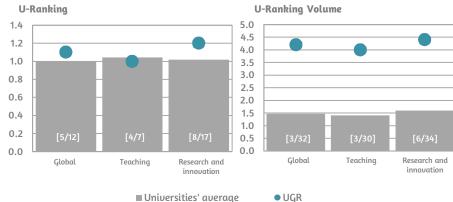
Bachelor's degrees and double degrees³: 75 (63+12)

Master's degrees3: 122

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

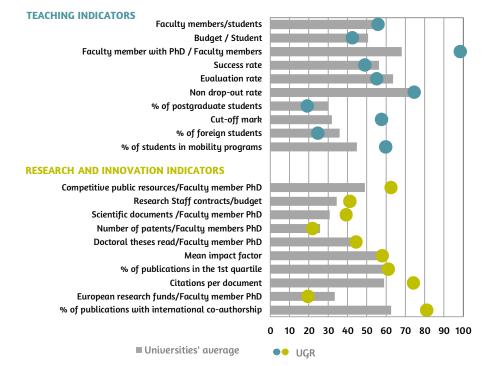
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

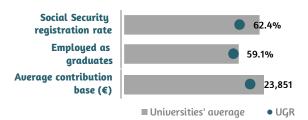
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD DE HUELVA



Year of foundation: 1993 Type of ownership: Public

Bachelor's degree students1: 9,504 Master's degree students1: 1,141

Faculty members1: 910

Administration and service staff1: 460

Budget2: 78,104,294€

Bachelor's degrees and double degrees3: 36 (29+7)

Master's degrees3: 39

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.2 1.8 1.6 1.0 1.4 1.2 0.8 1.0 0.6 0.8 0.6 0.4 0.4 0.2 0.2 [28/34] 0.0 0.0 Global Teaching Research and Global Teaching Research and innovation

UHU

U-Ranking 2020 indicators

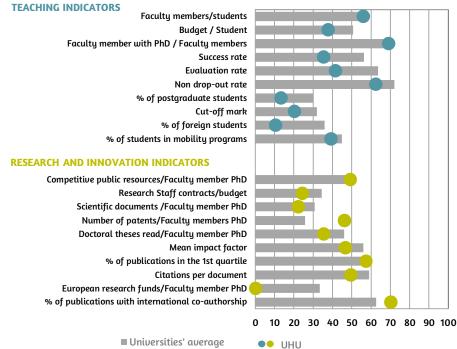
University with the minimum value=0; University with the maximum value=100

■ Universities' average

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



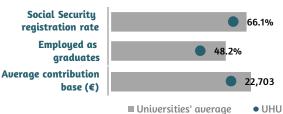


■ Universities' average





Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



the synthetic index of employability



UNIVERSIDAD DE JAÉN



Year of foundation: 1991

Type of ownership: Public

Bachelor's degree students¹: 11,948 Master's degree students¹: 2,024

Faculty members1: 957

Administration and service staff¹: 506

Budget2: 112,323,806€

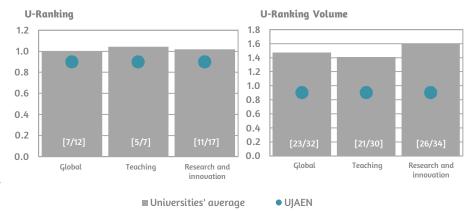
Bachelor's degrees and double degrees³: 44 (34+10)

Master's degrees3: 51

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

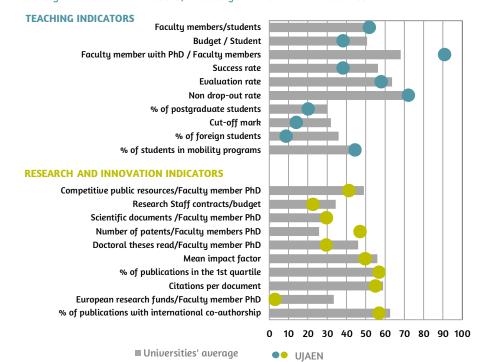
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

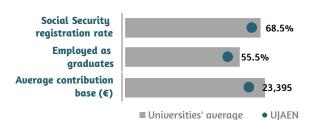
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

57₆₇



UNIVERSIDAD DE LA LAGUNA



Year of foundation: 1992 Type of ownership: Public

Bachelor's degree students1: 16,791 Master's degree students1: 1,120

Faculty members1: 1,578

Administration and service staff1: 869

Budget2: 158,725,113€

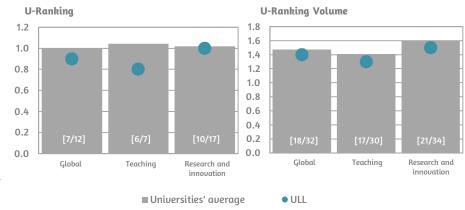
Bachelor's degrees and double degrees3: 45 (45+0)

Master's degrees3: 35

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

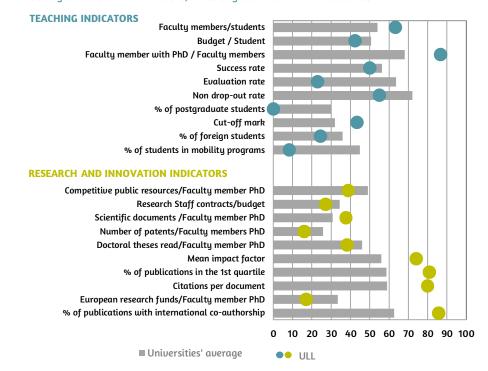
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

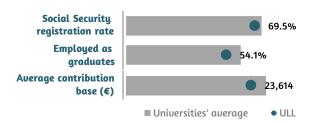
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD DE LA RIOJA



Year of foundation: 1979 Type of ownership: Public

Bachelor's degree students1: 3,291 Master's degree students1: 509

Faculty members1: 445

Administration and service staff1: 267

Budget2: 42,351,660€

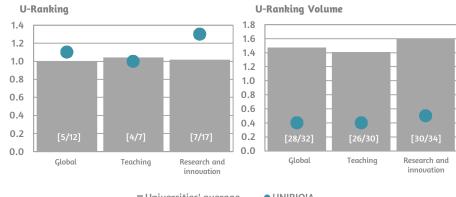
Bachelor's degrees and double degrees3: 18 (18+0)

Master's degrees3: 13

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



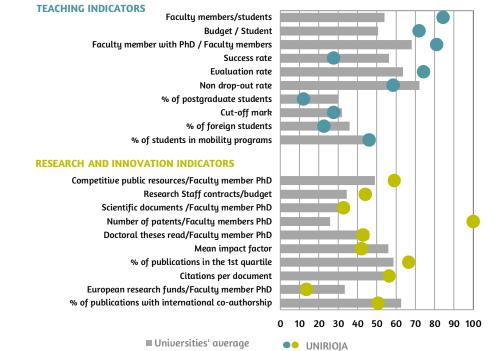
■ Universities' average

UNIRIOJA

U-Ranking 2020 indicators

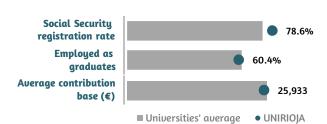
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD DE LAS PALMAS DE **GRAN CANARIA**



Year of foundation: 1979 Type of ownership: Public

Bachelor's degree students1: 16,523 Master's degree students1: 1,272

Faculty members1: 1,452

Administration and service staff1: 816

Budget2: 139,136,191€

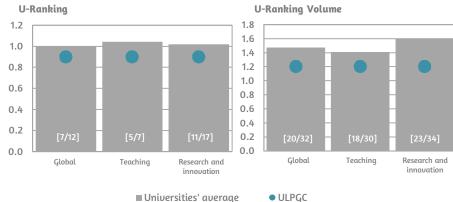
Bachelor's degrees and double degrees3: 42 (35+7)

Master's degrees3: 33

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

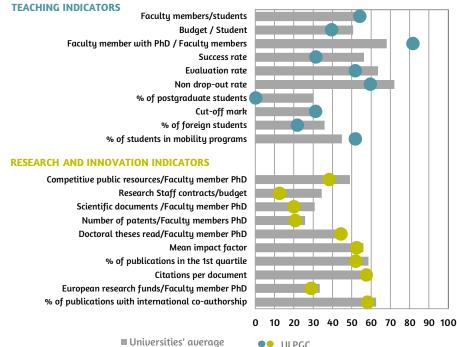
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

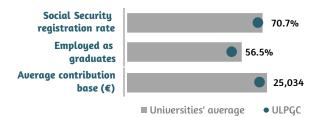






Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD DE LEÓN



Year of foundation: 1978

Type of ownership: Public

Bachelor's degree students¹: 8,957 Master's degree students¹: 1,089

Faculty members1: 921

Administration and service staff1: 497

Budget2: 85,598,057€

Bachelor's degrees and double degrees3: 43 (39+4)

Master's degrees3: 41

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.2 1.8 1.6 1.0 1.4 0.8 1.2 1.0 0.6 0.8 0.6 0.4 0.4 0.2 0.2 [27/34] 0.0 0.0 Global Teaching Research and Global Teaching Research and innovation

UNILEON

U-Ranking 2020 indicators

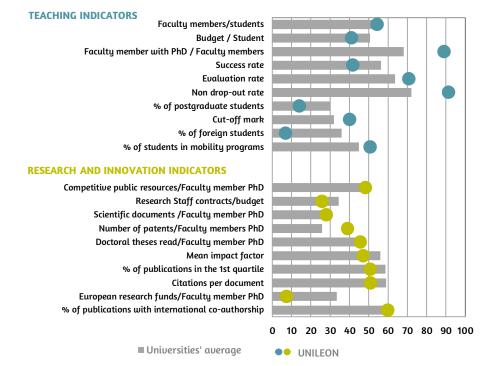
University with the minimum value=0; University with the maximum value=100

■ Universities' average

U-Ranking 2020 performance and volume indices

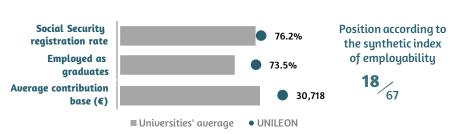
Index and postition in the ranking between brackets





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities





UNIVERSIDAD DE MÁLAGA



Year of foundation: 1972 Type of ownership: Public

Bachelor's degree students1: 30,279 Master's degree students1: 3,249

Faculty members1: 2,487

Administration and service staff1: 1,354

Budget2: 236,782,741€

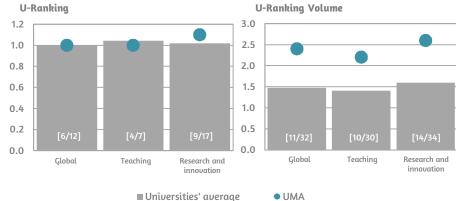
Bachelor's degrees and double degrees3: 69 (60+9)

Master's degrees3: 72

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

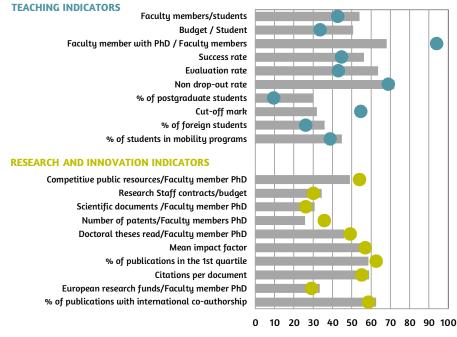
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100



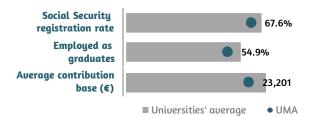


■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD DE MURCIA



Year of foundation: 1915

Type of ownership: Public

Bachelor's degree students¹: 26,472 Master's degree students¹: 2,445

Faculty members1: 2,642

Administration and service staff¹: 1,243

Budget2: 206,602,096€

Bachelor's degrees and double degrees3: 54 (49+5)

Master's degrees3: 75

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.2 2.5 1.0 2.0 0.8 1.5 0.6 1.0 0.4 0.5 0.2 [16/34] 0.0 0.0

■ Universities' average

Research and

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

Teaching

• UM

Global

Teaching

Research and

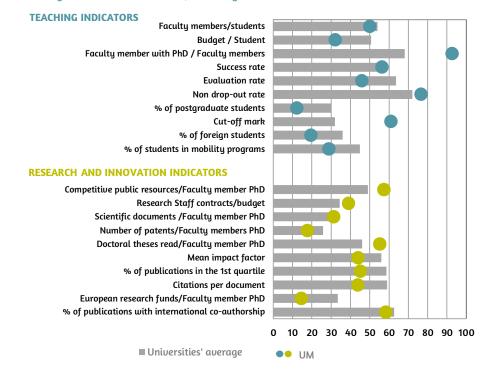
innovation

U-Ranking 2020 indicators

Global

University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

41 67



UNIVERSIDAD DE NAVARRA



Year of foundation: 1952
Type of ownership: Private

Bachelor's degree students¹: 8,514 Master's degree students¹: 2,406

Faculty members1: 1,449

Administration and service staff1: 1,468

Budget2: 104,513,651€

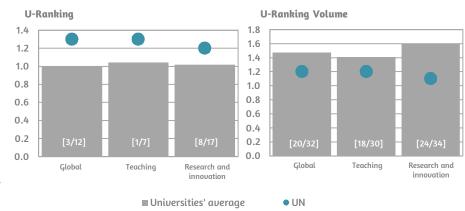
Bachelor's degrees and double degrees3: 60 (42+18)

Master's degrees3: 42

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

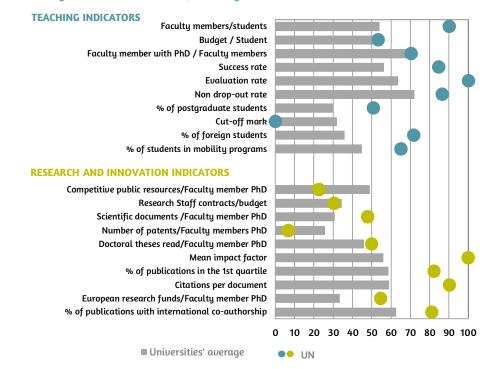
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

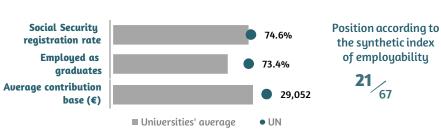
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities





UNIVERSIDAD DE OVIEDO



innovation

Year of foundation: 1604 Type of ownership: Public

Bachelor's degree students1: 16,746 Master's degree students1: 1,759

Faculty members1: 2,065

Administration and service staff1: 1,021

Budget2: 185,225,834€

Bachelor's degrees and double degrees3: 55 (52+3)

Master's degrees3: 65

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.2 2.0 1.8 1.0 1.6 1.4 0.8 1.2 0.6 1.0 0.8 0.4 0.6 0.4 0.2 0.2 0.0 0.0 Global Teaching Research and

■ Universities' average UNIOVI

Research and

U-Ranking 2020 indicators

Global

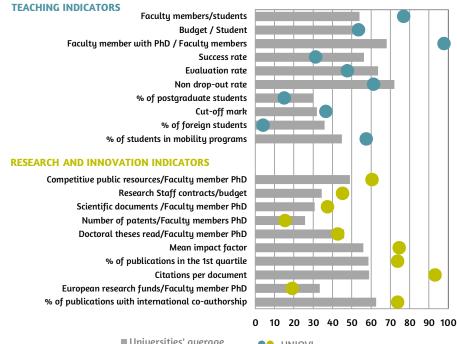
University with the minimum value=0; University with the maximum value=100

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

Teaching



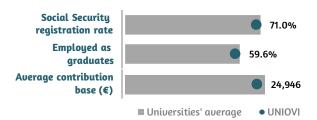


■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD DE SALAMANCA



Year of foundation: 1218 Type of ownership: Public

Bachelor's degree students1: 20,076 Master's degree students1: 1,714

Faculty members1: 2,173

Administration and service staff¹: 1,134

Budget2: 200,127,573€

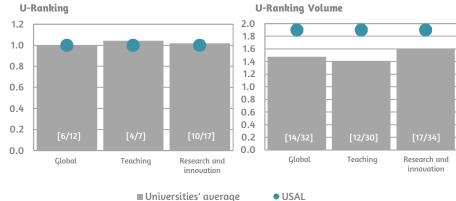
Bachelor's degrees and double degrees3: 94 (72+22)

Master's degrees3: 72

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



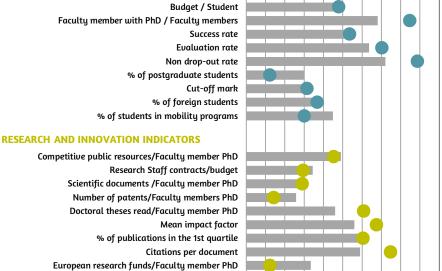
U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

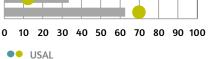
Faculty members/students





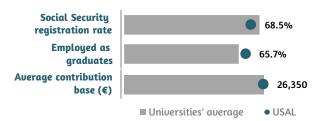


■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



% of publications with international co-authorship

Position according to the synthetic index of employability



UNIVERSIDAD DE SEVILLA



Year of foundation: 1505 Type of ownership: Public

Bachelor's degree students1: 49,107 Master's degree students1: 5,841

Faculty members1: 4,174

Administration and service staff1: 2,656

Budget2: 403,913,159€

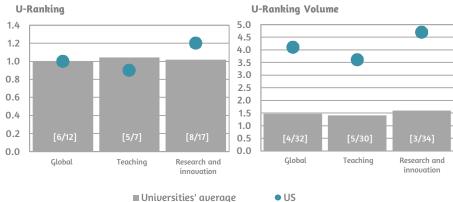
Bachelor's degrees and double degrees3: 89 (68+21)

Master's degrees3: 120

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

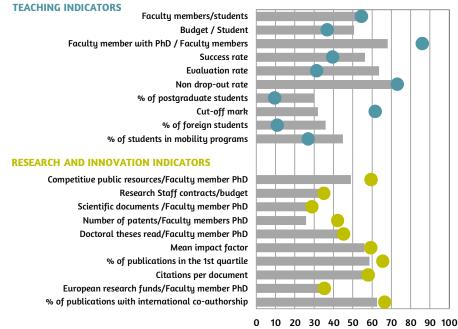
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100





■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD DE VALLADOLID

0.2

0.0



[18/34]

Research and

innovation

Year of foundation: 1346

Type of ownership: Public

Bachelor's degree students¹: 18,309 Master's degree students¹: 1,227

Faculty members¹: 2,254

Administration and service staff1: 1,029

Budget²: 189,461,726€

Bachelor's degrees and double degrees3: 66 (55+11)

Master's degrees3: 68

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking Volume 1.2 1.0 0.8 0.6 0.4 0.4 U-Ranking Volume 2.0 1.8 1.6 1.4 1.2 1.0 0.8 0.6

0.4

0.2

0.0

■ Universities' average

Research and

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

Teaching

UVA

Global

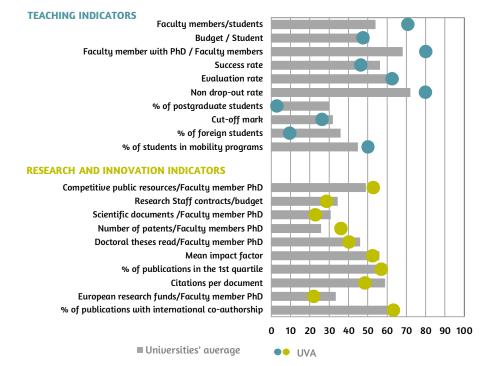
Teaching

U-Ranking 2020 indicators

Global

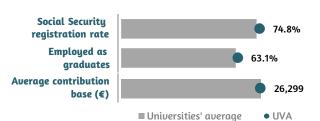
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

2267



UNIVERSIDAD DE ZARAGOZA



Year of foundation: 1474

Type of ownership: Public

Bachelor's degree students': 24,471 Master's degree students': 2,437

Faculty members1: 3,749

Administration and service staff1: 1,568

Budget2: 260,311,524€

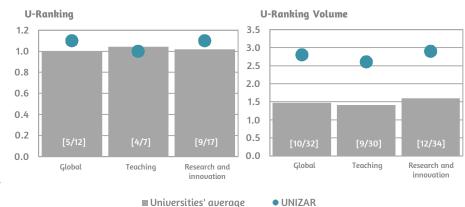
Bachelor's degrees and double degrees3: 52 (48+4)

Master's degrees3: 56

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

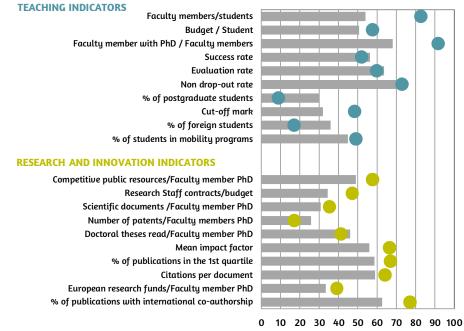
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100



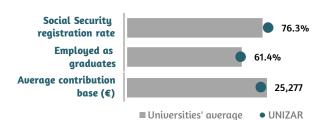


■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

30₆₇



UNIVERSIDAD DEL PAÍS VASCO



Year of foundation: 1968

Type of ownership: Public

Bachelor's degree students¹: 35,152 Master's degree students¹: 3,407

Faculty members¹: 4,384

Administration and service staff1: 1,899

Budget2: 420,782,524€

Bachelor's degrees and double degrees3: 76 (69+7)

Master's degrees3: 122

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

1.2 4.5 4.0 1.0 3.5 0.8 3.0 2.5 0.6 2.0 1.5 0.4 1.0 0.2 0.5 [7/34] 0.0 0.0 Global Teachina Research and Global Teaching Research and innovation ■ Universities' average UPV-EHU

U-Ranking Volume

Ranking

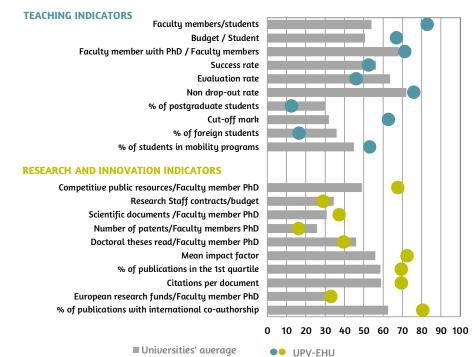
U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

U-Ranking 2020 performance and volume indices

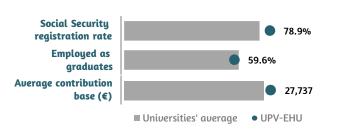
Index and postition in the ranking between brackets

U-Ranking



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

2467



UNIVERSIDAD EUROPEA DE CANARIAS



Year of foundation: 2010

Type of ownership: Private

Bachelor's degree students¹: 511

Master's degree students¹: 168

Faculty members¹: 77

Administration and service staff1: 20

Budget2: 3,527,000€

Bachelor's degrees and double degrees3: 13 (9+4)

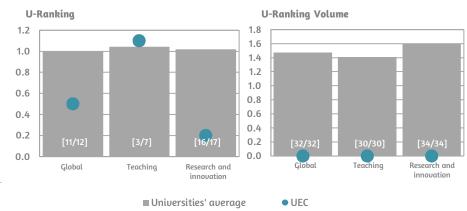
Master's degrees3: 8

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

Ranking

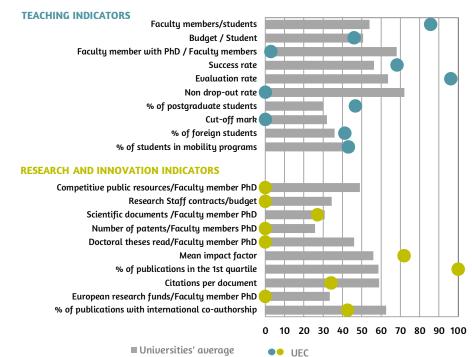
U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100





UNIVERSIDAD EUROPEA DE MADRID



Year of foundation: 1995

Type of ownership: Private

Bachelor's degree students¹: 9,167

Master's degree students¹: 2,321

Faculty members1: 2,419

Administration and service staff1: 621

Budget2: 154,369,000€

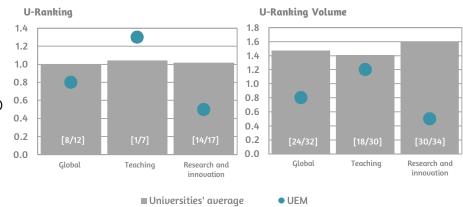
Bachelor's degrees and double degrees3: 137 (68+69)

Master's degrees3: 54

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

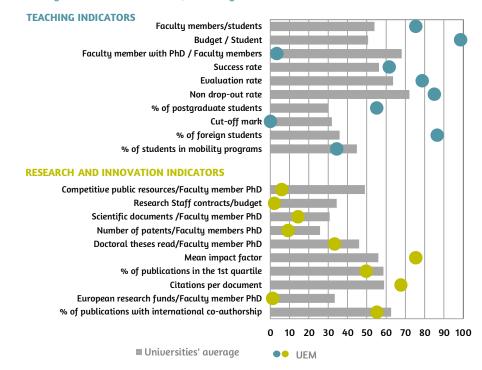
Index and postition in the ranking between brackets





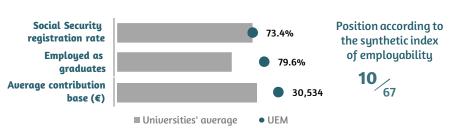
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities





UNIVERSIDAD EUROPEA DE VALENCIA



Year of foundation: 2012 Type of ownership: Private

Bachelor's degree students¹: 1,777 Master's degree students¹: 307

Faculty members¹: 240

Administration and service staff1: 73

Budget2: 21,373,000€

Bachelor's degrees and double degrees³: 27 (16+11)

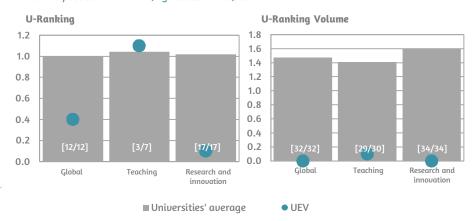
Master's degrees3: 10

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

Ranking

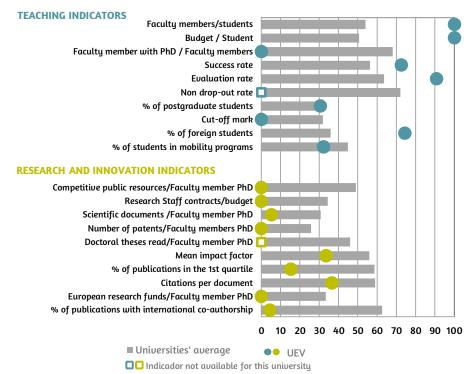
U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100





UNIVERSIDAD INTERNACIONAL DE LA RIOJA



Year of foundation: 2009

Type of ownership: Private

Bachelor's degree students¹: 12,167 Master's degree students¹: 16,559

Faculty members1: 1,086

Administration and service staff1: 878

Budget2: 78,662,000€

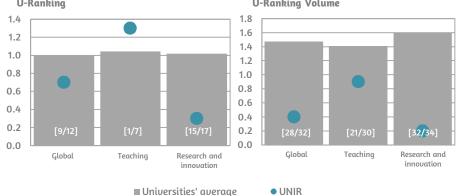
Bachelor's degrees and double degrees3: 20 (20+0)

Master's degrees3: 80

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

Index and postition in the ranking between brackets U-Ranking U-Ranking Volume

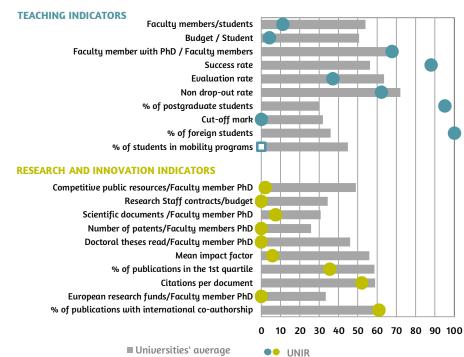
U-Ranking 2020 performance and volume indices



U-Ranking 2020 indicators

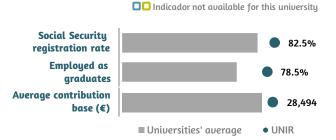
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

2/67



UNIVERSIDAD INTERNACIONAL ISABEL I DE CASTILLA



Year of foundation: 2011 Type of ownership: Private

Bachelor's degree students¹: 4,417 Master's degree students¹: 421

Faculty members¹: 266

Administration and service staff1: 68

Budget2: 16,416,000€

Bachelor's degrees and double degrees³: 11 (11+0)

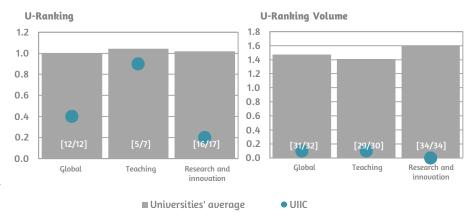
Master's degrees3: 10

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

Ranking

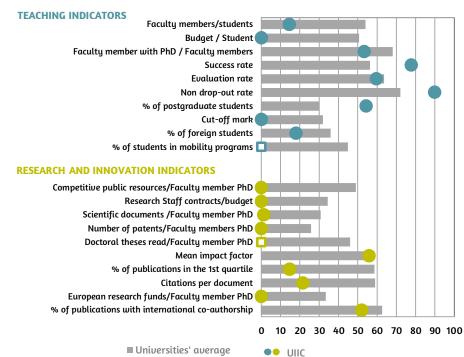
U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



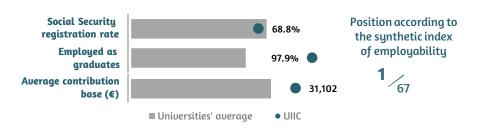
U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



□□ Indicador not available for this university



UNIVERSIDAD INTERNACIONAL VALENCIANA



Year of foundation: 2010

Type of ownership: Private

Bachelor's degree students¹: 1,960 Master's degree students¹: 6,290

Faculty members1: 72

Administration and service staff1: 108

Budget2: 16,279,000€

Bachelor's degrees and double degrees3: 16 (13+3)

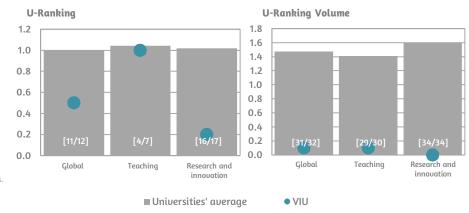
Master's degrees3: 29

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

Ranking

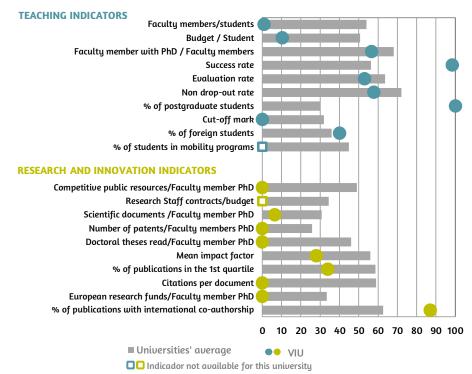
U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100





UNIVERSIDAD MIGUEL HERNÁNDEZ DE ELCHE



Year of foundation: 1997
Type of ownership: Public

Bachelor's degree students¹: 9,891 Master's degree students¹: 2,453

Faculty members1: 1,118

Administration and service staff1: 521

Budget2: 114,197,608€

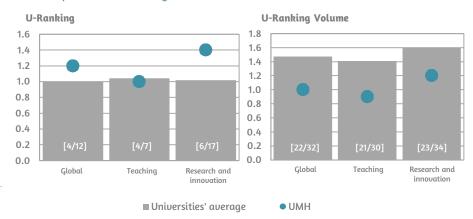
Bachelor's degrees and double degrees3: 27 (25+2)

Master's degrees3: 50

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

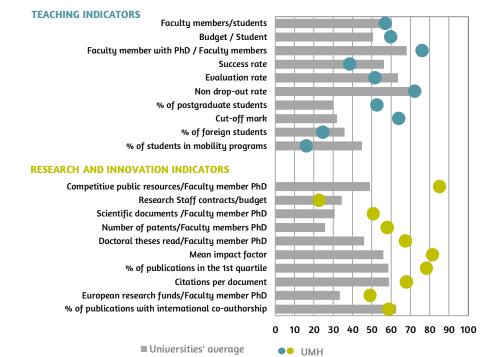
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

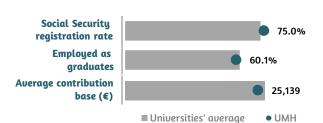
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

48 67



UNIVERSIDAD NACIONAL DE EDUCACIÓN A DISTANCIA



Year of foundation: 1972
Type of ownership: Public

Bachelor's degree students¹: 134,106 Master's degree students¹: 9,724

Faculty members1: 1,178

Administration and service staff1: 1,162

Budget2: 187,550,546€

Bachelor's degrees and double degrees3: 28 (28+0)

Master's degrees3: 78

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

1.2 3.5 3.0 1.0 2.5 0.8 2.0 0.6 1.5 0.4 1.0 0.2 0.5 0.0 0.0 Global Teachina Research and Global Teaching Research and innovation ■ Universities' average UNED

U-Ranking Volume

Ranking

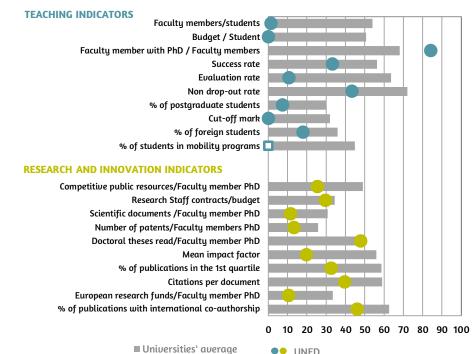
U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

U-Ranking 2020 performance and volume indices

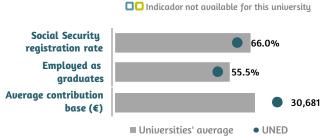
Index and postition in the ranking between brackets

U-Ranking



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

16₆₇



UNIVERSIDAD NEBRIJA



Year of foundation: 1995
Type of ownership: Private

Bachelor's degree students¹: 3,441 Master's degree students¹: 4,734

Faculty members1: 611

Administration and service staff1: 251

Budget2: 244,800,214€

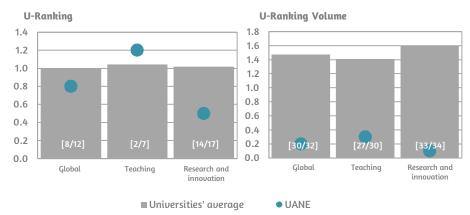
Bachelor's degrees and double degrees3: 81 (33+48)

Master's degrees3: 47

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

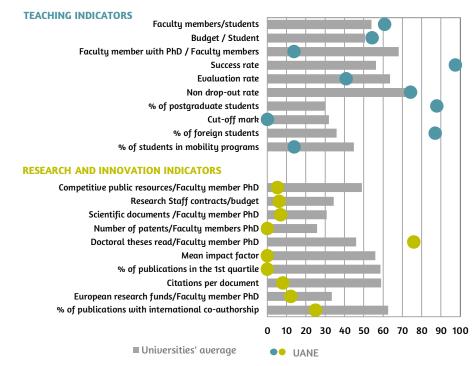
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

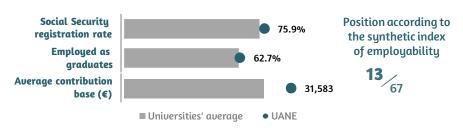
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities





UNIVERSIDAD PABLO DE OLAVIDE



Year of foundation: 1997
Type of ownership: Public

Bachelor's degree students¹: 9,156 Master's degree students¹: 1,718

Faculty members¹: 1,033

Administration and service staff1: 348

Budget2: 82,577,960€

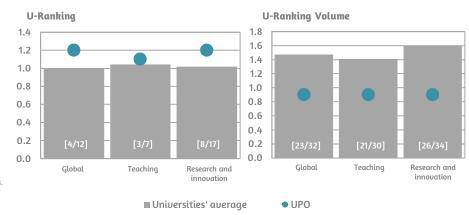
Bachelor's degrees and double degrees3: 35 (19+16)

Master's degrees3: 44

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

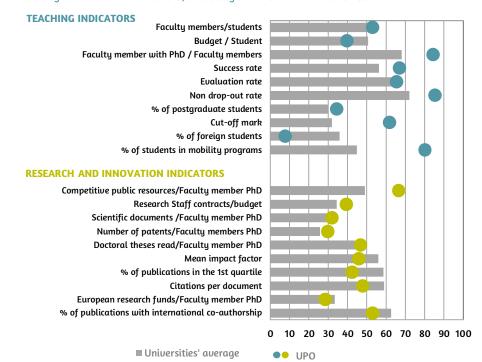
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

60₆₇



UNIVERSIDAD POLITÉCNICA DE **CARTAGENA**



Year of foundation: 1999 Type of ownership: Public

Bachelor's degree students1: 4,151 Master's degree students1: 616

Faculty members1: 576

Administration and service staff1: 368

Budget2: 55,072,508€

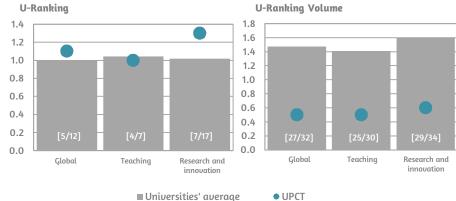
Bachelor's degrees and double degrees3: 17 (17+0)

Master's degrees3: 27

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

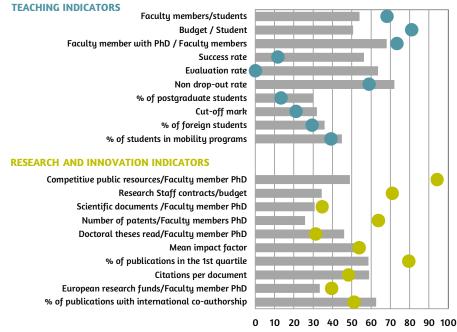
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100





■ Universities' average

UPCT

Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD POLITÉCNICA DE **MADRID**



Year of foundation: 1971 Type of ownership: Public

Bachelor's degree students1: 27,485 Master's degree students1: 5,782

Faculty members1: 2,819

Administration and service staff1: 1,834

Budget2: 315,679,815€

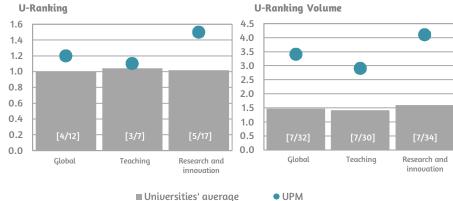
Bachelor's degrees and double degrees3: 59 (51+8)

Master's degrees3: 97

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

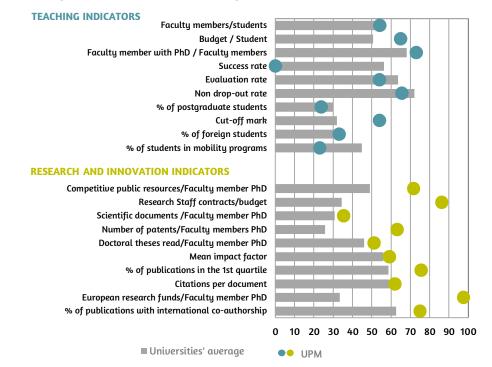
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

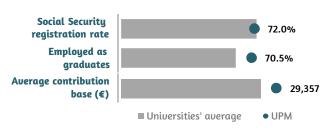
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDAD PONTIFICIA COMILLAS



Year of foundation: 1935

Type of ownership: Private

Bachelor's degree students¹: 7,031 Master's degree students¹: 2,324

Faculty members¹: 1,575

Administration and service staff1: 318

Budget²: 95,224,000€

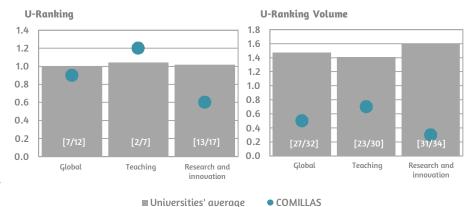
Bachelor's degrees and double degrees3: 40 (22+18)

Master's degrees3: 35

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

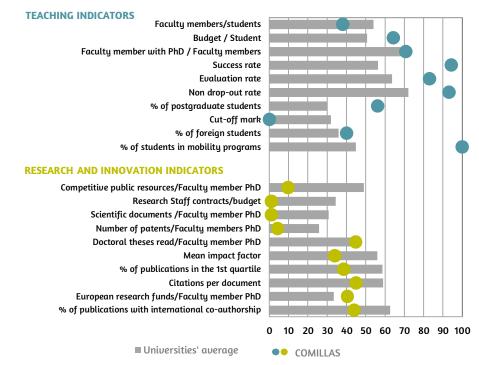
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

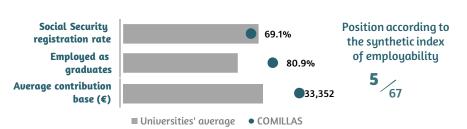
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities





UNIVERSIDAD PÚBLICA DE NAVARRA



Year of foundation: 1987

Type of ownership: Public

Bachelor's degree students¹: 7,006 Master's degree students¹: 800

Faculty members1: 934

Administration and service staff1: 485

Budget2: 76,988,461€

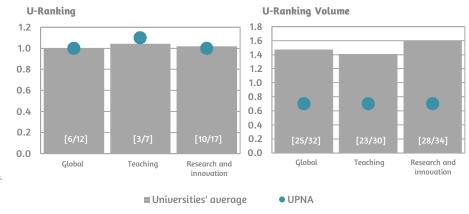
Bachelor's degrees and double degrees3: 31 (25+6)

Master's degrees3: 31

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

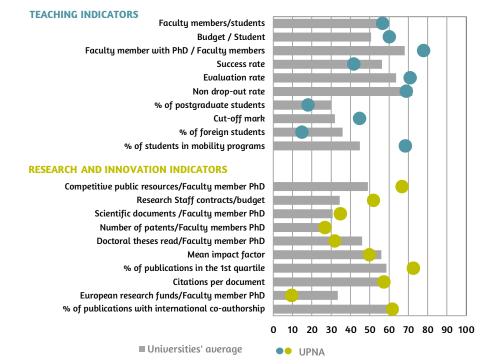
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

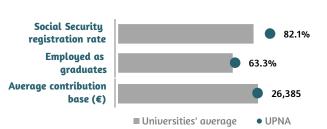
University with the minimum value=0; University with the maximum value=100







Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

20 67



UNIVERSIDAD REY JUAN CARLOS



Year of foundation: 1997
Type of ownership: Public

Bachelor's degree students¹: 40,767 Master's degree students¹: 6,496

Faculty members1: 2,126

Administration and service staff1: 671

Budget2: 177,769,295€

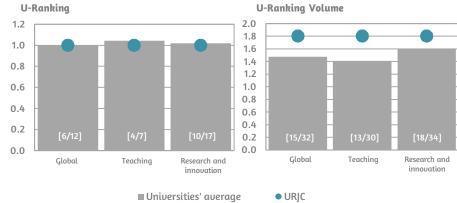
Bachelor's degrees and double degrees3: 148 (69+79)

Master's degrees3: 81

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

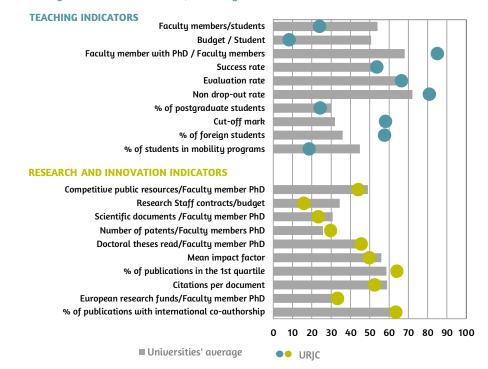
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

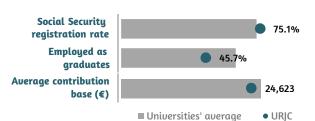
University with the minimum value=0; University with the maximum value=100







Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

52₆₇



UNIVERSIDAD SAN PABLO CEU



Year of foundation: 1993 Type of ownership: Private

Bachelor's degree students¹: 6,951 Master's degree students¹: 1,289

Faculty members¹: 966

Administration and service staff¹: 215

Budget2: 78,741,667€

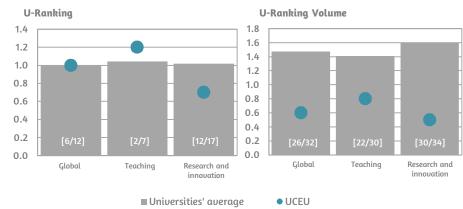
Bachelor's degrees and double degrees3: 95 (40+55)

Master's degrees3: 36

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

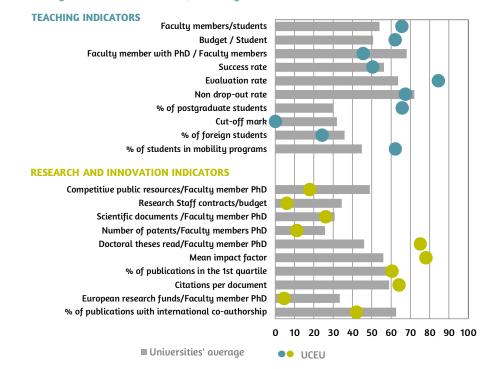
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

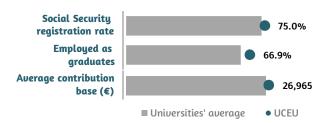
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

2367



UNIVERSIDADE DA CORUÑA



Year of foundation: 1989

Type of ownership: Public

Bachelor's degree students¹: 12,942 Master's degree students¹: 1,976

Faculty members¹: 1,393

Administration and service staff1: 799

Budget2: 132,806,288€

Bachelor's degrees and double degrees3: 52 (44+8)

Master's degrees3: 59

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.2 1.8 1.6 1.0 1.4 0.8 1.2 1.0 0.6 0.8 0.6 0.4 0.4 0.2 0.2 [22/34] 0.0 0.0 Global Research and Global Teaching Research and Teaching innovation ■ Universities' average UDC

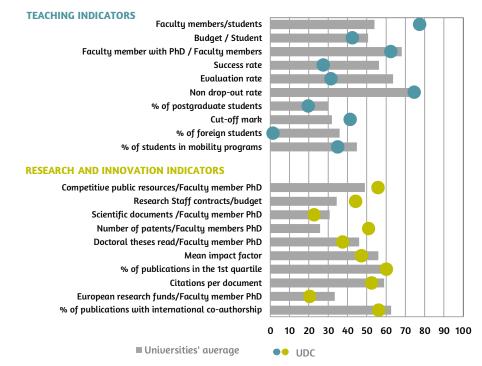
U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

U-Ranking 2020 performance and volume indices

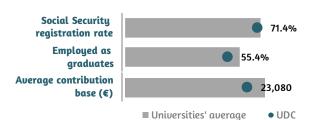
Index and postition in the ranking between brackets





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

63



UNIVERSIDADE DE SANTIAGO DE **COMPOSTELA**



Year of foundation: 1495 Type of ownership: Public

Bachelor's degree students1: 19,224 Master's degree students1: 1,995

Faculty members1: 2,074

Administration and service staff1: 1,223

Budget2: 242,726,934€

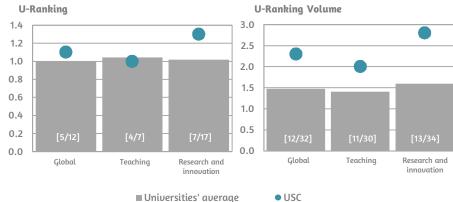
Bachelor's degrees and double degrees³: 56 (46+10)

Master's degrees3: 74

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

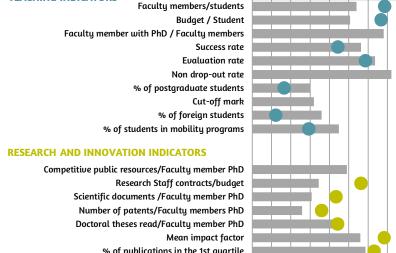


U-Ranking 2020 indicators

TEACHING INDICATORS

University with the minimum value=0; University with the maximum value=100





% of publications in the 1st quartile Citations per document European research funds/Faculty member PhD % of publications with international co-authorship

0 10 20 30 40 50 60 70 80 90 100

■ Universities' average

USC

Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSIDADE DE VIGO

Universida_{de}Vigo

Year of foundation: 1989 Type of ownership: Public

Bachelor's degree students1: 14,761 Master's degree students1: 2,045

Faculty members1: 1,387

Administration and service staff1: 791

Budget2: 158,340,392€

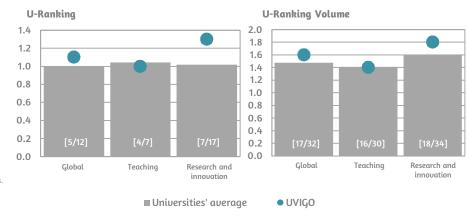
Bachelor's degrees and double degrees3: 43 (40+3)

Master's degrees3: 63

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

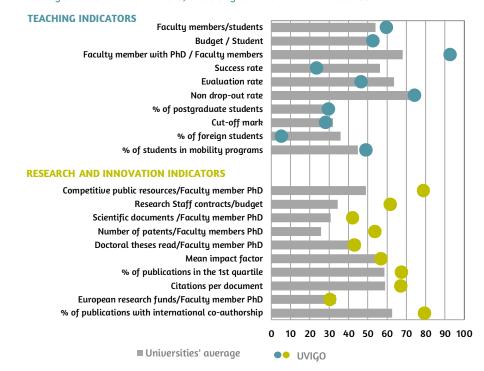
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

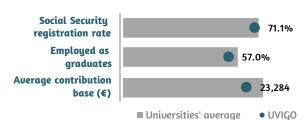
University with the minimum value=0; University with the maximum value=100







Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSITAT ABAT OLIBA CEU



Year of foundation: 2003 Type of ownership: Private

Bachelor's degree students1: 1,190 Master's degree students1: 204

Faculty members1: 44

Administration and service staff1: 52

Budget2: 10,000,044€

Bachelor's degrees and double degrees3: 12 (12+0)

Master's degrees3: 11

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.2 1.8 1.6 1.0 1.4 0.8 1.2 1.0 0.6 0.8 0.6 0.4 0.4 0.2 0.2 0.0 0.0 Global Teaching Research and Teaching innovation

■ Universities' average

U-Ranking 2020 performance and volume indices

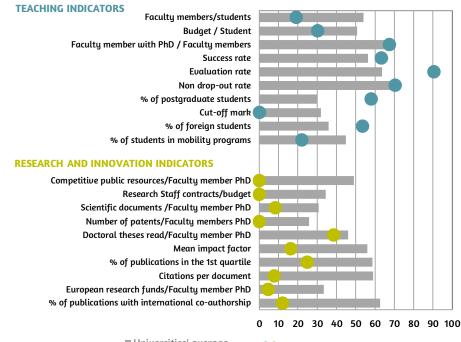
Index and postition in the ranking between brackets

ABATOLIBA

Ranking

U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

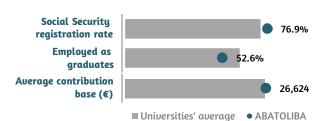


■ Universities' average

ABATOLIBA

Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSITAT AUTÒNOMA DE **BARCELONA**



Year of foundation: 1968 Type of ownership: Public

Bachelor's degree students1: 25,974 Master's degree students1: 3,791

Faculty members1: 3,653

Administration and service staff1: 1,637

Budget2: 314,589,727€

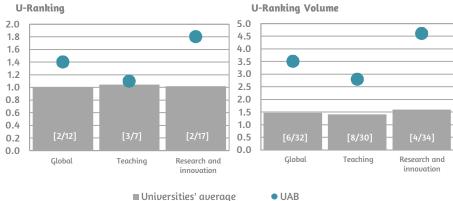
Bachelor's degrees and double degrees3: 91 (77+14)

Master's degrees3: 116

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

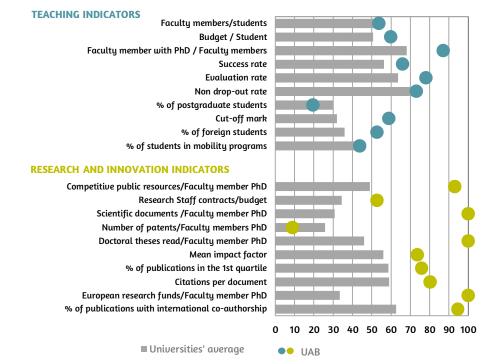
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

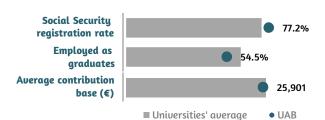
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSITAT DE BARCELONA



Year of foundation: 1430 Type of ownership: Public

Bachelor's degree students1: 39,064 Master's degree students1: 6,715

Faculty members1: 5,521

Administration and service staff¹: 2,360

Budget2: 411,656,907€

Bachelor's degrees and double degrees³: 77 (63+14)

Master's degrees3: 133

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

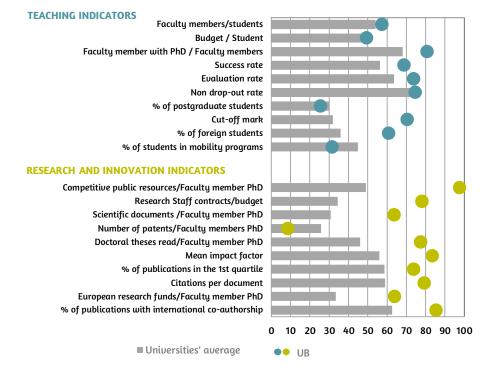


■ Universities' average

U-Ranking 2020 indicators

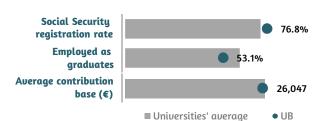
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSITAT DE GIRONA



Year of foundation: 1992
Type of ownership: Public

Bachelor's degree students¹: 10,206 Master's degree students¹: 950

Faculty members¹: 1,255

Administration and service staff1: 599

Budget2: 103,687,660€

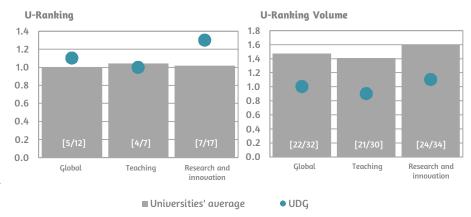
Bachelor's degrees and double degrees3: 59 (44+15)

Master's degrees3: 34

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

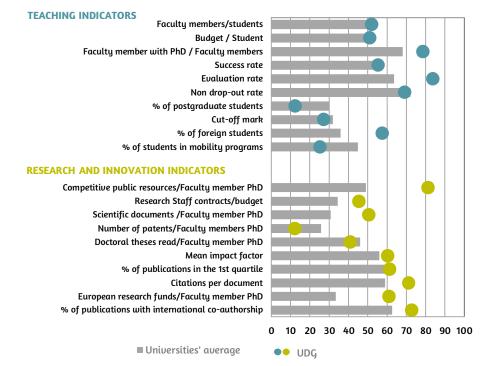
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100







Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

50₆₇



UNIVERSITAT DE LES ILLES BALEARS



Year of foundation: 1993

Type of ownership: Public

Bachelor's degree students¹: 10,709 Master's degree students¹: 1,372

Faculty members1: 1,411

Administration and service staff1: 574

Budget2: 94,791,403€

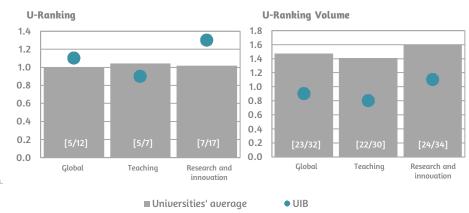
Bachelor's degrees and double degrees3: 35 (31+4)

Master's degrees3: 34

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

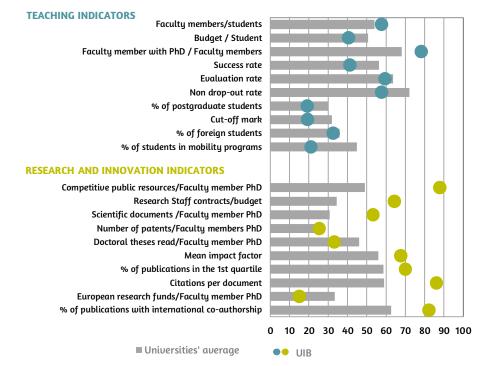
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

14 67



UNIVERSITAT DE LLEIDA



Year of foundation: 1992
Type of ownership: Public

Bachelor's degree students¹: 8,149 Master's degree students¹: 1,180

Faculty members¹: 1,204

Administration and service staff1: 548

Budget2: 82,600,690€

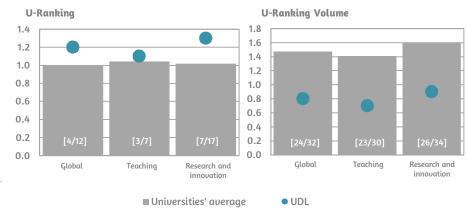
Bachelor's degrees and double degrees3: 58 (42+16)

Master's degrees3: 44

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

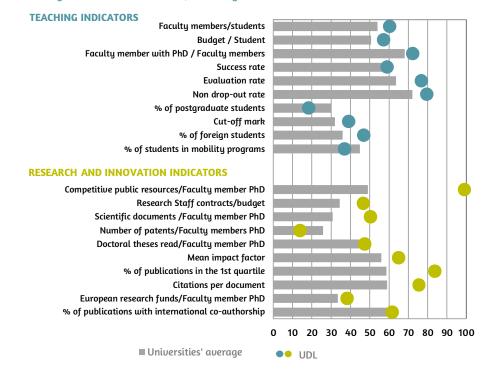
Index and postition in the ranking between brackets



U-Ranking 2020 indicators

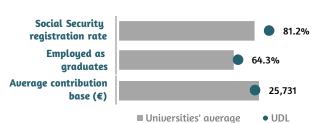
University with the minimum value=0; University with the maximum value=100







Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

27₆₇



UNIVERSITAT DE VALÈNCIA



Year of foundation: 1500 Type of ownership: Public

Bachelor's degree students1: 37,220 Master's degree students1: 6,180

Faculty members1: 4,360

Administration and service staff1: 1,929

Budget2: 408,907,657€

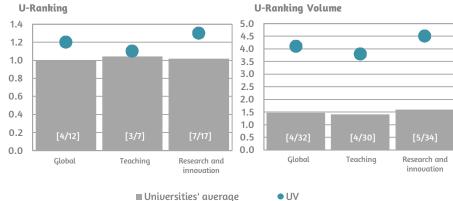
Bachelor's degrees and double degrees3: 62 (56+6)

Master's degrees3: 110

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

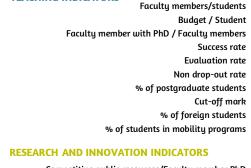


U-Ranking 2020 indicators

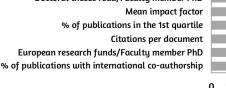
TEACHING INDICATORS

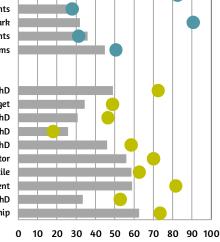
University with the minimum value=0; University with the maximum value=100





Competitive public resources/Faculty member PhD Research Staff contracts/budget Scientific documents /Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD

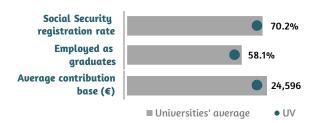




■ Universities' average •• UV



Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



Research and

innovation

UNIVERSITAT INTERNACIONAL DE CATALUNYA

uicbarcelona

Year of foundation: 1997
Type of ownership: Private

Bachelor's degree students¹: 3,629 Master's degree students¹: 315

Faculty members1: 506

Administration and service staff1: 330

Budget2: 48,420,123€

Bachelor's degrees and double degrees3: 16 (16+0)

Master's degrees3: 15

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.2 1.8 1.6 1.0 1.4 0.8 1.2 1.0 0.6 0.8 0.6 0.4 0.4 0.2 0.2 [32/34] 0.0 0.0

■ Universities' average

Research and

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

Teaching

• UIC

Global

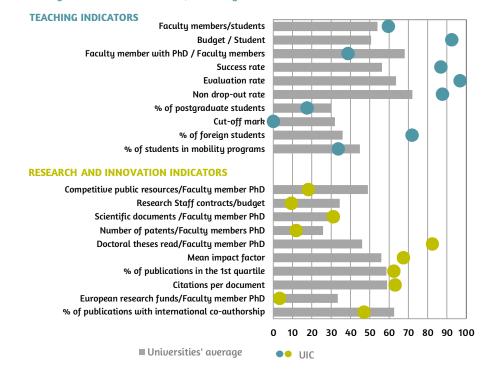
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U-Ranking 2020 indicators

Global

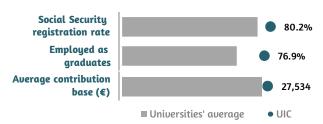
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

9 67



UNIVERSITAT JAUME I



Year of foundation: 1701

Type of ownership: Public

Bachelor's degree students¹: 11,490 Master's degree students¹: 1,660

Faculty members1: 1,312

Administration and service staff1: 649

Budget2: 144,470,884€

Bachelor's degrees and double degrees3: 32 (31+1)

Master's degrees3: 46

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.4 1.8 1.6 1.2 1.4 1.0 1.2 0.8 1.0 0.8 0.6 0.6 0.4 0.4 0.2 0.2 0.0 0.0 Global Research and Global Teaching Research and Teaching innovation ■ Universities' average UJI

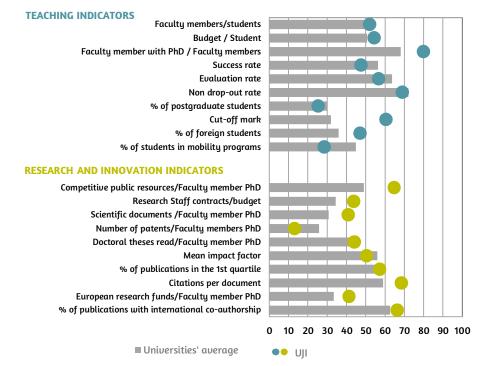
U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

54₆₇



UNIVERSITAT OBERTA DE CATALUNYA



Year of foundation: 1995
Type of ownership: Private

Bachelor's degree students¹: 34,721 Master's degree students¹: 15,166

Faculty members1: 305

Administration and service staff1: 610

Budget2: 111,382,624€

Bachelor's degrees and double degrees3: 25 (25+0)

Master's degrees3: 55

Ranking

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

1.2 1.8 1.6 1.0 1.4 0.8 1.2 1.0 0.6 0.8 0.6 0.4 0.4 0.2 0.2 0.0 0.0 Global Teaching Research and Global Teaching Research and innovation

U-Ranking Volume

UOC

U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

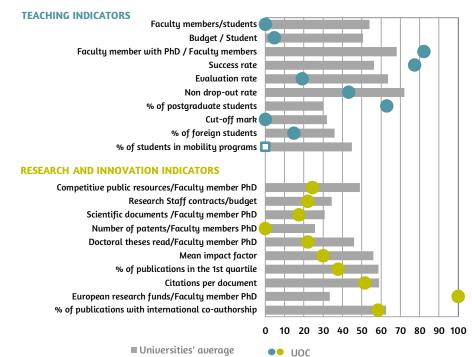
■ Universities' average

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

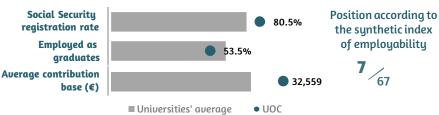
U-Ranking







Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



□□ Indicador not available for this university



UNIVERSITAT POLITÈCNICA DE **CATALUNYA**



Year of foundation: 1971 Type of ownership: Public

Bachelor's degree students1: 20,438 Master's degree students1: 5,372

Faculty members1: 2,764

Administration and service staff1: 1,492

Budget2: 319,478,919€

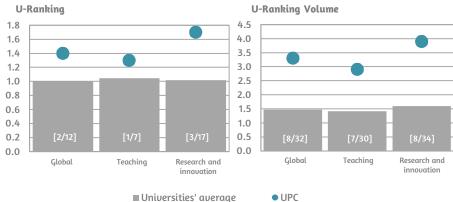
Bachelor's degrees and double degrees3: 85 (51+34)

Master's degrees3: 95

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



U-Ranking 2020 indicators

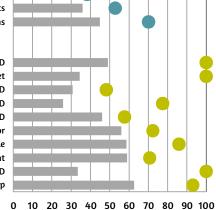
TEACHING INDICATORS

University with the minimum value=0; University with the maximum value=100





Research Staff contracts/budget Scientific documents /Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD % of publications with international co-authorship

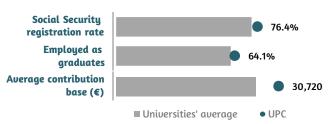


■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSITAT POLITÈCNICA DE **VALÈNCIA**



Year of foundation: 1971 Type of ownership: Public

Bachelor's degree students1: 19,763 Master's degree students1: 5,294

Faculty members1: 2,623

Administration and service staff1: 1,419

Budget2: 334,216,074€

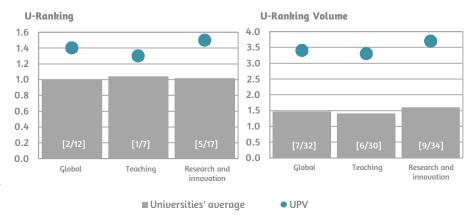
Bachelor's degrees and double degrees3: 39 (34+5)

Master's degrees3: 82

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

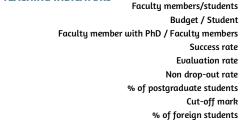


U-Ranking 2020 indicators

TEACHING INDICATORS

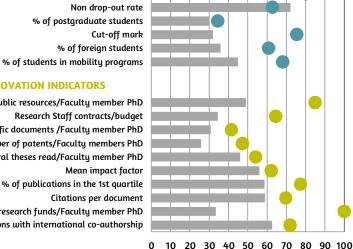
University with the minimum value=0; University with the maximum value=100



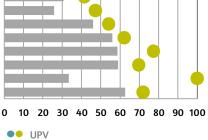


RESEARCH AND INNOVATION INDICATORS

Competitive public resources/Faculty member PhD Research Staff contracts/budget Scientific documents /Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD % of publications with international co-authorship

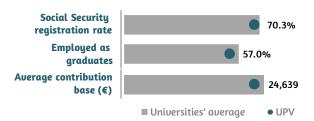


■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability



UNIVERSITAT POMPEU FABRA



Year of foundation: 1990
Type of ownership: Public

Bachelor's degree students¹: 10,364 Master's degree students¹: 3,247

Faculty members1: 938

Administration and service staff1: 694

Budget2: 134,085,654€

Bachelor's degrees and double degrees3: 34 (30+4)

Master's degrees3: 66

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 2.0 1.8 1.8 1.6 1.6 1.4 1.4 1.2 1.2 1.0 1.0 0.8 0.8 0.6 0.6 0.4 0.4 0.2 [19/34] 0.2

0.0

■ Universities' average

Research and

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

UPF

Global

Teaching

Research and

innovation

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Ranking

U-Ranking 2020 indicators

TEACHING INDICATORS

Global

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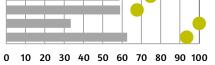
University with the minimum value=0; University with the maximum value=100



Teaching

RESEARCH AND INNOVATION INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Number of patents/Faculty members PhD
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
European research funds/Faculty member PhD
% of publications with international co-authorship



■ Universities' average



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

38₆₇



UNIVERSITAT RAMON LLULL



Year of foundation: 1991

Type of ownership: Private

Bachelor's degree students¹: 12,276 Master's degree students¹: 2,953

Faculty members¹: 1,204

Administration and service staff¹: 878

Budget2: 180,191,047€

Bachelor's degrees and double degrees3: 52 (51+1)

Master's degrees3: 68

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.4 1.8 1.6 1.2 1.4 1.0 1.2 0.8 1.0 0.8 0.6 0.6 0.4 0.4 0.2 0.2 0.0 0.0 Global Teaching Research and Global Teaching Research and innovation ■ Universities' average URLL

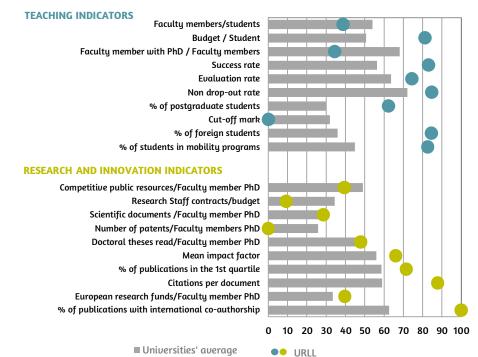
Ranking

U-Ranking 2020 indicators

University with the minimum value=0; University with the maximum value=100

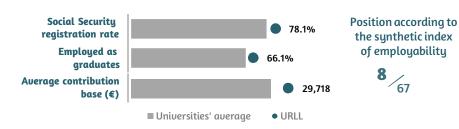
U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities





UNIVERSITAT ROVIRA I VIRGILI



Year of foundation: 1992
Type of ownership: Public

Bachelor's degree students¹: 11,354 Master's degree students¹: 1,469

Faculty members1: 1,813

Administration and service staff1: 717

Budget2: 114,021,146€

Bachelor's degrees and double degrees³: 58 (48+10)

Master's degrees3: 49

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.8 1.8 1.6 1.6 1.4 14 1.2 1.2 1.0 1.0 0.8 0.8 0.6 0.6 0.4 0.4 0.2 0.2 0.0 0.0 Global Research and Global Teaching Research and Teaching innovation

■ Universities' average

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

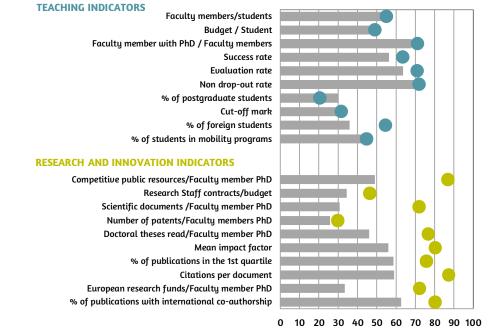
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U-Ranking 2020 indicators

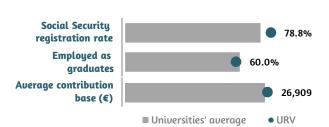
University with the minimum value=0; University with the maximum value=100





Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



■ Universities' average

Position according to the synthetic index of employability

26₆₇



UNIVERSITAT DE VIC - U. CENTRAL DE CATALUNYA



Year of foundation: 1997
Type of ownership: Private

Bachelor's degree students¹: 6,636 Master's degree students¹: 643

Faculty members1: 690

Administration and service staff1: 336

Budget2: 39,317,506€

Bachelor's degrees and double degrees3: 40 (36+4)

Master's degrees3: 17

¹Course 2018-19; ²2017; ³Course 2019-20. Data referes only to centers belonging to the University. Master's degree data includes all centers. Source: Ministry of Universities (University Statistics)

U-Ranking U-Ranking Volume 1.2 1.8 1.6 1.0 1.4 0.8 1.2 1.0 0.6 0.8 0.6 0.4 0.4 0.2 0.2

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■ Universities' average

Research and

U-Ranking 2020 performance and volume indices

Index and postition in the ranking between brackets

Teaching

UVIC-UCC

Global

Teachina

Research and

innovation

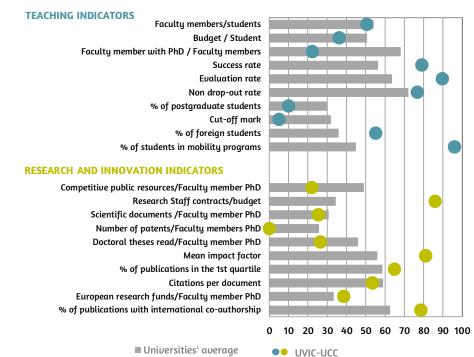
Ranking

U-Ranking 2020 indicators

Global

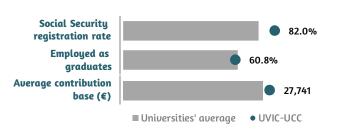
0.0

University with the minimum value=0; University with the maximum value=100



Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities



Position according to the synthetic index of employability

15



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