Ū Ranking 2019
7ª edition

Synthetic Indicators of Spanish Universities

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Acknowledgements

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, their methodology and results for the 2019 edition (seventh presented).

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 2019, the U-Ranking website has received more than 870,000 hits, many of which have resulted in calculating personalized rankings (more than 166,000). As well, nearly 50,000 downloads have been made of the different editions of the report. In addition, the project is being followed with interest from abroad: 30% of the visits to the website come from outside of Spain, the majority from Latin America and the United States which jointly represent one fourth of the foreign visits. Visits from major European countries such as United Kingdom, Germany, France 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 extensive collaboration of the IUNE Observatory[1] 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 Universities Coordination and Monitoring of the Spanish Ministry of Science, Innovation and 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 firstly the assistance of the Spanish Ministry of Economy and Competitiveness which, through the General Directorate of Scientific and Technical Research, has provided information on the research resources available to universities; and secondly the Conference of Rectors of Spanish Universities (CRUE) for their invaluable collaboration, supplying data from different editions of the report *La Universidad Española en Cifras.* The institutional collaboration of all these bodies demonstrates their commitment to transparency and accountability, which are key elements in a

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1. Introduction

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

The developed indicators provide the basis for compiling different rankings of Spanish universities. The first of these rankings is **U-Ranking**, which analyzes the performance of the University System, synthesizing the universities' achievements in teaching, research and 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. We must bear in mind, however, that 500 patents will have more impact on the economy than 100. For this reason we provide a second global ranking, the **U-Ranking Volume**, which 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 three dimensions that make up the mission of the universities (teaching, research and innovation and technological development), and **U-Ranking Degrees,** which 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 THE[2]?

- Do the universities with the best research results stand out for their teaching results? Are research results correlated with technological development and innovation?

- 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?

This seventh edition of U-Ranking poses some additional questions with the aim of exploring one of the indicators used to calculate rankings, namely, the university drop-out rate. Unlike the indicator used for the ranking, however, which is centered on the drop-out rate in the first year of Bachelor's degree programs, we will analyze both the drop-out rate from Bachelor's degree programs and the drop-out rate from the Spanish university system as a whole, considering drop-outs both in the first and in the second and third years. A more in-depth analysis of this kind is of interest because of what the drop-out rate can tell us. When a student changes degree program

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[2] Academic Ranking of World Universities (ARWU), QS World University Rankings and Times Higher Education World University Rankings.

or drops out of university altogether, that decision reflects certain inefficiencies of the system: lack of information for the student to be able to make the right choice of program, failure of the curriculum to meet the student's expectations, insufficient quality of teaching to develop the student's full potential or (not to be ruled out) insufficient effort on the part of the student. In any event, failure to complete university studies is a waste of economic resources, whether public (subsidy for the cost of providing the university place) or private (family or student savings), which must be taken into account. For that reason, for the purpose of analyzing the factors that influence drop-out rates and their importance, in this section we ask questions such as:

- What percentage of students fail to complete the Bachelor's degree they enrolled in? How many drop out of university studies altogether?

- Do drop-out rates vary across universities? Or across the university systems in different regions? Does the quality of teaching influence the drop-out rate?

- Are there significant differences in drop-out rates between different types of Bachelor's degrees? Also, continuing the exercise conducted in U-Ranking 2018, in this edition we analyze the universities' performance over the years we have been carrying out the project to address the following questions: How has the university system's performance evolved in recent years? Has the system performed consistently in all dimensions?

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 34[3]) 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, the seventh edition of U-Ranking follows the same criteria as past editions in incorporating into the ranking system those private universities which have provided sufficient information of adequate quality, so that the data can be homogeneous with that of the public universities in order to construct synthetic indicators. Based on a review of the available information, U-Ranking 2019 includes 14 private universities whose information meets these requirements. The

[3] 33 out of 34 private universities have been active during the 2018-2019 academic year. The University of Technology and Business is not offering any degrees at the moment.

published rankings include a list of the private universities that are not included for lack of comparable information. This means the reader has an overview of the system as a whole and will appreciate that if certain universities are not ranked, it is because they have not exercised transparency by disclosing information to the ranking system and that, if they did, they would probably rank below other universities that have.

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 ten Spanish universities (12% of the total of 84 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, families, higher education institutions, policymakers, etc.) interpret and use rankings appropriately.

Indeed, the rankings are a particular way to approach the assessment of 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 to 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 students, attracting researchers, 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 specific 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, research, innovation and technological development), 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: their 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: 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 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 seventh edition of the U-Ranking Project corresponding to 2019 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. Additionally, it presents the following new features:

U-Ranking 2019 now includes information on 14 private universities, one more than in the previous edition; however, two of them are analyzed for the first time this year. One university that was included in previous editions has remained outside this year's analysis because, according to the methodological criteria, it no longer offers sufficient information for the calculation of its indices.

The recent editions of U-Ranking rely on the collaboration with the Spanish Ministry of Science, Innovation and 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 detailed information on the degrees offered by each university, in which schools they are taught, the percentage of foreign students in each degree, as well as the percentage of students and full-time equivalent teaching and research staff. 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 Ministry of Education (MECD) aims to make the university system transparent, so that citizens and researchers alike can analyze it, draw their own conclusions and generate proposals for improvement. The SIIU is therefore a tremendously valuable project.

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. 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, since 2016, the www.u-ranking.es website also offers a **Panel of Indicators**[4] for each University, which is a file containing the values for each of the 25 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 value[5] 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, offers a general profile of each university and respects the CRUE's confidentiality agreement to not publish individual data of the universities. 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, amongst other data.

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. 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 and this seventh edition includes an in-depth analysis of university drop-out rates, focusing on the cohort of Bachelor's degree students who entered the university system in the 2012-2013 academic year, which is the most recent cohort whose university record can be traced over four years. Lastly, chapter 5 summarizes the main characteristics and results of the project.

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[4] See appendix 3 for the panel of indicators of the 62 universities analyzed.

[5] Without distinction by learning areas, fields of knowledge or degrees.

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 system 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 greatly[6], overlooking the direct indicators of teaching and innovation and technological development can bias the rankings.

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 research, innovation and technological development.

Studying these three dimensions is a first step in the direction of addressing the different perspectives on university systems and the different interests that potential users of the 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. On the other hand, a company interested in signing a contract for a line of specific research, may want to identify which university has a greater capacity to apply research or produce patents. If the data focuses solely on research results then these distinct approaches cannot be carried out accurately.

The U-Ranking system specifically studies these three categories of university activities, analyzing the data available on each of them in Spain. The

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[6] See Pérez and Serrano (dirs.) (2012, ch. 1 and 4).

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 a certain number 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 62 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. 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 branch of knowledge 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 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, branch of knowledge, 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:

1. *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 three following major dimensions:

- *Teaching*
- *Research*
- *Innovation and technological development*

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 three large 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. For each area, between one and three indicators have been taken into account, depending on the availability and suitability of data, 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.[7] It is important to stress that the data used is obtained from sources allowing the project database 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:

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[7] 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.

Table 1. List of indicators, areas and dimensions		
Dimension	**Area**	**Indicator**
Teaching	Resources	Faculty member per 100 students
		Budget / Student
		Faculty member with PhD / Faculty members
	Production	Success rate
		Evaluation rate
		Drop-out rate
	Quality	Attractiveness index
		Percentage of postgraduate students
		Cut-off mark[1]
	Internationalization	Percentage of foreign students
		Percentage of students in exchange programs
		Percentage of students registered in programs imparted in non-official languages
Research	Resources	Competitive public resources per faculty member with PhD
		Contracts with PhDs, research grants and technical support over total budget
	Production	Citable documents with ISI reference per faculty member with PhD
		Total *sexenios*[2] over possible *sexenios*
		Doctoral theses read per 100 faculty members with PhD
	Quality	Mean impact factor
		Percentage of publications in the first quartile
		Citations per document
	Internationalization	European or international research funds per faculty member with PhD
		Percentage of publications with international co-authorship
Innovation and Technological Development	Resources	Income from licenses per 100 faculty members with PhD
		Income from reference consultancy contracts per 100 faculty members with PhD
		Income from CPD[3] courses per faculty member with PhD
	Production	Number of patents per 100 faculty members with PhD
		CPD hours per faculty member with PhD
		Number of contracts by faculty member with PhD
	Quality	Commercialized patents per faculty member with PhD
	Internationalization	Triadic patents per 100 faculty members with PhD
		Percentage of income from international contracts

[1] Mark of the last student who gained admission to a degree with limited places. [2] Monetary compensation received for research activity based on the last six years. [3] Continuing professional development.

Source: Own elaboration.

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 ability to attract students from other provinces, the quality of students as measured by the cut-off mark of each area and the percentage of postgraduate students.

- The *internationalization* of teaching is shown by the percentage of foreign students, the percentage of students in exchange programs and by courses offered in non-official languages.

Research

- 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, in the six years of research work that are achieved with publications, as well as in the number of doctoral theses, which are an indicator of the training activity of a researcher in a given 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.

Innovation and technological development

- The *resources* studied cover the three main activities of innovation and technological development: income from patents, income from consulting contracts and income from the offer of continuing professional development.

- In terms of measurement of gross *output* in these activities, the total number of patents, the hours of professional development and the number of contracts for services.

- As an indicator of *quality*, due to the limited availability of data, only patents that are commercialized by faculty members with PhD are included.

- The *internationalization* of the transfer of knowledge is reflected through triadic patents (valid in Europe, US and Japan) and income for international contracts.

The list in table 1 defines the objective that is hoped to be completed in the medium term, given that not all the required data is available today[8]. The project is open in this sense, with the possibility of completing this information as it improves, especially in the different areas of innovation and technological development.

Regarding the indicators, the second edition of U-Ranking introduced several improvements thanks to the inclusion of new variables and data sources. As shown in table 2, since the third edition, the rankings have incorporated 25 of the 31 indicators defined in table 1. Of these 25, 9 are calculated at degree level, 8 at branch level and 8 at university level.

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[8] Specifically in this edition, the following variables were not taken into account for reasons of availability or quality of data: Index on Attraction Capacity, percentage of students in non-official language programs, hours of continuing professional development, number of professor contracts, number of patents commercialized per PhD professor and percentage of income from international contracts. The relationship between indicators used will be adjusted as the availability of quality information increases and is consolidated.

Table 2. Indicators and level of disaggregation of U-Ranking 2013-2019			
	Rankings		
	2013	2014 and 2015	2016 and 2019
Defined indicators	31	31	31
Used indicators	23	25	25
Degree level[1]	5	8	9
Area of study level	1	1	0
Branch of knowledge level	9	7	8
University level	8	9	8

[1] Bachelor's degree or Bachelor's degree group. The category bachelor's degree group is the result of aggregating more than 2,897 degrees and dual degrees offered by Spanish universities analyzed into 139 groups.

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. Most of the variables linked to research and to innovation and technological development, taken from Thomson-Reuters (currently Clarivate) (2012-2017) and RedOtri (2011-2016), are already being calculated as a mean of six years. Furthermore, since this edition, teaching results are reached using data by university from 6 academic years (except those mentioned in table 3) supplied by CRUE through its reports *La Universidad Española en Cifras*; and by SIIU which, depending on the variable, has also supplied detailed information for the academic years 2010-2011 to 2017-2018.

Table 3 shows the updating in terms of years and time series registered by the indicators used in the ranking for 2019. All the indicators include an additional year compared to the previous edition, covering data for the majority of indicators up to 2017. In the case of the Innovation and Technological Development dimension, all the indicators cover the period 2011-2016, except for national patents, which offers data up to 2017. This dimension is the one with the greatest margin of improvement. The Spanish RedOtri and CRUE survey on *Research and Knowledge Transfer* is a helpful tool for obtaining this type of information, but not all the universities take part or allow the survey data to be published, and the information is valid for 2 or 3 years.

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 2019 rankings

Dimension	Area	Indicator	Period
Teaching	Resources	Faculty member per 100 students	2012-13 to 2016-17
		Budget / Student	2010, 2012 to 2016
		Faculty member with PhD / University teachers	2010-11, 2012-13 to 2016-17
	Production	Success rate*	2011-12 to 2016-17
		Evaluation rate*	2011-12 to 2016-17
		Drop-out rate*	2011-12 to 2016-17
	Quality	Attractiveness index	–
		Percentage of postgraduate students	2011-12 to 2016-17
		Cut-off marks	2018-19
	Internationalization	Percentage of foreign students	2011-12 to 2016-17
		Percentage of students in exchange programs	2010-11, 2012-13 to 2016-17
		Percentage of students registered in programs imparted in non-official languages	–
Research	Resources	Competitive public resources per faculty member with PhD	2012 to 2017
		Contracts with PhDs, research grants and technical support contracts over total budget	2012 to 2017
	Production	Citable documents with ISI reference per faculty member with PhD	2012 to 2017
		Total *sexenios* over possible *sexenios*	2012-13 to 2016-17
		Doctoral theses completed per 100 faculty members with PhD	2012 to 2017
	Quality	Mean impact factor	2012 to 2017
		Percentage of publications in the first quartile	2012 to 2017
		Citations per document	2012 to 2017
	Internationalization	European or international research funds per faculty member with PhD	2014 to 2016
		Percentage of publications with international co-authorship	2012 to 2017
Innovation and Technological Development	Resources	Income from licenses per 100 faculty members with PhD	2011 to 2016
		Income from reference consultancy contracts per 100 faculty members with PhD	2011 to 2016
		Income from CPD courses per faculty member with PhD	2010, 2012 to 2016
	Production	Number of patents per 100 faculty members with PhD	2012 to 2017
		Hours of CPD per faculty member with PhD	–
		Number of contracts by faculty member with PhD	–
	Quality	Commercialized patents per faculty member with PhD	–
	Internationalization	Triadic patents per 100 faculty members with PhD	2011 to 2016
		Percentage of income from international contracts	–

*For the calculation of the personalized rankings we are still using the information supplied by the CRUE for the academic years 2010-11, 2012-13 to 2016-17 which is offered by degree and university.

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, research and innovation and technological development:

1. Preparation of the data bank and estimation and allocation of missing values

2. Standardization of indicators

3. Weighting and aggregation of indicators within the areas of each dimension

4. 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.

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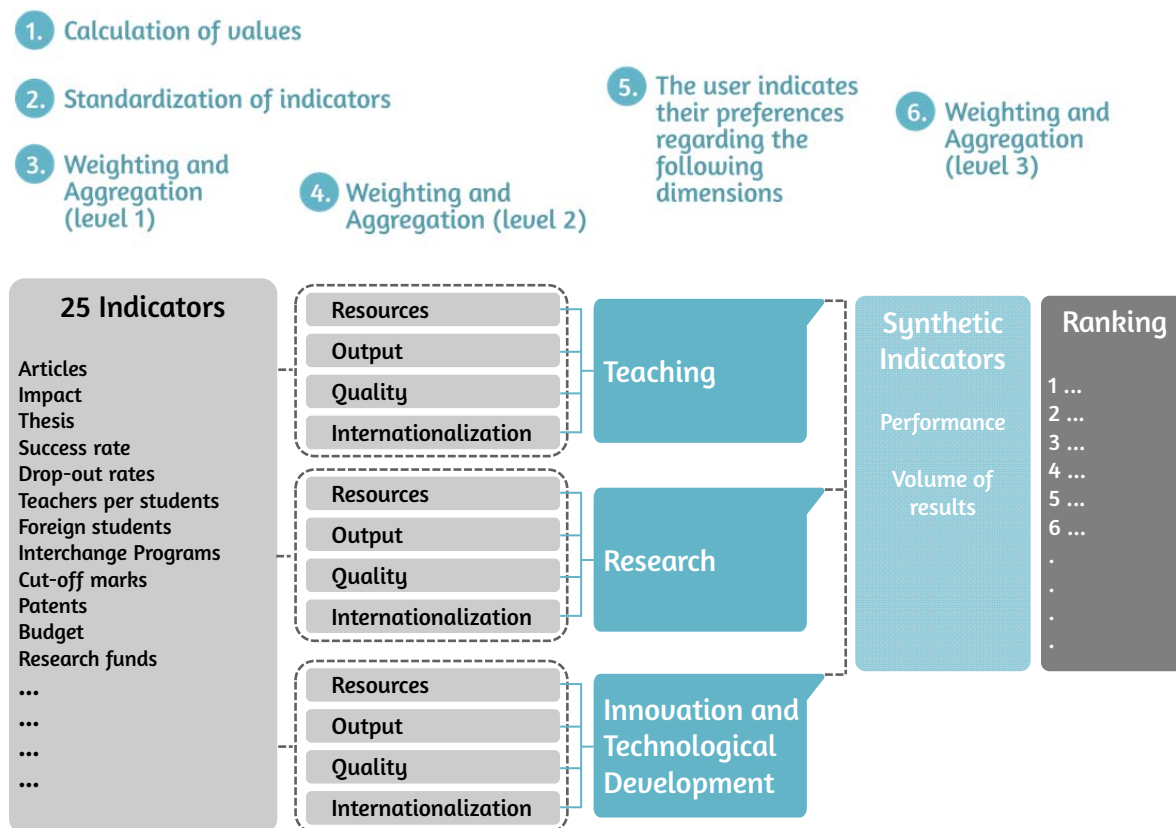
2.6.1. Allocation of missing data

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. 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. For example, the number of theses read in the last year in a particular university may not be available. 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. Specifically, to calculate the ranking ignoring such missing information would be equivalent to allocating a value for that variable equivalent to the mean of the rest of the variables forming the dimension. This criteria is problematic if it is the university itself that does not reveal the information for strategic reasons, as that mean value might favor it. On the other hand, to calculate the ranking on the assumption that the real value of the missing variable is zero would be to penalize the university unfairly if the data is missing due to a technical problem of data availability or of deadlines.

To estimate and allocate the missing values of each variable we have proceeded as follows:

1. From a matrix of correlations[9] we identify, for each variable, the two variables with the highest correlation (in absolute terms) and associate them with the variable to be estimated.

2. We estimate a linear model (by minimum squares) between the variable to be allocated and the two most correlated variables —that is, those which the variable to be estimated had the highest absolute

correlation. For the estimation of this model we use only the information from the same area of study, thus acknowledging the different operational situation of each subject area in the areas studied.

3. From the parameters estimated in the above model we calculate the estimated value of the missing variable, using the said parameters and the existing information for that university in the related variables.

For example, let us suppose a university for which there are no data on doctoral theses directed by a faculty member with PhD (T) in an engineering degree. After analyzing all the variables of the Spanish universities we observe that, within the engineering degrees, the theses directed are highly correlated with the research *sexenios* obtained as a proportion of the total of possible *sexenios* of its teaching staff (S) and also with the percentage of postgraduate students of that university (P). On the basis of this ratio, $T = f(S,P)$, we estimate linear model $T = a_0 + a_1S + a_2P$. Once the values of a_0, a_1 and a_2 have been estimated, the theses directed in that engineering degree of that university are estimated from the data available on *sexenios* and postgraduate students.

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

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[9] The correlations matrix is constructed by calculating, for each possible pair of indicators, their linear correlation coefficient.

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.

2.6.3. Weighting and aggregation of indicators within an area

Once the missing values have been allocated and the basic indicators standardized, we aggregated these 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 *Triadic 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 datetion 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 three dimensions considered: teaching, 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.

Table 4. Weights by area				
	Resources	Production	Quality	Internationalization
Teaching	25.4	30.4	23.9	20.3
Research	20	30	30	20
Innovation and Technological Development	34.2	26.3	21.1	18.4

Source: Own elaboration.

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.

As to the weight to be given to each area within each dimension at this second level of aggregation, we carried out a survey of university experts, applying the Delphi method, instead of granting them the same weight, as in the previous stage.

One reason for changing the criterion 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 4 shows the weights given to the different areas by the experts consulted[10].

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 three 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 three dimensions it is necessary to perform a new 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.

[10] Two rounds of consultation were carried out, after which a reduction of 2.1 percentage points was obtained in the mean interquantile range.

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 three 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 three 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, research, and technological development and innovation according to the Delphi study are, respectively, 56%, 34% and 10%. 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 prize-

winners or Fields medalists among their ex-students 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 Ranking[11] 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 perfor-mance and its size. Thus, a university may generate a greater volume of research re-sults 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.

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.

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[11] This ranking was last updated in 2014.

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 13 of the 25 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. 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 34 institutions out of the 84 that make up the Spanish university system today (see panel a). Likewise, the number of Bachelor's and Master's students has quintupled, from 52,000 to more than 267,000 students in the 2017-2018 academic year, which represents 17,8% of university stu-

dents studying in Spain, compared to 4% twenty-four years ago.

Figure 1. Evolution of the number of universities and students. 1994/95 to 2017/18 academic years

a) Number of public and private universities
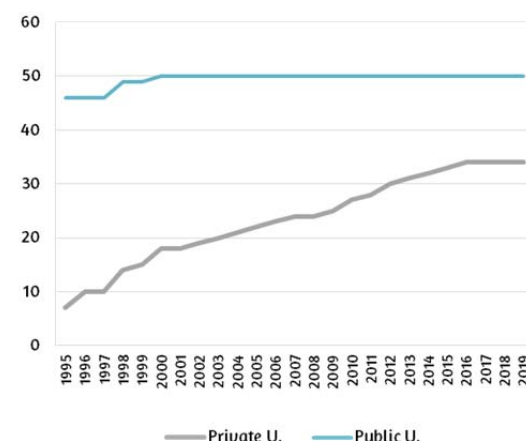
b) University students by level of studies and type of university. 1994/95 to 2017/18 academic years (number and percentage)
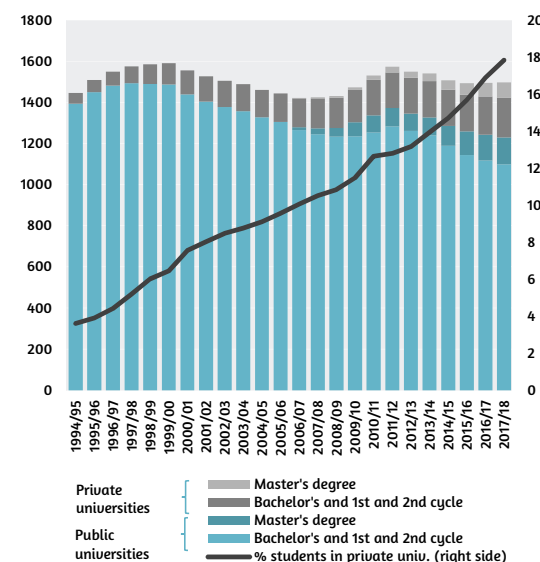
Note: Student data for the 2017/18 academic course are provisional.

Source: Registro de Universidades Centros y Titulaciones (2018) and Spanish Ministry of Science, Innovation and Universities (*Estadística de Estudiantes*, several years).

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

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(40%) and the number of private university students as a percentage of the total (18%), it becomes clear that private universities are generally smaller. Another distinctive feature is their greater degree of specialization in postgraduate studies. The private universities have placed great emphasis on master's degrees, as the make-up of their students shows. Whereas the proportion of master's students in public universities is 10.7%, in the private universities it is 27.7%. Indeed, one in three master's students in Spain studies at a private university.

Due to the idiosyncrasies of private universities, two of the indicators defined in the methodology, "Total *sexenios* over possible *sexenios*" (Research) and "Cut-off marks"[12] (Teaching), are not applicable to these institutions. The *sexenios* are a monetary compensation that the Spanish Ministry of Science, Innovation and Universities gives to teachers in recognition of their research activity based on six years.[13] In the second case, students must pass a university admissions test (PAU) and upper secondary education tests in order to study a degree regardless of whether it is offered by a public or private university. However, for private universities, although it is a requirement, the mark obtained does not always constitute a criterion of admission, since these universities have their own procedures, based on specific tests, personal interviews and academic record. As a result, private universities do not publish cut-off marks for their degrees.[14] Therefore, the cut-off mark for private universities will be set at 5 and the *sexenios* indicator will not be considered in any case.

Also, it should be emphasized that, in general, information on innovation and technological development is more limited in private universities. It is difficult with public universities to obtain public and homogeneous information, since there are few sources. The Spanish RedOtri survey on *Research and Knowledge Transfer* is the main source of data and requires active participation of the universities that must complete the survey and authorize the diffusion of data. So far, there was less participation on behalf of private universities than public ones, due either to their management model or because their specialization makes them focus less on these activities.

All these things considered, U-Ranking 2019 has reviewed all the information available for private universities following the criteria of including those institutions which can provide at least 18 indicators out of the 25 considered for the public system.[15] As a result, in the seventh edition of U-Ranking the following private universities are analyzed:

- Mondragon Unibertsitatea
- Universidad a Distancia de Madrid
- Universidad Cardenal Herrera-CEU
- Universidad Nebrija
- Universidad Católica de València San Vicente Mártir
- Universidad de Deusto
- Universidad de Navarra
- Universidad Francisco de Vitoria
- Universidad Pontificia Comillas
- Universitat de Vic-Central de Catalunya
- Universitat Internacional de Catalunya
- Universitat Oberta de Catalunya
- Universidad San Pablo CEU
- Universitat Ramon Llull

The 2019 edition includes two private universities that were not included in 2018, the Universities of Cardenal Herrera-CEU and Francisco de Vitoria. However, the Universidad Europea de Miguel de Cervantes has ceased to be included because of lack of information available.

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[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.

[13] Some private universities have signed agreements with the National Evaluation Committee on Research Activities (CNEAI) for the recognition of their research activity; however, this information is not available yet.

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

[15] Since the indicators are based on moving averages, the requirement has been for each of the chosen indicators, with data offered by CRUE, to have information that would enable to calculate them.

3. Rankings personalized by the user

The appropriate response to one of the issues related to the aggregation of the information analyzed in the previous point —the importance assigned to each of the aspects of a complex problem when evaluating it synthetically— may depend on the user. Certainly, 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 their interest on those 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 this particular viewpoint, it makes sense to consider the possibility of drawing up personalized rankings, established taking into account the interest from which the user contemplates the universities. The U-Ranking project considers this question for the case of Bachelor's degrees, in order to offer a tool to facilitate for students, their families and careers advisers, information on the ranking of degrees, taking into account their specific interests.

3.1. EXAMPLES OF PERSONALIZED RANKINGS

The possibility of constructing synthetic indicators acknowledging the preferences of users has been possible for a relatively short time, 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 quality of life index Better Life Index, drawn up by the OECD, and the CHE Ranking, a ranking of university degrees drawn up by the German Center for Higher Education.

The OECD draws up a synthetic index that allows countries to be ranked according to their characteristics in various areas relevant to the quality of life (access to housing, income, education, security and safety, etc.), according to the aspects most valued by the user. These valuations are introduced through the website, on which a score must be assigned to each one of the dimensions of quality of life considered.

> El tamaño del pétalo indica la calidad de cada dimensión evaluada en cada país
> La posición (la altura) indica la posición general en el ranking
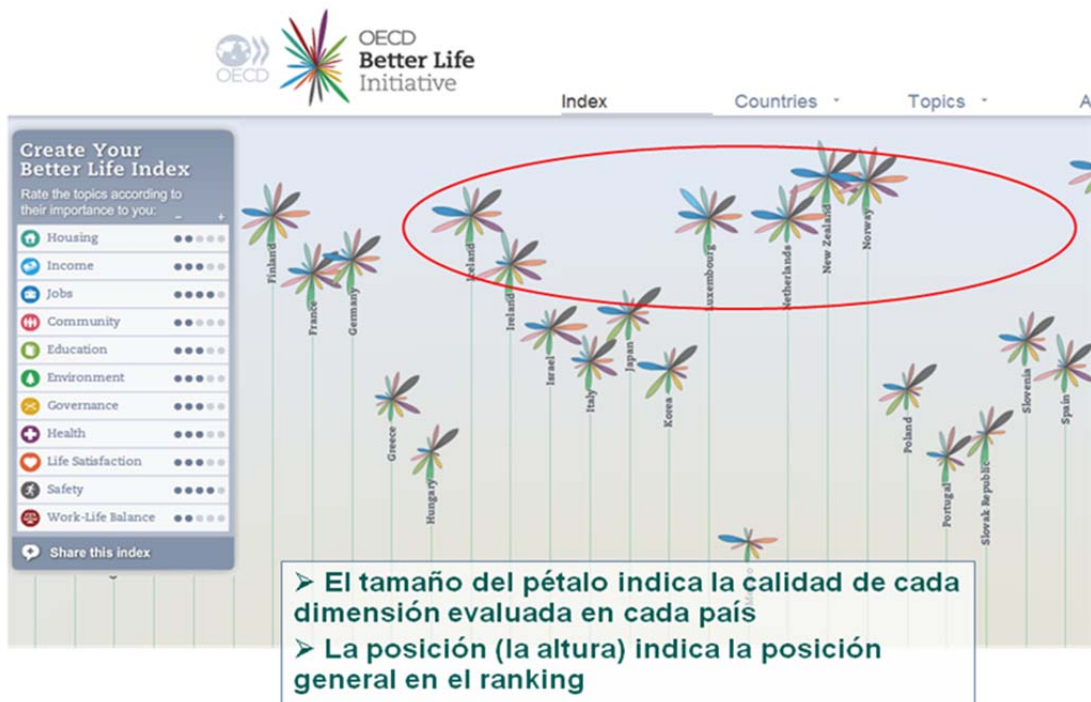
The experts prepare the set of relevant dimensions and variables and, after the user has introduced his/her valuation of each area, the web tool shows a synthetic index of quality of life that takes into account the weights awarded by the user.

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.

Example:

CHE Ranking | Economics ▾ | Univ./UAS ▾ | **Show ranking**

← to home page

ECONOMICS

UNIV./UAS | SUBJECT DESCRIPTION   SWITCH TO GRAPHICAL VIEW

Here you find an overview of the universities in the ranking with some selected results.
Click on the names of the universities to see detailed results! more information

● top group   ● middle group   ● bottom group   — not grouped

⚏ SHOW VALUES

Please choose up to 6 criteria

5. Publications per year (F) ⓘ

4. Courses offered (S) ⓘ

3. Graduations in appropriate time bachelor's [%] (F) ⓘ

2. Overall study situation (S) ⓘ

1. Total main subject students (F) ⓘ

SORTING

⚏ alphabetical   ⚏ according to rank groups   ⬇ ⬇ ⬇ ⬇ ⬇

Mark and compare universities

University	Value				
☐ Uni Augsburg	610	●	—	●	●
☐ Uni Bamberg	820	●	●	●	●
☐ Uni Bayreuth	1260	●	●	●	●
☐ FU Berlin	790	—	●	—	●
☐ HU Berlin	740	—	●	—	●
☐ HWR Berlin	350	—	●	●	—
☐ TU Berlin	560	—	●	—	●
☐ Uni Bonn	1560	●	●	●	●
☐ TH Deggendorf	150	—	—	—	—
☐ Uni Düsseldorf	930	●	●	●	●
☐ Uni Duisburg-Essen/Essen	970	●	●	●	●
☐ Uni Freiburg	2340	—	●	—	●
☐ Uni Göttingen	1310	●	●	●	●
☐ Uni Halle-Wittenberg	220	—	●	—	●
☐ Uni Hamburg	790	—	●	—	●
☐ Uni BW Hamburg	130	—	●	—	●
☐ Uni Heidelberg	1180	●	●	●	●
☐ Uni Kiel	1510	—	●	—	●
☐ Uni Köln	1770	—	●	—	●
☐ Uni Lüneburg	170	—	—	—	—
☐ Uni Magdeburg	320	—	●	—	●
☐ Uni Mannheim	880	●	●	●	●
☐ Uni Marburg	430	●	●	—	●
☐ LMU München	1600	●	●	●	●
☐ Uni Münster	830	●	●	●	●
☐ HfWU Nürtingen	380	●	●	●	—
☐ HS Osnabrück	150	●	●	●	—
☐ Uni Passau	70	—	—	—	●
☐ Uni Potsdam	580	—	●	—	●
☐ Uni Regensburg	500	●	●	●	●
☐ HS Rhein-Waal/Kleve	440	—	—	—	—

Academic studies and teaching
- ☐ Contact to students (S) ⓘ
4. ☑ Courses offered (S) ⓘ
2. ☑ Overall study situation (S) ⓘ
- ☐ Research orientation (S) ⓘ
- ☐ Study organisation (S) ⓘ
- ☐ Support in the study entry phase (F) ⓘ
- ☐ Teacher support (S) ⓘ

Equipment
- ☐ IT-infrastructure (S) ⓘ
- ☐ Library (S) ⓘ
- ☐ Rooms (S) ⓘ

Result of study
3. ☑ Graduations in appropriate time bachelor's [%] (F) ⓘ
- ☐ Graduations in appropriate time master's [%] (F) ⓘ

International orientation
- ☐ International orientation bachelor's [points] (F) ⓘ
- ☐ International orientation master's [points] (F) ⓘ
- ☐ Support for stays abroad (S) ⓘ

Students
1. ☑ Total main subject students (F) ⓘ

Job market and career-orientation
- ☐ Bachelor theses in cooperation with an enterprise [%] (F) ⓘ
- ☐ Contact to professional practice master's [points](F) ⓘ
- ☐ Contact to work experience bachelor's [Points] (F) ⓘ
- ☐ Job market preparation (S) ⓘ
- ☐ Master theses in cooperation with an enterprise [%] (F) ⓘ
- ☐ Share of professors with work experience (F) ⓘ
- ☐ Teaching by practitioners [%] (F) ⓘ

Research
- ☐ Doctorates per professor (F) ⓘ
5. ☑ Publications per year (F) ⓘ
- ☐ Research reputation [%] (P) ⓘ
- ☐ Third party funds per academic [T€] (F) ⓘ

Town and University
- ☐ Population of the town (F) ⓘ
- ☐ Proportion of students in this town [%] (F) ⓘ
- ☐ Student accommodation rent [€] (F) ⓘ
- ☐ Students at this campus (F) ⓘ

Restore pre-selection
(S)-Students' judgements; (F)-Facts;
(P)-Professors' judgements

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 greatly 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 a university 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, research and innovation and technological development activities.

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 nearly 2,700 different Bachelor's degrees offered by Spanish universities, the first selection window shows 2,987 degrees offered by 62 universities analyzed and grouped into 26 *areas of study*.

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**
  - ☐ Sport and Exercise science Degrees
  - ☐ Early Childhood Education Degrees
  - ☐ Primary Education Degrees
  - ☐ Social education Degrees
  - ☐ Pedagogy Degrees
- ⊞ ☐ **Law**
- ⊞ ☐ **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**
- ⊞ ☐ **Agrifood Engineering**
- ⊞ ☐ **Nursing and Podiatry**
- ⊞ ☐ **Pharmacy**
- ⊞ ☐ **Physiotherapy**
- ⊞ ☐ **Medicine and Dentistry**
- ⊞ ☐ **Other Health Sciences**
- ⊞ ☐ **Psychology**
- ⊞ ☐ **Veterinary**

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 the "Artistic Studies" area of study is selected the Bachelor's degrees included in this area of study 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 2,987 Bachelor's degrees have been reduced to 139, 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 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

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.

4 Confirm your Selection

Remember you can return to any section to change your preferences

Create your own ranking

1

Fine Art Degrees

2

Castile and Leon
Madrid
Galicia

3

Teaching 56%
Research 34%
Innovation and Technological Development 10%

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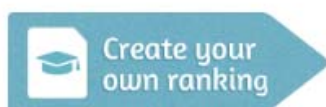
Thirdly, the user must declare his/her preferences with regard to the importance given to study, research or innovation when valuing the universities' profiles, assigning the 100 points available to him/her according to the weight he/she wishes to grant to teaching, research, and innovation and technological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

As the user chooses the degrees and the autonomous communities of his/her interest and distributes the 100 points among the three 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.

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 area of study, 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 the Bachelor's degree in the personalized ranking. The second shows the value of the index reached for the particular 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.

Together with the names of the Bachelor's degrees appears a link to the web address of each university. Next the cut-off mark of the last year is indicated and the price per credit on first registration, information that is completed when various centers of a university impart the same Bachelor's degree, if it is offered in one center or there is any commentary relating to the cost of the degree. The last columns at the right show the information on the environment which will be described in the next section.

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 counsellors, as well as for the universities themselves. The more than 165,000 personalized rankings that have been calculated testify to the level of interest in the tool. For this potential 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, work which is currently underway.

Mathematics
In the selected regions there are 36 options for the chosen degrees

Also available in pdf.

PDF

Ranking	Index	University	Degree		2017/2018 (*)		Environment
					Cut-off mark	Cost	
1	2,3	Universidad Politécnica de Madrid	Grado en Matemáticas e Informática	WWW	10,676	21,94	
2	1,9	Universitat Politècnica de Catalunya	Grado en Matemáticas	WWW	12,38	35,77	
3	1,4	Universidad Autónoma de Madrid	Grado en Matemáticas	WWW	12,026	21,94	
4	1,3	Universitat Autònoma de Barcelona	Grado en Matemáticas	WWW	10,6	35,77	
4	1,3	Universitat de Barcelona	Grado en Matemáticas	WWW	11,19	35,77	
5	1,2	Universidad de Cantabria	Grado en Matemáticas	WWW	8,746	12,62	
5	1,2	Universidade de Santiago de Compostela	Grado en Matemáticas	WWW	10,54	13,93	
5	1,2	Universitat de les Illes Balears	Grado en Matemáticas	WWW	5,174	15,03	
5	1,2	Universitat de València	Grado en Matemáticas	WWW	11,56	17,95	
6	1,1	Universidad de Alicante	Grado en Matemáticas	WWW	10,98	17,95	
6	1,1	Universidad de Almería	Grado en Matemáticas	WWW	5	12,62	
6	1,1	Universidad de Zaragoza	Grado en Matemáticas	WWW	9,537	16,20	
6	1,1	Universidad Complutense	Grado en Matemáticas y Estadística	WWW	10,655	21,94	

3.3. COMPLEMENTARY INFORMATION ON THE UNIVERSITIES' ENVIRONMENTS

The geographical and social environment in which a university is situated 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 data of the environment should be treated differently from the rest of the variables considered, since they represent circumstances external to the universities and not features that are under their control. For this reason, we decided to provide the information without integrating it with the indicators computed in the ranking as a complement to them.

We have included four categories of environmental variables: a) climate —temperatures and rainfall— b) cost of living —housing prices—, c) accessibility —airports, railways and their connections— and d) socio-cultural environment —art and entertainment activities. This information is presented by means of a system of icons (similar to that of hotel guides) to make easier the identification of the advantages of the universities in these four aspects. The web tool offers up to four icons against each university, one for each environmental category considered, when the environment reinforces the university's attraction. The size of the icon indicates, intuitively, what university environments offer him/her a better quality of life (see, for example, the following diagram).

To decide the size of the corresponding icons, a synthetic indicator[16] has been calculated for each

of them, based on the data available, which in general is by province. After arranging the provinces in order of these indices, a large icon is assigned to those universities located in provinces situated in the tertile with highest value in the distribution (best climate, highest cost, greatest connectivity, most socio-cultural opportunities) and an identical but smaller icon to those in the second tertile (between 33% and 66%); finally, those in the third tertile are indicated with even smaller icons.

It should be taken into account that three of the four environmental characteristics are more favorable the larger the icon (climate, transport and socio-cultural opportunities), while a higher cost of living must be understood as less attractive.

The same as in previous editions, the 2019 edition also includes the price per credit for over 2,987 Bachelor's degrees analyzed by U-Ranking, based on university statistics provided by the Spanish Ministry of Science, Innovation and Universities (2019a). 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[17] offering that degree. As can be appreciated in table 5, 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, as a guide, the user of U-Ranking will be able to know the price per credit at first registration for

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[16] The synthetic indicators were constructed, for those environmental variables with more than one indicator, by first standardising each indicator with respect to its distance (ratio) from the median and then applying a geometric mean to those indicators. Next, each sample was divided into three sets bounded by the tertiles of each distribution in order to subsequently assign them to each group.

[17] 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.

each Bachelor's degree. The prices included in U-Ranking correspond to those established for the academic year 2018-2019. Also, the cost was included by degree course or by credit offered by private universities when this information was available on their web pages.

Table 5. Public price per credit at the time of first enrollment by region. 2018-2019 academic year (€/credit)			
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.

(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 Annexe 5 of the Price Decree, in accordance with the terms and conditions stated in the call for applications.

(3) UNED organizes its degrees in 4 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.

Source: Spanish Ministry of Science, Innovation and Universities (2019a).

4. Main results

This chapter offers the principal results obtained in this sevent edition of U-Ranking, corresponding to 2019, 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 2019 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 2018 results with those of the 2019 edition; d) examining the differences in the performance of the various regional university systems; e) and finally, as a novelty, analyzing the percentage of university students that do not complete the degree in which they enrolled.

4.1. U-RANKING

Table 6 offers the ranking of 62 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 62 universities are grouped into eleven levels of performance. Those universities with the same index have been ordered alphabetically within their group.

In table 6, 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 or innovation and technological development require a longer amount of time in order to create research teams and generate physical (i.e. equipment and infrastructures) and organizational capital which are needed to develop their full potential. Thus, pointing out the universities with 15 years or less of existence allows the reader to better understand why the results for these universities in research and transfer are often lower.

In the context of the criteria set out in the preceding paragraphs, in what follows we will only comment on cardinal and ordinal aspects of the universities that constitute noteworthy differences.

Table 6 includes at the end a list of the universities that have not been analyzed because of insufficient information to construct the indices. Eleven are marked with an asterisk: these are the universities that have existed for fewer than 15 years. 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 a university's results 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. Their results could conceivably put an indeterminate number of

Table 6. U-Ranking of the Spanish universities

University	Ranking	Index	University	Ranking	Index	University	Ranking	Index
Universitat Pompeu Fabra	1	1.7	Universidad de La Rioja	7	1.0	Vic-Universitat Central de Catalunya	9	0.8
Universidad Carlos III de Madrid	2	1.5	Universidad de Málaga	7	1.0	UNED	10	0.7
Universitat Politècnica de Catalunya	3	1.4	Universidad de Murcia	7	1.0	Universidad A Distancia de Madrid*	11	0.6
Universitat Politècnica de València	3	1.4	Universidad de Oviedo	7	1.0	Universidad Cardenal Herrera-CEU	11	0.6
Universidad Autónoma de Madrid	4	1.3	Universidad de Salamanca	7	1.0	Universidad Católica de Valencia*	11	0.6
Universidad de Cantabria	4	1.3	Universidad de Sevilla	7	1.0	Universidad Francisco de Vitoria	11	0.6
Universitat Autònoma de Barcelona	4	1.3	Universidad del País Vasco	7	1.0	IE Universidad		
Universidad de Barcelona	4	1.3	Universidad Nebrija	7	1.0	Universidad Alfonso X El Sabio		
Universitat Rovira i Virgili	4	1.3	U. Politécnica de Cartagena	7	1.0	Universidad Camilo José Cela		
Universidad de Alcalá	5	1.2	Universidad Pública de Navarra	7	1.0	Universidad Católica San Antonio		
Universidad de Navarra	5	1.2	Universidad Rey Juan Carlos	7	1.0	Universidad Católica de Ávila		
U. Miguel Hernández de Elche	5	1.2	Universidade da Coruña	7	1.0	Universidad del Atlántico Medio *		
Universidad Politécnica de Madrid	5	1.2	Universitat Jaume I de Castellón	7	1.0	Universidad Europea de Canarias*		
U. de Santiago de Compostela	5	1.2	Universitat Ramon Llull	7	1.0	Universidad Europea de Madrid		
Universitat de Lleida	5	1.2	Mondragón Unibertsitatea	8	0.9	Universidad Europea de Valencia*		
Universitat de València	5	1.2	Universidad de Cádiz	8	0.9	Universidad Europea del Atlántico*		
Universidad de Burgos	6	1.1	Universidad de Huelva	8	0.9	Universidad Fernando Pessoa-Canarias*		
Universidad de Córdoba	6	1.1	Universidad de Jaén	8	0.9	Universidad Europea Miguel de Cervantes		
Universidad de Deusto	6	1.1	Universidad de León	8	0.9	Universidad Internacional de Andalucía		
Universidad de Zaragoza	6	1.1	Universidad de Valladolid	8	0.9	Universidad Internacional de La Rioja*		
Universidad Pablo de Olavide	6	1.1	Universidad San Pablo-CEU	8	0.9	Universidad Internacional Isabel I de Castilla*		
Universidade de Vigo	6	1.1	Universidad de Castilla-La Mancha	9	0.8	Universidad Internacional Menéndez Pelayo		
Universitat de Girona	6	1.1	Universidad de Extremadura	9	0.8	Universidad Internacional Valenciana*		
Universitat de les Illes Balears	6	1.1	Universidad de La Laguna	9	0.8	Universidad Loyola Andalucía*		
Universidad Complutense de Madrid	7	1.0	U. de Las Palmas de Gran Canaria	9	0.8	Universidad Pontificia de Salamanca		
Universidad de Alicante	7	1.0	Universidad Pontificia Comillas	9	0.8	Universidad San Jorge*		
Universidad de Almería	7	1.0	U. Internacional de Catalunya	9	0.8	Universidad Tecnología y Empresa*		
Universidad de Granada	7	1.0	Universitat Oberta de Catalunya	9	0.8	Universitat Abat Oliba CEU		

Note: Universities are ordered from the highest to the lowest index value. Universities with the same index value are ordered alphabetically. The 22 universities listed in the last column have not been analyzed due to lack of data.

*Universities 15 years or younger.

Source: BBVA Foundation-Ivie

universities below the lowest level (11) in the current 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 of performance among the Spanish universities, the most productive ones doubling the results of those in the last positions. As an example of this, the first university of U-Ranking almost triples the performance value of the last ones.

In U-ranking, the leading group is formed by sixteen universities occupying the first to the fifth positions (various universities share the same position), increasing their results to 20% above the national average. These universities are: Pompeu Fabra in first place, followed in second place by Universidad Carlos III of Madrid. The third place corresponds to Politècnica de Catalunya and Politècnica de València. The fourth place is occupied by five universities: Universidad Autónoma de Madrid, Universidad de Cantabria and three Catalan universities —Universitat Rovira i Virgili, Universitat de Barcelona and Autònoma de Barcelona. In fifth place is made up

by seven universities, among which the first private university appears, Universidad de Navarra, along with six public: Alcalá, Miguel Hernández of Elche, Politécnica de Madrid, Santiago de Compostela, Universitat de Lleida and Universitat de València.

In sixth place, still above the average, are eight universities, featuring one private, Ramon Llull. Other groups of universities with similar levels of performance are found in the following positions: eighteen share the seventh position (equivalent to the average of the system), seven others are found in eighth place, eight are in the ninth position, one in the tenth, and finally, four in the eleventh place.

If we take a look at the universities in the top five positions, they are the same 16 universities as in the 2018 edition, with the exception of the inclusion of the Universidad de Alcalá and Universitat de Lleida, which occupied the sixth position in the 2018 ranking and are now in fifth place.

In sum, the 2019 U-Ranking results reveal stability, which is to be expected as there have

been no major structural changes resulting from legislative amendments nor any significant changes in competitive research funding.

4.2. U-RANKING VOLUME

Table 7 shows the index and the ranking of Spain's 62 public universities according to their volume of results (U-Ranking Volume), which differs from that of performance because it is obtained by calculating the effect of 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 will be limited. A very large university may have a low performance (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 will be higher) its total impact can be significantly relevant.

As can be seen in table 7, the Universidad Complutense leads by a large margin, with an index (4.4) half a point higher than the second-ranking

institution, Universitat de Barcelona (3.9). The Universitat de Barcelona itself has an index half a point higher than the third-placed institution, Universitat de Valencia (3.4). In fourth place are Universidad de Granada and Universidad de Sevilla. They are followed by Universidad del País Vasco and Universitat Politécnica de València in fifth and sixth place, respectively. In seventh place are Universidad Politécnica de Madrid and Universitat Autònoma de Barcelona. Completing the 10 universities at the top of the ranking is Universitat Politècnica de Catalunya. These 10 large universities are the same top 10 as in the 2018 edition, just slightly reorganized, as in this edition they are grouped in eight levels, rather than six as in U-Ranking 2018.

Between ninth and twentieth place are 18 public universities. The rest are shown below, most of them grouped in levels shared by at least three universities. Unlike in the performance ranking, in which the universities are grouped in 11 levels, in U-Ranking Volume the 62 universities are ordered in 30 different positions, indicating the greater heterogeneity of the university system in terms of size and therefore adding variability to the ranking.

Table 7. U-Ranking Volume of the Spanish universities

University	Ranking	Index	University	Ranking	Index	University	Ranking	Index
Universidad Complutense de Madrid	1	4.4	Universidad de Cantabria	21	1.0	Universidad Cardenal Herrera-CEU	29	0.2
Universitat de Barcelona	2	3.9	Universidad de Extremadura	21	1.0	Universidad Francisco de Vitoria	29	0.2
Universitat de València	3	3.4	Universidad de La Laguna	21	1.0	Universidad Nebrija	29	0.2
Universidad de Granada	4	3.2	Universidade da Coruña	21	1.0	U. Internacional de Catalunya	29	0.2
Universidad de Sevilla	4	3.2	Universitat Rovira i Virgili	21	1.0	Vic-Universitat Central de Catalunya	29	0.2
Universidad del País Vasco	5	3.1	U.de Las Palmas de Gran Canaria	22	0.9	Universidad A Distancia de Madrid*	30	0.1
Universitat Politécnica de València	6	2.9	Universidad de Navarra	22	0.9	IE Universidad		
Universidad Politécnica de Madrid	7	2.8	U. Miguel Hernández de Elche	22	0.9	Universidad Alfonso X El Sabio		
Universitat Autònoma de Barcelona	7	2.8	Universitat de les Illes Balears	23	0.8	Universidad Camilo José Cela		
Universitat Politècnica de Catalunya	8	2.7	Universitat Jaume I de Castellón	23	0.8	Universidad Católica San Antonio		
Universidad Autónoma de Madrid	9	2.4	Universitat Ramon Llull	23	0.8	Universidad Católica de Ávila		
Universidad de Zaragoza	10	2.3	Universidad de Almería	24	0.7	Universidad del Atlántico Medio *		
UNED	11	2.1	Universidad de Jaén	24	0.7	Universidad Europea de Canarias*		
U. de Santiago de Compostela	12	2.0	Universidad Pablo de Olavide	24	0.7	Universidad Europea de Madrid		
Universidad de Málaga	13	1.9	Universitat de Girona	24	0.7	Universidad Europea de Valencia*		
Universidad Carlos III de Madrid	14	1.8	Universitat de Lleida	24	0.7	Universidad Europea del Atlántico*		
Universidad de Murcia	15	1.6	Universidad de Huelva	25	0.6	Universidad Fernando Pessoa-Canarias*		
Universidad de Salamanca	15	1.6	Universidad de León	25	0.6	Universidad Europea Miguel de Cervantes		
Universidad de Alicante	16	1.5	Universidad Pública de Navarra	25	0.6	Universidad Internacional de Andalucía		
Universidad de Oviedo	16	1.5	Universitat Oberta de Catalunya	25	0.6	Universidad Internacional de La Rioja*		
Universidad de Valladolid	17	1.4	Universidad de Burgos	26	0.5	Universidad Internacional Isabel I de Castilla*		
Universidad Rey Juan Carlos	17	1.4	Universidad de Deusto	26	0.5	Universidad Internacional Menéndez Pelayo		
Universidad de Alcalá	18	1.3	Universidad San Pablo-CEU	26	0.5	Universidad Internacional Valenciana*		
Universitat Pompeu Fabra	18	1.3	Universidad Politécnica de Cartagena	27	0.4	Universidad Loyola Andalucía*		
Universidad de Castilla-La Mancha	19	1.2	Universidad Pontificia Comillas	27	0.4	Universidad Pontificia de Salamanca		
Universidad de Córdoba	19	1.2	Universidad Católica de Valencia*	28	0.3	Universidad San Jorge*		
Universidade de Vigo	19	1.2	Universidad de La Rioja	28	0.3	Universidad Tecnología y Empresa*		
Universidad de Cádiz	20	1.1	Mondragón Unibertsitatea	29	0.2	Universitat Abat Oliba CEU		

Note: Universities are ordered from the highest to the lowest index value. Universities with the same index value are ordered alphabetically. The 22 universities listed in the last column have not been analyzed due to lack of data.

*Universities 15 years or younger.

Source: BBVA Foundation-Ivie

The ranking by volume shows the smaller size of the private universities compared to the public ones. Because of their smaller size they rank lower in this ranking by volume of results than in the ranking by performance. Thus, in table 7, 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 4.4 to 0.1, very much wider than for the indicator of performance, which goes from 1.7 to 0.6.

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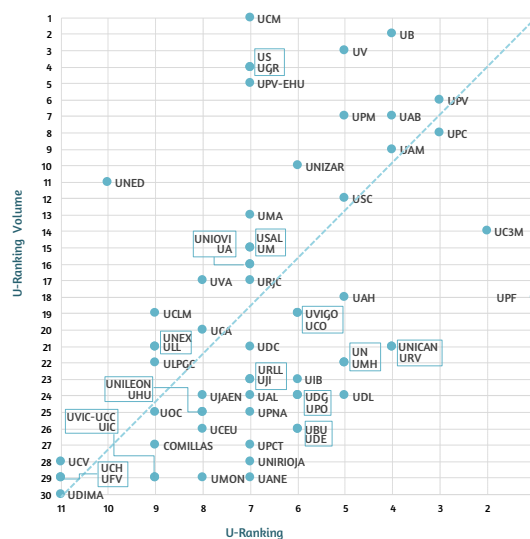
Note: See appendix 2 for a list of abbreviations.
Source: BBVA Foundation-Ivie.

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

However, not all of these large universities show a good performance. In fact, other smaller ones stand out in this regard (see them more to the right in the figure). An example of the former case is UNED, a large university with a great volume of results that is placed among the top 15 universities in U-Ranking Volume. And an example for 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 and Universidad de Cantabria, whose output places them around the middle of U-Ranking Volume.

Figure 3. U-Ranking Volume vs. Size indicator
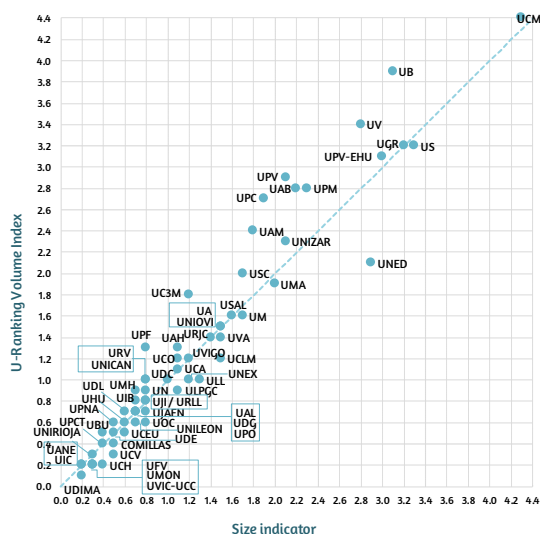
Note: The size indicator is a standard arithmetic mean of the teachers, students and budget of each university. **See appendix 2 for a list of abbreviations.**

Source: BBVA Foundation-Ivie.

In fact, examples of higher or lower performance can be found among universities of very different sizes.[33] Figure 3 shows this by representing the size indicator 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. It is visually evident that size is not a determinant of the universities' performance. There are institutions of large size like the Universitat de Barcelona, the Universitat de València, the Polytechnics of Madrid, València and Catalunya or the Autonomous Universities of Barcelona or Madrid, which performance is high. Therefore, some universities of smaller size such as Universitat Pompeu Fabra, Carlos III de Madrid, Rovira i Virgili or Universidad de Navarra also present high performance indices. There are large institutions like the Universities of Barcelona and Valencia, the Polytechnics of Madrid, València and Catalunya or the Autonomous Universities of Barcelona and Madrid, which show a high performance as their volume indices are superior

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[33] 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.

to what it would correspond to them strictly by their size. Or take the opposite example: the UNED, which is situated far below the diagonal. However, some universities of smaller size such as Universitat Pompeu Fabra and Carlos III de Madrid also have high performance rates, far above the diagonal.

4.4. U-RANKING VS. SHANGHAI RANKING

Given the popularity attained by some international rankings, many universities are interested in being compared with the best in the world. For this reason, it is obligatory to ask to what extent the U-Rankings constructed offer results different or similar to international ones. As external reference for comparison we will consider especially the Shanghai Ranking, which without a doubt has become the most widely known to date.

As can be seen in figure 4, in the latest edition of this international ranking only 10 Spanish universities appear among the top 500. All except one, Universitat de Barcelona, are below the 200th place. Therefore, a comparison between U-Ranking and Shanghai Ranking would be very limited. However, a recent study (Docampo 2017) offers a version of the Shanghai Ranking 2016 adapted to the Spanish universities that includes the majority of the private and public universities, allowing a better comparison.

The results of the U-Ranking Volume and the Shanghai Ranking are much more alike than those of our two U-Rankings with each other, as shown by the following figures. The first of them (figure 5) represents on the horizontal axis the position of the Spanish universities in U-Ranking Volume, while the vertical axis represents the Shanghai Ranking. Regardless of the different number of levels that each ranking sets, both offer a fairly 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 UNED 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 adaptation for Spain of the

Shanghai Ranking. The common denominator in many cases is that these are small but more productive universities, such as Pompeu Fabra or Rovira i Virgili, whose greater efficiency already became apparent in the U-Ranking's measurement of performance.

In the figure 5 we have highlighted with dark squares the universities that are expressly mentioned among the top 500 of the Shanghai Ranking 2018 — not only in the adaptation for Spain.

As can be observed, they are all at the top in the adaptation by Docampo (2017). Almost all the universities are among the top places of U-Ranking Volume: Universitat de Barcelona, Universidad de Granada, Autónoma de Madrid, Universitat Autònoma de Barcelona, Universidad Complutense, Universitat Politècnica de València, Universidade de Santiago de Compostela, Universitat de València and Universidad de País Basco. The tenth is the Universitat Pompeu Fabra located in the center of U-Ranking Volume.

Figure 4. Spanish universities in the 2018 Shanghai Ranking
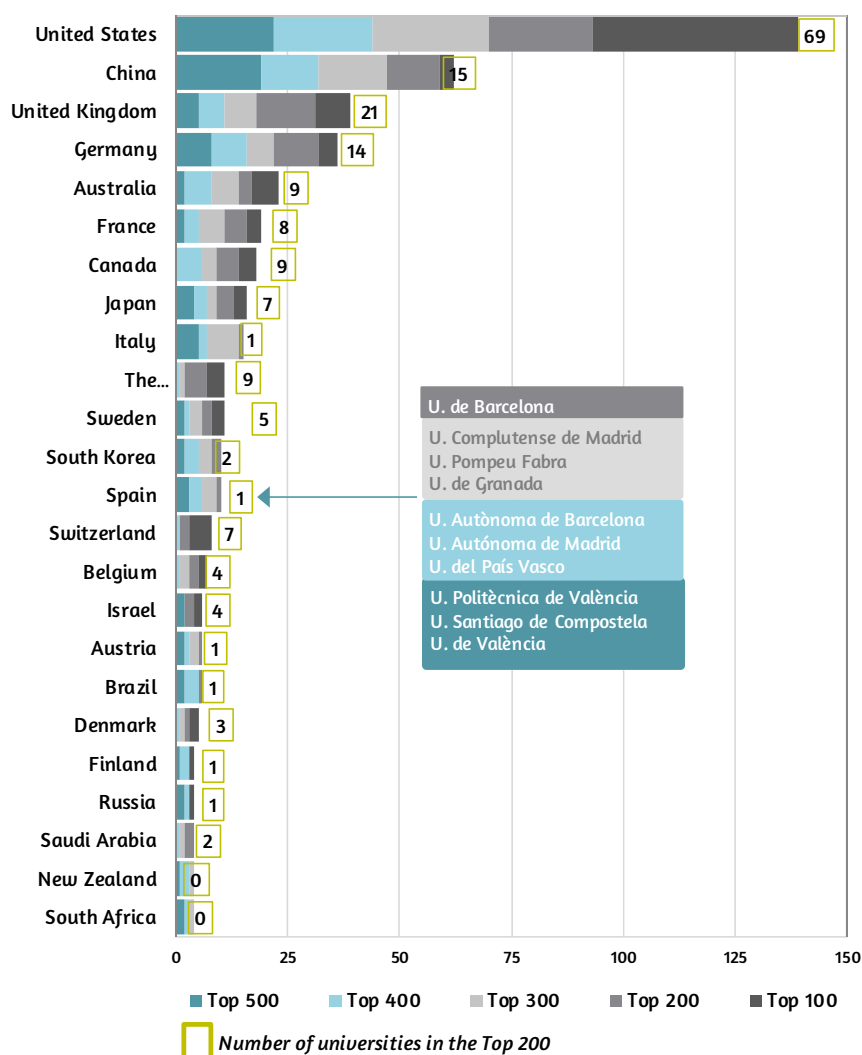
Note: Ordered from the countries' highest to lowest number of universities in the Top 500.

Source: Academic Ranking of Word Universities (CWCU 2018).

The inclusion of private universities does not alter the high consistency of our volume ranking with the Shanghai Ranking. As seen in figure 5, all the private universities analyzed are found in area III. Hence, the less prominent places in U-Ranking Volume also correspond with those in the lowest positions in Docampo's adaptation (2017).

Up to what point the comparison between the Shanghai Ranking adapted to Spain and the U-Ranking, which measures the performance, offers conclusions different to the above is shown in figure 6. In it, there are many universities that change area between rankings. In short, the differences with Shanghai are much more substantial in the case of the U-Ranking of performance than in that of U-Ranking Volume, which agrees with the characteristic of the Shanghai Ranking: it 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.[34]

To view the simultaneous level of consistency of both U-Rankings (performance and volume) with the Shanghai Ranking, the shaded area in graph 7 shows the fifteen universities that stand out in U-Ranking, both for their high performance and their great volume of results.

The results are evident: the shaded area includes the group of Spanish universities with the highest performance and greatest volume of results according to U-Ranking. While the Spanish universities that appear in the Shanghai Ranking 2018 are marked in red. The shaded area includes that stand out in the Shanghai Ranking. The exceptions are five universities that rank near the top in U-Ranking but are not in the Top 500 of the 2018 Shanghai Ranking, namely, Universidad Politécnica de Madrid and Carlos III, which have not yet reached the Top 500 of the Shanghai Ranking, Universitat Politècnica de Barcelona, which is not included in the last two editions, and the universities of Seville and Zaragoza, which were excluded in the 2016 edition.

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[34] 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.

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

Note: Results correspond to our adaptation of the Shanghai Ranking by Docampo (2017) for Spanish universities. Nine private universities that appear in Docampo's ranking have been excluded and are not analyzed in U-Ranking. UANE and UDIMA are not analyzed in the adapted 2016 edition of the Shanghai Ranking. The numbers assigned in Docampo's ranking have been changed to facilitate the comparison. See appendix 2 for a list of abbreviations.
■ Universities in the Shanghai Ranking Top 500 2018.
Source: BBVA Foundation-Ivie, ARWU (CWCU 2018) and Docampo (2017).

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

Note: Results correspond to our adaptation of the Shanghai Ranking by Docampo (2017) for Spanish universities. Nine private universities that appear in Docampo's ranking have been excluded and are not analyzed in U-Ranking. UANE and UDIMA are not analyzed in the adapted 2016 edition of the Shanghai Ranking. The numbers assigned in Docampo's ranking have been changed to facilitate the comparison. See appendix 2 for a list of abbreviations.
■ Universities in the Shanghai Ranking Top 500 2018.
Source: BBVA Foundation-Ivie, ARWU (CWCU 2018) and Docampo (2017).

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.

Source: BBVA Foundation-Ivie and ARWU (CWCU 2018).

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 universities 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 six universities situated in the first quartile in the three rankings. They are Universitat de Barcelona, Universitat de València, Universitat Autònoma de Barcelona, Universidad Autónoma de Madrid, Universitat Politècnica de València and Universidade de Santiago de Compostela. Seven other universities are in the first quartile of two of the rankings: Universitat Pompeu Fabra, in Shanghai and U-Ranking (performance); Universidad del País Vasco-EHU, Universidad de Granada and Complutense de Madrid, in Shanghái and U-Ranking Volume and the Polytechnics of Cataluña and Madrid, along with Universidad Carlos III in U-Ranking (performance) and U-Ranking Volume. Finally, ten universities stand out by only one of the three criteria considered.

Figure 8. U-Rankings vs. Shanghai Ranking

Note: The 10 Spanish universities in the Top 500 of the Shanghai Ranking 2018 and the 16 first universities in U-Ranking and U-Ranking Volume are included. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie and ARWU (CWCU 2018).

In sum, these results show important coincidences between the rankings when 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 ten universities that the Shanghai Ranking (not Docampo's 2017 adaptation) places in its Top 500, six also appear in the first quartile of our two rankings, in the intersection of the three circles of the diagram; two head the ranking of performance (Universitat Pompeu Fabra) and volume (Universidad Complutense de Madrid) and two other universities occupy dominant places in the volume ranking

Therefore, it can be said that, of the ten Spanish universities included in the Top 500 of the Shanghai Ranking, nine are to be found in our quartile with greatest volume of results according to U-Ranking Volume and seven among our most productive universities according to U-Ranking of performance. Consequently, our classifications, specially of volume, present a substantial harmony with those of the Shanghai Ranking, which 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.

In the intersection of the three rankings we find a set of five universities (Universidad Autónoma de Madrid, Universitat Autònoma de Barcelona, Universitat de Barcelona, Universitat Pompeu Fabra and Universidad Complutense de Madrid) 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—. Finally, among the universities that belong to the Top 500 of THE or the TOP 500 of the QS Ranking, only three universities —Universidad de Navarra, Universitat Rovira I Virgili and Universidad de Alcalá— are not on the efficient frontier of U-Ranking.

Figure 9. Comparison of the results of three international rankings. 2018-2019
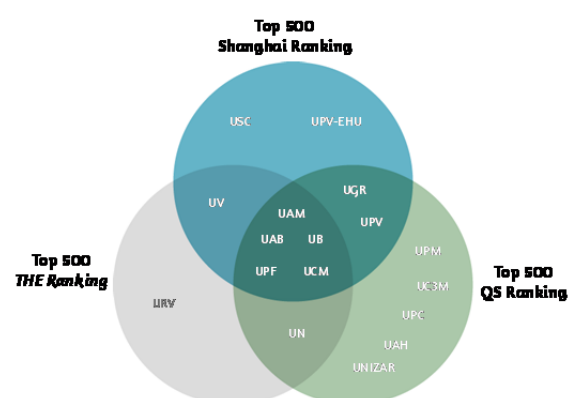
Note: See appendix 2 for a list of abbreviations.

Source: ARWU (CWCU 2018), THE (2019) and QS (2019).

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 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.[35] But other experts or other users could give different valuations. Consequently, 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 of these dimensions.

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

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[35] 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%.

research change to suit its interests? The answers to these questions are important in assessing the extent to which the results of a ranking are reliable, given the possibly 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.

Studying the sensitivity of rankings to changes of the weights of teaching and research permits us to analyze also whether the universities' results in these two activities are correlated. Most rankings place great emphasis on research because the information on the results of this activity is abundant and seems more precise and reliable. But, although it is often argued that teaching and research are highly correlated, this hypothesis has barely been tested for lack of indicators of teaching results. We will revisit this question in a later section.

That the research dimension is easier to measure should not be an argument for not measuring 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 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 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:

- Option 1: Teaching 20 / Research 70 / Innovation 10

- Option 2: Teaching 45 / Research 45 / Innovation 10

- Option 3: Teaching 70 / Research 20 / Innovation 10

We opted to leave the weight of innovation and technological development with a fixed value of 10 points so as not to hinder comparisons of the effect of a greater or lesser relative weight of the other two variables. If together with a reduction of the weight of research we applied a reduction of the weight of innovation (or vice versa), we

could not know to which of the two variations the changes in the ranking were due.[36]

Figure 10 shows the effect on the position in the ranking of each of Spain's 62 universities analyzed when the weight of research varies, according to the three weightings chosen.

The evolution of the universities implies a setback when it presents movements from right to left (regressions) which are characterized by:

- Moderate decreases or increases in the weight given to research (options 2 and 3), compared to the weights used by U-Ranking, give rise to hardly any changes in rank compared to the performance ranking (boxed in the chart).

- If the weight given to research were reduced to 20% (option 3), there would be only a few improvements in position. Note that the ranking generates 10 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, 51 of 62 universities would improve at least one position, including all private universities with a higher degree of teaching specialization, except the Universitat Oberta de Catalunya. Two private universities —Universidad de Nebrija and Mondragón Unibertsitatea— would improve three places. And seven other private ones would go up two places. Public universities that improve their position would rise one place at the most.

- When the weight of research rises moderately up to 45% (option 2), the ranking remains stable, with no university being affected in more than one position, either up or down.

[36] Furthermore, significantly increasing the weight of the activities relating to innovation and technological development would not be justified, given their limited importance in the budgets of the Spanish universities. Certainly, in the Polytechnic universities the weight of these activities is greater, but disaggregated information is not available to value more precisely the results of each in this aspect of their specialization.

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

Teaching - **Research** - Innovation and Technological Development   ✿Option 1 20-**70**-10   ●Option 2 45-**45**-10   ✦Option 3 70-**20**-10

☐ Position in the global performance ranking
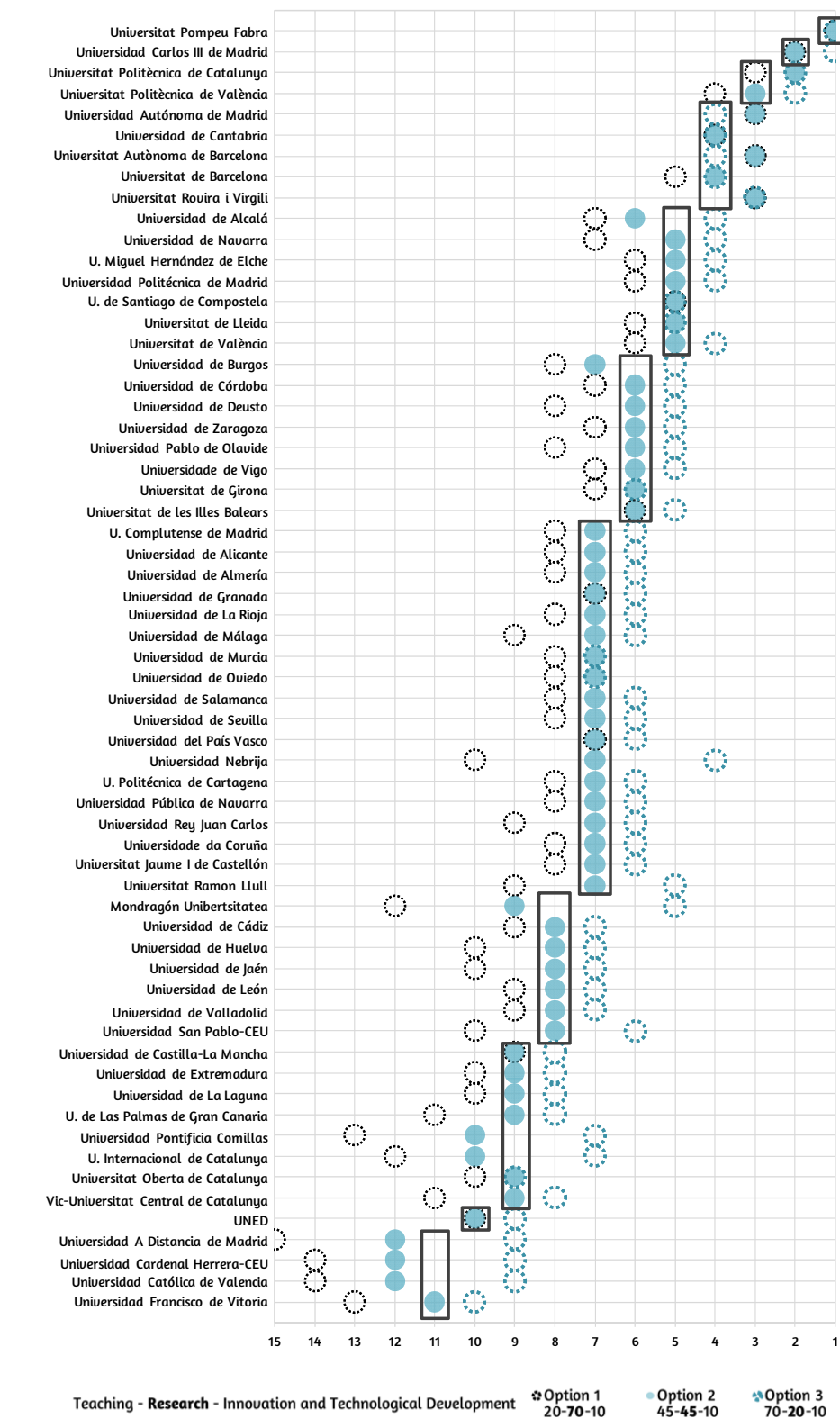
Note: Universities are ordered by their position in the global performance ranking with the following weights: 56/34/10.

Source: BBVA Foundation-Ivie.

- The ranking shows significant changes when the weight of research doubles from its starting position (from 34% to 70% of option 1). The universities are sorted into 15 groups, instead of 11, and the biggest changes are 4 places. The fundamental pattern of these changes is that the universities that fall most sharply in the ranking are the private ones, which are the ones with the least tradition of research. If we focus on the changes of more than three positions, the seven drops in the rankings correspond to private universities: Nebrija, Mondragón, Pontificia de Comillas, Internacional de Cataluña, A distancia de Madrid, Cardenal Herrera-CEU and Católica de Valencia.

- This last result reveals another 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.

Thus, the rankings are sensitive to changes in the weights given to teaching and to research, if we compare weightings as different as those corresponding to our options 1 and 3. While, when these weights change less, variations are minor and, definitely, alterations never occur for this reason in the classifications. 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 reliable. 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 is very notable. Figure 11 presents the synthetic indicator from which the U-Ranking is derived for research weights of 20% and 70%. It shows that a drastic change in the weights would cause an increase of only three decimal points or more for Universitat Pompeu Fabra and Autònoma de Barcelona and Autónoma de Madrid, improving their index. On the contrary, only some private universities such as Nebrija, Mondragón, Internacional de Cataluña, Pontifica Comillas, Cardenal Herrera-CEU, Católica de Valencia and Universidad A distancia de Madrid would experience a fall in the index of three decimal points or more.

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 (20%) two private universities, Navarra and Nebrija, along with the Universidad de Alcalá, are incorporated to the top list. On the other hand, if more weight is given to research these private universities would leave the first positions and Universitat de Illes Balears, Universidade de Santiago de Compostela and Universitat de Lleida would then also appear among the top places. These last two, along with the Universidad de Navarra, would be included in the group at the top of the ranking if the weight of research is moderately increased (45%).

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

Weights of Teaching/Research/Innovation: 70/20/10 vs. 20/70/10. 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: See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie.

4.7. RANKINGS OF TEACHING, RESEARCH, AND INNOVATION AND TECHNOLOGICAL DEVELOPMENT

The methodology used constructs indicators of results of the three activities of the universities, 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 three dimensions can be arranged in order to obtain a *teaching ranking*, a *research ranking* and an *innovation and technological development 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 and not their performance. This feature is observed in any of the dimensions considered, but in the activities of innovation and technological development it is greater than in teaching and research. 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.

- Second, the differences in performance present an increasing scale when going from teaching to research and from the latter to innovation and technological development for both public and private universities. Thus, the range of the teaching index is 0.8 points, that of research 2.1 and that of innovation and technological development 3.3. The relative differences of the interquartile ranges are even greater in the last dimension.

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

a) U-Ranking (performance)

b) U-Ranking Volume

a1. Total universities

b1. Total universities
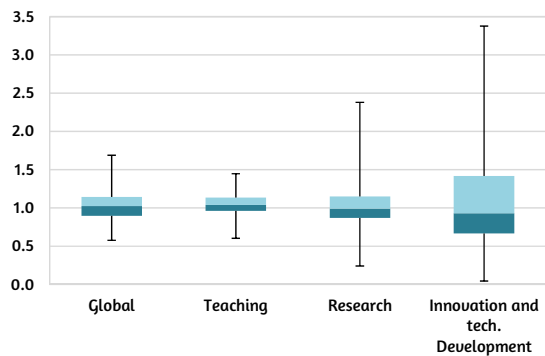
a2. Public universities

b2. Public universities
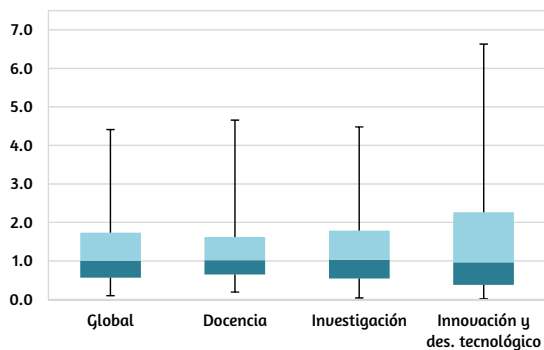
a3. Private universities
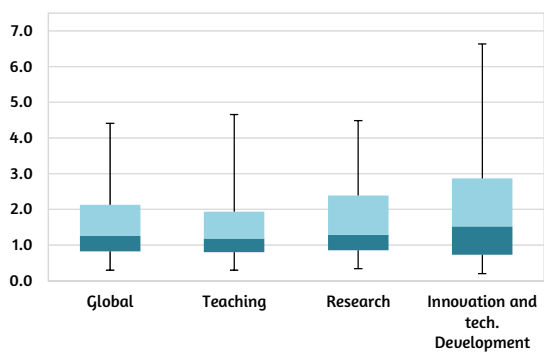
b3. Private universities
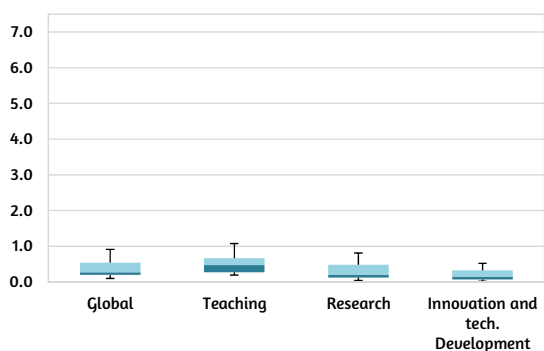
Source: BBVA Foundation-Ivie.

- In construction, the median for the total number of universities in the distribution of the indices is 1 (see figures 13, panels a1 and b1). However, when we analyze the private universities (figures 13, panel 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, somewhat below in innovation and technological development, but, above all, it is half in research.

Table 8 shows the coefficients of correlation between the different rankings and performance indices for each pair of activities. 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 the three dimensions in the public universities, in private universities the strongest correlation is found between teaching and innovation, with a significantly low correlation in the other cases.

These results suggest that complementarity exists among the different activities, but is limited above all, they warn that if the aim is to analyze the university system as a whole, 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.

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 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 located at 4%.

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 improves and reaches a coefficient of determination of 0.38, 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, research and innovation and technological development, tables 9 and 10 present in detail the results of the eight rankings drawn up for all Spanish universities (general performance U-Ranking and its ranking for the three dimensions of teaching, research and innovation, and general U-Ranking Volume and its ranking by 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 exception is the Universitat Oberta de Catalunya which has a research index than the teaching index) has the same indices and the Universitat de Vic which would improve). On the other hand, in the case of the public universities the opposite happens in the majority of cases.

Table 8. Correlation coefficients of the indices and U-rankings by dimension			
a) Index			
	Total	Public U.	Private U.
Teaching - Research	0.19	0.63	0.20
Teaching - Innovation and Technological Development	0.29	0.64	0.50
Research - Innovation and Technological Development	0.60	0.49	0.11
b) Ranking			
	Total	Public U.	Private U.
Teaching - Research	0.25	0.65	0.28
Teaching - Innovation and Technological Development	0.24	0.57	0.63
Research - Innovation and Technological Development	0.62	0.47	0.27

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.

Table 9. U-Ranking for teaching, research and innovation and technical development

University	Global		Teaching		Research		Innovation and tech. development	
	Ranking	Index	Ranking	Index	Ranking	Index	Ranking	Index
Universitat Pompeu Fabra	1	1.7	2	1.3	1	2.4	4	2.3
Universidad Carlos III de Madrid	2	1.5	2	1.3	3	1.6	1	3.4
Universitat Politècnica de Catalunya	3	1.4	2	1.3	5	1.4	2	3.1
Universitat Politècnica de València	3	1.4	1	1.4	7	1.2	2	3.1
Universidad Autónoma de Madrid	4	1.3	4	1.1	3	1.6	10	1.4
Universidad de Cantabria	4	1.3	4	1.1	6	1.3	4	2.3
Universitat Autònoma de Barcelona	4	1.3	4	1.1	2	1.7	10	1.4
Universitat de Barcelona	4	1.3	3	1.2	5	1.4	9	1.5
Universitat Rovira i Virgili	4	1.3	4	1.1	4	1.5	5	2.1
Universidad de Alcalá	5	1.2	3	1.2	8	1.1	10	1.4
Universidad de Navarra	5	1.2	1	1.4	8	1.1	17	0.7
Universidad Miguel Hernández de Elche	5	1.2	4	1.1	8	1.1	3	2.9
Universidad Politécnica de Madrid	5	1.2	4	1.1	8	1.1	3	2.9
Universidade de Santiago de Compostela	5	1.2	5	1.0	6	1.3	6	2.0
Universitat de Lleida	5	1.2	4	1.1	7	1.2	13	1.1
Universitat de València	5	1.2	4	1.1	7	1.2	10	1.4
Universidad de Burgos	6	1.1	4	1.1	10	0.9	9	1.5
Universidad de Córdoba	6	1.1	5	1.0	7	1.2	11	1.3
Universidad de Deusto	6	1.1	2	1.3	9	1.0	19	0.5
Universidad de Zaragoza	6	1.1	5	1.0	8	1.1	8	1.6
Universidad Pablo de Olavide	6	1.1	4	1.1	9	1.0	15	0.9
Universidade de Vigo	6	1.1	5	1.0	8	1.1	11	1.3
Universitat de Girona	6	1.1	5	1.0	7	1.2	17	0.7
Universitat de les Illes Balears	6	1.1	5	1.0	6	1.3	10	1.4
Universidad Complutense de Madrid	7	1.0	4	1.1	8	1.1	17	0.7
Universidad de Alicante	7	1.0	5	1.0	10	0.9	5	2.1
Universidad de Almería	7	1.0	4	1.1	9	1.0	15	0.9
Universidad de Granada	7	1.0	5	1.0	8	1.1	17	0.7
Universidad de La Rioja	7	1.0	5	1.0	8	1.1	17	0.7
Universidad de Málaga	7	1.0	5	1.0	10	0.9	12	1.2
Universidad de Murcia	7	1.0	6	0.9	9	1.0	16	0.8
Universidad de Oviedo	7	1.0	5	1.0	8	1.1	17	0.7
Universidad de Salamanca	7	1.0	5	1.0	9	1.0	14	1.0
Universidad de Sevilla	7	1.0	6	0.9	9	1.0	7	1.8
Universidad del País Vasco	7	1.0	5	1.0	7	1.2	17	0.7
Universidad Nebrija	7	1.0	1	1.4	12	0.7	17	0.7
Universidad Politécnica de Cartagena	7	1.0	4	1.1	9	1.0	15	0.9
Universidad Pública de Navarra	7	1.0	5	1.0	10	0.9	10	1.4
Universidad Rey Juan Carlos	7	1.0	5	1.0	10	0.9	14	1.0
Universidade da Coruña	7	1.0	5	1.0	9	1.0	15	0.9
Universitat Jaume I de Castellón	7	1.0	4	1.1	9	1.0	17	0.7
Universitat Ramon Llull	7	1.0	2	1.3	10	0.9	19	0.5
Mondragón Unibertsitatea	8	0.9	2	1.3	15	0.4	11	1.3
Universidad de Cádiz	8	0.9	6	0.9	10	0.9	14	1.0
Universidad de Huelva	8	0.9	6	0.9	11	0.8	16	0.8
Universidad de Jaén	8	0.9	6	0.9	11	0.8	15	0.9
Universidad de León	8	0.9	6	0.9	9	1.0	18	0.6
Universidad de Valladolid	8	0.9	6	0.9	10	0.9	12	1.2
Universidad San Pablo-CEU	8	0.9	3	1.2	12	0.7	20	0.4
Universidad de Castilla-La Mancha	9	0.8	7	0.8	10	0.9	18	0.6
Universidad de Extremadura	9	0.8	6	0.9	11	0.8	16	0.8
Universidad de La Laguna	9	0.8	6	0.9	9	1.0	21	0.3
Universidad de Las Palmas de Gran Canaria	9	0.8	6	0.9	11	0.8	21	0.3
Universidad Pontificia Comillas	9	0.8	2	1.3	14	0.5	21	0.3
Universitat Internacional de Catalunya	9	0.8	4	1.1	14	0.5	18	0.6
Universitat Oberta de Catalunya	9	0.8	7	0.8	10	0.9	19	0.5
Vic-Universidad Central de Catalunya	9	0.8	5	1.0	11	0.8	23	0.1
UNED	10	0.7	8	0.6	10	0.9	14	1.0
Universidad A Distancia de Madrid	11	0.6	4	1.1	17	0.2	21	0.3
Universidad Cardenal Herrera-CEU	11	0.6	4	1.1	14	0.5	24	<0,1
Universidad Católica de Valencia	11	0.6	5	1.0	16	0.3	21	0.3
Universidad Francisco de Vitoria	11	0.6	7	0.8	13	0.6	22	0.2

Note: Universities are ordered from the highest to the lowest global, teaching, research and innovation and technical development index value.
Source: BBVA Foundation-Ivie.

Table 10. U-Ranking Volume for teaching, research and innovation and technical development

University	Global		Teaching		Research		Innovation and tech. development	
	Ranking	Index	Ranking	Index	Ranking	Index	Ranking	Index
Universidad Complutense de Madrid	1	4.4	1	4.7	1	4.5	9	3.1
Universitat de Barcelona	2	3.9	2	3.6	2	4.2	4	4.8
Universitat de València	3	3.4	3	3.2	5	3.5	6	3.8
Universidad de Granada	4	3.2	3	3.2	4	3.6	14	2.3
Universidad de Sevilla	4	3.2	5	2.9	6	3.1	3	5.8
Universidad del País Vasco	5	3.1	4	3.1	5	3.5	16	2.0
Universitat Politècnica de València	6	2.9	6	2.8	10	2.5	2	6.3
Universidad Politécnica de Madrid	7	2.8	7	2.6	9	2.6	1	6.6
Universitat Autònoma de Barcelona	7	2.8	9	2.3	3	3.7	10	3.0
Universitat Politècnica de Catalunya	8	2.7	8	2.4	8	2.7	3	5.8
Universidad Autónoma de Madrid	9	2.4	11	2.1	7	2.9	12	2.6
Universidad de Zaragoza	10	2.3	10	2.2	11	2.4	7	3.5
UNED	11	2.1	13	1.7	10	2.5	11	2.8
Universidade de Santiago de Compostela	12	2.0	13	1.7	12	2.2	8	3.4
Universidad de Málaga	13	1.9	12	1.9	13	1.8	13	2.4
Universidad Carlos III de Madrid	14	1.8	15	1.5	13	1.8	5	3.9
Universidad de Murcia	15	1.6	14	1.6	13	1.8	23	1.3
Universidad de Salamanca	15	1.6	14	1.6	14	1.6	20	1.6
Universidad de Alicante	16	1.5	15	1.5	16	1.3	9	3.1
Universidad de Oviedo	16	1.5	15	1.5	14	1.6	25	1.0
Universidad de Valladolid	17	1.4	16	1.4	16	1.3	17	1.9
Universidad Rey Juan Carlos	17	1.4	16	1.4	16	1.3	22	1.4
Universidad de Alcalá	18	1.3	17	1.3	17	1.2	20	1.6
Universitat Pompeu Fabra	18	1.3	20	1.0	13	1.8	18	1.8
Universidad de Castilla-La Mancha	19	1.2	18	1.2	15	1.4	26	0.9
Universidad de Córdoba	19	1.2	19	1.1	16	1.3	22	1.4
Universidade de Vigo	19	1.2	18	1.2	16	1.3	21	1.5
Universidad de Cádiz	20	1.1	19	1.1	18	1.1	24	1.2
Universidad de Cantabria	21	1.0	22	0.8	19	1.0	19	1.7
Universidad de Extremadura	21	1.0	20	1.0	19	1.0	26	0.9
Universidad de La Laguna	21	1.0	19	1.1	16	1.3	32	0.3
Universidade da Coruña	21	1.0	20	1.0	19	1.0	26	0.9
Universitat Rovira i Virgili	21	1.0	21	0.9	17	1.2	19	1.7
Universidad de Las Palmas de Gran Canaria	22	0.9	20	1.0	20	0.9	31	0.4
Universidad de Navarra	22	0.9	19	1.1	21	0.8	30	0.5
Universidad Miguel Hernández de Elche	22	0.9	22	0.8	21	0.8	15	2.1
Universitat de les Illes Balears	23	0.8	23	0.7	20	0.9	25	1.0
Universitat Jaume I de Castellón	23	0.8	21	0.9	20	0.9	30	0.5
Universitat Ramon Llull	23	0.8	20	1.0	22	0.7	31	0.4
Universidad de Almería	24	0.7	23	0.7	22	0.7	29	0.6
Universidad de Jaén	24	0.7	22	0.8	22	0.7	27	0.8
Universidad Pablo de Olavide	24	0.7	23	0.7	22	0.7	29	0.6
Universitat de Girona	24	0.7	23	0.7	20	0.9	30	0.5
Universitat de Lleida	24	0.7	24	0.6	22	0.7	29	0.6
Universidad de Huelva	25	0.6	24	0.6	23	0.5	30	0.5
Universidad de León	25	0.6	24	0.6	22	0.7	31	0.4
Universidad Pública de Navarra	25	0.6	25	0.5	23	0.5	27	0.8
Universitat Oberta de Catalunya	25	0.6	24	0.6	22	0.7	31	0.4
Universidad de Burgos	26	0.5	25	0.5	24	0.4	28	0.7
Universidad de Deusto	26	0.5	23	0.7	23	0.5	33	0.2
Universidad San Pablo-CEU	26	0.5	23	0.7	24	0.4	33	0.2
Universidad Politécnica de Cartagena	27	0.4	26	0.4	24	0.4	31	0.4
Universidad Pontificia Comillas	27	0.4	23	0.7	26	0.2	34	0.1
Universidad Católica de Valencia	28	0.3	25	0.5	26	0.2	33	0.2
Universidad de La Rioja	28	0.3	27	0.3	25	0.3	33	0.2
Mondragón Unibertsitatea	29	0.2	26	0.4	27	0.1	31	0.4
Universidad Cardenal Herrera-CEU	29	0.2	25	0.5	26	0.2	35	<0,1
Universidad Francisco de Vitoria	29	0.2	27	0.3	26	0.2	34	0.1
Universidad Nebrija	29	0.2	28	0.2	27	0.1	34	0.1
Universitat Internacional de Catalunya	29	0.2	27	0.3	27	0.1	34	0.1
Vic-Universidad Central de Catalunya	29	0.2	27	0.3	26	0.2	35	<0,1
Universidad A Distancia de Madrid	30	0.1	28	0.2	28	<0,1	35	<0,1

Note: Universities are ordered from the highest to the lowest global, teaching, research and innovation and technical development index value.
Source: BBVA Foundation-Ivie.

Figure 14. U-Ranking. Teaching vs. Research

Index

a) Public and private universities
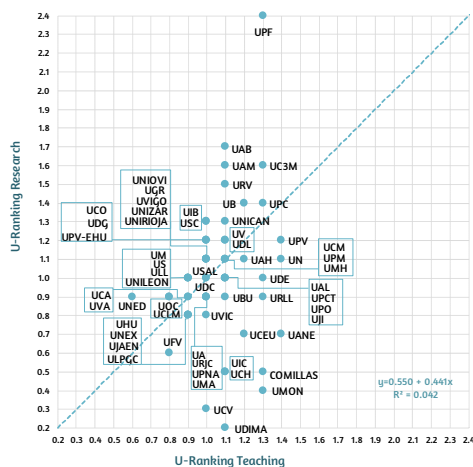
b) Public universities
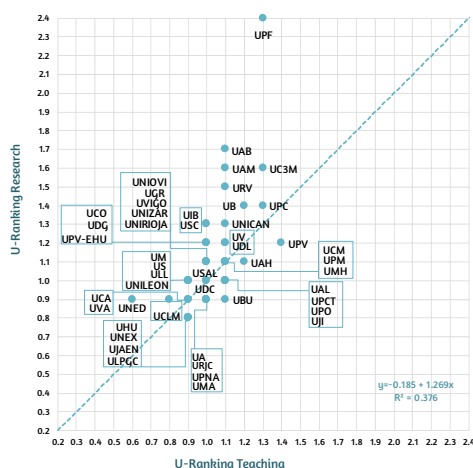
c) Private universities
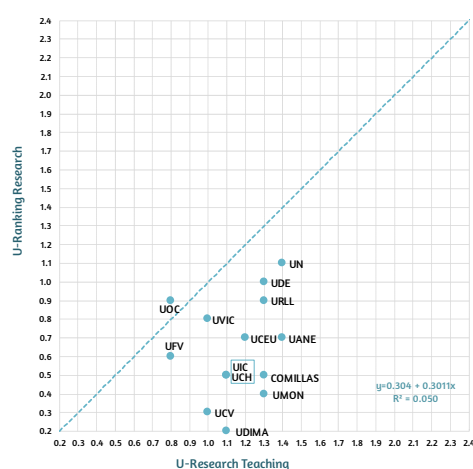
Note: See appendix 2 for a list of abbreviations.

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 that depend 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 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, research and innovation and technological development—, as well as in the global index of results. If we take the average of the whole 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 18 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 34 points lower) and also in innovation and technological development (65 points below the national average).

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 can observe how the distribution of both types of universities along the range of values of the index is a clear indicator of the diversity in the results.

In panel *a* we observe that public universities are distributed along the whole range of values of the global index of U-Ranking, but 12 are below

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average. In the case of the private ones, 70% (10) 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 70% of them (10) are above the average values, which is only true for 42% of the public universities. Panel *c* shows that research is dominated by public universities and only one private university exceeds 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 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 15. Average performance of the Spanish public and private universities

Total of universities = 100
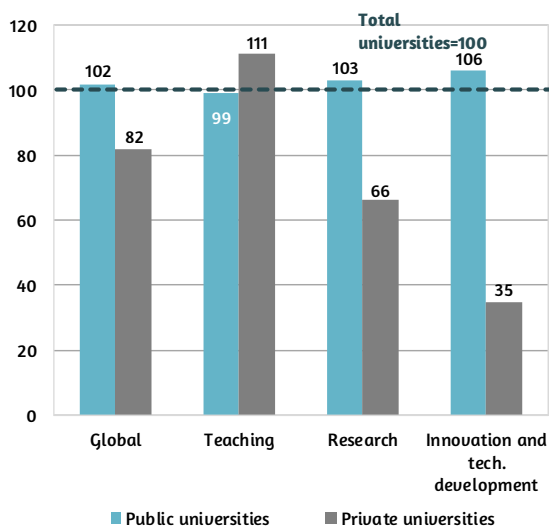
Source: BBVA Foundation-Ivie.

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

Index and number of universities with the same index

a) Global
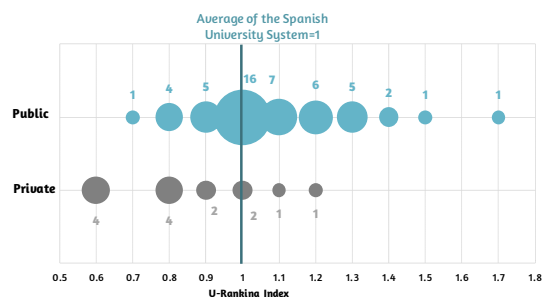
b) Teaching
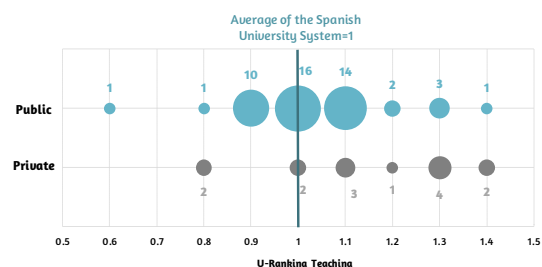
c) Research
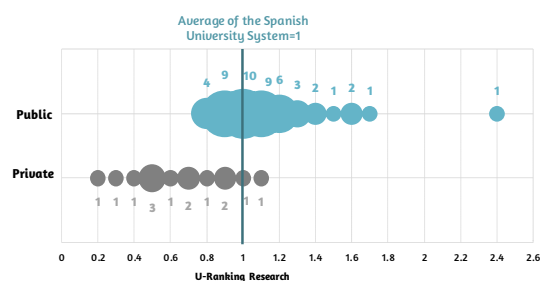
Source: BBVA Foundation-Ivie.

4.9. U-RANKING 2018 AND 2019

The aim of this section is to confirm the stability of results among the different editions of U-Ranking. Direct comparisons between the 2018 and 2019 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.

The results obtained by 2019 U-Ranking are highly correlated with those presented in 2018. As table 11 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 0.95 in all cases. This result is not surprising but it is important because it means that data updates have not significantly altered the results confirming the reliability of the methodology used.

Table 11. Correlation coefficients of 2018 and 2019 U-Rankings				
	Performance		Volume	
	Ranking	Index	Ranking	Index
Global	0.98	0.95	1.00	1.00
Teaching	0.98	0.93	1.00	1.00
Research	0.98	0.94	1.00	1.00
Innovation and Technological Development	0.98	0.96	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 2019 and on the vertical axis the results for 2018, both for U-Ranking (figure 17) and for U-Ranking

Volume (figure 18). As can be observed in the case of the volume index, the correlation is almost perfect, therefore, few changes are produced.

Figure 17. U-Ranking (performance) of the Spanish public universities. 2018 and 2019
Index
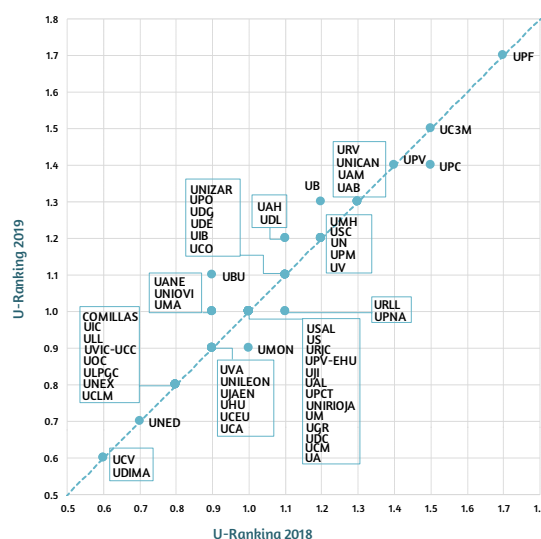
Note: Cardenal Herrera-CEU and Francisco de Vitoria are not included because they are analyzed for the first time in U-Ranking 2019. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie.

Figure 18. U-Ranking Volume of the Spanish public universities. 2018 and 2019
Index
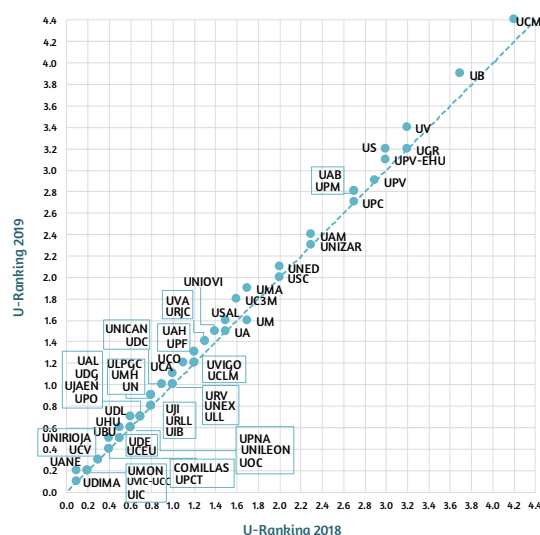
Note: Cardenal Herrera-CEU and Francisco de Vitoria are not included because they are analyzed for the first time in U-Ranking 2019. See appendix 2 for a list of abbreviations.

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 assessments and plans to boost internationalization vary greatly from one region to another. On the other hand, the socio-economic 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 19 shows the averages of the 2019 U-Ranking index of all universities, both public and private, of each autonomous community. The three 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.

Figure 19. Performance of the regional university systems in U-Ranking. 2019

Spain = 100

●# Number of universities considered
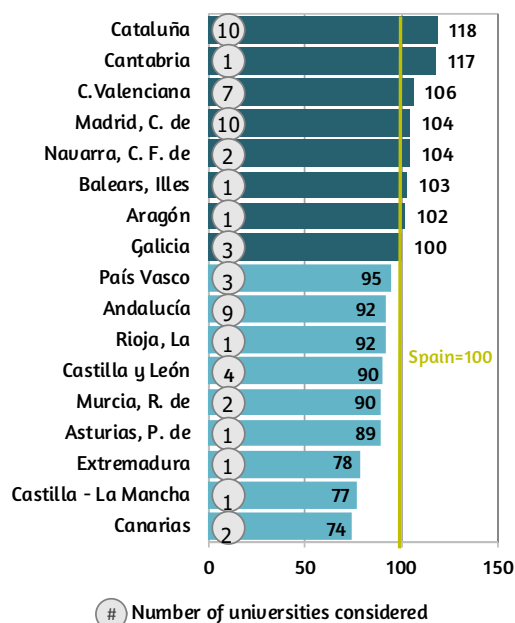
Source: BBVA Foundation-Ivie.

The results show, firstly, large differences regarding performance among the regional university systems: the autonomous community with the highest performance exceeds by 46 percentage points the region with the lowest performance.

The best-performing university systems are those of Catalonia (10 universities analyzed in U-Ranking) and Cantabria (with just one university), which have performance indices of 18% and 17%, respectively. They are followed by the Valencian Community (+6%), Madrid and Navarra (+4%), the Balearics Islands and Aragon at a distance of +3% and 2%, respectively, and Galicia at the average.

Among the regional university systems with performance levels below the average, we can distinguish several levels: some do not reach 10% —Basque Country, Andalusia or La Rioja—, others are around 10% —Castile and Leon, Murcia and Asturias—, while other communities are over 20%, as in the cases of Extremadura, Canary Islands 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 2018 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 Castile and Leon and Asturias and the relative drop of Catalonia, Valencian Community and Murcia. 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, Catalonia goes from an index of 120 in 2018 to one of 118 in 2019, but continues to head the ranking. Nor does the Valencian Community lose third place, although it moves closer to the average.

Figure 20. Evolution of the regional university systems. 2018 and 2019

Spain = 100
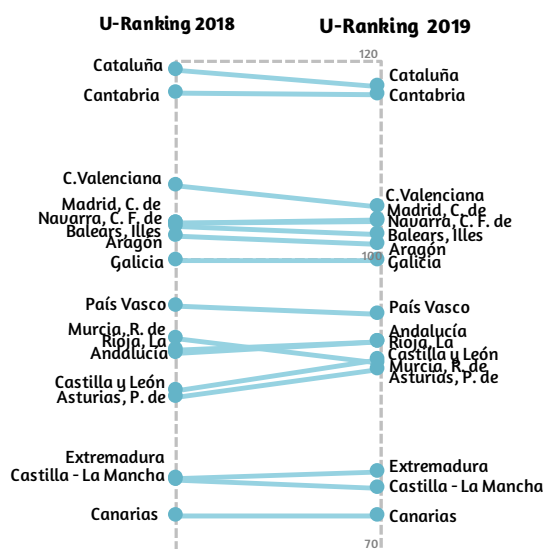
Source: BBVA Foundation-Ivie.

4.11. UNIVERSITY DROPOUT RATES

In the indicator dashboard on which U-Ranking is based, we presented the first-year drop-out rate, together with the success rate and the evaluation rate, as a reasonable approximation to teaching production, that is, the results obtained by students at a given university. In this section we shall extend the drop-out analysis by considering the **overall degree program drop-out rate,** which is defined as the percentage of students of a cohort first enrolled in academic year X in Bachelor's degree program T at university U, who, without having completed the degree, were not enrolled in that program for four consecutive academic years.

This overall degree program drop-out rate is supplemented by the overall **Spanish University System (SUE) drop-out rate**, which can be defined as the percentage of students of a cohort first enrolled in the SUE in academic year X who were not enrolled in any Bachelor's degree program at any Spanish university for four consecutive academic years and have not completed a degree.

In both cases, the term "overall" is intended to indicate that the drop-out rate in question is the cumulative drop-out rate—from a particular

Bachelor's degree program or from the university system as a whole—over the first, second and third years of university enrollment.

The reason for studying these indicators is that a high drop-out rate reflects problems that should penalize a university in its positions in U-Ranking. A high drop-out rate could be attributable, for instance, to shortcomings in curriculum design or teaching quality in a given Bachelor's degree that lead students to drop out, or to low demand for a particular degree program, so that it attracts students who have not been able get into their program of first choice and so are less vocationally committed.

However, as we shall try to show in this section, the drop-out rate may also be influenced by environmental factors beyond the universities' control, such as how well the pre-university education system has prepared students for university or a lack of difference in average salaries and unemployment rates between graduates and non-graduates in a university's catchment area, owing to strong demand for unskilled labour. As we shall see, however, institutions sharing the same environment may have different degree program drop-out rates depending on course design or teaching quality.

Drop-out rates are relevant not only as an indicator of an institution's performance but from the point of view of economic efficiency and the management of public or private resources. Despite the growing proportion of private universities, the Spanish university system is mostly public. In the public part of the system, fees cover only a small percentage of the total cost of the education provided, which is financed mainly through transfers from the autonomous communities to the universities, i.e., out of the taxes paid by individuals and businesses. As chart 1 shows, when a student drops out of a Bachelor's degree (33.3% do), it may be to change to a different degree program at the same or a different university, thus remaining in the university system (11.9%), or to give up university studies completely (21.4%).

This latter 21.4% can be understood as a definitive failure of the university education system and a loss of the investment in human capital represented by the cost of the university place those students occupied. If a drop-out occurs after the first year, the cumulative amount of wasted funding increases.

Chart 1. Drop-out rates in Spanish presence-based universities. 2012-2013 cohort
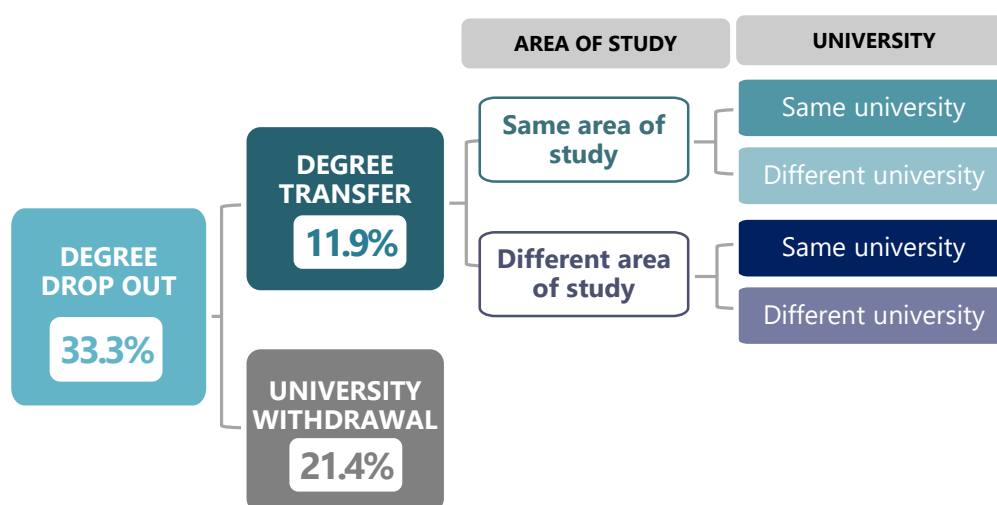

```
                                              AREA OF STUDY          UNIVERSITY

                                                                   Same university
                              DEGREE          Same area of
                             TRANSFER            study            Different university
                              11.9%
         DEGREE                               Different area      Same university
        DROP OUT                               of study
         33.3%                                                    Different university

                            UNIVERSITY
                            WITHDRAWAL
                              21.4%
```

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

In the public universities these costs are borne mainly by taxpayers, who jointly finance students' education. In the private universities the costs are financed by students' families, but failure to complete a program still entails a loss, as it represents an investment of resources that could have been used for other more productive purposes.

Panel *a* of figure 21 shows the degree program drop-out rate, i.e., those who drop out of their initial degree program to switch to a different program at university; and panel *b* shows the SUE drop-out rate, i.e., those who abandon university studies altogether. The information is broken down by type of university, also indicating the percentage drop-out rate in each year of the degree program.

Various conclusions can be drawn from this figure. First, the figures are very high. One-third of the students who enrol in a Bachelor's degree do not complete it and one-fifth drop out of university education without completing a degree. Second, the mode of instruction (presence-based or online) is a determining factor.

Online universities have degree program dropout rates more than double, and SUE drop-out rates almost four times, those of presence-based universities. More than half the students enrolled in online universities do not complete their university studies, which says a great deal about how difficult it is (despite tutorials) for an individual to stay motivated and set aside time for study. Added to this, a larger proportion of students at online universities left secondary education some years ago and have been out of full-time education for a while; a higher percentage combine university study with a job; and many find it impossible, or extremely difficult, to have much interaction with other students. This singularity will lead us, later, to focus our analysis on the presence-based universities.

Second, although the differences are much smaller than in the comparison between presence-based and online universities, degree program drop-out rates in presence-based universities are almost 8 percentage points lower in the private universities than in the public ones. The difference shrinks to four points when we look at the SUE drop-out rate. Several factors converge in this finding. On the one hand, given much less restrictive entry mechanisms than a hierarchy of admission exam grades (as found in the public universities), the percentage of students at private universities who are doing their first-choice degree program is likely to be higher on average than in the public system. This means that the private universities are likely to have more vocationally committed students, who are therefore less likely to change degree. The higher levels of household income among students at private universities may also moderate the impact of adverse economic circumstances that could force a student to leave higher education. And consistent with the logic behind the inclusion of the drop-out rate in U-Ranking as a variable related

to the functioning of the universities, the private universities may, on the average, be managing the relationship and monitoring their students better, so as to prevent drop-out.

Figure 21. Overall drop-out rate by university type and drop-out year. SUE. 2012-2013 cohort
Percentage
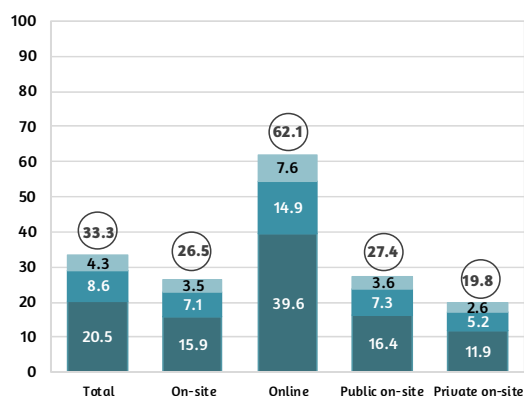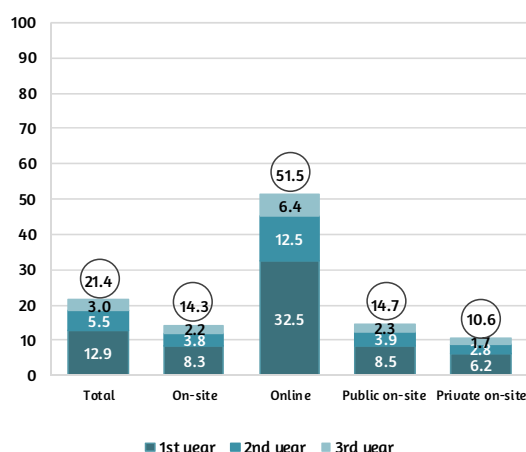
a) Degree program drop-out rate

b) SUE drop-out rate

■ 1st year ■ 2nd year ■ 3rd year

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

Third, most students who drop out, whether from the initial degree program or from the university system, do so in the first year of their studies, indicating that students quickly realise whether or not they made the right choice. However, the drop-out rate in the second and third year is not insignificant. From the economic perspective we referred to earlier, the cost of late drop-out is higher, which is why universities need tutoring, mentoring or orientation systems during their degree programs to reduce these figures.

The drop-out rates we have analyzed so far are an average for degrees in different brnaches of knowledge, which may be very heterogeneous in their drop-out rates. Figure 22 therefore shows the degree program and SUE drop-out rates for each of the five branches of knowledge. In each branch, the results are broken down by type of ownership (public or private), so as to qualify some of the conclusions drawn earlier as to the effect of public/ private ownership on drop-out rates.

Various conclusions can be drawn from figure 22. First, focusing on the degree program drop-out rate, we see that Engineering and Architecture (36%), Arts and Humanities (33.4%) and Sciences (31.1%) have significantly higher drop-out rates than Social Sciences and Law (23.8%) and, above all, Health Sciences (15.5%). These results may be affected by various factors, whose impact we need to clarify. The low drop-out rate in Health Sciences may have to do with the vocational nature of health science studies, which influences the average cut-off marks, which is to say, the initial quality of the students. As an indicator of this double factor we can use the so-called preference ratio, which we define as the ratio of the number of first-choice pre-enrollments in a given branch of knowledge and the number of places offered in that branch. For Health Sciences the preference ratio for the cohort that started their university studies in the 2012-2013 academic year is 3.75, that is to say, there are nearly four first-choice applicants for every place offered. The places will therefore almost certainly be occupied by students for whom Health Sciences was their first choice and whose grades are on average higher than those of students in other branches in which there is less demand.

The preference ratio is lowest in Sciences (1.16), Arts and Humanities (1.26) and Engineering and Architecture (1.25) and slightly higher in Social Sciences and Law (1.44). That is, we see an almost perfect inverse relationship between drop-out rates and the preference ratio, which would appear to confirm how important it is that students study for a degree that motivates them, because it was their first choice after secondary education. It can also be taken to confirm the importance of the initial quality of the students, if we accept that, given a fixed supply, the higher cut-off mark resulting from higher demand acts as a selection mechanism.

Figure 22. Overall drop-out rate by university ownership and branch of knowledge. Presence-based universities. SUE. 2012-2013 cohort. Percentage
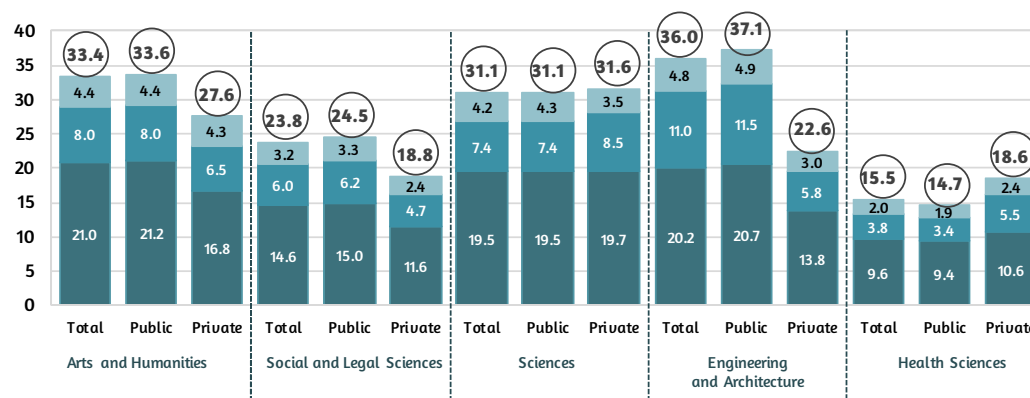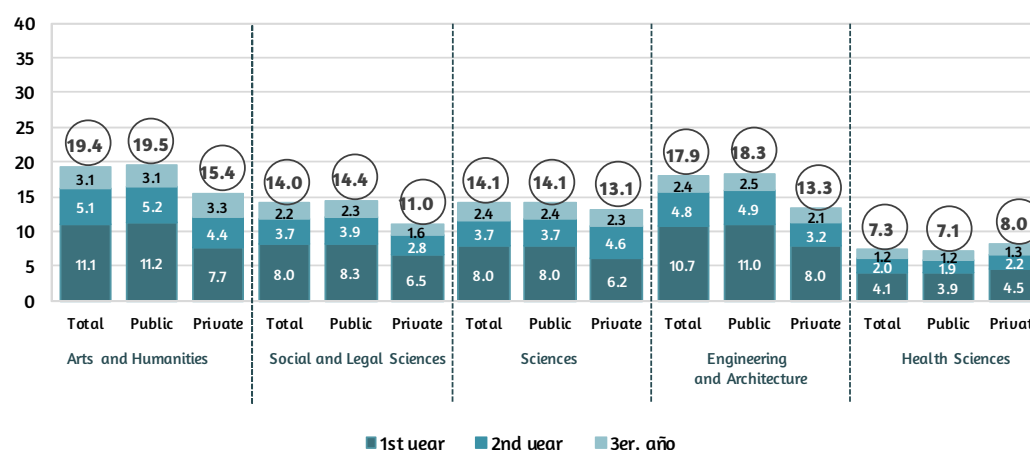
a) Degree program drop-out rate

b) SUE drop-out rate

■ 1st year ■ 2nd year ■ 3er. año

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

If we analyze the percentage of students enrolled (definitively enrolled, not pre-enrolled) in each branch of knowledge for whom that branch was their first choice, we find no major differences between branches[22]. The highest percentage (70.8%) is found in Arts and Humanities, followed by Social Sciences and Law (70.3%), Health Sciences (67.5%), Sciences (65.1%) and Engineering and Architecture (63.3%). There-fore, if the proportion of students enrolled in their first choice is fairly similar across all branches, the main determining factor may be the pressure of demand on the places offered, which inevitably leads to higher cut-off marks, indicating higher quality students. The average cut-off marks for the different branches of knowledge for academic year 2012-2013 seem to indicate as much, as the highest (9.02) is found in Health Sciences, which is the branch with the lowest drop-out rate, whereas those of the other branches are all fairly similar: 7.00 for Sciences, 6.45 for Social Sciences and Law and Engineering and Architecture, and 6.01 for Arts and Humanities.

[22] Given that the SIIU does not provide this information until the 2015-2016 academic year but we are analyzing the 2012-2013 cohort, these figures should be taken as an approximation, although structural changes are unlikely in such a short period of time.

A third factor to explain the drop-out rate, in combination with the previous two (vocational commitment and initial student quality), though more difficult to assess objectively, is the intrinsic difficulty of certain branches of knowledge. A branch of knowledge that is similar to another in its proportion of vocationally committed students and student quality (cut-off marks) may nevertheless have higher drop-out rates if its content is more difficult. To approximate this natural difficulty we could use the success rate, i.e., the number of students who pass the exams as a percentage of the total number enrolled (strictly speaking, number of credits passed as a percentage of total credits evaluated). The results for the 2012-2013 academic year for the different branches of knowledge seem to be closely correlated with drop-out rates. Thus, the lowest success rate (66.7%) is found in Architecture and Engineering, followed by Sciences (72.3%), Arts and Humanities (80.2%), Social Sciences and Law (81.4%) and Health Sciences (87.3%).

In short, the drop-out rate for each branch is determined by the confluence of a set of factors (vocational commitment, initial student quality and intrinsic degree program difficulty), each with a different relative importance, which we will determine later through a more detailed econometric analysis but for which we have some initial empirical evidence.

A second observation regarding the influence of the branches of knowledge on the degree program drop-out rate resulting from figure 22 is that although the private universities' results in terms of drop-out rates are generally better, they are not better systematically across all branches. The private universities' results are clearly better in Engineering and Architecture, Arts and Humanities and Social Sciences and Law, but slightly worse in Sciences and markedly worse in Health Sciences. The result in Health Sciences may indicate that a significant part of the demand for Health Sciences in private universities is fed by the demand left unsatisfied by the public system, where we saw that the number of qualified (first choice) applicants far exceeds the supply. The poorer result in Health Sciences may

therefore reflect a generally lower level of qualification among private university Health Sciences students compared to public system Health Sciences students.

Panel *b* of figure 22 shows the SUE drop-out rate, i.e. the rate of drop-out from the university system as a whole, by branch of knowledge and university ownership (public or private). The figures confirm the results and conclusions obtained for the degree program drop-out rate, just that the differences between branches and between public and private universities are less pronounced. This finding suggests, on the one hand, that the determinants of the ordering are the same and, on the other, that the determinants of level must include neglected factors that give rise to the greater similarity between rates. One such factor could be family income, which could lead to drop-out for economic rather than academic reasons, irrespective of the branch of knowledge. We must not forget that the cohort who started their university education in the 2012-2013 academic year suffered the full intensity of the last economic crisis.

As in any average, although the information and the breakdown by branch of knowledge have all been taken into account, a certain amount of heterogeneity remains. In other words, we know that the average degree program drop-out rate for all the branches is 26.5% for presence-based universities of all kinds (public and private); but we do not know whether the majority of universities are close to that mean or whether there is a considerable dispersion around the mean. Figures 23 and 24 shed light on this question for the branches of knowledge and for public-private ownership, respectively.

Figure 23 shows, for the degree program drop-out rate (panel *a*) and for the SUE drop-out rate (panel *b*), the number of universities with drop-out rates within the bands marked on the x axis. Looking at the drop-out rate for all the branches of knowledge (grey shaded area) in panel *a*, we see that most of the universities (29) are situated in the same band as the average (25-30%), while 11 are in a lower band (20-25%) and eight in a higher band (30-35%). The concentration around the mean is high, so the dispersion is not very great.

Figure 23. Distribution of drop-out rates by branch of knowledge. Presence-based universities. 2012-2013 cohort
Percentage and number of universities

a) Degree program drop-out rate
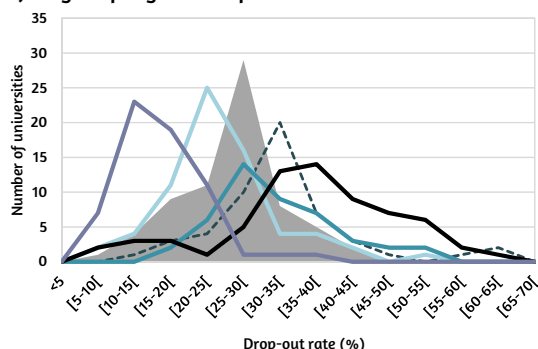
b) SUE drop-out rate
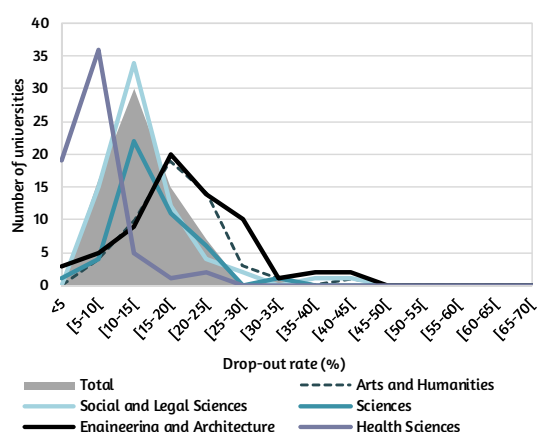
Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

Looking at the branches of knowledge separately, we see that the peaks (largest number of universities within a band) replicate the ordering in figure 2, with Health Sciences in the lowest band, followed in the higher bands by Social Sciences and Law, Sciences, Arts and Humanities, and Engineering and Architecture. The point to be noted (which the figure illustrates) is that in the areas with higher degree program drop-out rates the dispersion increases and the distribution is skewed to the right (positive); in other words, there is a not insignificant number of universities with high degree program drop-out rates. In Engineering and Architecture, 14 universities are in the 35-40% band, but there are nine in the 40-45% band, seven in the 45-50% band and six in the 50-55% band. To put it another way, the average degree program drop-out rate of 36%, which is already high, is masking

the fact that a group of universities have significantly higher rates.

Panel *b* of figure 23 analyzes the overall SUE drop-out rate. Here too, the orderings by branch of knowledge are the same, just with lower dispersion. We also find a peak at the upper end of the distribution for the Engineering and Architecture branch, that is to say, a small group of universities (four) with drop-out rates of between 35 and 45%.

Figure 24 provides, in panels *a* and *b*, an equivalent analysis for degree program and SUE drop-out rates, distinguishing between public and private universities. The blue curve (public universities), more shifted towards the right than the grey one (private universities), confirms the result obtained earlier, namely, that the private universities have lower drop-out rates.

The most interesting point, in our opinion, is the almost bimodal distribution of the private universities (i.e., with two peaks, one at the mode and another at the upper end of the distribution), together with a markedly greater dispersion in the degree program drop-out rate. These data show that the heterogeneity among the private universities is much greater than among the public ones. In the SUE drop-out rate (panel *b*), the homogeneity among both public and private universities is very high, but one private university has an SUE drop-out rate in the 30-35% band, whereas no public university has a rate as high as that.

Needless to say, each branch of knowledge may include degree programs with very different drop-out rates. Between the branch-of-knowledge level and the highly detailed degree-program level (which would be very difficult to include in a general analysis) lies the area-of-study level, which is shown in figure 12 and which gives a more detailed picture than the branches of knowledge. This table essentially confirms the conclusions obtained for the branches. The highest drop-out rates are found in the areas of Computer Science, Mathematics and Statistics, Physical Sciences, Chemistry and Geology, and Agriculture, Livestock and Fisheries, that is, the areas generated mainly by the branches of Sciences, and Engineering and Architecture.

Table 12. SUE drop-out rate by area of study. Presence-based universities. 2012-2013 cohort

Percentage

	AREAS OF STUDY	Degree drop-out rate	Degree transfer rate	University drop-out rate
1	Pre-school teacher training	11.0	3.3	7.7
	Primary school teacher training	14.7	4.7	10.0
	Other teacher education training	19.2	7.4	11.8
2	Audiovisual Techniques and Media Arts	18.7	7.8	10.9
	Arts	33.3	12.6	20.7
	Languages	31.8	14.6	17.2
	Humanities	37.0	14.9	22.2
3	Psychology	18.2	8.6	9.7
	Economy	32.6	17.0	15.5
	Behavioral and Social Sciences	30.2	14.4	15.8
	Journalism and information communication	22.1	10.8	11.4
	Business Administration	29.8	11.7	18.1
	Trade and business education	29.3	12.3	17.0
	Law	26.8	13.9	12.9
4	Life Sciences	25.8	13.9	11.8
	Physical, Chemical and Geological Sciences	36.1	19.5	16.6
	Mathematics and Statistics	41.7	24.2	17.5
	Computer Science	42.9	16.9	26.0
5	Engineering	34.1	18.3	15.8
	Architecture and construction	33.9	18.3	15.6
6	Agriculture, livestock and fisheries	42.6	16.3	26.3
	Veterinary	17.0	9.9	7.1
7	Medicine	12.9	8.5	4.5
	Nursing and health care	11.3	6.4	4.9
	Other health sciences	18.7	9.2	9.5
	Social work	18.7	5.9	12.9
8	Sports	15.7	7.0	8.7
	Tourism and Catering	28.5	8.3	20.2
	Other services	24.9	8.5	16.4
	Total	26.5	12.2	14.3

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

Figure 24. Distribution of drop-out rates by university ownership (public or private). Presence-based universities. 2012-2013 cohort
Percentage and number of universities

a) Degree program drop-out rate
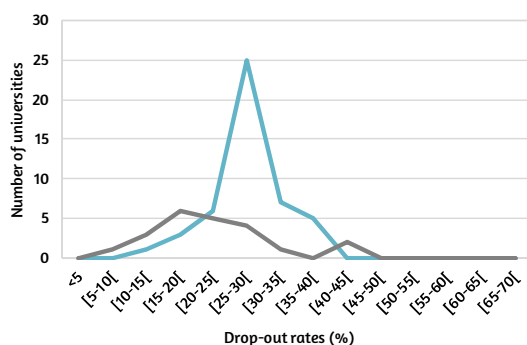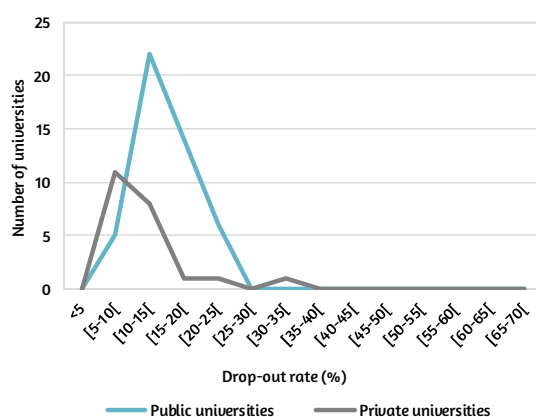
b) SUE drop-out rate

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

However, some results need qualifying. Among the areas that generate average drop-out rates in the branch of Social Sciences and Law, some have some significantly lower drop-out rates than the branch as a whole, especially the strongly vocational areas associated with teaching, such as infant and junior school teacher training and education sciences. Psychology and journalism also have below-average drop-out rates for the Social Sciences and Law branch. Among the areas belonging to the Humanities branch of knowledge, audiovisual technologies and media

have a significantly below-average drop-out rate. In short, subject to certain qualifications such as those mentioned, the results obtained from a more detailed breakdown of the branches of knowledge remain essentially unchanged.

Having presented an overall analysis of the system as regards the determinants of drop-out rates and their variations, having regard to variables such as branches of knowledge and university ownership, we shall now analyze these variables in each of the institutions for which information is available. Figure 25 shows simultaneously for each university the degree program drop-out rate (grey area) and the SUE drop-out rate (green dot). Figure 26 provides a breakdown of the degree program drop-out rate in each of the three academic years, while figure 27 does the same for the SUE drop-out rate.

Figure 25 confirms that distance learning, on account of the features discussed earlier, including asynchrony, student profile and lack of direct contact with faculty, generates very high degree program drop-out rates. UNED, UDIMA and Universitat Oberta de Catalunya rank last in this classification, with degree program drop-out rates of more than 50%. Another very relevant characteristic of these universities is that the SUE drop-out rate, though slightly lower, is very close to the degree program drop-out rate. This indicates that in these types of universities, discontinuing a Bachelor's degree almost automatically means discontinuing higher education.

The higher drop-out rates found in Engineering and Architecture are apparent in the ordering in figure 25, where the polytechnic universities of Valencia, Catalonia, Cartagena and, to a lesser extent, Madrid rank lower (higher drop-out rates). One important difference with respect to the pattern observed in the online universities is that in these polytechnic universities the difference between the degree program drop-out rate and the SUE drop-out rate is much larger, indicating that students are more likely to switch degree or university before leaving higher education completely, i.e., to adjust their preferences in response to a negative experience with their initial choice.

Figure 25. Overall degree program and SUE drop-out rate by university. 2012-2013 cohort. Percentage

University	University drop-out rate	Degree drop-out rate
Camilo José Cela	7.2	9.8
León	5.7	10.9
Pontificia de Salamanca	8.4	12.4
Mondragón Unibertsitatea	8.0	13.9
Alfonso X El Sabio	6.4	14.3
Deusto	6.4	15.5
Salamanca	8.7	16.8
Ramon Llull	8.6	17.6
Francisco de Vitoria	7.2	18.0
Pablo de Olavide	11.4	18.5
Católica de Valencia San Vicente Mártir	10.6	18.9
Pontificia Comillas	8.2	19.2
Internacional de Catalunya	7.0	19.5
Rey Juan Carlos	11.7	19.7
Europea de Madrid	12.9	20.6
Navarra	7.6	20.7
Católica San Antonio	12.9	20.9
València	13.6	21.8
Internacional Valenciana	15.4	21.9
Abat Oliba CEU	7.7	22.0
Lleida	11.6	22.4
Carlos III de Madrid	9.7	23.0
Pública de Navarra	12.1	23.4
Burgos	9.7	23.6
Vic-Universitat Central de Catalunya	12.2	24.0
Pompeu Fabra	9.4	24.5
Complutense de Madrid	14.0	25.0
País Vasco/Euskal Herriko Unibertsitatea	15.4	25.2
Santiago de Compostela	13.5	25.2
Barcelona	13.9	25.4
Autónoma de Madrid	12.9	25.7
Rovira i Virgili	11.3	25.9
Valladolid	10.5	26.0
Nebrija	13.3	26.0
San Pablo-CEU	10.5	26.8
Vigo	15.4	26.8
Extremadura	17.8	27.0
Girona	13.3	27.1
Granada	13.4	27.2
Córdoba	14.5	27.2
Miguel Hernández de Elche	17.4	27.2
Autònoma de Barcelona	14.2	27.3
Murcia	14.6	27.6
Sevilla	14.1	27.8
Cardenal Herrera-CEU	14.2	27.8
A Coruña	16.2	27.8
Alicante	15.8	28.0
Alcalá	13.5	28.0
Málaga	15.4	28.8
Cantabria	14.9	28.9
Almería	13.7	29.2
Politécnica de Madrid	11.7	29.3
Zaragoza	15.5	29.3
Jaén	15.6	29.7
La Rioja	14.1	30.3
Jaume I de Castellón	16.6	31.0
Castilla-La Mancha	17.9	31.1
Oviedo	17.1	32.6
Huelva	22.8	33.0
Internacional de La Rioja	28.2	33.3
Politécnica de Cartagena	22.4	34.5
Cádiz	16.6	34.8
Politècnica de Catalunya	15.2	35.7
Illes Balears	21.8	36.7
Las Palmas de Gran Canaria	23.8	37.8
Politècnica de València	23.6	37.8
La Laguna	22.9	39.9
Católica Santa Teresa de Jesús de Ávila	33.3	42.9
IE Universidad	22.4	43.9
Oberta de Catalunya	44.7	53.7
A Distancia de Madrid	35.3	60.6
UNED	54.3	65.2

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

Figure 26. Degree program drop-out rate by drop-out year and university. 2012-2013 cohort

University	Rate
Camilo José Cela	9.8
León	10.9
Pontificia de Salamanca	12.4
Mondragón Unibertsitatea	13.9
Alfonso X El Sabio	14.3
Deusto	15.5
Salamanca	16.8
Ramon Llull	17.6
Francisco de Vitoria	18.0
Pablo de Olavide	18.5
Católica de Valencia San Vicente Mártir	18.9
Pontificia Comillas	19.2
Internacional de Catalunya	19.5
Rey Juan Carlos	19.7
Europea de Madrid	20.6
Navarra	20.7
Católica San Antonio	20.9
València	21.8
Internacional Valenciana	21.9
Abat Oliba CEU	22.0
Lleida	22.4
Carlos III de Madrid	23.0
Pública de Navarra	23.4
Burgos	23.6
Vic-Universitat Central de Catalunya	24.0
Pompeu Fabra	24.5
Complutense de Madrid	25.0
País Vasco/Euskal Herriko Unibertsitatea	25.2
Santiago de Compostela	25.2
Barcelona	25.4
Autónoma de Madrid	25.7
Rovira i Virgili	25.9
Valladolid	26.0
Nebrija	26.0
San Pablo-CEU	26.8
Vigo	26.8
Extremadura	27.0
Girona	27.1
Granada	27.2
Córdoba	27.2
Miguel Hernández de Elche	27.2
Autònoma de Barcelona	27.3
Murcia	27.6
Sevilla	27.8
Cardenal Herrera-CEU	27.8
A Coruña	27.8
Alicante	28.0
Alcalá	28.0
Málaga	28.8
Cantabria	28.9
Almería	29.2
Politécnica de Madrid	29.3
Zaragoza	29.3
Jaén	29.7
La Rioja	30.3
Jaume I de Castellón	31.0
Castilla-La Mancha	31.1
Oviedo	32.6
Huelva	33.0
Internacional de La Rioja	33.3
Politécnica de Cartagena	34.5
Cádiz	34.8
Politècnica de Catalunya	35.7
Illes Balears	36.7
Las Palmas de Gran Canaria	37.8
Politècnica de València	37.8
La Laguna	39.9
Católica Santa Teresa de Jesús de Ávila	42.9
IE Universidad	43.9
Oberta de Catalunya	53.7
A Distancia de Madrid	60.6
UNED	65.2

■ Drop-out rate / 1st year ■ Drop-out rate / 2nd year ■ Drop-out rate / 3rd year

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

Figure 27. SUE drop-out rate by drop-out year and university. 2012-2013 cohort

University	Rate
León	5.7
Alfonso X El Sabio	6.4
Deusto	6.4
Internacional de Catalunya	7.0
Camilo José Cela	7.2
Francisco de Vitoria	7.2
Navarra	7.6
Abat Oliba CEU	7.7
Mondragón Unibertsitatea	8.0
Pontificia Comillas	8.2
Pontificia de Salamanca	8.4
Ramon Llull	8.6
Salamanca	8.7
Pompeu Fabra	9.4
Burgos	9.7
Carlos III de Madrid	9.7
Valladolid	10.5
San Pablo-CEU	10.5
Católica de Valencia San Vicente Mártir	10.6
Rovira i Virgili	11.3
Pablo de Olavide	11.4
Lleida	11.6
Rey Juan Carlos	11.7
Politécnica de Madrid	11.7
Pública de Navarra	12.1
Vic-Universitat Central de Catalunya	12.2
Católica San Antonio	12.9
Europea de Madrid	12.9
Autónoma de Madrid	12.9
Nebrija	13.3
Girona	13.3
Granada	13.4
Alcalá	13.5
Santiago de Compostela	13.5
València	13.6
Almería	13.7
Barcelona	13.9
Complutense de Madrid	14.0
La Rioja	14.1
Sevilla	14.1
Cardenal Herrera-CEU	14.2
Autònoma de Barcelona	14.2
Córdoba	14.5
Murcia	14.6
Cantabria	14.9
Politècnica de Catalunya	15.2
Málaga	15.4
País Vasco/Euskal Herriko Unibertsitatea	15.4
Internacional Valenciana	15.4
Vigo	15.4
Zaragoza	15.5
Jaén	15.6
Alicante	15.8
A Coruña	16.2
Jaume I de Castellón	16.6
Cádiz	16.6
Oviedo	17.1
Miguel Hernández de Elche	17.4
Extremadura	17.8
Castilla-La Mancha	17.9
Illes Balears	21.8
Politécnica de Cartagena	22.4
IE Universidad	22.4
Huelva	22.8
La Laguna	22.9
Politècnica de València	23.6
Las Palmas de Gran Canaria	23.8
Internacional de La Rioja	28.2
Católica Santa Teresa de Jesús de Ávila	33.3
A Distancia de Madrid	35.3
Oberta de Catalunya	44.7
UNED	54.3

■ Drop-out rate / 1st year ■ Drop-out rate / 2nd year ■ Drop-out rate / 3rd year

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

The better results of the private universities mentioned at the beginning of this section are apparent in figures 25 and 26, in which only five of the 20 universities with the lowest degree program drop-out rates are public (León, Salamanca, Pablo de Olavide, Rey Juan Carlos and Universitat de Valencia). However, the figures also reflect the previously mentioned heterogeneity among the private institutions, since, aside from the online universities (which as we have already said are different), the two universities with the highest degree program drop-out rates are also private.

Although the SUE drop-out rate data are also shown in figure 25, the information is probably easier to read in figure 27. The conclusions are very similar: the private universities have better results (there are only seven public universities in the top 20); the polytechnic universities perform less well, given that although the Valencia and Cartagena polytechnic universities have relatively good results, the Catalonia polytechnic university is situated in the middle of the table and the Madrid polytechnic university has a relatively low indicator; and as was to be expected, the online universities, together with one presence-based private university, occupy the bottom five places, with higher drop-out rates.

Lastly, although the separate results for each autonomous community are simply an aggregation of the results of the universities in each community and so depend very much on the public-private composition and the presence of polytechnic universities (which we have seen are core variables), figure 28 orders the autonomous communities by drop-out rate, with degree program drop-out rates in panel *a* and SUE drop-out rates in panel *b*. Castilla y León is the autonomous community with the lowest degree program and SUE drop-out rates. In previous figures we saw that various institutions in the Castilla y León university system, including Universidad de León, which had the lowest SUE drop-out rate, and the Pontificia de Salamanca, Salamanca, Burgos and Valladolid universities, occupied prominent places, especially in the SUE drop-out rate. It should be pointed out that Castilla y León is the autonomous community that has the best results in the PISA report, indicating that it has the best qualified school leavers, which boosts performance in subsequent stages and reduces the drop-out rate.

There is also one outstanding result that may have a lot to do with environmental variables. The two autonomous communities with the highest drop-out rates (degree program and SUE) are the two island communities (Balearics and Canaries), both of which have large service sectors linked to tourism, which for long periods of the year offer abundant employment opportunities, which though not necessarily highly skilled may nevertheless encourage students with a short-term outlook to abandon their university studies.

Generally speaking, the communities with drop-out rates below the average for the Spanish presence-based university system as a whole are the same in both indicators. Besides Castilla y León, the autonomous communities of Navarra, Madrid and the Basque Country are also below the average in both indicators, while Galicia has a below-average degree program drop-out rate and La Rioja a below-average SUE drop-out rate.

To provide the reader with detailed information for further analysis, table 13 shows the degree program drop-out rate by university and branch of knowledge, ordered by tertile.

The analyses performed so far have highlighted the importance of the degree program drop-out rate as an indicator of imbalances in the universities' course offering or teaching quality. Together with the SUE drop-out rate, the degree program drop-out rate is an indicator of inefficient allocation not only of government resources (funding that has to be provided twice if a student changes degree or that fails to produce any improvement in human capital if a student drops out of university altogether), but also of household resources, insofar as the investment has had to be restructured (change of degree) or written off (university drop-out).

Our exploratory approximation has demonstrated the importance of various determinants of drop-out rates, including mode of instruction, university ownership, students' vocational commitment, students' academic quality and the intrinsic difficulty of some degrees. We shall now try to confirm, through regression analysis, some of the results mentioned earlier, comparing the impact of the different factors and analyzing their relative importance.

Figure 28. Drop-out rate by drop-out year and autonomous community. Presence-based universities. 2012-2013 cohort

a) Degree program drop-out rate
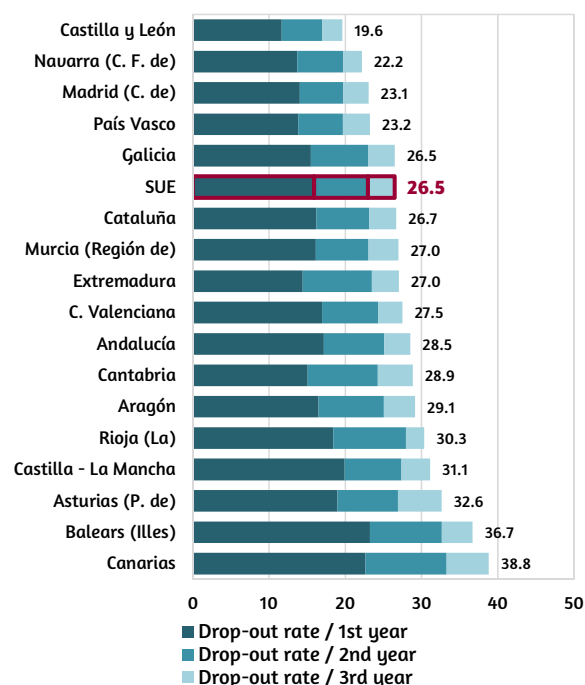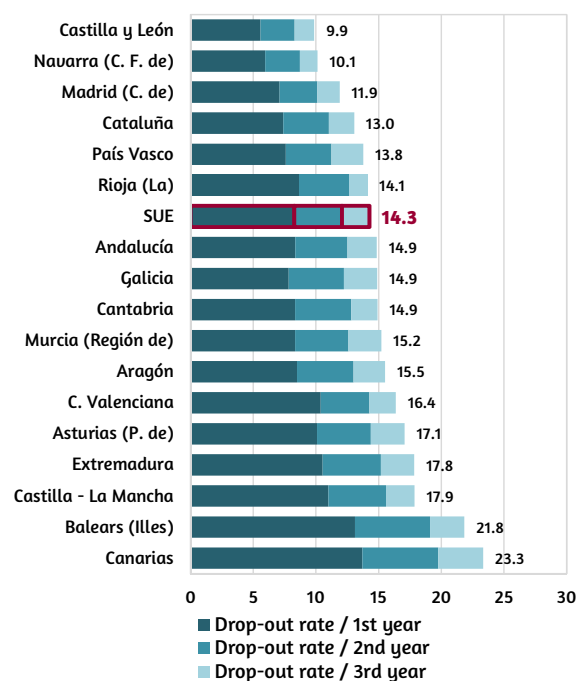
b) SUE drop-out rate

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

We shall start with some methodological considerations. First, we will opt for a sequential approximation, seeking to assess, first, whether or not there is sufficient justification to centre the analysis on the presence-based universities, insofar as the specificity of online education makes the online universities outliers that would conceal the impact of the other variables on the rest of the system. Second, certain variables that are needed in order to refine the analysis, such as prices (university fees) or the degree preferences displayed in the pre-enrollment process, are only available for the public universities. Therefore, once we have confirmed the material impact of private ownership in reducing drop-out rates, we will analyze the impact of the rest of the variables on the public part of the Spanish university system.

Table 14 shows, in column 1, the results of regressing the degree program drop-out rate on a university's average cut-off mark (as an indicator

of the academic quality of incoming students), public or private ownership (taking private as the reference), mode of instruction (taking online as the reference) and the branches of knowledge (taking Social Sciences and Law as the reference). The results confirm that the mode of instruction (beta = 0.498; p<0.01) is the main factor that positively influences the degree program drop-out rate, while being a private university (beta = -0.188; p<0.01) reduces the drop-out rate. Student quality, approximated via the cut-off mark, also reduces the drop-out rate, exerting a significant and very strong influence (beta = -0.213; p<0.01). As regards the branches of knowledge, doing an Engineering and Architecture (beta = 0.367; p<0.01), Arts and Humanities (beta = 0.230; p<0.01) or Sciences (beta = 0.199; p<0.01) degree increases the drop-out rate compared to doing Social Sciences and Law, while doing a Health Sciences degree (beta = -0.143; p<0.01) reduces it.

University	Total	Arts and Humanities	Social and Legal Sciences	Science	Engineering and Architecture	Health Sciences
Table 13. Degree program drop-out rate by university and branch of knowledge. 2012-2013 cohort						
Camilo José Cela	9.8	21.9	7.7	-	5.4	29.3
León	10.9	24.0	15.3	23.0	8.7	5.4
Pontificia de Salamanca	12.4	-	8.2	-	49.3	9.8
Mondragón Unibertsitatea	13.9	-	14.5	-	13.0	-
Alfonso X El Sabio	14.3	-	12.3	-	10.7	15.7
Deusto	15.5	19.3	14.2	-	24.1	8.0
Salamanca	16.8	25.8	16.3	24.9	16.9	9.0
Ramon Llull	17.6	-	15.1	-	37.2	12.6
Francisco de Vitoria	18.0	17.9	16.7	36.1	27.5	15.5
Pablo de Olavide	18.5	16.2	18.6	17.4	37.0	12.5
Católica de Valencia San Vicente Mártir	18.9	-	21.0	30.4	-	15.8
Pontificia Comillas	19.2	32.4	15.7	-	29.9	15.4
Internacional de Catalunya	19.5	-	23.1	-	43.3	14.8
Rey Juan Carlos	19.7	26.4	18.7	20.4	30.8	9.5
Europea de Madrid	20.6	58.9	21.8	-	14.1	22.3
Navarra	20.7	31.3	24.7	19.7	17.8	16.0
Católica San Antonio	20.9	-	20.5	-	19.3	21.9
València	21.8	28.0	21.3	25.2	39.9	16.1
Internacional Valenciana	21.9	-	22.9	-	-	-
Abat Oliba CEU	22.0	-	24.0	-	-	16.4
Lleida	22.4	32.0	21.4	21.4	32.5	15.0
Carlos III de Madrid	23.0	64.4	17.8	-	28.6	-
Pública de Navarra	23.4	-	19.4	-	29.9	7.0
Burgos	23.6	10.6	20.6	21.4	33.5	12.3
Vic-Universitat Central de Catalunya	24.0	23.5	19.7	39.0	48.6	22.4
Pompeu Fabra	24.5	29.5	18.9	-	51.8	21.8
Complutense de Madrid	25.0	34.5	23.8	29.2	39.5	16.3
País Vasco/Euskal Herriko Unibertsitatea	25.2	29.1	25.0	26.8	30.5	10.6
Santiago de Compostela	25.2	32.7	25.9	34.7	28.0	17.0
Barcelona	25.4	36.0	24.5	28.4	35.8	14.1
Autónoma de Madrid	25.7	35.5	23.6	28.5	34.0	17.7
Rovira i Virgili	25.9	30.6	25.2	42.3	34.9	14.2
Valladolid	26.0	23.1	21.4	27.7	44.6	11.7
Nebrija	26.0	38.9	24.9	-	37.3	13.0
San Pablo-CEU	26.8	30.8	29.6	26.5	38.8	20.9
Vigo	26.8	30.4	23.0	29.9	34.0	15.3
Extremadura	27.0	32.0	23.6	36.8	44.4	10.3
Girona	27.1	32.1	23.6	27.2	51.5	13.4
Granada	27.2	28.9	22.2	34.1	51.0	16.9
Córdoba	27.2	33.8	26.0	22.5	39.7	11.2
Miguel Hernández de Elche	27.2	40.5	28.5	-	37.7	15.4
Autònoma de Barcelona	27.3	40.6	22.9	27.5	45.4	17.8
Murcia	27.6	31.1	26.7	37.4	49.9	19.1
Sevilla	27.8	35.2	24.8	34.2	35.5	15.0
Cardenal Herrera-CEU	27.8	-	35.6	-	32.0	23.1
A Coruña	27.8	40.2	23.2	36.5	34.9	12.7
Alicante	28.0	28.3	26.1	32.8	34.2	19.8
Alcalá	28.0	25.6	21.8	25.5	50.5	14.4
Málaga	28.8	34.2	21.6	43.2	46.9	13.1
Cantabria	28.9	30.4	27.9	27.4	36.2	15.1
Almería	29.2	36.2	26.1	46.3	44.0	20.2
Politécnica de Madrid	29.3	-	12.4	-	30.0	-
Zaragoza	29.3	34.2	27.4	32.7	40.8	11.9
Jaén	29.7	34.3	23.9	34.7	47.7	11.3
La Rioja	30.3	30.6	27.0	35.8	41.0	9.1
Jaume I de Castellón	31.0	27.6	29.2	36.8	40.6	19.2
Castilla-La Mancha	31.1	31.3	25.4	27.0	52.8	11.9
Oviedo	32.6	37.4	32.0	31.9	41.8	13.8
Huelva	33.0	35.0	26.5	40.2	55.5	10.0
Internacional de La Rioja	33.3	77.8	32.3	-	-	-
Politécnica de Cartagena	34.5	-	37.4	-	34.1	-
Cádiz	34.8	35.5	27.6	34.5	64.4	13.1
Politècnica de Catalunya	35.7	-	22.9	-	36.7	35.1
Illes Balears	36.7	46.1	33.2	50.4	45.3	22.2
Las Palmas de Gran Canaria	37.8	34.5	36.5	52.1	54.1	13.2
Politècnica de València	37.8	-	42.7	27.5	38.6	-
La Laguna	39.9	63.8	37.3	47.0	44.0	20.0
Católica Santa Teresa de Jesús de Ávila	42.9	-	53.1	-	37.2	30.4
IE Universidad	43.9	-	44.4	-	-	-
Oberta de Catalunya	53.7	60.4	51.9	-	55.3	56.9
A Distancia de Madrid	60.6	94.3	68.5	-	60.1	25.8
UNED	65.2	65.6	63.7	66.3	77.8	62.4
On-site universities	26.5	33.4	23.8	31.1	36.0	15.5
Total universities	33.3	42.6	31.5	36.5	39.2	24.8

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

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Column 2 of table 14 analyzes the influence of these same variables on the SUE drop-out rate, almost symmetrically confirming the results for the degree program drop-out rate. The only slight difference is that, in this case, the effect of doing a Sciences degree, rather than a Social Sciences and Law degree, has no material impact on the drop-out rate. For both the degree program and the SUE drop-out rates, the explanatory power of the models is more than reasonable (adjusted R² = 0.566 for the degree program drop-out rate and 0.561 for the SUE drop-out rate).

Table 14. Analysis of drop-out rate determinants. All universities		
	Degree drop-out rate	University drop-out rate
	(1)	(2)
Admission scores	-0,213 ***	-0,149 ***
	(0.413)	(0.323)
Type of ownership	-0,188 ***	-0,322 ***
	(1.704)	-1221
Presence based	0,498 ***	0,602 ***
	(3.876)	-3301
Arts and Humanities	0,230 ***	0,141 ***
	(1.762)	-1176
Sciences	0,199 ***	-0,051
	(1.501)	-1127
Engineering and Architecture	0,367 ***	0,16 ***
	(1.695)	-1325
Health Sciences	-0,143 ***	-0,21 ***
	(1.599)	-1356
Observations	311	334
R²	0.576	0.570
R² adjusted	0.566	0.561
Residual standard error	9.215 (df =303)	7.147 (df = 326)
F statistic	58.813*** (df = 7; 303)	61.767*** (df = 7; 326)

*Note: *p<0.1; **p<0.05; ***p<0.01. The table has standardized coefficients and robust standard errors.*

Source: Own elaboration.

Given the strong impact of the mode of instruction and that the private universities generally have better drop-out rates, coupled with the fact that certain variables (such as the order of preference in pre-enrollment or the amount of the fees) are only available for the public universities, in the second part of our analysis of determining factors we shall focus on the public universities.

Table 15 shows the results of regressing the degree program and SUE drop-out rates on variables already considered previously (branch of knowledge and cut-off mark), to which we add the following: degree preference by university and branch of knowledge, defined as the ratio of the number of students that choose a given degree as their first choice to the number of places offered in that degree, used as an indicator of vocational commitment. We also include the increase in the average price per credit between the first and second enrollment in Bachelor's degree programs by autonomous community, which we shall use as an indicator of the pressure on household economies arising from the cost of poor results. The purpose of this second indicator is to approximate the existence of economic reasons for drop-out rates.

We also include students' performance in Sciences in each autonomous community from the 2013 PISA report. This performance indicator, which is calculated consistently for all students who have just completed compulsory education, is intended to approximate the quality of the students entering university more accurately than the cut-off mark, which is influenced both by supply and demand for a given Bachelor's degree and by possible differences in the standards set by university admission exams in each autonomous community.

This first model, called model 1 (columns 1 and 2) in table 15, confirms all the results obtained earlier with respect to how student quality, approximated by the cut-off mark, significantly reduces the degree program drop-out rate (beta = -0.202; p<0.01) and the SUE drop-out rate (beta = -0.176; p<0.01) and the differences in behavior between branches of knowledge. In this variable, only studying Health Sciences reduces the drop-out rate, whether degree program (beta = -0.162; p<0.01) or SUE (beta = -0.266; p<0.01), compared to studying Social Sciences and Law. As regards the new variables introduced, preference as an indicator of vocational commitment has a significant effect in reducing the degree program drop-out rate (beta = -0.113; p<0.10) but not the SUE drop-out rate (beta = -0.111; p>0.10), while the pressure of higher fees on second enrollment has no significant impact on drop-out rate

Table 15. Analysis of drop-out rate determinants. Presence-based public universities

	Model 1		Model 2	
	Degree drop-out rate	University drop-out rate	Degree drop-out rate	University drop-out rate
	(1)	(2)	(3)	(4)
Arts and Humanities	0.239 *** (1.653)	0.191 *** (1.230)	0.241 *** (1.560)	0.192 *** (1.212)
Sciences	0.249 *** (1.419)	0.025 (1.045)	0.066 (1.727)	-0.131 ** (1.150)
Engineering and Architecture	0.478 *** (1.654)	0.299 *** (1.164)	0.205 *** (2.396)	0.066 (1.586)
Health Sciences	-0.162 ** (2.027)	-0.266 *** (1.588)	-0.106 (1.782)	-0.219 ** (1.544)
Admission scores	-0.202 *** (0.428)	-0.176 ** (0.331)	-0.079 (0.413)	-0.071 (0.279)
Degree preferences	-0.113 * (0.004)	-0.111 * (0.003)	-0.098 * (0.003)	-0.098 * (0.002)
Price increase between 1st and 2nd time enrollment	0.012 (0.019)	0.074 (0.012)	-0.046 (0.019)	0.024 (0.012)
PISA science scores	-0.247 *** (0.042)	-0.251 *** (0.026)	(0.0) *** (0.040)	-0.177 *** (0.026)
Performance rate			-0.462 *** (0.105)	-0.394 *** (0.076)
Observations	202	202	202	202
R²	0.625	0.545	0.676	0.582
R² adjusted	0.61	0.526	0.661	0.562
Residual standard error	7.730 (df =193)	4.963(df =193)	6.872(df = 192)	4.770 (df = 192)
F statistic	40.231*** (df = 8; 193)	28.885*** (df = 8; 193)	44.460*** (df = 9; 192)	29.677*** (df = 9; 192)

Note: *p<0.1; **p<0.05; ***p<0.01. The table has standardized coefficients and robust standard errors.

Source: Own elaboration.

indicators, either degree program (beta = 0.012; p<0.10) or SUE (beta = -0.074; p<0.01). Initial student quality, as measured by students' results in sciences in the PISA report, proves to have a crucial influence on drop-out rates. The reduction is significant both for the degree program drop-out rate (beta = -0.247; <0.01) and for the SUE drop-out rate (beta = -0.251; p<0.01).

These results confirm that the potential drop-out rate determinants indicated by the exploratory analysis (mode of instruction, university owner-ship, student quality, branch of knowledge specificity and vocational commitment) can explain a large part of the variability in drop-out rates. Only the economic determinants, approximated by the increase in fees on second enrollment, show no significant influence. This result does not deny that there may be economic reasons for drop-out, just that they are less important than the other effects we have detected.

As a final exercise, we try to establish the dynamic through which these determinants act upon the drop-out rate. Our initial hypothesis is that, all else equal, in the absence of vocational commit-ment, students with lower university admission

grades will eventually show a lower success rate (understood as the ratio of credits passed to the number of credits for which students are enrolled) and that this, coupled with the economic pressure of second enrollment, will lead them to drop out. Although it is difficult to evaluate this hypothesis with transversal cut-off data, model 2 (columns 3 and 4) in table 15 is intended to capture this chain of effects by bringing the success rate into the analysis. The success rate immediately becomes the most important explanatory variable, both for the degree program drop-out rate (beta = -0.462; p<0.01) and for the SUE drop-out rate (beta = -0.394; <0.01), reducing or cancelling the effect of some of the variables already analyzed. This confirms that the success rate has a mediating effect, i.e., that the influence of the rest of the drop-out rate determinants is mediated by the sequential deterioration in a student's academic performance.

Lastly, we estimate the economic cost of non-continuation based on the degree program drop-out rate and the cost per student. As can be observed in chart 2, of the 376,794 Bachelor's degree students who entered university in the 2012-2013 academic year, 125,560 dropped out

(77,100 after the first year, 32,300 after the second and 16,160 after the third). According to university spending statistics, the cost per student in the years analyzed was around 5,100 euros per year. The timing of the drop-out is relevant for determining the economic cost, as a student who drops out of a degree program after two years costs twice as much as one who drops out after just one year. Similarly, a third year drop-out entails a much greater loss than a first-year drop-out.

Based on the number of degree program drop-outs, the drop-out year and the cost (excluding R&D cost) in public and private universities, the total drop-out cost is nearly 1 billion euros per year, i.e., 11.9% of total spending.

Chart 2. Economic cost of drop-out
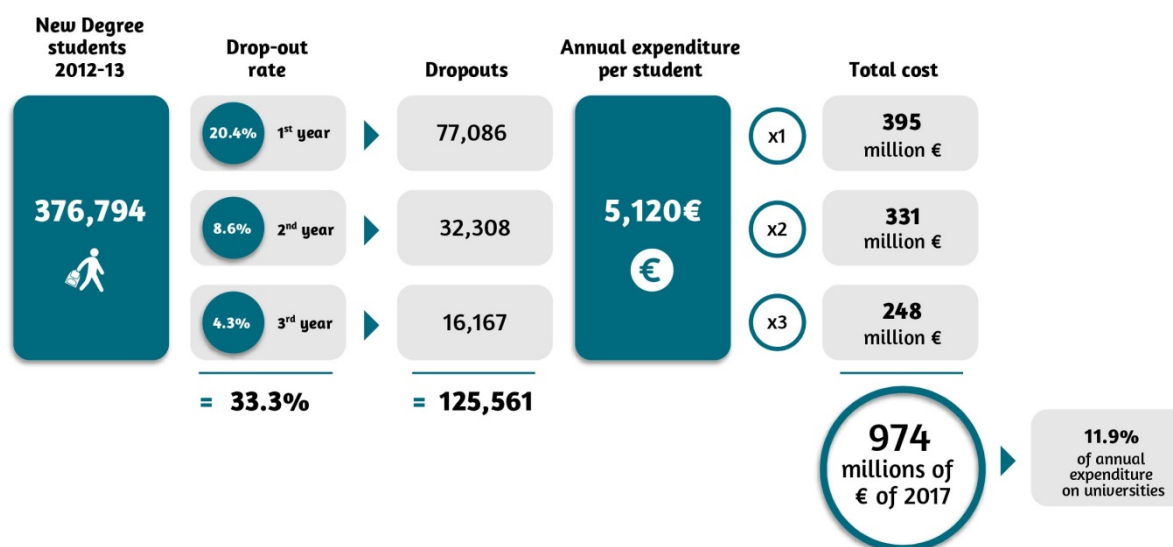
New Degree students 2012-13	Drop-out rate		Dropouts	Annual expenditure per student		Total cost
376,794	20.4%	1st year	77,086	5,120€	x1	395 million €
	8.6%	2nd year	32,308		x2	331 million €
	4.3%	3rd year	16,167		x3	248 million €
	= 33.3%		= 125,561			974 millions of € of 2017 → 11.9% of annual expenditure on universities

Source: Spanish Ministry of Science, Innovation and Universities (2019c) and own elaboration.

5. Conclusions

The aim of the ISSUE (Synthetic Indicators of the Spanish University System) project is to generate classifications and analyze the Spanish universities on the basis of broad data sets that consider the principal dimensions of their activities: teaching, 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, university 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 and technological development all the public universities of Spain (48) and 14 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 62 universities that are now included.

The rankings were constructed from 25 variables that take into account the following aspects: (i) the universities' different missions (teaching, 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 and 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 2019 edition is a new section that analyses the percentage of university students in Spain who do not complete the degree in which they enrolled because they either change their choice of degree/university or they leave the university altogether.

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 and the Polytechnic Univerisities of Catalunya and Valencia lead the 2019 U-Ranking.

4. The leadership of some of these universities is especially outstanding in the research and innovation and technological development dimensions. More specifically, the Universitat Pompeu Fabra leads the research ranking and the Universidad Carlos III is at the top in innovation and technological development. The Universitat Politècnica de València, along with the private universities of Navarra and Nebrija head the teaching ranking.

5. 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 11% the Spanish average. Six out of ten 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 one not included due to lack of information, in view of the values which are available. 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 34% less than the mean value of the university system. None of the 19 universities with best performance in research is private. Public universities present higher levels of performance in research, and in innovation and technological development activities. The mean distance of private universities is 65 percentage points below the national average in innovation.

8. 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 guarantees 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, Valencian Community, Madrid,

Navarre, Balearic Islands and Aragon 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: 44 percentage points between the best-performing region and the worst-performing region.

10. U-Ranking 2019 shows considerable stability in its results, compared with those obtained in 2018, which is to be expected, given that the indicators are calculated as moving averages and there have been no significant structural changes in the variables underlying the indicators.

11. University drop-out rates indicate that Spain fails to reap the full benefit of public and private investment in higher education. Around 33% of Spanish students fail to complete the Bachelor's degree program they enrolled in: 21% leave university without a degree and the remaining 12% change to a different study program. These high drop-out rates reflect a major waste of private and public resources devoted to university education and represent a loss of 974 million euros per year.

12. Drop-out is concentrated in the first year of university study but also occurs later in the degree program, prolonging the waste of resources.

13. The drop-out rate is higher in technical and scientific degree programs, which is worrying, given the growing need for STEM graduates (Science, Technology, Engineering and Mathematics) to meet the demands of industry and digitisation. However, the rate is also high in arts and humanities.

14. The drop-out phenomenon affects all universities, but not all to the same extent. The drop-out rate is very high in online universities, above average in the polytechnic universities on account of their specialization, and lower in the private universities than in the public ones.

15. Various factors influence the student drop-out rate: shortcomings in student guidance and qualifications (the rate is lower among students with better university admission grades); inappropriate curriculum design (the rate is higher in degree programs with a lower success rate); insufficient student monitoring or low teaching quality; students' poor academic performance (for lack of capacity, effort or motivation) or insufficiently demanding courses.

16. The universities at the top of the rankings do not always have lower drop-out rates, as specialization also plays a role. The polytechnic universities perform well in teaching, research, innovation and technological development, but not in drop-out rates. The best private universities, which do not hold top positions in the overall rankings but perform well in teaching, also have lower drop-out rates.

This seventh edition of U-Ranking pays special attention to drop-out rates because they are an important indicator for assessing the functioning and results of the Spanish university system, both from a general point of view and from the point of view of those who wish to use university services.

Reducing university drop-out rates should be an important policy objective for governments, universities and society, just as school drop-out is in the earlier stages of education, because it goes hand in hand with the frustration of personal and family expectations and significant losses of resources.

Initiatives to improve drop-out rates require, first, improving student orientation when choosing a first degree, making good use of the information available. That is a goal U-Ranking aims to achieve through the various tools it makes available to students, families, career advisers, universities and governments. Steps should also be taken to act on the other variables that affect drop-out rates: reducing mismatches between supply and demand; being realistic (teachers and students) about the difficulty of the chosen study program; and improving student's academic performance through appropriate prior preparation, a culture of effort, and continuous monitoring of the results of the learning process.

Lastly, authorities and universities should pay special attention to the changes taking place as a

result of digitisation. These changes are already present in all universities but their implications are not fully understood. The high drop-out rates in online universities should be a warning of the danger of an increase in drop-out rates as online education gains ground in all universities. This is a threat that must be met with proper planning and an assessment of the optimal combination of technological and relational components for learning and, consequently, with a review of the competencies and tasks of both faculty and students.

To take this fact into account and meet the demand for information about specific areas of study, U-Ranking provides an online tool that generates *personalized rankings* of undergraduate programs. These personalized rankings are based on what students want to study, where they are willing to study and the importance they give to the level of teaching. There are plans to extend this tool in the future to include postgraduate programs, but this cannot be done with the information currently available.

The online tool is designed to provide students with high quality information and easy rankings. It thus simplifies the task of weighing up the options that best match a student's criteria for selecting a university. If the rankings are carefully constructed, they can provide guidance for making decisions that can be complex for non-experts and even for professionals such as careers advisers. No ranking is exempt from problems when it condenses information into an indicator, but the costs of not constructing synthetic indicators by making the effort to gather and organize a large volume of complex information are very high. Those costs may also lead people to make their decisions based on inappropriate or partial information, or even ignoring information because they do not know how to interpret it. For that reason, a system of well-constructed rankings such as the one offered by U-Ranking (together with the supplementary information on cut-off marks, tuition fees and other characteristics of the university environment) may facilitate decision making for many people by encouraging them to consider the best information available. This appears to be confirmed by the intensive use of the U-Ranking website in the seven years it has been in operation.

The broad set of information on the universities provided by U-Ranking serves to identify important aspects of the heterogeneity of the Spanish university system and within the universities themselves. Recognition of that diversity is very important for various purposes: to assess the universities' performance; to more selectively guide their improvement strategies and university policies; to guide potential users of the universities' teaching services; and to provide information for companies and institutions interested in knowing the universities' capacity to generate R&D&I results.

Appendix 1: Glossary of Indicators

Appendix 1. Glossary of indicators and statistical sources of U-Ranking 2019					
Dimension	Area	Indicator and definition	Source	Period	Disaggregation
Teaching	Resources	**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 1st and 2nd cycle, Bachelor's and Master's degrees and students in Doctoral degrees (all of these students registered in centers belonging to the University)	SIIU CRUE	2012-13 to 2016-17	Branch of knowledge
		Budget / Student: Effective income of the University by number of full-time equivalent students in studies of 1st and 2nd 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 CRUE	2010, 2012 to 2016	University
		Faculty member with PhD / Faculty members: 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	CRUE	2010-11, 2012-13 to 2016-17	University
	Output	**Success rate:** 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[1]	2011-12 to 2016-17	Branch of knowledge
		Evaluation rate: 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[1]	2011-12 to 2016-17	Branch of knowledge
		Drop-out rate: 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[1]	2011-12 to 2016-17	Branch of knowledge
	Quality	**Attractiveness index**	-	-	-
		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 1st and 2nd cycle, Bachelor's and Master's degrees (all of these students registered in centers belonging to the University)	SIIU	2011-12 to 2016-17	Branch of knowledge
		Cut-off mark: Mark of the last *general group*[2] student that gained admission to a degree with limited places	SIIU	2018-19	Bachelor's degree
	Internationalization	**Percentage of foreign students:** Non-Spanish students of 1st and 2nd cycle, Bachelor's and Master's degrees over the total number of students of 1st and 2nd cycle, Bachelor's and Master's degrees	SIIU	2011-12 to 2016-17	Bachelor's degree
		Percentage of students in exchange programs: Spanish students of 1st and 2nd cycle and Bachelor's degrees who participate in the ERASMUS program, over the total number of students of 1st and 2nd cycle and Bachelor's degrees	CRUE	2010-11, 2012-13 to 2016-17	Branch of knowledge
		Percentage of students registered in programs imparted in non-official languages	-	-	-

Dimension	Area	Indicator and definition	Source	Period	Disaggregation
Research	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	DGICT CRUE	2012 to 2017	Branch of knowledge
		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	DGICT CRUE	2012 to 2017	Branch of knowledge
	Output	**Citable documents with ISI reference per faculty member with PhD:** Documents with ISI reference published per 100 faculty members with full-time equivalent PhD	IUNE (Thomson Reuters) CRUE	2012 to 2017	Branch of knowledge
		Total *sexenios*[3] over possible sexenios: Sexenios obtained over the total possible sexenios for the universities' tenured research staff	CRUE	2012-13 to 2016-17	Branch of knowledge
		Doctoral theses read per 100 faculty members with PhD: Doctoral theses read per 100 faculty members with full-time equivalent PhD	MECD CRUE	2012 to 2017	Branch of knowledge
	Quality	**Mean impact factor:** Mean impact factor of the publications with at least one author affiliated to the University	IUNE (Thomson Reuters)	2012 to 2017	Bachelor's degree group
		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)	2012 to 2017	Bachelor's degree group
		Citations per document: Citations received per document from the date of publication to the date of data gathering	IUNE (Thomson Reuters)	2012 to 2017	Bachelor's degree group
	Internationalization	**European or international research funds per faculty member with PhD:** Effective income received from abroad due to applied research per 100 faculty members with full-time equivalent PhD in centers belonging to the University	CRUE	2014 to 2016	University
		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)	2012 to 2017	Bachelor's degree group

Dimension	Area	Indicator and definition	Source	Period	Disaggregation
Innovation and Technological Development	Resources	**Income from licenses per 100 faculty members with PhD[4]:** Income generated by the use and exploitation of licenses of the university for each 100 faculty members with PhD	IUNE (OTRIs and MECD)	2011 to 2016	University
		Income from reference datency contracts per 100 faculty members with PhD[4]: Income from R&D and reference datency contracts and from provision of services per 100 faculty members with PhD	IUNE (OTRIs and MECD)	2011 to 2016	University
		Income from continuing professional development (CPD) courses per faculty member with PhD[4]: Fees received from registration both for CPD and for the university's own postgraduate programs (master, specialist and expert) per faculty member with PhD	IUNE (OTRIs and MECD)	2010, 2012 to 2016	University
	Output	**Number of patents per 100 faculty members with PhD[4]:** 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 and MECD)	2012 to 2017	University
		CPD hours per faculty member with PhD[4]	-	-	-
		Number of contracts per faculty member with PhD[4]	-	-	-
	Quality	Patents commercialized per faculty member with PhD[4]		-	-
	Internationalization	**Triadic patents per 100 faculty members with PhD[4]:** Number of simultaneous protections of inventions in different countries obtained through an international patent application, per 100 faculty members with PhD	IUNE (OTRIs and MECD)	2011 to 2016	University
		Income from international contracts per faculty member with PhD[4]	-	-	-

[1] For the calculation of the personalized rankings, information provided by the CRUE for the academic years 2010-11, 2012-13, 2013-14 and 2016-17 is used since it is offered by degree and university.

[2] General group: students finishing high school or students graduated in Advanced Vocational Training or foreign students.

[3] Monetary compensation received for research activity based on the last six years. This indicator is only considered for public universities

[4] The 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	Type
COMILLAS	Universidad Pontificia Comillas	Privada
UA	Universidad de Alicante	Pública
UAB	Universitat Autònoma de Barcelona	Pública
UAH	Universidad de Alcalá de Henares	Pública
UAL	Universidad de Almería	Pública
UAM	Universidad Autónoma de Madrid	Pública
UANE	Universidad Antonio de Nebrija	Privada
UB	Universitat de Barcelona	Pública
UBU	Universidad de Burgos	Pública
UC3M	Universidad Carlos III	Pública
UCA	Universidad de Cádiz	Pública
UCEU	Universidad San Pablo-CEU	Privada
UCH	Universidad Cardenal Herrera-CEU	Privada
UCLM	Universidad de Castilla-La Mancha	Pública
UCM	Universidad Complutense	Pública
UCO	Universidad de Córdoba	Pública
UCV	Universidad Católica de Valencia San Vicente Mártir	Privada
UDC	Universidade da Coruña	Pública
UDE	Universidad de Deusto	Privada
UDG	Universitat de Girona	Pública
UDIMA	Universidad a distancia de Madrid	Privada
UDL	Universitat de Lleida	Pública
UFV	Universidad Francisco de Vitoria	Privada
UGR	Universidad de Granada	Pública
UHU	Universidad de Huelva	Pública
UIB	Universitat de les Illes Balears	Pública
UIC	Universitat Internacional de Catalunya	Privada
UJAEN	Universidad de Jaén	Pública
UJI	Universitat Jaume I	Pública
ULL	Universidad de La Laguna	Pública
ULPGC	Universidad de Las Palmas de Gran Canaria	Pública
UM	Universidad de Murcia	Pública
UMA	Universidad de Málaga	Pública
UMH	Universidad Miguel Hernández de Elche	Pública
UMON	Mondragon Unibertsitatea	Privada
UN	Universidad de Navarra	Privada
UNED	Universidad Nacional de Educación a Distancia	Pública
UNEX	Universidad de Extremadura	Pública
UNICAN	Universidad de Cantabria	Pública
UNILEON	Universidad de León	Pública
UNIOVI	Universidad de Oviedo	Pública
UNIRIOJA	Universidad de La Rioja	Pública
UNIZAR	Universidad de Zaragoza	Pública
UOC	Universitat Oberta de Catalunya	Privada
UPC	Universitat Politècnica de Catalunya	Pública
UPCT	Universidad Politécnica de Cartagena	Pública
UPF	Universitat Pompeu Fabra	Pública
UPM	Universidad Politécnica de Madrid	Pública
UPNA	Universidad Pública de Navarra	Pública
UPO	Universidad Pablo de Olavide	Pública
UPV	Universitat Politècnica de València	Pública
UPV-EHU	Universidad del País Vasco	Pública
URJC	Universidad Rey Juan Carlos	Pública
URLL	Universitat Ramon Llull	Privada
URV	Universitat Rovira i Virgili	Pública
US	Universidad de Sevilla	Pública
USAL	Universidad de Salamanca	Pública
USC	Universidade de Santiago de Compostela	Pública
UV	Universitat de València	Pública
UVA	Universidad de Valladolid	Pública
UVIC-UCC	Universitat de Vic – Universitat Central de Catalunya	Privada
UVIGO	Universidade de Vigo	Pública

Appendix 3: Universities' Panel of Indicators

1. Mondragon Unibertsitatea
2. Universidad a distancia de Madrid
3. Universidad Autónoma de Madrid
4. Universidad Cardenal Herrera-CEU
5. Universidad Carlos III
6. U. Católica de Valencia S. Vte. Mártir
7. Universidad Complutense
8. Universidad de Alcalá de Henares
9. Universidad de Alicante
10. Universidad de Almería
11. Universidad de Burgos
12. Universidad de Cádiz
13. Universidad de Cantabria
14. Universidad de Castilla-La Mancha
15. Universidad de Córdoba
16. Universidad de Deusto
17. Universidad de Extremadura
18. Universidad de Granada
19. Universidad de Huelva
20. Universidad de Jaén
21. Universidad de La Laguna
22. Universidad de La Rioja
23. U. de Las Palmas de Gran Canaria
24. Universidad de León
25. Universidad de Málaga
26. Universidad de Murcia
27. Universidad de Navarra
28. Universidad de Oviedo
29. Universidad de Salamanca
30. Universidad de Sevilla
31. Universidad de Valladolid
32. Universidad de Zaragoza
33. Universidad del País Vasco
34. Universidad Francisco de Vitoria
35. U. Miguel Hernández de Elche
36. U. Nacional de Educación a Distancia
37. Universidad Nebrija
38. Universidad Pablo de Olavide
39. Universidad Politécnica de Cartagena
40. Universidad Politécnica de Madrid
41. Universidad Pontificia Comillas
42. Universidad Pública de Navarra
43. Universidad Rey Juan Carlos
44. Universidad San Pablo - CEU
45. Universidade da Coruña
46. U. de Santiago de Compostela
47. Universidade de Vigo
48. Universitat Autònoma de Barcelona
49. Universitat de Barcelona
50. Universitat de Girona
51. Universitat de les Illes Balears
52. Universitat de Lleida
53. Universitat de València
54. U. de Vic – U. Central de Catalunya
55. Universitat Internacional de Catalunya
56. Universitat Jaume I
57. Universitat Oberta de Catalunya
58. Universitat Politècnica de Catalunya
59. Universitat Politècnica de València
60. Universitat Pompeu Fabra
61. Universitat Ramon Llull
62. Universitat Rovira i Virgili

MONDRAGON UNIBERTSITATEA

MONDRAGON
UNIBERTSITATEA

Year of foundation: 1997

Type of ownership: Privada

Bachelor's degree students[1]: 3,630

Master's degree students[1]: 578

Faculty members[1]: 419

Administration and service staff[1]: 109

Budget[2]: no disponible

Bachelor's degrees[3]: 15

Master's degrees[3]: 17

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

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Ranking

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

- Universities' average
- UMON

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios*
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

- Media Universidades
- UMON

*The "sexenios" indicator is not considered for private universities

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

UNIVERSIDAD A DISTANCIA DE MADRID

Year of foundation: 2008

Type of ownership: Privada

Bachelor's degree students[1]: 3,731

Master's degree students[1]: 4,120

Faculty members[1]: 220

Administration and service staff[1]: 78

Budget[2]: no disponible

Bachelor's degrees[3]: 25

Master's degrees[3]: 35

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average ● UDIMA

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios*
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades ●●● UDIMA

□□□ Indicator not available for this university

*The "sexenios" indicator is not considered for private universities

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

Fundación **BBVA** **Ivie**

UNIVERSIDAD AUTÓNOMA DE MADRID

Year of foundation: 1968

Type of ownership: Pública

Bachelor's degree students[1]: 21,222

Master's degree students[1]: 2,979

Faculty members[1]: 2,523

Administration and service staff[1]: 1,046

Budget[2]: 244,800,214€

Bachelor's degrees[3]: 38

Master's degrees[3]: 80

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

Ũ Ranking

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UAM

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ● ● ● UAM

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

UNIVERSIDAD CARLOS III

Universidad Carlos III de Madrid

Year of foundation: 1989

Type of ownership: Pública

Bachelor's degree students[1]: 15,329

Master's degree students[1]: 3,168

Faculty members[1]: 1,604

Administration and service staff[1]: 691

Budget[2]: 199,893,560€

Bachelor's degrees[3]: 32

Master's degrees[3]: 75

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UC3M

Ũ Ranking

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UC3M

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

Fundación **BBVA**   Ivie

UNIVERSIDAD CARDENAL HERRERA CEU

CEU
Universidad
Cardenal Herrera

Year of foundation: 2000

Type of ownership: Privada

Bachelor's degree students[1]: 7,049

Master's degree students[1]: 1,071

Faculty members[1]: 974

Administration and service staff[1]: 326

Budget[2]: no disponible

Bachelor's degrees[3]: 24

Master's degrees[3]: 20

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

- Universities' average
- UCH

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios*
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

- Media Universidades
- UCH
- Indicator not available for this university

*The "sexenios" indicator is not considered for private universities

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

Fundación BBVA Ivie

UNIVERSIDAD CATÓLICA DE VALENCIA SAN VICENTE MÁRTIR

Universidad Católica de Valencia San Vicente Mártir

Year of foundation: 2004

Type of ownership: Privada

Bachelor's degree students¹: 9,003

Master's degree students¹: 1,797

Faculty members¹: 788

Administration and service staff¹: 395

Budget²: no disponible

Bachelor's degrees³: 25

Master's degrees³: 38

¹Course 2017-18; ²2016; ³Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

Global [11], Teaching [5], Research [16], Innovation & technological development [21]

U-Ranking Volume

Global [28], Teaching [25], Research [26], Innovation & technological development [33]

■ Universities' average   ● UCV

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios*
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades   ●●● UCV
□□□ Indicator not available for this university
*The "sexenios" indicator is not considered for private universities

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

Fundación BBVA Ivie

UNIVERSIDAD COMPLUTENSE

Year of foundation: 1508

Type of ownership: Privada

Bachelor's degree students[1]: 53,341

Master's degree students[1]: 7,255

Faculty members[1]: 5,765

Administration and service staff[1]: 3,240

Budget[2]: 632,886,660€

Bachelor's degrees[3]: 70

Master's degrees[3]: 166

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

Ū Ranking

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average ● UCM

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades ● ● ● UCM

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

Fundación **BBVA** Ivie

UNIVERSIDAD DE ALCALÁ

Universidad de Alcalá

Year of foundation: 1977

Type of ownership: Pública

Bachelor's degree students[1]: 13,604

Master's degree students[1]: 2,610

Faculty members[1]: 1,687

Administration and service staff[1]: 793
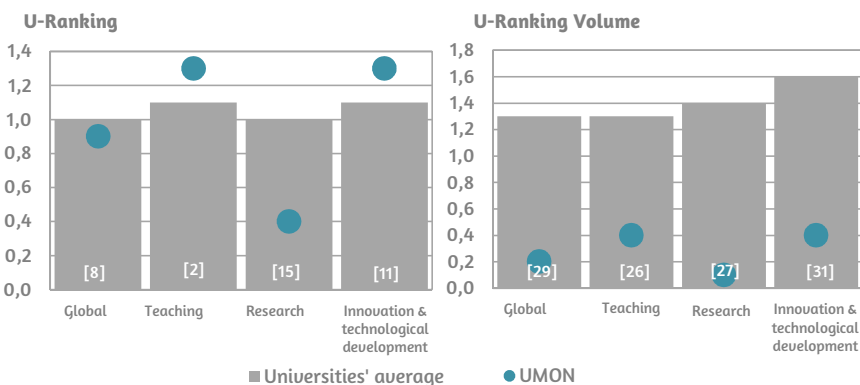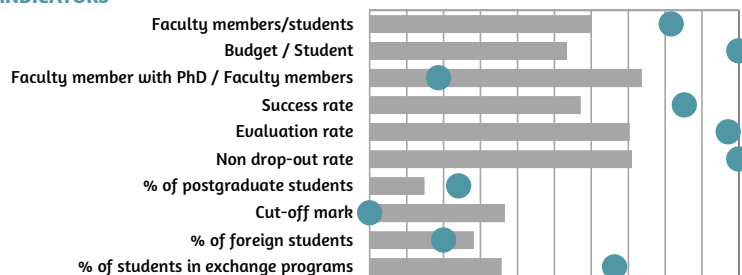
Budget[2]: 144,432,729€

Bachelor's degrees[3]: 35

Master's degrees[3]: 49

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices
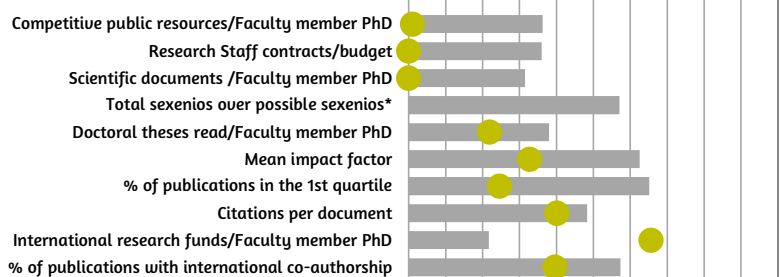
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UAH

U-Ranking 2019 indicators

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

TEACHING INDICATORS
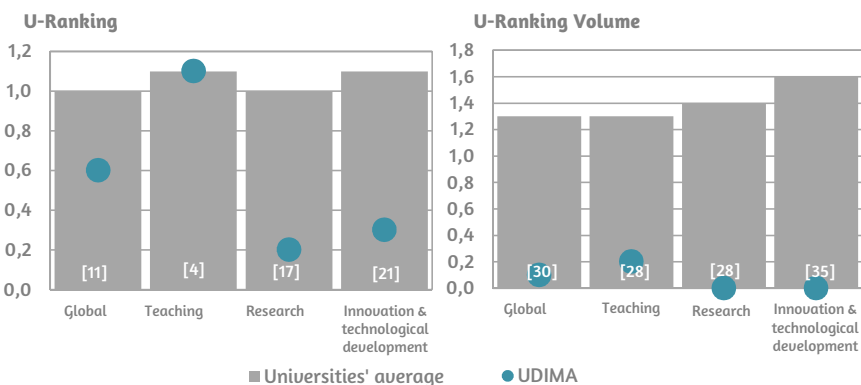
Faculty members/students
Budget / Student
Faculty member with PhD / Faculty members
Success rate
Evaluation rate
Non drop-out rate
% of postgraduate students
Cut-off mark
% of foreign students
% of students in exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades   ● ● ● UAH

Ũ Ranking

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

Fundación BBVA Ivie

UNIVERSIDAD DE ALICANTE

Universitat d'Alacant
Universidad de Alicante

Year of foundation: 1979

Type of ownership: Pública

Bachelor's degree students[1]: 21,737

Master's degree students[1]: 1,734

Faculty members[1]: 2,228

Administration and service staff[1]: 1,303

Budget[2]: 196,231,311€

Bachelor's degrees[3]: 44

Master's degrees[3]: 57

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

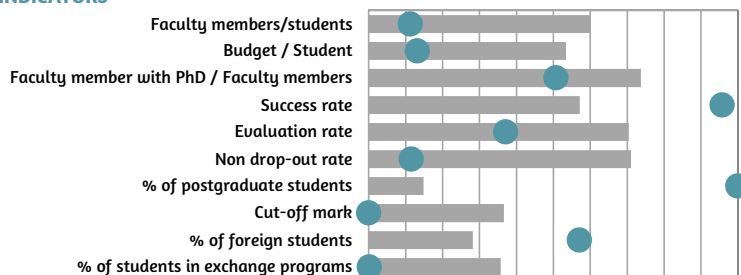## U-Ranking 2019 performance and volume indices
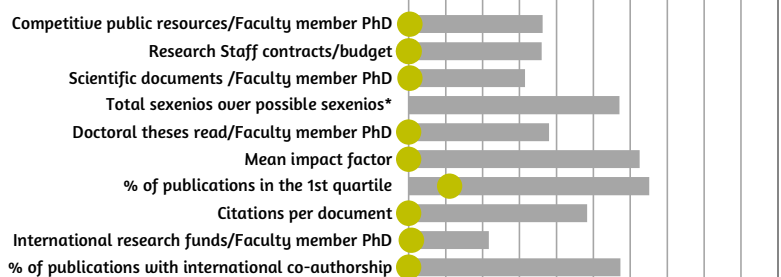
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UA

ũ Ranking

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades   ● ● ● UA

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

UNIVERSIDAD DE ALMERÍA

UNIVERSIDAD DE ALMERÍA

Year of foundation: 1993

Type of ownership: Pública

Bachelor's degree students[1]: 10,988

Master's degree students[1]: 1,408

Faculty members[1]: 809

Administration and service staff[1]: 468
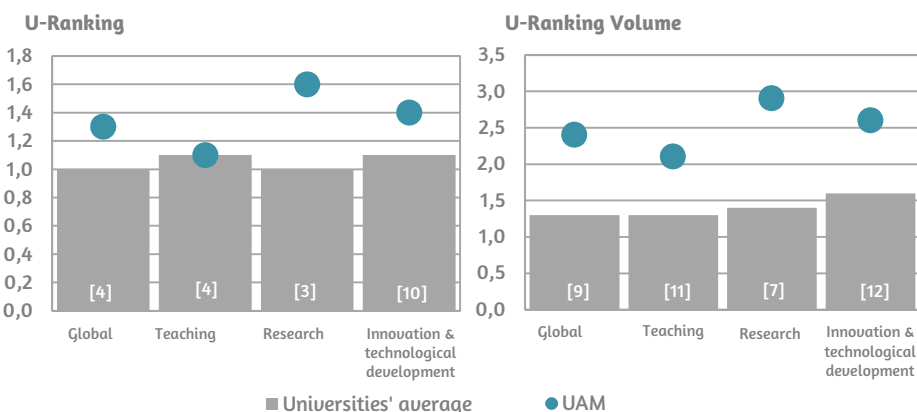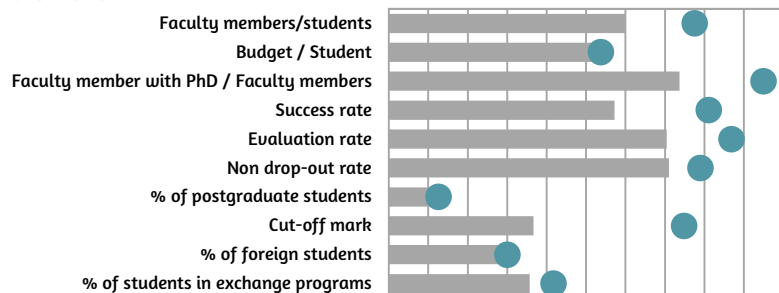
Budget[2]: 99,405,616€

Bachelor's degrees[3]: 30

Master's degrees[3]: 40

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices
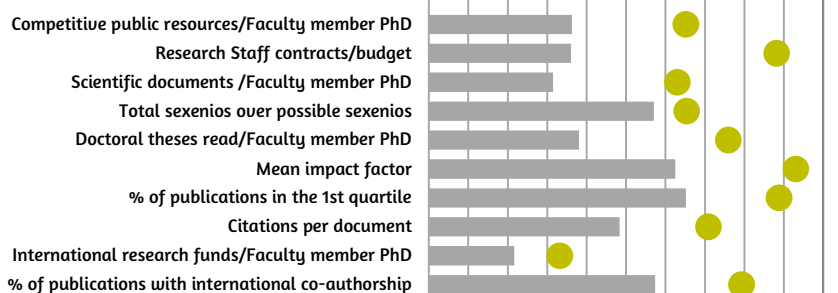
Index and postition in the ranking between brackets

U-Ranking

Global	Teaching	Research	Innovation & technological development
[7]	[4]	[9]	[15]

U-Ranking Volume

Global	Teaching	Research	Innovation & technological development
[24]	[23]	[22]	[29]

■ Universities' average ● UAL

U-Ranking 2019 indicators

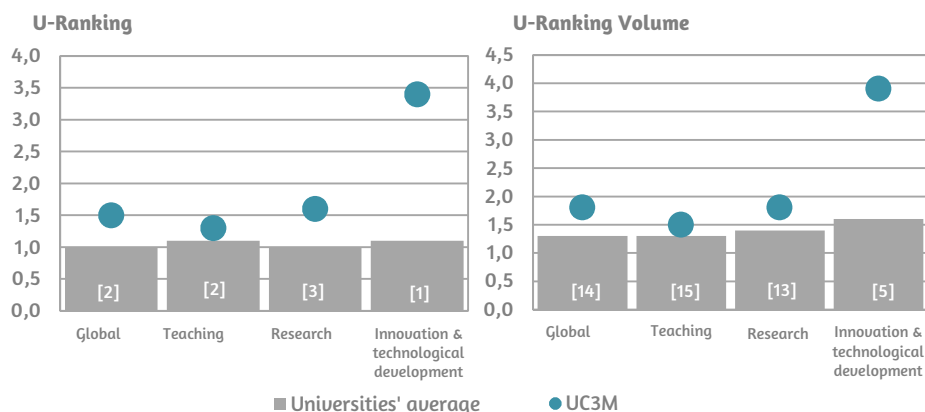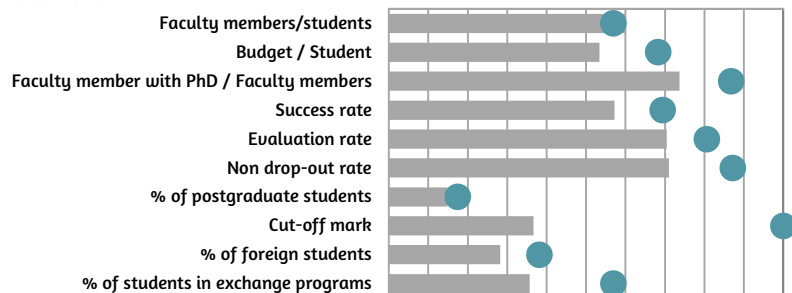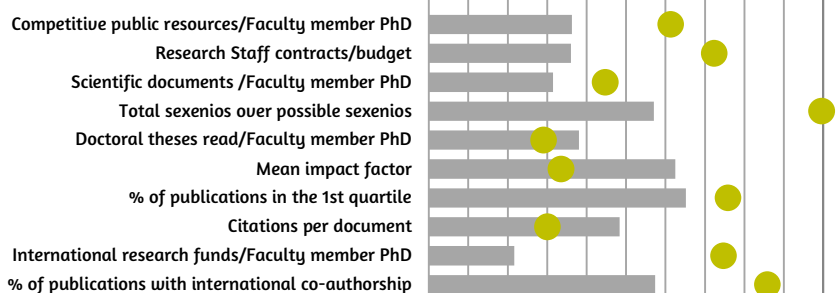*University with the minimum value=0; University with the maximum value=100*

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●●● UAL

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

Fundación **BBVA** Ivie

UNIVERSIDAD DE BURGOS

UNIVERSIDAD DE BURGOS

Year of foundation: 1994

Type of ownership: Pública

Bachelor's degree students[1]: 6,374

Master's degree students[1]: 505

Faculty members[1]: 805

Administration and service staff[1]: 348

Budget[2]: 54,376,628€

Bachelor's degrees[3]: 25

Master's degrees[3]: 22

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ Ranking

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

Global [6] · Teaching [4] · Research [10] · Innovation & technological development [9]

U-Ranking Volume

Global [26] · Teaching [25] · Research [24] · Innovation & technological development [28]

■ Universities' average ● UBU

U-Ranking 2019 indicators

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

TEACHING INDICATORS
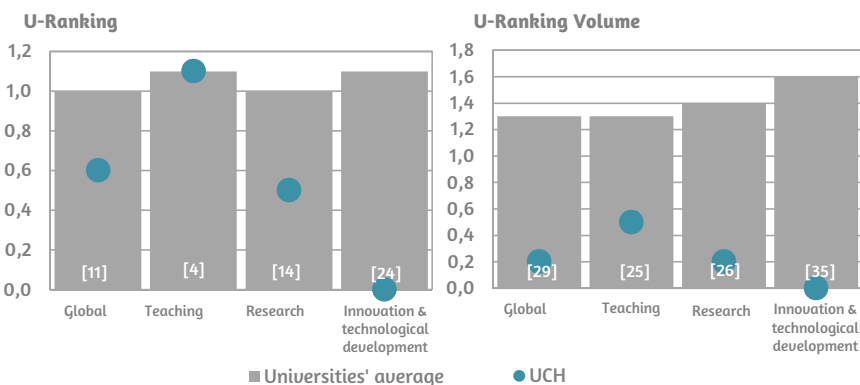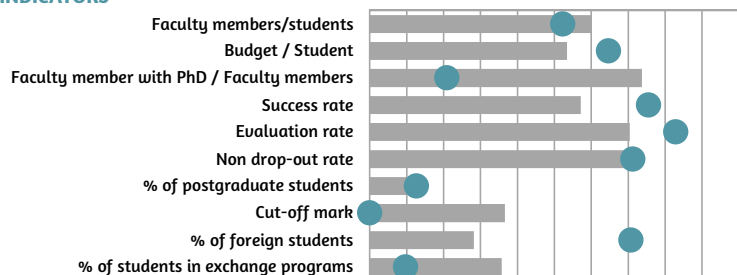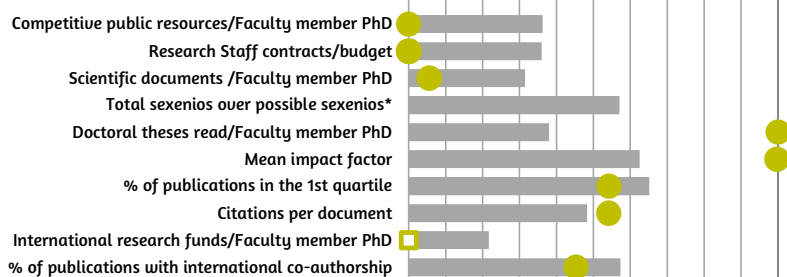
- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ● ● ● UBU

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

UNIVERSIDAD DE CÁDIZ

UCA
Universidad
de Cádiz

Year of foundation: 1979

Type of ownership: Pública

Bachelor's degree students[1]: 18,150

Master's degree students[1]: 1,899

Faculty members[1]: 1,664

Administration and service staff[1]: 751
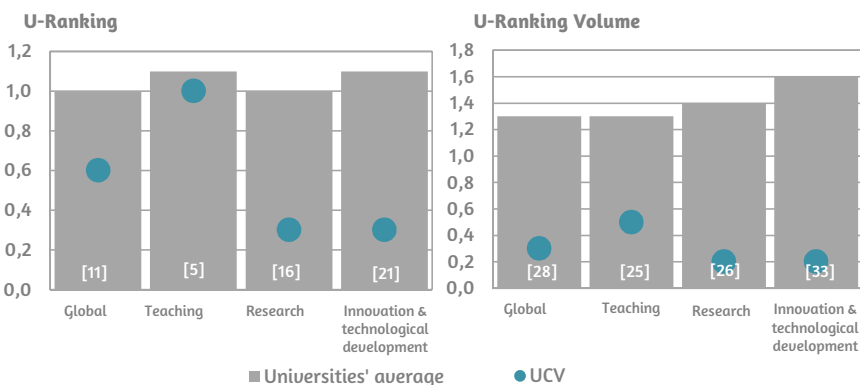
Budget[2]: 147,884,668€

Bachelor's degrees[3]: 44

Master's degrees[3]: 53

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ Ranking

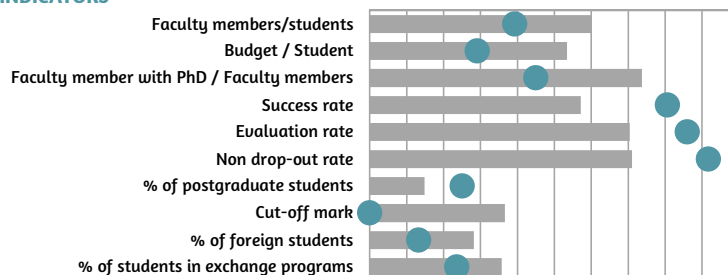## U-Ranking 2019 performance and volume indices
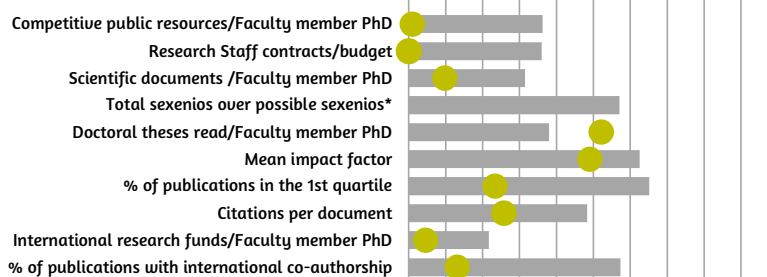
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UCA

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades   ● ● ● UCA

Fundación **BBVA**   Ivie

UNIVERSIDAD DE CANTABRIA

UC UNIVERSIDAD DE CANTABRIA

Year of foundation: 1972

Type of ownership: Pública

Bachelor's degree students[1]: 7,858

Master's degree students[1]: 1,014

Faculty members[1]: 1,196

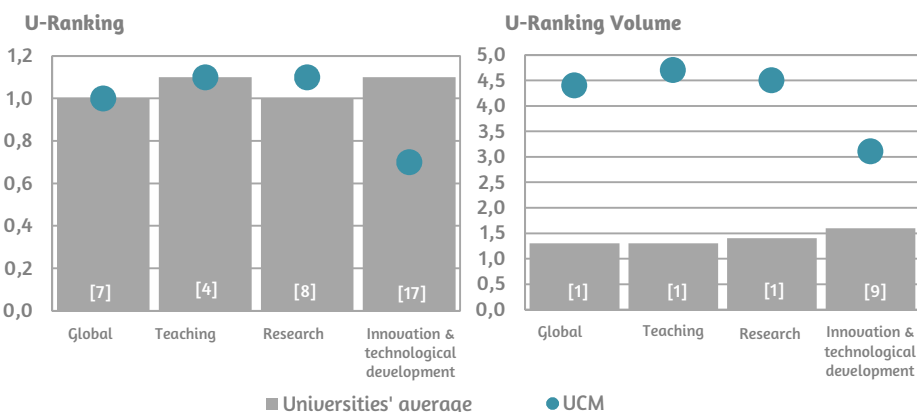Administration and service staff[1]: 604

Budget[2]: 103,721,397€

Bachelor's degrees[3]: 25

Master's degrees[3]: 43

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

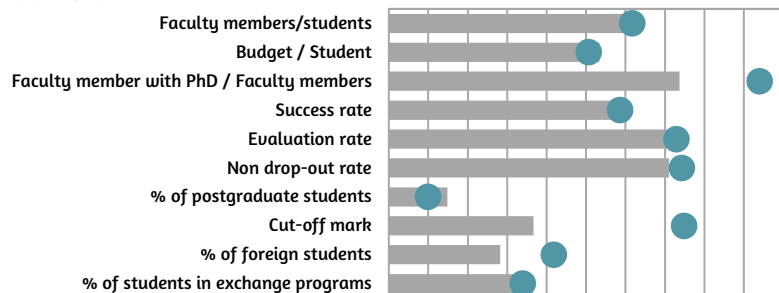**ũ Ranking**

U-Ranking 2019 performance and volume indices
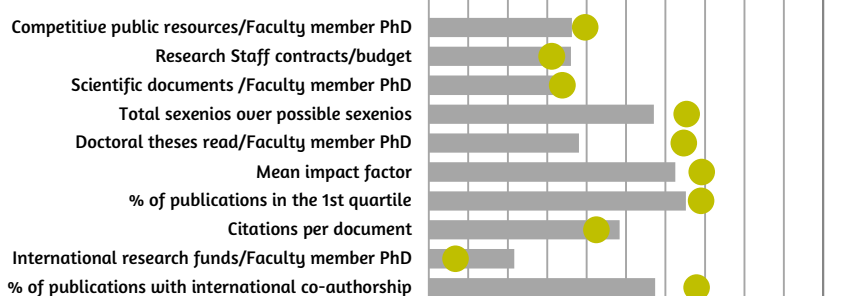
Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
Position	[4]	[4]	[6]	[4]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
Position	[21]	[22]	[19]	[19]

■ Universities' average ● UNICAN

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●●● UNICAN

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

Fundación **BBVA** | Ivie

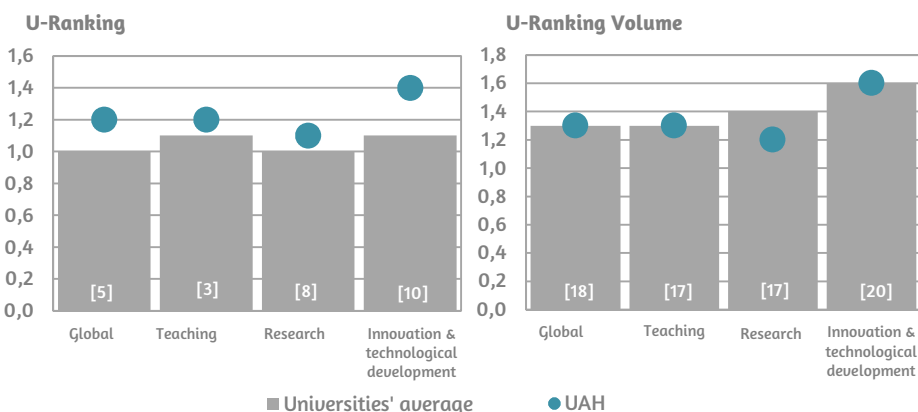# UNIVERSIDAD DE CASTILLA-LA MANCHA

Year of foundation: 1982

Type of ownership: Privada

Bachelor's degree students[1]: 22,019

Master's degree students[1]: 1,724

Faculty members[1]: 2,431

Administration and service staff[1]: 1,108

Budget[2]: 203,184,534€

Bachelor's degrees[3]: 47

Master's degrees[3]: 38

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)
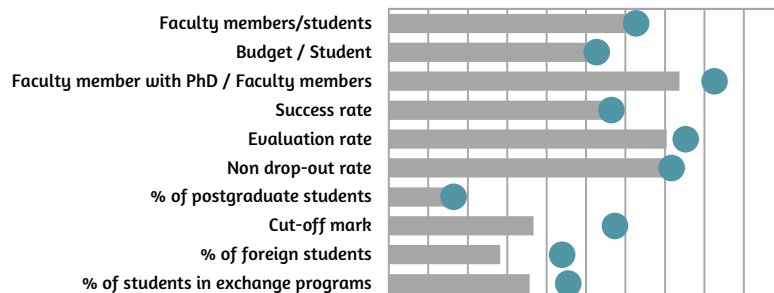
ũ Ranking

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
Position	[9]	[7]	[10]	[18]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
Position	[19]	[18]	[15]	[26]

■ Universities' average   ● UCLM
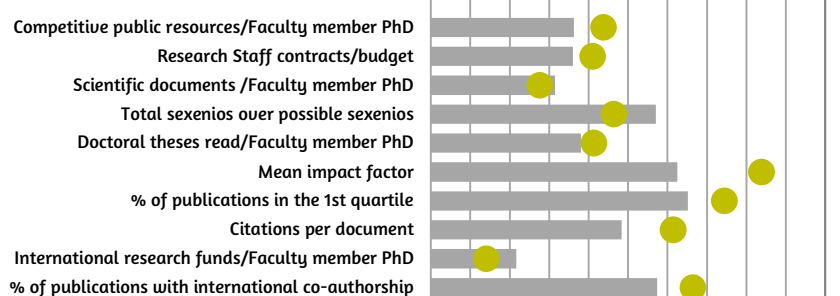
U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UCLM

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

Fundación BBVA   Ivie

UNIVERSIDAD DE CÓRDOBA

Year of foundation: 1972

Type of ownership: Privada

Bachelor's degree students[1]: 14,356

Master's degree students[1]: 1,835

Faculty members[1]: 1,427

Administration and service staff[1]: 763
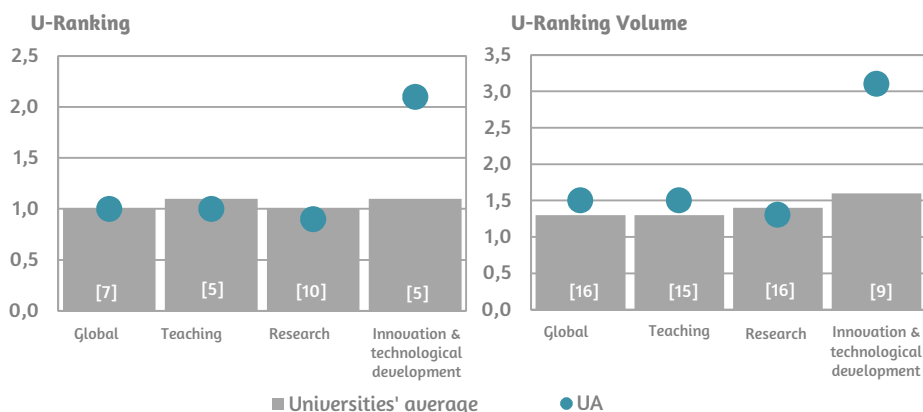
Budget[2]: 151,087,728€

Bachelor's degrees[3]: 34

Master's degrees[3]: 46

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

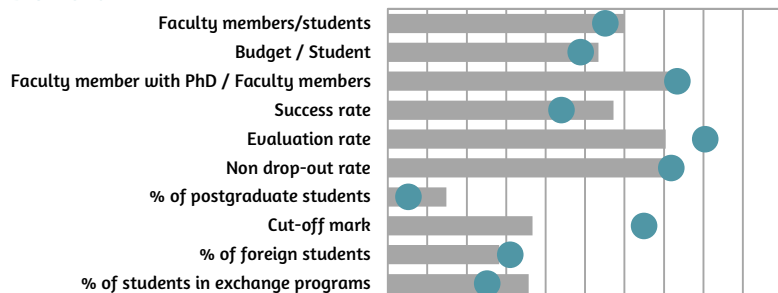## U-Ranking 2019 performance and volume indices

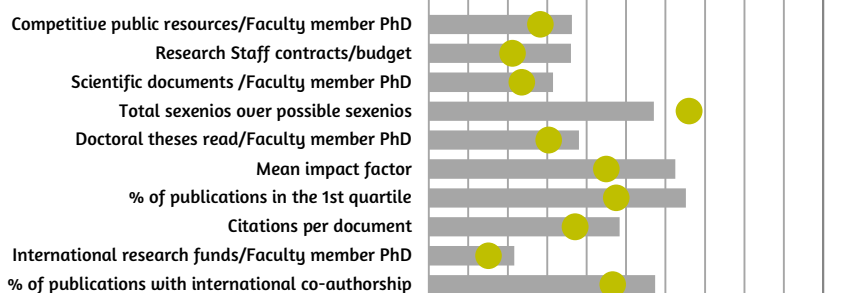*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average   ● UCO

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades   ● ● ● UCO

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

Fundación BBVA   Ivie

UNIVERSIDAD DE DEUSTO

Deusto

Year of foundation: 1886

Type of ownership: Privada

Bachelor's degree students[1]: 7,235

Master's degree students[1]: 1,763

Faculty members[1]: 575

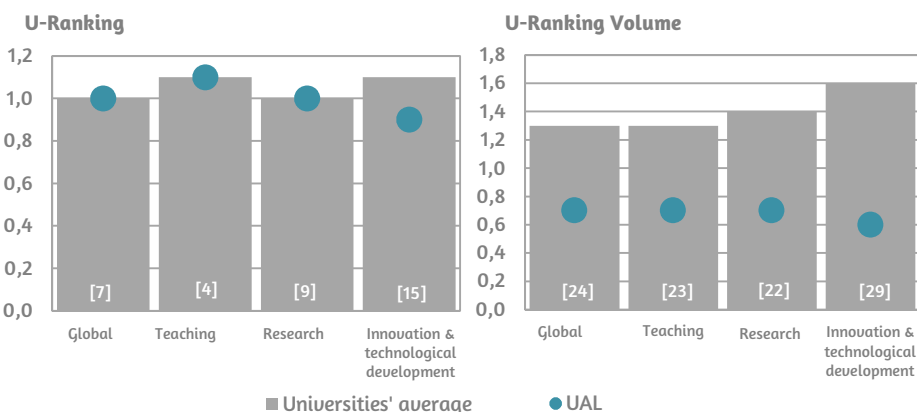Administration and service staff[1]: 519

Budget[2]: no disponible

Bachelor's degrees[3]: 26

Master's degrees[3]: 39

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)
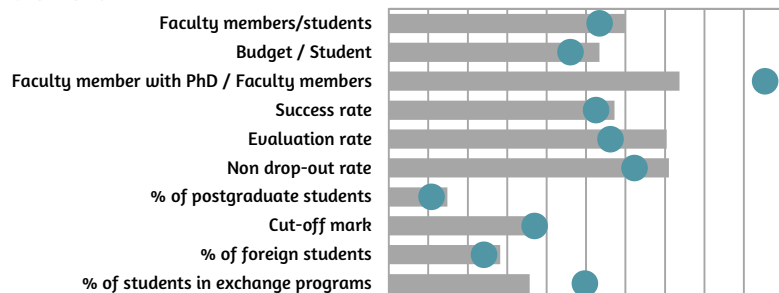
Ũ Ranking

U-Ranking 2019 performance and volume indices
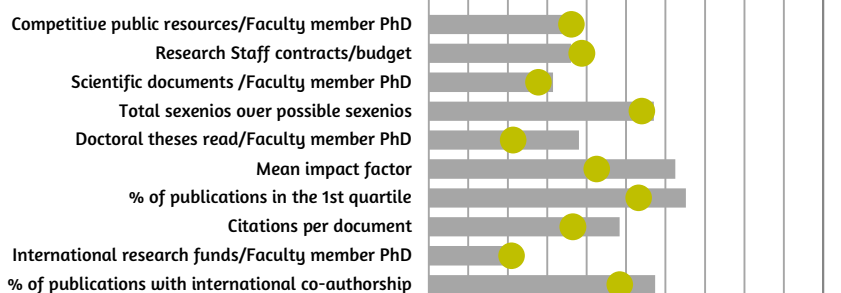
Index and postition in the ranking between brackets

U-Ranking — categories: Global [6], Teaching [2], Research [9], Innovation & technological development [19]

U-Ranking Volume — categories: Global [26], Teaching [23], Research [23], Innovation & technological development [33]

■ Universities' average ● UDE

U-Ranking 2019 indicators

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

TEACHING INDICATORS
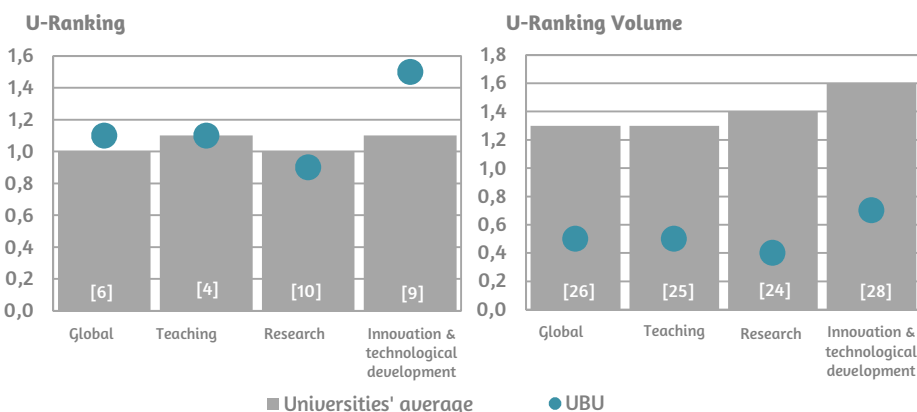- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS
- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios*
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS
- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades ●●● UDE
□□□ Indicator not available for this university
*The "sexenios" indicator is not considered for private universities

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

Fundación **BBVA** Ivie

UNIVERSIDAD DE EXTREMADURA

UNIVERSIDAD DE EXTREMADURA
UEX

Year of foundation: 1973

Type of ownership: Pública

Bachelor's degree students[1]: 17,480

Master's degree students[1]: 1,524

Faculty members[1]: 1,793

Administration and service staff[1]: 871

Budget[2]: 139,496,794€

Bachelor's degrees[3]: 60

Master's degrees[3]: 42

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)
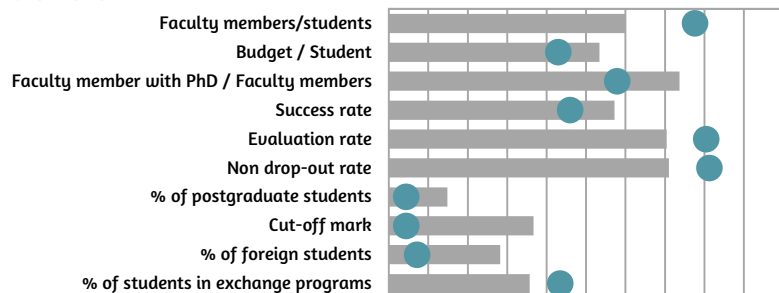
ũ Ranking

U-Ranking 2019 performance and volume indices
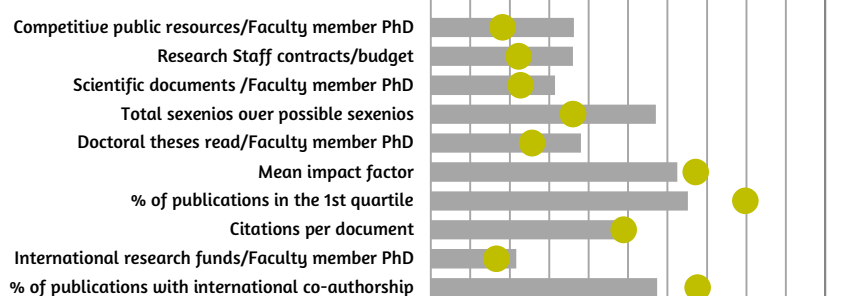
Index and postition in the ranking between brackets

U-Ranking

	[9]	[6]	[11]	[16]
	Global	Teaching	Research	Innovation & technological development

U-Ranking Volume

	[21]	[20]	[19]	[26]
	Global	Teaching	Research	Innovation & technological development

■ Universities' average   ● UNEX

U-Ranking 2019 indicators

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

TEACHING INDICATORS
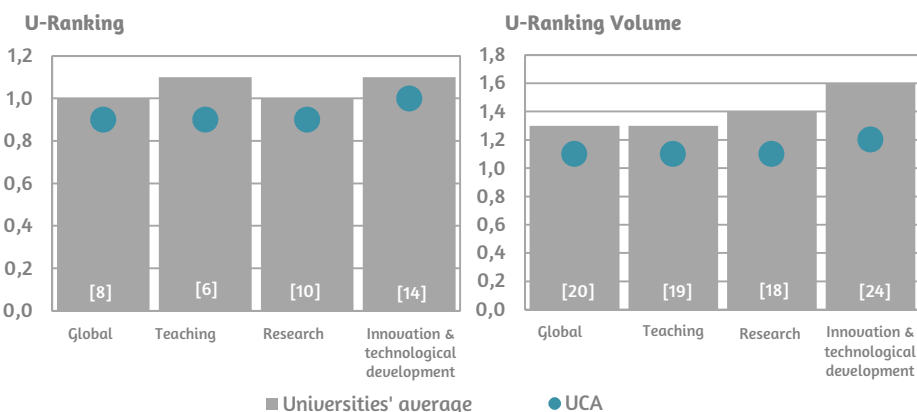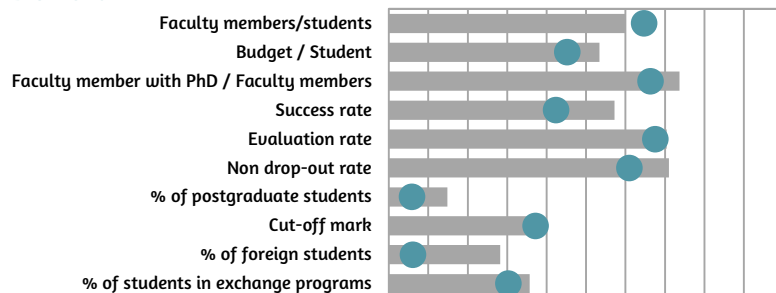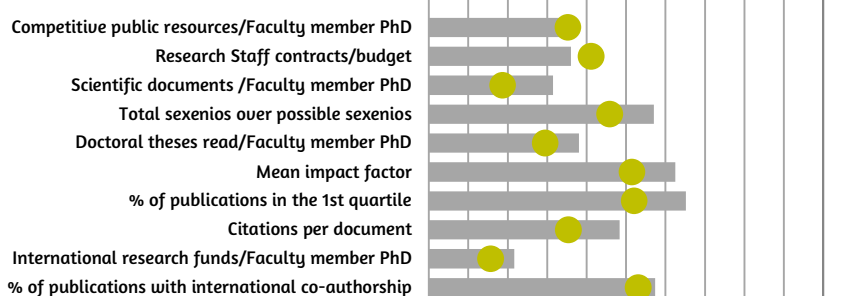
- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UNEX

Fundación **BBVA** Ivie

UNIVERSIDAD DE GRANADA

Universidad de Granada

Year of foundation: 1531

Type of ownership: Pública

Bachelor's degree students[1]: 43,227

Master's degree students[1]: 4,625

Faculty members[1]: 3,512

Administration and service staff[1]: 2,279

Budget[2]: 370,266,470€

Bachelor's degrees[3]: 63

Master's degrees[3]: 109

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
position	[7]	[5]	[8]	[17]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
position	[4]	[3]	[4]	[14]

■ Universities' average   ● UGR

ũ Ranking

U-Ranking 2019 indicators

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

TEACHING INDICATORS

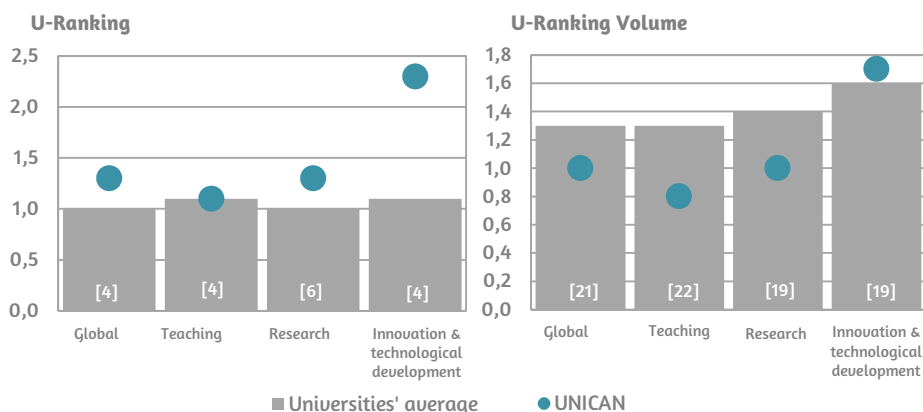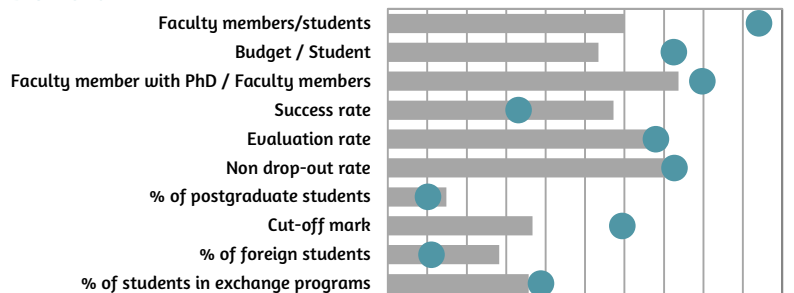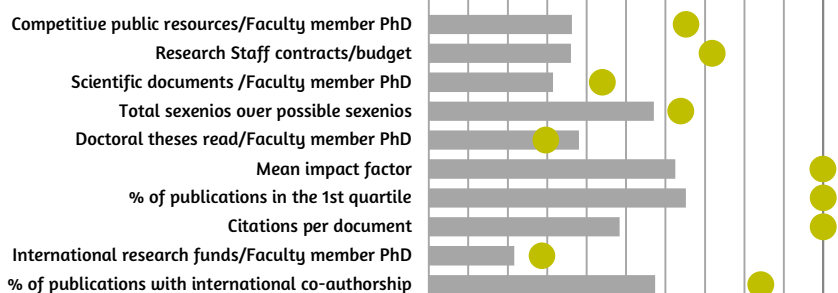- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ● ● ● UGR

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

UNIVERSIDAD DE HUELVA

uhu.es

Year of foundation: 1993

Type of ownership: Pública

Bachelor's degree students[1]: 9,699

Master's degree students[1]: 1,031

Faculty members[1]: 846

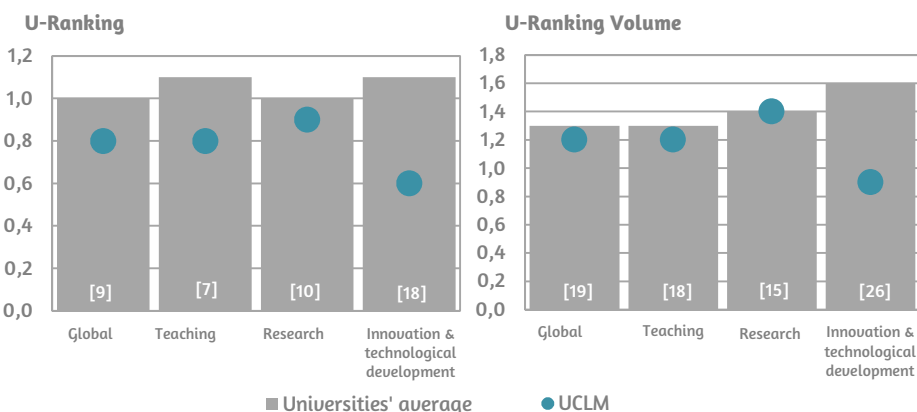Administration and service staff[1]: 431

Budget[2]: 81,246,364€

Bachelor's degrees[3]: 29

Master's degrees[3]: 41

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ Ranking
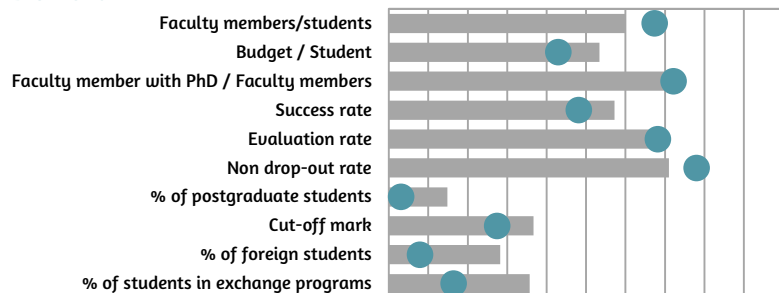
U-Ranking 2019 performance and volume indices

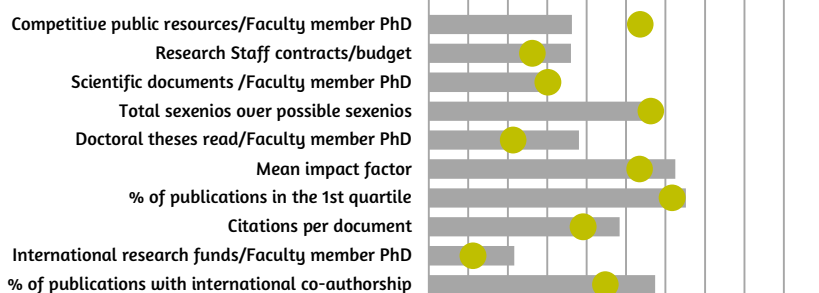*Index and postition in the ranking between brackets*

U-Ranking

Global [8] · Teaching [6] · Research [11] · Innovation & technological development [16]

U-Ranking Volume

Global [25] · Teaching [24] · Research [23] · Innovation & technological development [30]

■ Universities' average ● UHU

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ● ● ● UHU

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

Fundación **BBVA** | Ivie

UNIVERSIDAD DE JAÉN

UNIVERSIDAD DE JAÉN

Year of foundation: 1993

Type of ownership: Pública

Bachelor's degree students[1]: 12,410

Master's degree students[1]: 1,721

Faculty members[1]: 961

Administration and service staff[1]: 499
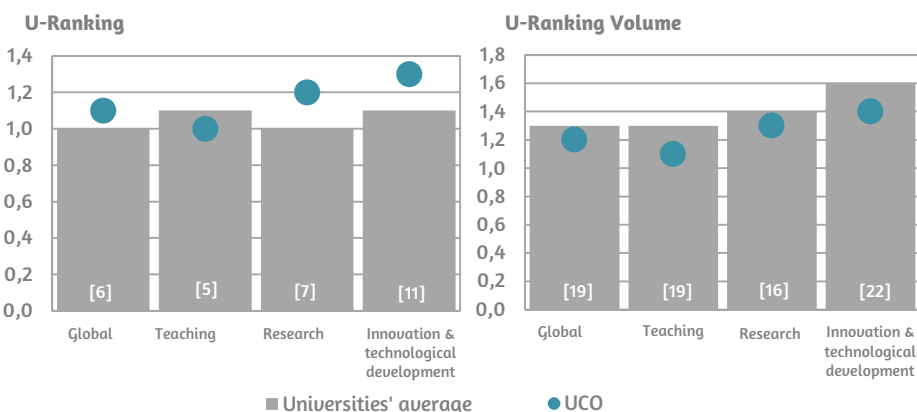
Budget[2]: 100,368,734€

Bachelor's degrees[3]: 34

Master's degrees[3]: 43

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)
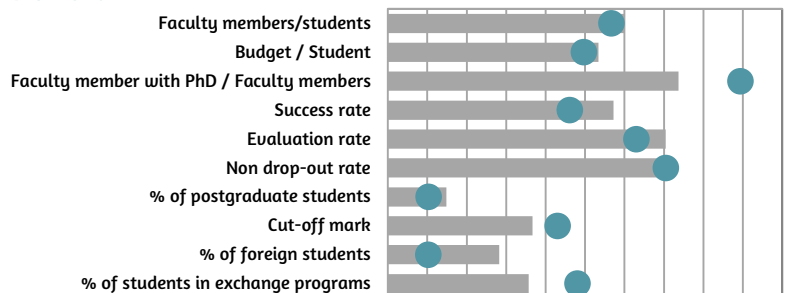
ũ Ranking

U-Ranking 2019 performance and volume indices
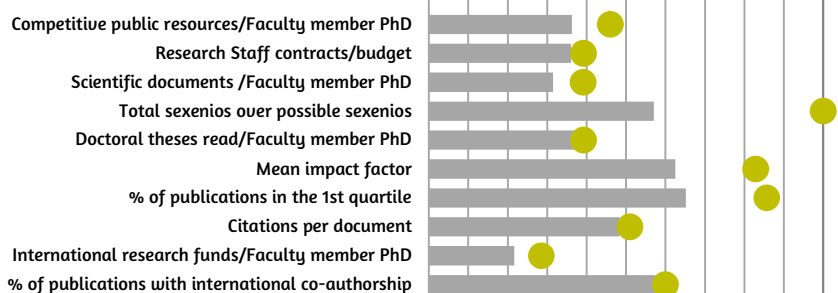
Index and postition in the ranking between brackets

U-Ranking

Global	[8]	
Teaching	[6]	
Research	[11]	
Innovation & technological development	[15]	

U-Ranking Volume

Global	[24]	
Teaching	[22]	
Research	[22]	
Innovation & technological development	[27]	

■ Universities' average   ● UJAEN

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UJAEN

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

Fundación BBVA   Ivie

UNIVERSIDAD DE LA LAGUNA
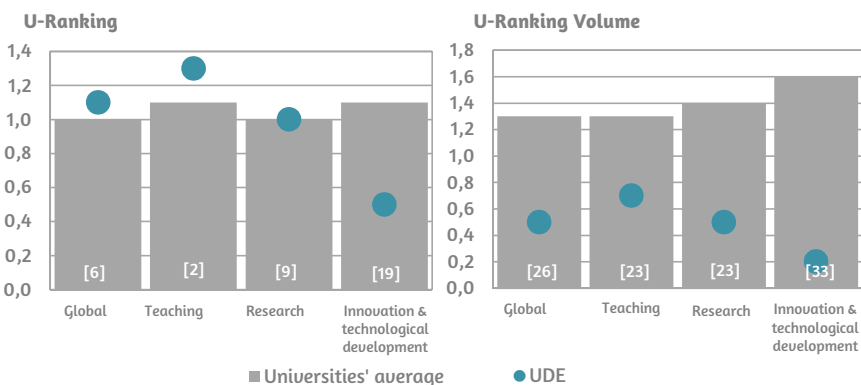
ULL | Universidad de La Laguna

Year of foundation: 1701

Type of ownership: Pública

Bachelor's degree students[1]: 16,973

Master's degree students[1]: 1,089

Faculty members[1]: 1,565

Administration and service staff[1]: 833

Budget[2]: 156,344,788€

Bachelor's degrees[3]: 45

Master's degrees[3]: 37

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

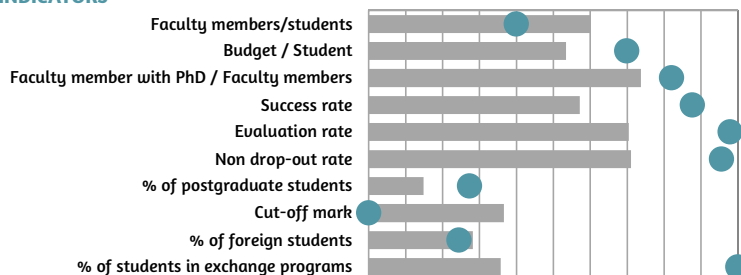ũ Ranking

U-Ranking 2019 performance and volume indices

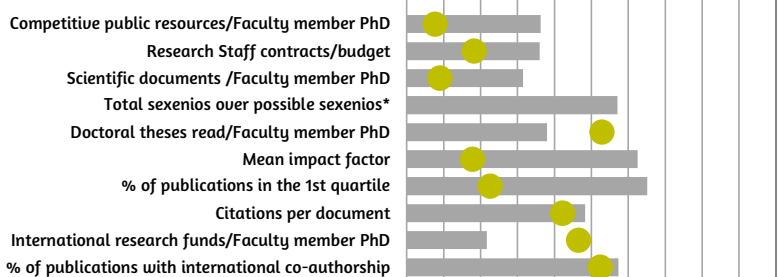*Index and postition in the ranking between brackets*

U-Ranking

Global [9] · Teaching [6] · Research [9] · Innovation & technological development [21]

U-Ranking Volume

Global [21] · Teaching [19] · Research [16] · Innovation & technological development [32]

■ Universities' average ● ULL

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●●● ULL

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

UNIVERSIDAD DE LA RIOJA

UNIVERSIDAD DE LA RIOJA

Year of foundation: 1992

Type of ownership: Pública

Bachelor's degree students[1]: 3,320

Master's degree students[1]: 426

Faculty members[1]: 434

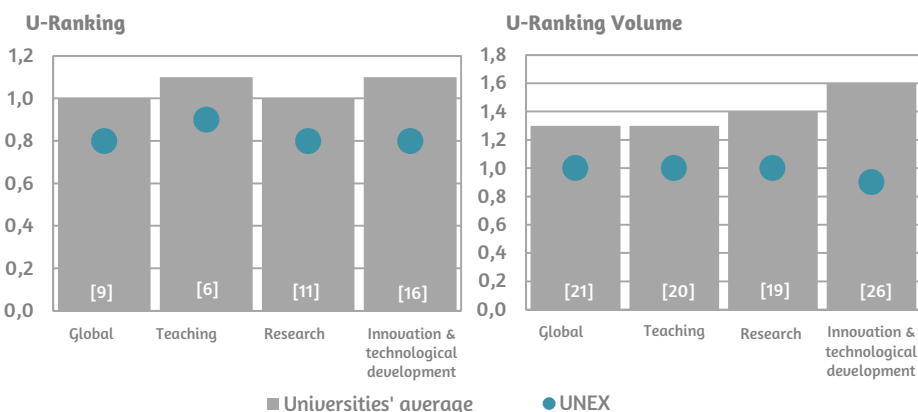Administration and service staff[1]: 256

Budget[2]: 41,511,177€

Bachelor's degrees[3]: 18

Master's degrees[3]: 13

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ Ranking
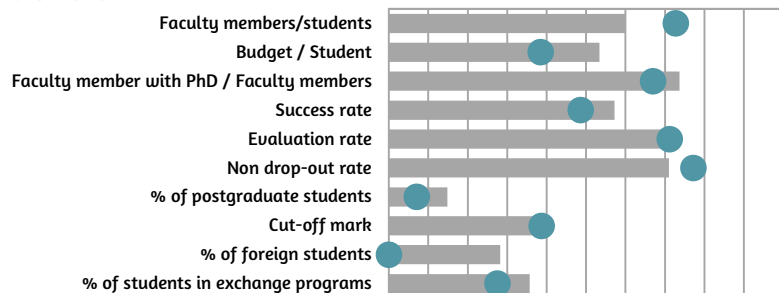
U-Ranking 2019 performance and volume indices
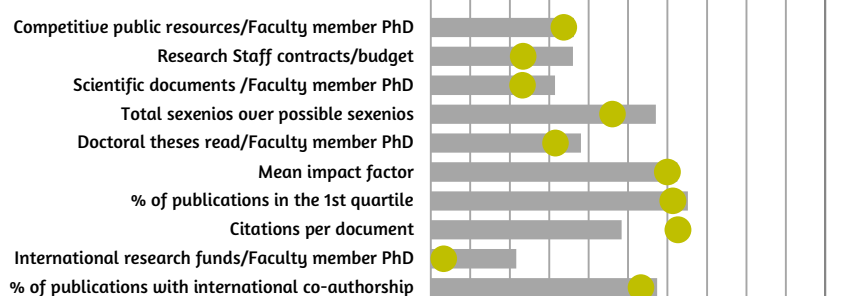
Index and postition in the ranking between brackets

U-Ranking

Global	[7]	
Teaching	[5]	
Research	[8]	
Innovation & technological development	[17]	

U-Ranking Volume

Global	[28]	
Teaching	[27]	
Research	[25]	
Innovation & technological development	[33]	

■ Universities' average   ● UNIRIOJA

U-Ranking 2019 indicators

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

TEACHING INDICATORS
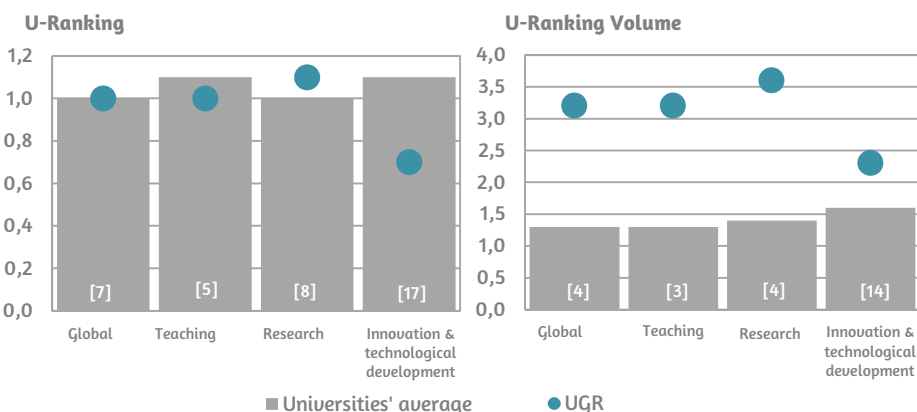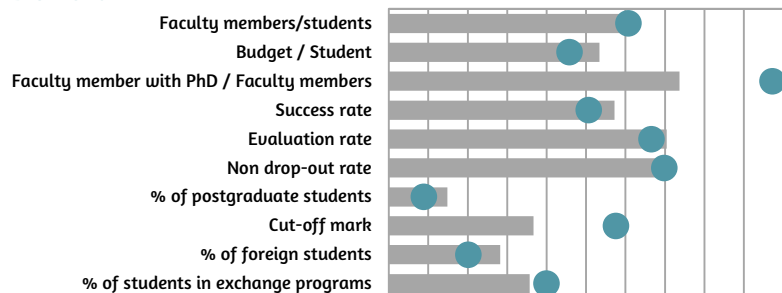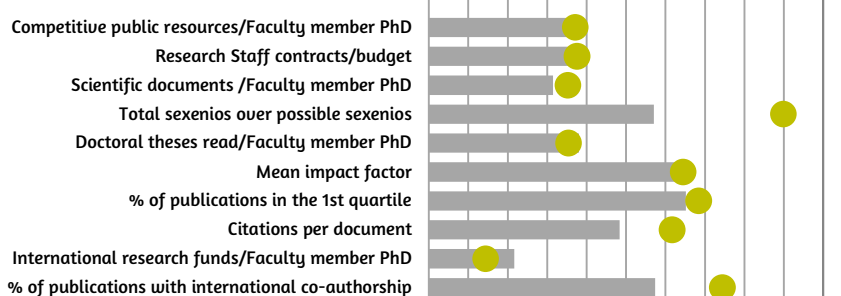
- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UNIRIOJA

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

Fundación BBVA   **Ivie**

UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA

UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA

Year of foundation: 1979

Type of ownership: Pública

Bachelor's degree students[1]: 17,289

Master's degree students[1]: 1,193

Faculty members[1]: 1,483

Administration and service staff[1]: 801

Budget[2]: 139,868,251€

Bachelor's degrees[3]: 36

Master's degrees[3]: 33

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
position	[9]	[6]	[11]	[21]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
position	[22]	[20]	[20]	[31]

■ Universities' average   ● ULPGC

U-Ranking 2019 indicators

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

TEACHING INDICATORS
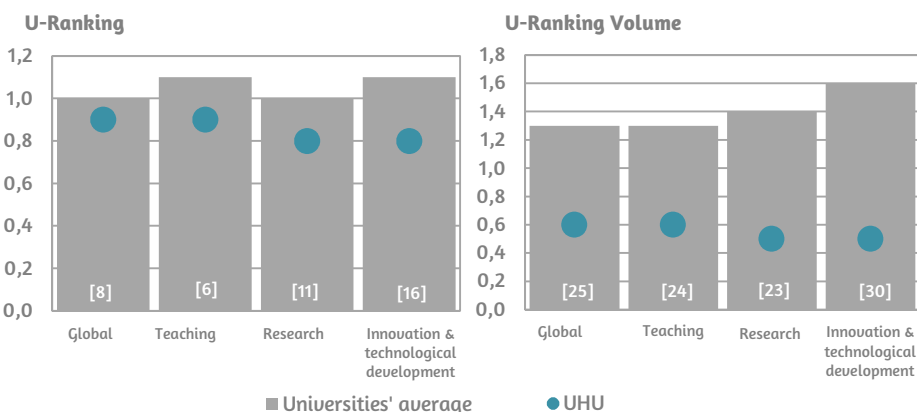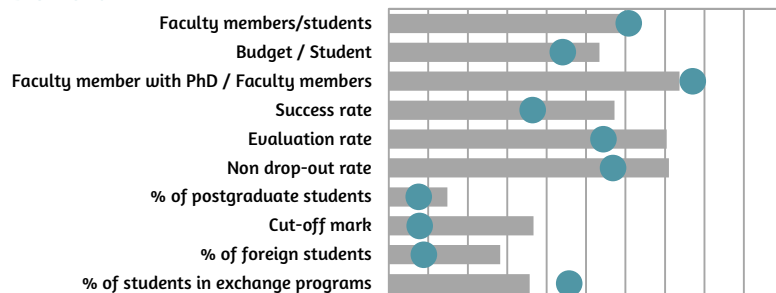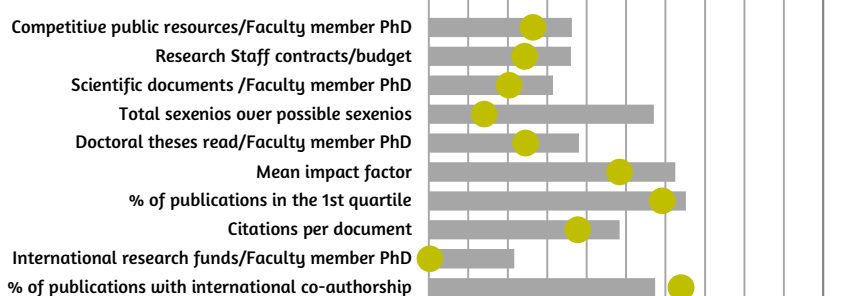
- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades   ●●● ULPGC

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

UNIVERSIDAD DE LEÓN

universidad de león

Year of foundation: 1979

Type of ownership: Pública

Bachelor's degree students¹: 9,203

Master's degree students¹: 1,093

Faculty members¹: 914

Administration and service staff¹: 475

Budget²: 86,258,299€

Bachelor's degrees³: 38

Master's degrees³: 41

¹Course 2017-18; ²2016; ³Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UNILEON

ũ Ranking

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades   ●●● UNILEON

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

Fundación **BBVA** Ivie

UNIVERSIDAD DE MÁLAGA

UNIVERSIDAD DE MÁLAGA
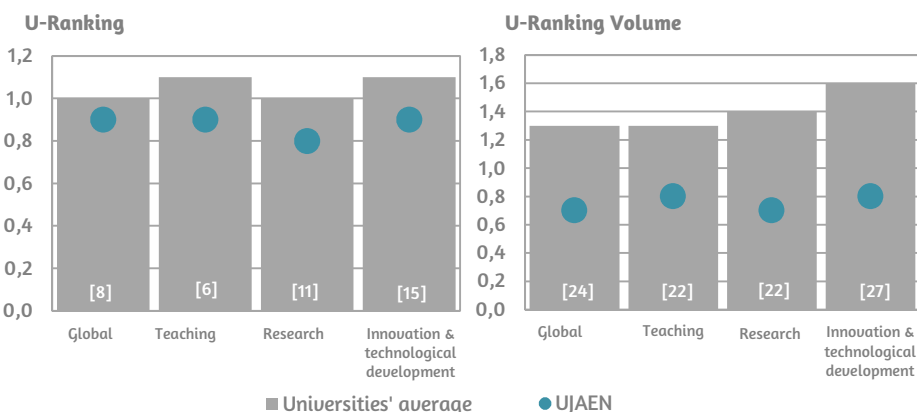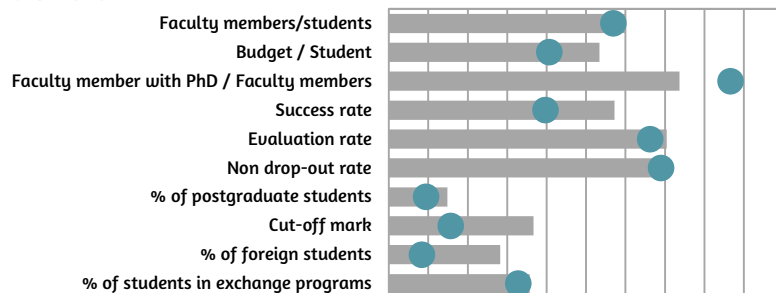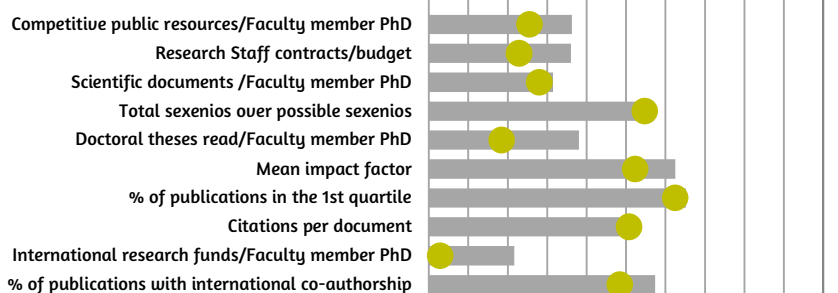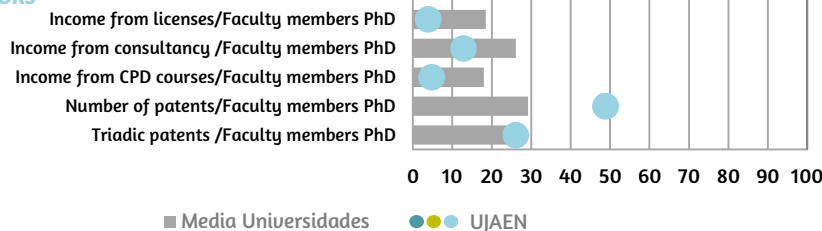
Year of foundation: 1972

Type of ownership: Pública

Bachelor's degree students[1]: 31,183

Master's degree students[1]: 2,577

Faculty members[1]: 2,438

Administration and service staff[1]: 1,295
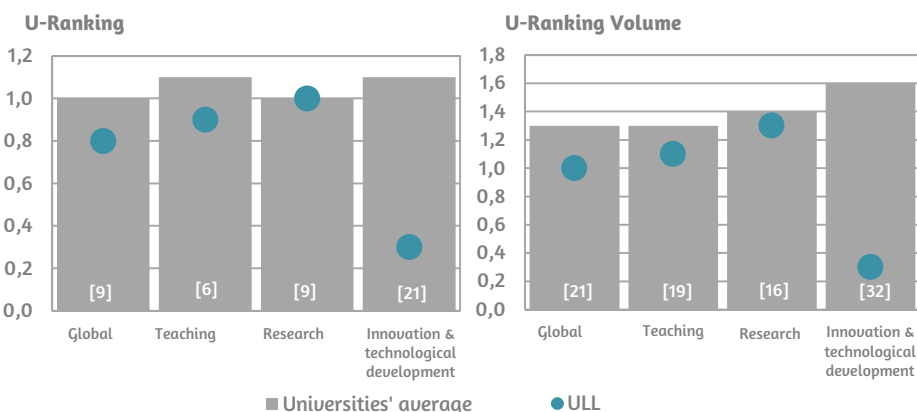
Budget[2]: 235,336,987€

Bachelor's degrees[3]: 59

Master's degrees[3]: 66

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

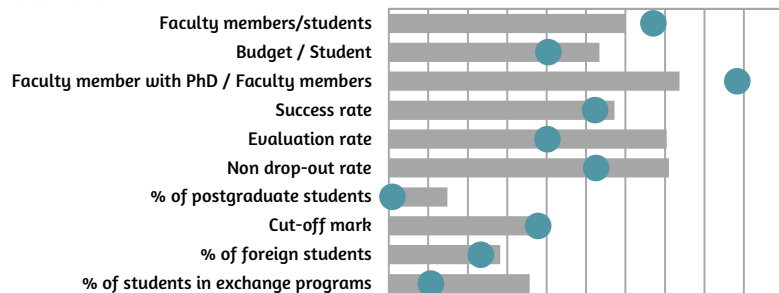## U-Ranking 2019 performance and volume indices
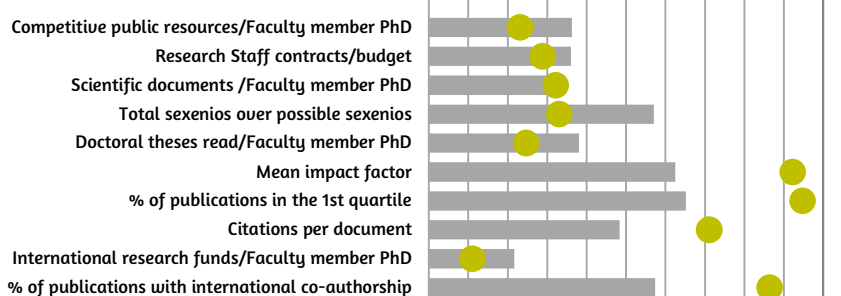
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UMA

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades   ●●● UMA

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

Fundación **BBVA**   Ivie

UNIVERSIDAD DE MURCIA

UNIVERSIDAD DE MURCIA

Year of foundation: 1915

Type of ownership: Pública

Bachelor's degree students[1]: 26,774

Master's degree students[1]: 2,505

Faculty members[1]: 2,620

Administration and service staff[1]: 1,216
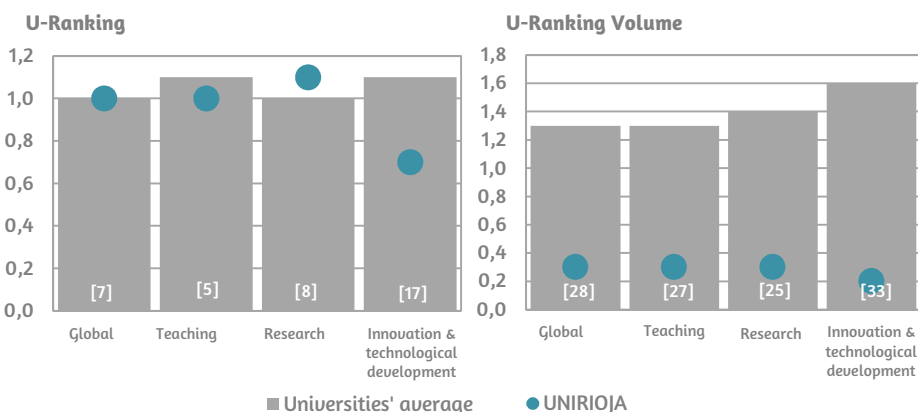
Budget[2]: 201,700,245€

Bachelor's degrees[3]: 49

Master's degrees[3]: 72

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

Ũ Ranking
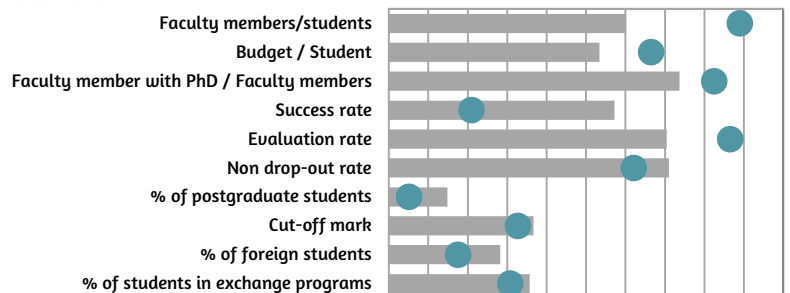
U-Ranking 2019 performance and volume indices

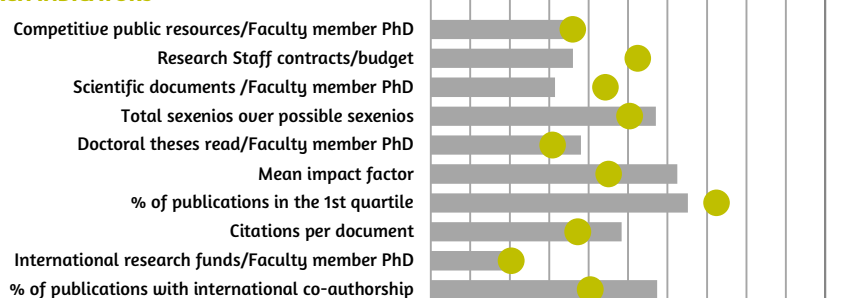*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average   ● UM

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades   ●●● UM

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

Fundación BBVA Ivie

UNIVERSIDAD DE NAVARRA

Universidad de Navarra

Year of foundation: 1952

Type of ownership: Privada

Bachelor's degree students[1]: 8,205

Master's degree students[1]: 2,454

Faculty members[1]: 1,394

Administration and service staff[1]: 1,364
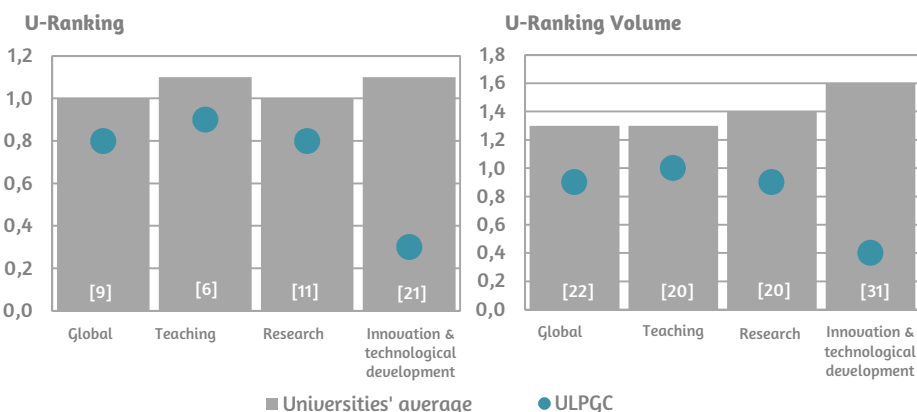
Budget[2]: no disponible

Bachelor's degrees[3]: 42

Master's degrees[3]: 36

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ Ranking
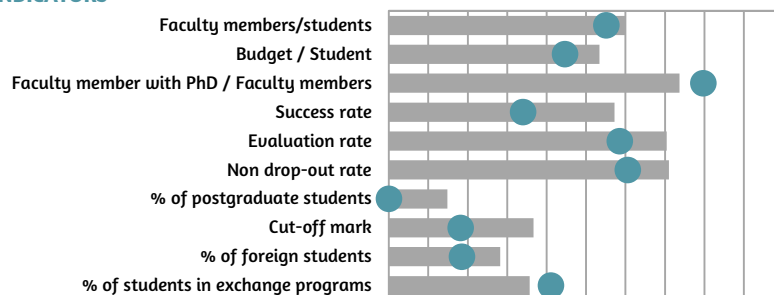
U-Ranking 2019 performance and volume indices
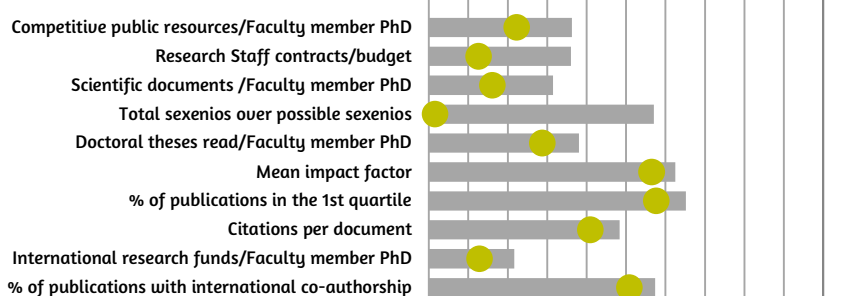
Index and postition in the ranking between brackets

U-Ranking

Global [5] · Teaching [1] · Research [8] · Innovation & technological development [17]

U-Ranking Volume

Global [22] · Teaching [19] · Research [21] · Innovation & technological development [30]

■ Universities' average ● UN

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios*
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 · 10 · 20 · 30 · 40 · 50 · 60 · 70 · 80 · 90 · 100

■ Media Universidades ●●● UN
*The "sexenios" indicator is not considered for private universities

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

Fundación **BBVA** Ivie

UNIVERSIDAD DE OVIEDO

Universidad de Oviedo

Year of foundation: 1604

Type of ownership: Pública

Bachelor's degree students[1]: 17,320

Master's degree students[1]: 1,813

Faculty members[1]: 2,015

Administration and service staff[1]: 976
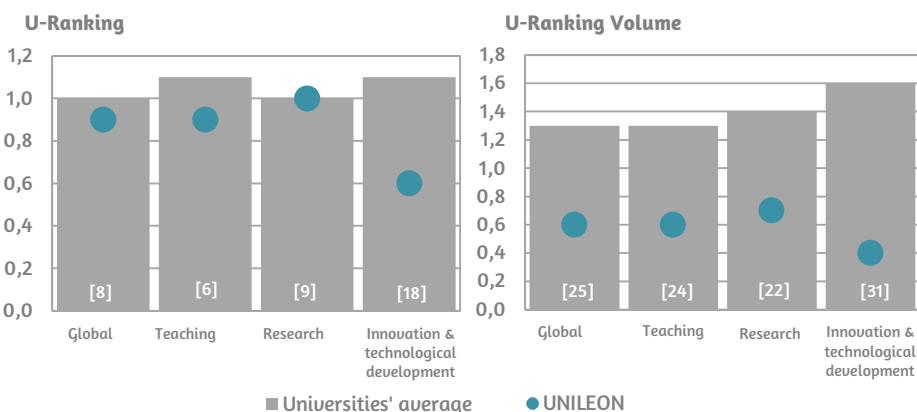
Budget[2]: 185,804,033€

Bachelor's degrees[3]: 51

Master's degrees[3]: 64

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

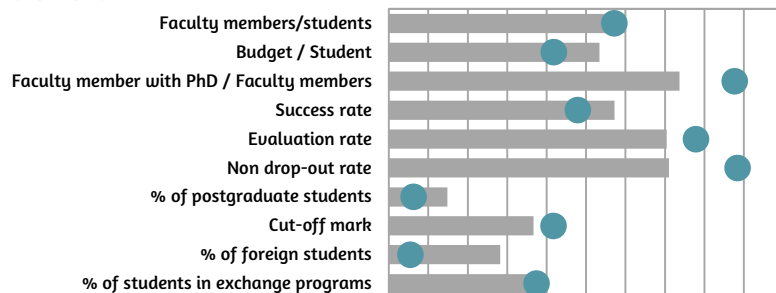## U-Ranking 2019 performance and volume indices
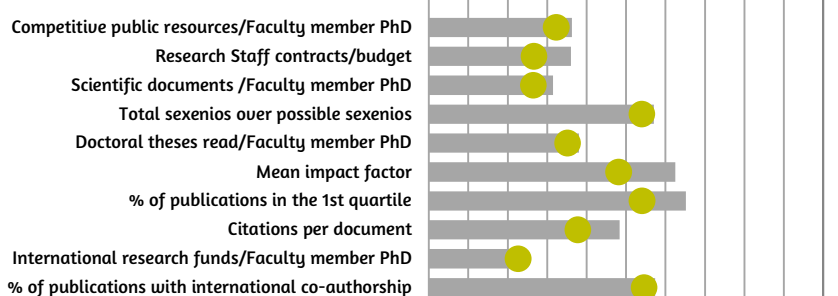
Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
Position	[7]	[5]	[8]	[17]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
Position	[16]	[15]	[14]	[25]

■ Universities' average   ● UNIOVI

U-Ranking 2019 indicators

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

TEACHING INDICATORS

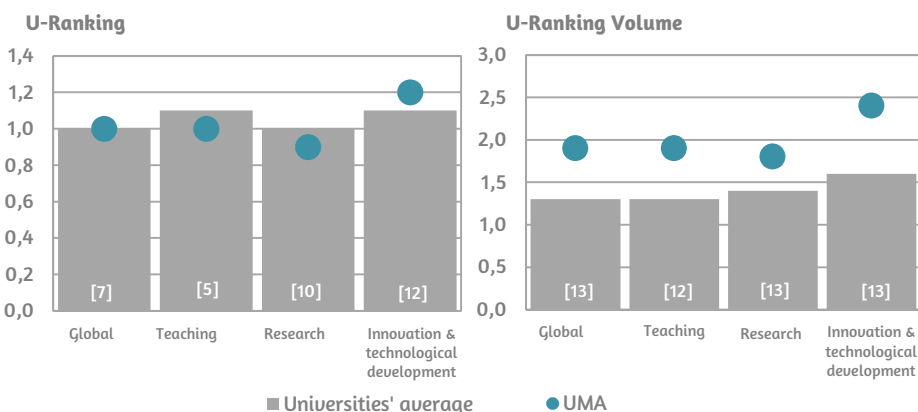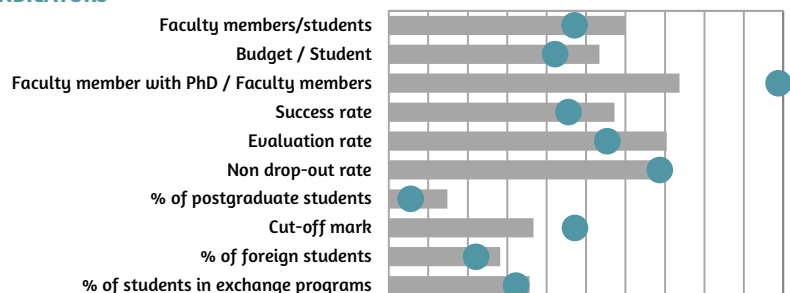- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UNIOVI

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

Fundación BBVA Ivie

UNIVERSIDAD DE SALAMANCA

VNiVERSiDAD
Ð SALAMANCA
CAMPUS DE EXCELENCIA INTERNACIONAL

Year of foundation: 1218

Type of ownership: Pública

Bachelor's degree students[1]: 20,393

Master's degree students[1]: 1,813

Faculty members[1]: 2,202

Administration and service staff[1]: 1,133

Budget[2]: 198,731,105€

Bachelor's degrees[3]: 72

Master's degrees[3]: 76

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ Ranking

U-Ranking 2019 performance and volume indices
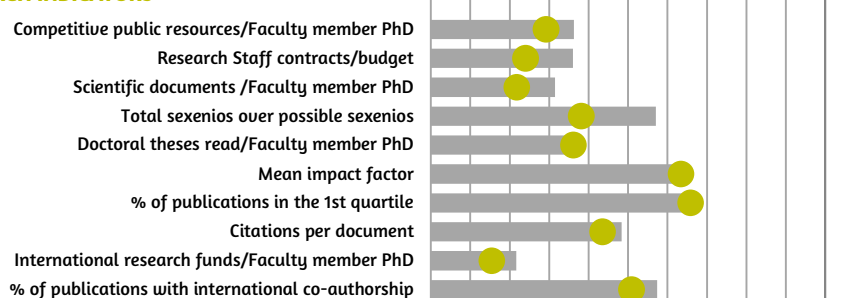
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● USAL

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades   ●●● USAL

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

Fundación BBVA   Ivie

UNIVERSIDAD DE SEVILLA

Year of foundation: 1505

Type of ownership: Pública

Bachelor's degree students[1]: 49,965

Master's degree students[1]: 5,179

Faculty members[1]: 4,190

Administration and service staff[1]: 2,592
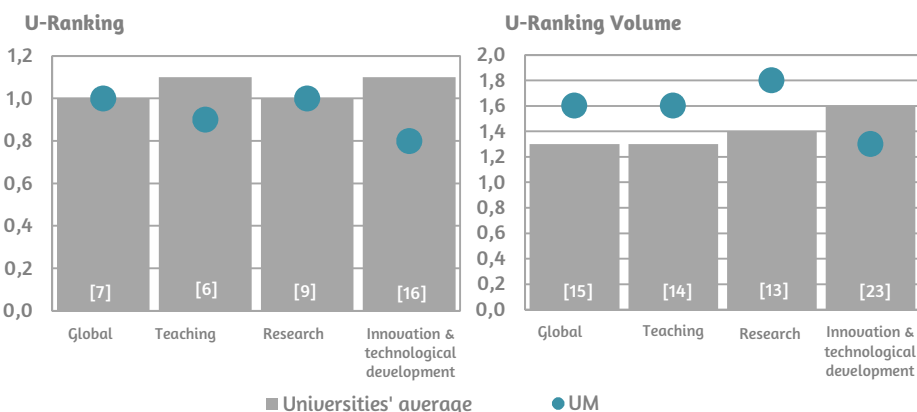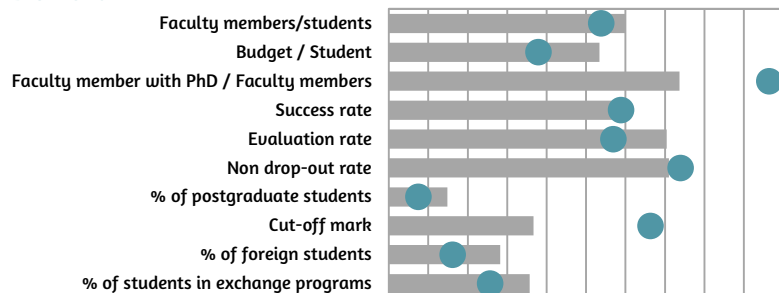
Budget[2]: 404,378,959€

Bachelor's degrees[3]: 68

Master's degrees[3]: 104

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

Ũ Ranking

U-Ranking 2019 performance and volume indices

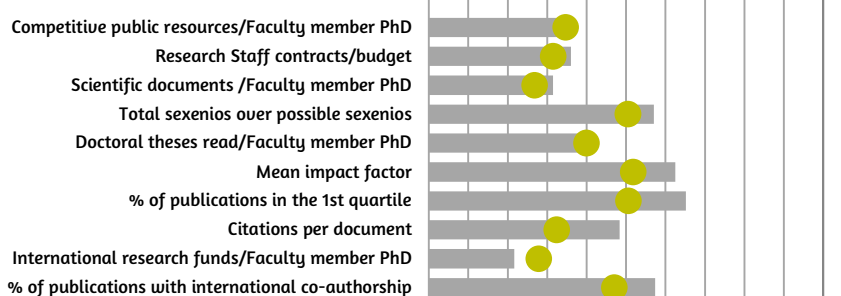*Index and postition in the ranking between brackets*

U-Ranking

Global [7] Teaching [6] Research [9] Innovation & technological development [7]

U-Ranking Volume

Global [4] Teaching [5] Research [6] Innovation & technological development [3]

■ Universities' average   ● US

U-Ranking 2019 indicators

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

TEACHING INDICATORS
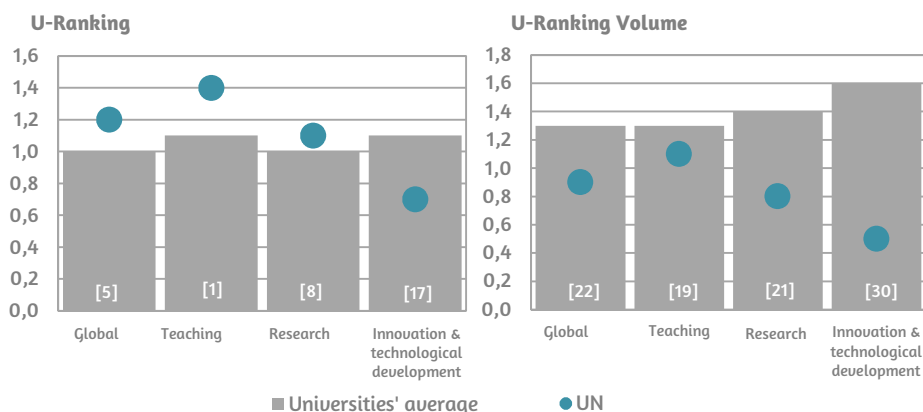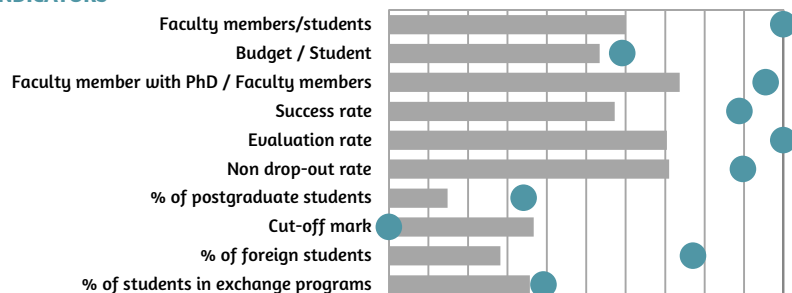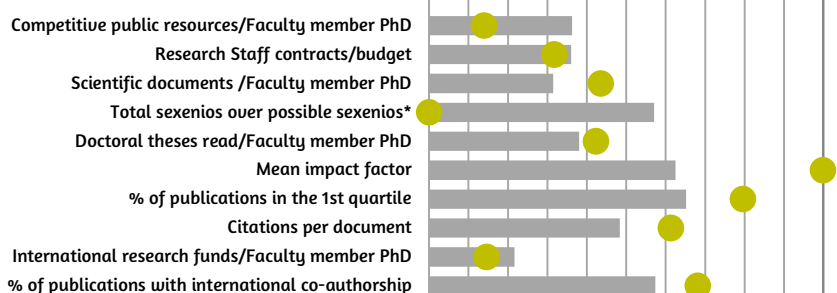
- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ● ● ● US

UNIVERSIDAD DE VALLADOLID

Universidad deValladolid

Year of foundation: 1346

Type of ownership: Pública

Bachelor's degree students[1]: 18,541

Master's degree students[1]: 1,251

Faculty members[1]: 2,249

Administration and service staff[1]: 1,027

Budget[2]: 176,874,942€

Bachelor's degrees[3]: 54

Master's degrees[3]: 64

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
position	[8]	[6]	[10]	[12]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
position	[17]	[16]	[16]	[17]

■ Universities' average   ● UVA

U-Ranking 2019 indicators

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

TEACHING INDICATORS
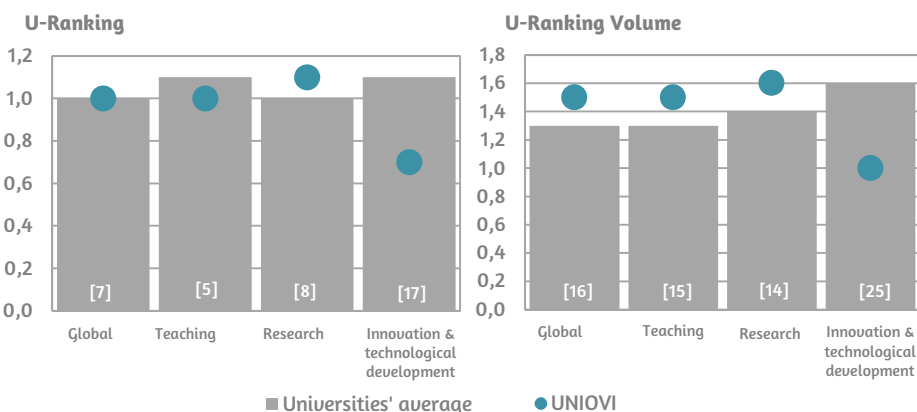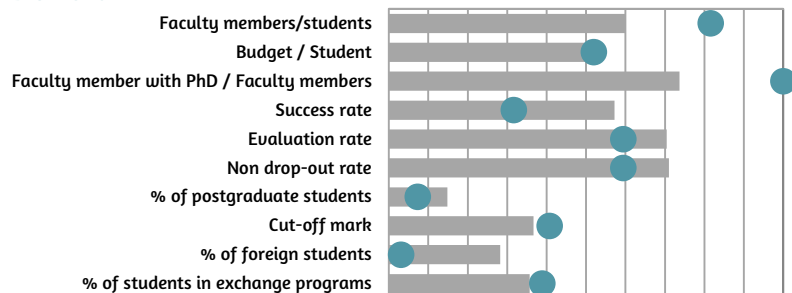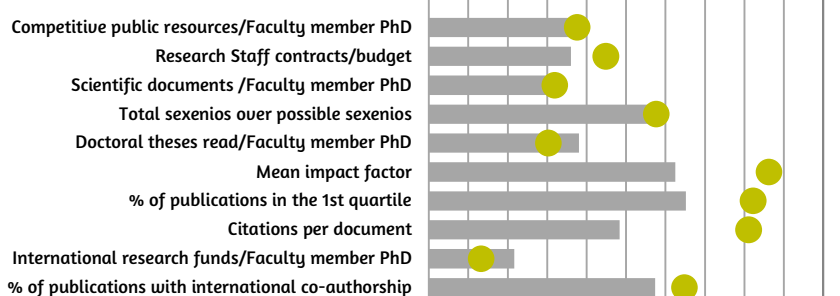

Faculty members/students
Budget / Student
Faculty member with PhD / Faculty members
Success rate
Evaluation rate
Non drop-out rate
% of postgraduate students
Cut-off mark
% of foreign students
% of students in exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UVA

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

Fundación **BBVA** Ivie

UNIVERSIDAD DE ZARAGOZA

Universidad Zaragoza

Year of foundation: 1474

Type of ownership: Pública

Bachelor's degree students[1]: 24,570

Master's degree students[1]: 2,291

Faculty members[1]: 3,668

Administration and service staff[1]: 1,541
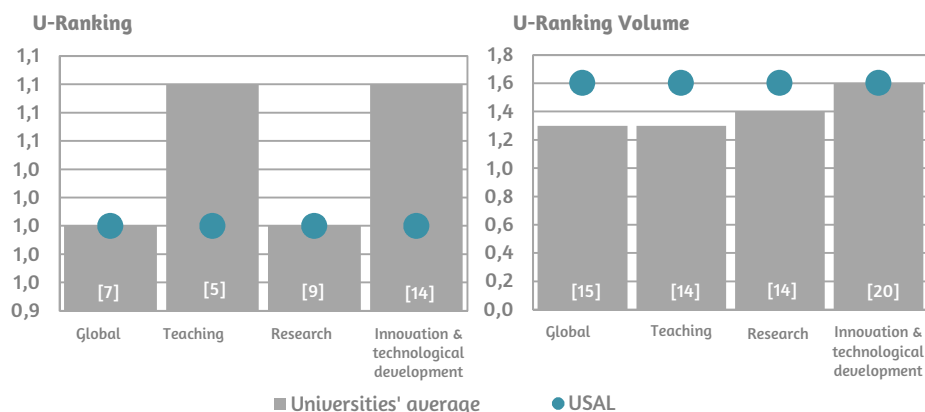
Budget[2]: 265,088,309€

Bachelor's degrees[3]: 48

Master's degrees[3]: 54

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

Ũ Ranking
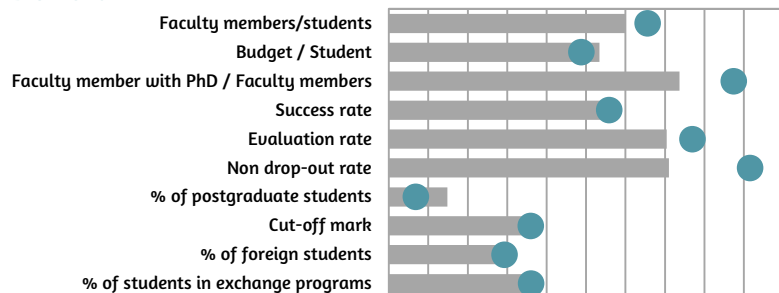
U-Ranking 2019 performance and volume indices

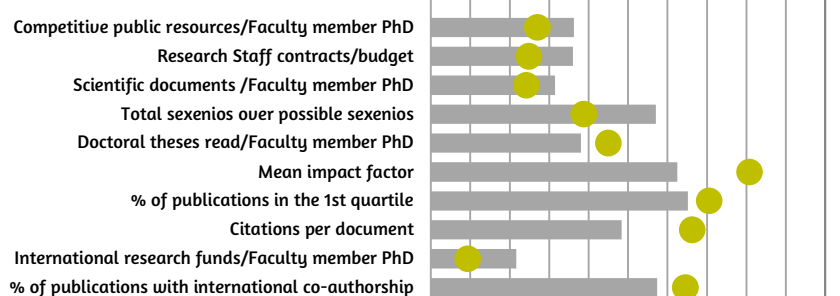*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average   ● UNIZAR

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UNIZAR

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

UNIVERSIDAD DEL PAÍS VASCO

Universidad del País Vasco
Euskal Herriko Unibertsitatea

Year of foundation: 1968

Type of ownership: Pública

Bachelor's degree students[1]: 35,411

Master's degree students[1]: 3,306

Faculty members[1]: 4,415

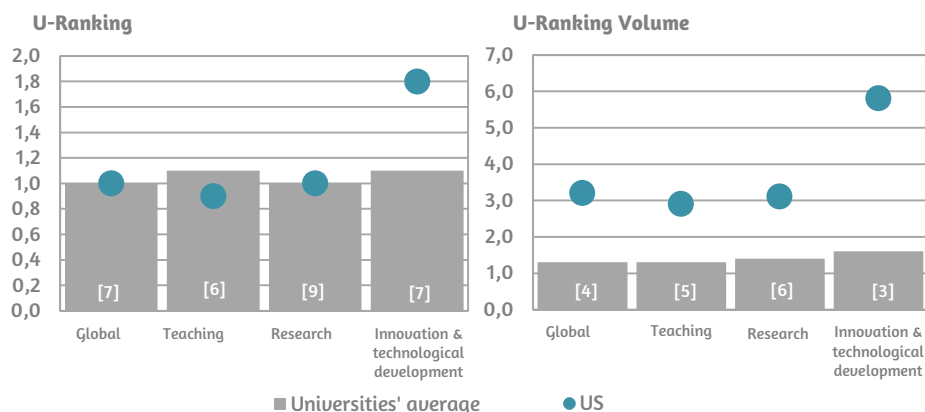Administration and service staff[1]: 1,900

Budget[2]: 424,561,121€

Bachelor's degrees[3]: 69

Master's degrees[3]: 120

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

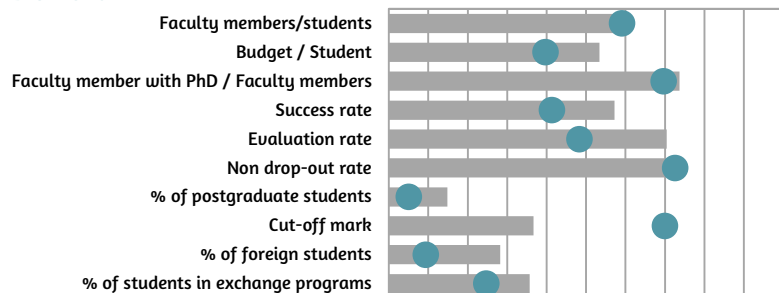ũ Ranking

U-Ranking 2019 performance and volume indices

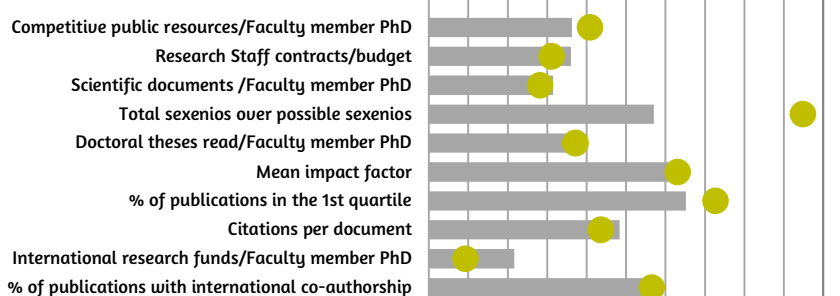*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average ● UPV-EHU

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades ●●● UPV-EHU

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

Fundación **BBVA** Ivie

UNIVERSIDAD FRANCISCO DE VITORIA

Universidad Francisco de Vitoria
UFV Madrid

Year of foundation: 2002

Type of ownership: Privada

Bachelor's degree students[1]: 6,709

Master's degree students[1]: 2,430

Faculty members[1]: 731

Administration and service staff[1]: 430

Budget[2]: no disponible

Bachelor's degrees[3]: 28

Master's degrees[3]: 13

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

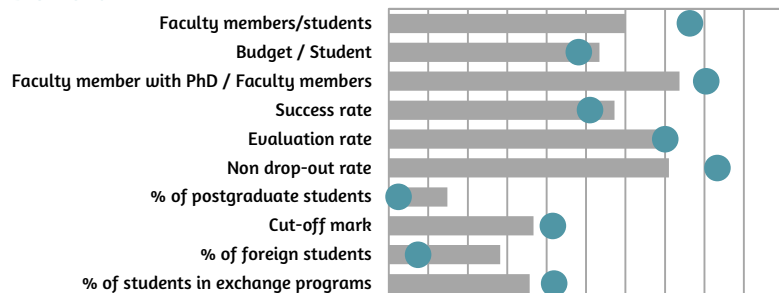## U-Ranking 2019 performance and volume indices
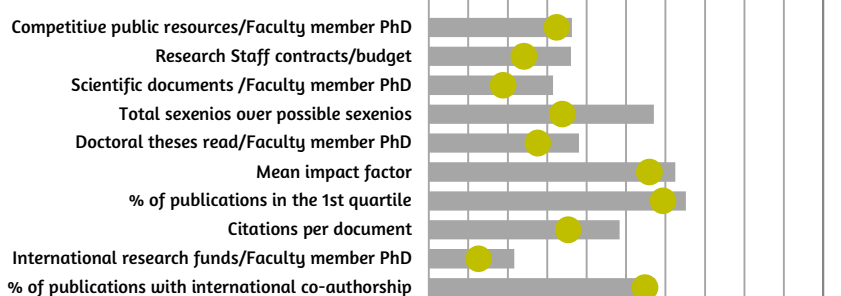
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

- Universities' average
- UFV

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios*
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD
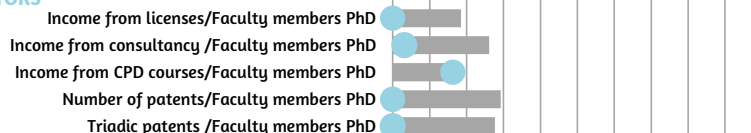
- Media Universidades
- UFV
- Indicator not available for this university

*The "sexenios" indicator is not considered for private universities

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

Fundación BBVA Ivie

UNIVERSIDAD MIGUEL HERNÁNDEZ DE ELCHE

UNIVERSITAS Miguel Hernández

Year of foundation: 1997

Type of ownership: Pública

Bachelor's degree students[1]: 9,796

Master's degree students[1]: 2,431

Faculty members[1]: 1,097

Administration and service staff[1]: 488
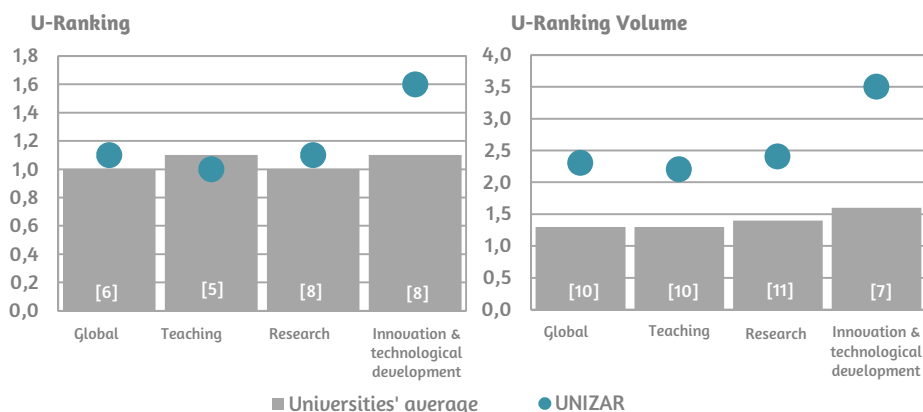
Budget[2]: 112,228,953€

Bachelor's degrees[3]: 25

Master's degrees[3]: 51

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)
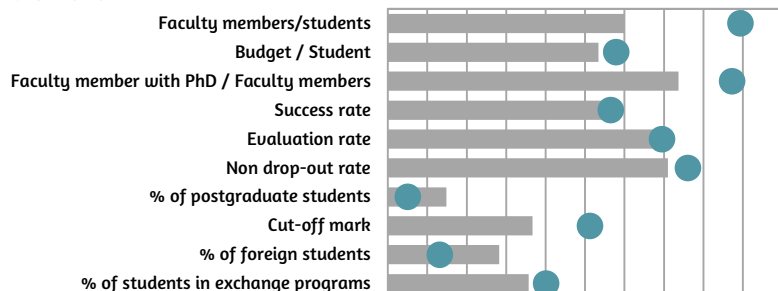
U-Ranking 2019 performance and volume indices

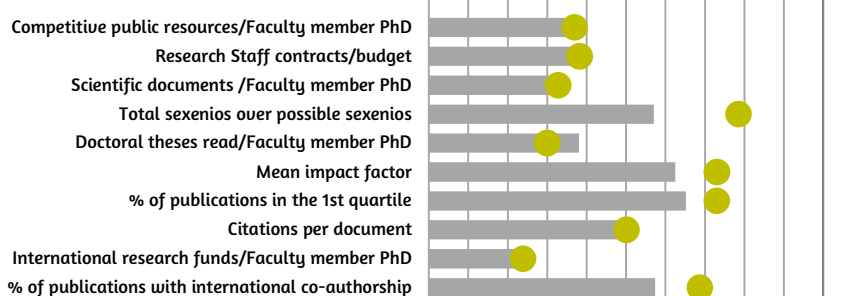*Index and postition in the ranking between brackets*

U-Ranking

	Global	Teaching	Research	Innovation & technological development
	[5]	[4]	[8]	[3]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
	[22]	[22]	[21]	[15]

■ Universities' average ● UMH

Ũ Ranking

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●●● UMH

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

Fundación **BBVA** Ivie

UNIVERSIDAD NACIONAL DE EDUCACIÓN A DISTANCIA

UNED

Year of foundation: 1972

Type of ownership: Pública

Bachelor's degree students[1]: 133,317

Master's degree students[1]: 9,307

Faculty members[1]: 1,186

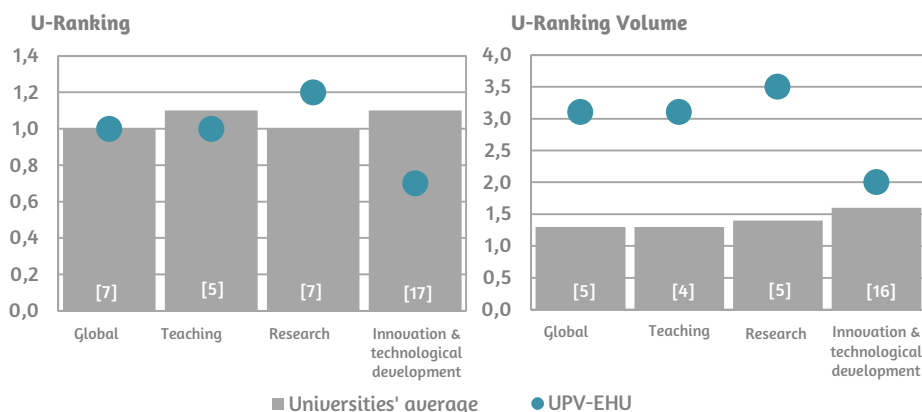Administration and service staff[1]: 1,213

Budget[2]: 195,739,870€

Bachelor's degrees[3]: 28

Master's degrees[3]: 75

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

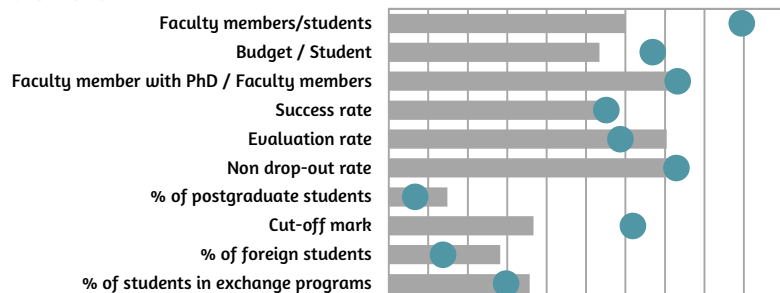## U-Ranking 2019 performance and volume indices

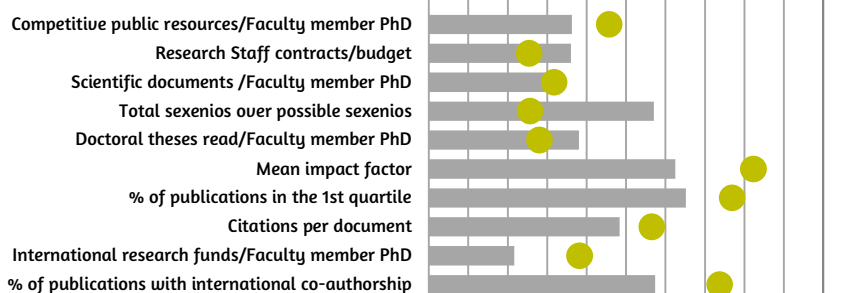*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average   ● UNED

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD
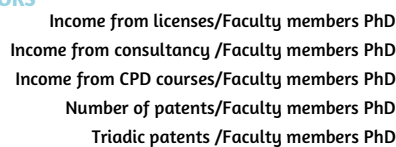
■ Media Universidades   ● ● ● UNED

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

UNIVERSIDAD NEBRIJA

UNIVERSIDAD NEBRIJA

Year of foundation: 1995

Type of ownership: Privada

Bachelor's degree students[1]: 3,580

Master's degree students[1]: 3,905

Faculty members[1]: 403

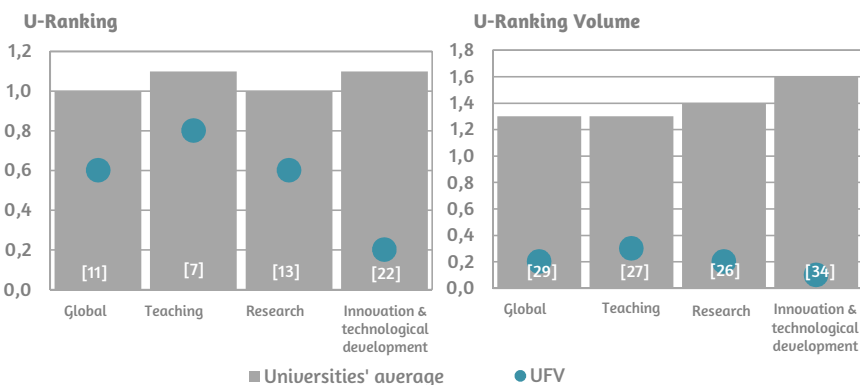Administration and service staff[1]: 246

Budget[2]: no disponible

Bachelor's degrees[3]: 36

Master's degrees[3]: 43

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)
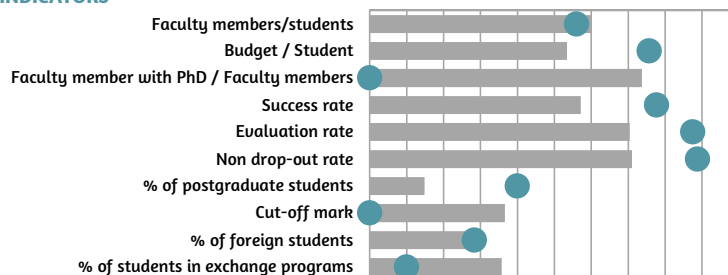
U-Ranking 2019 performance and volume indices

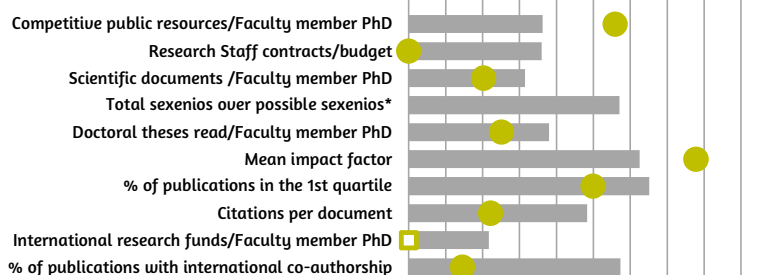*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average   ● UANE

U-Ranking 2019 indicators

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

TEACHING INDICATORS
- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS
- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios*
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS
- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD
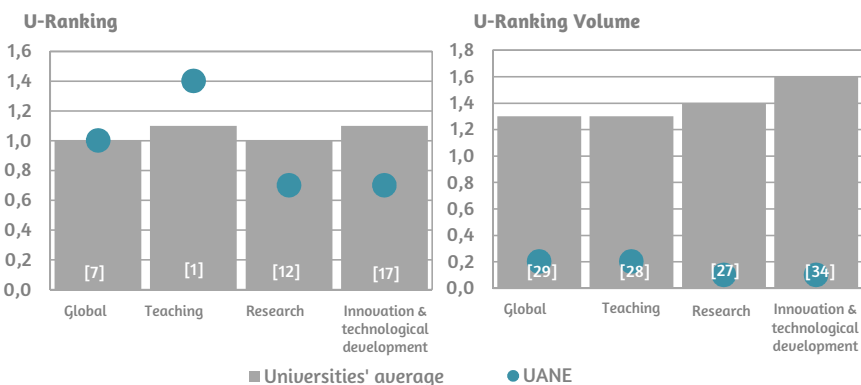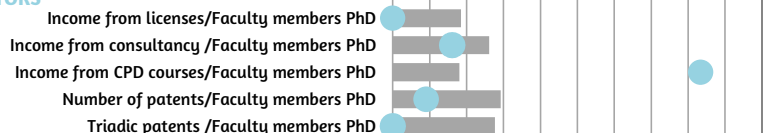
■ Media Universidades   ●●● UANE

*The "sexenios" indicator is not considered for private universities

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

Fundación **BBVA** Ivie

UNIVERSIDAD PABLO DE OLAVIDE

Year of foundation: 1997

Type of ownership: Pública

Bachelor's degree students[1]: 9,026

Master's degree students[1]: 1,390

Faculty members[1]: 1,037

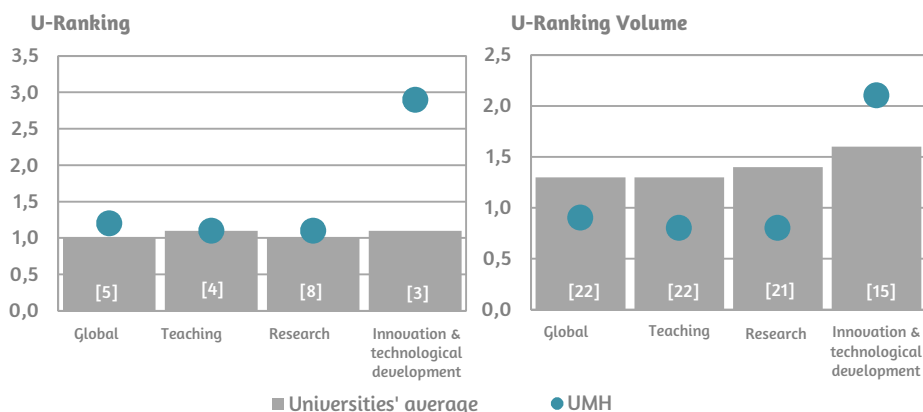Administration and service staff[1]: 343

Budget[2]: 83,326,859€

Bachelor's degrees[3]: 18

Master's degrees[3]: 39

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

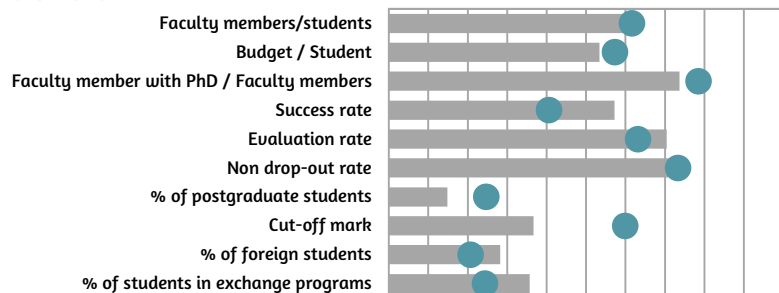## ũ Ranking

U-Ranking 2019 performance and volume indices
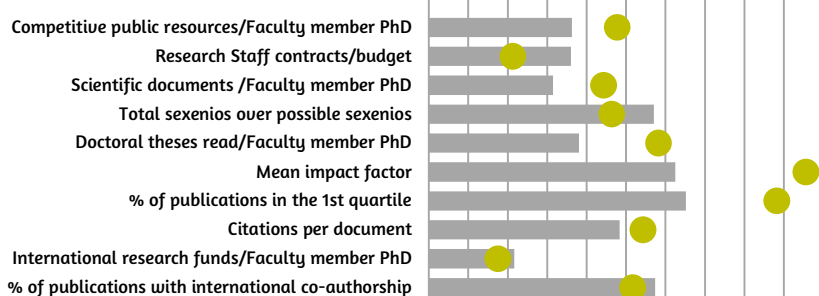
Index and postition in the ranking between brackets

U-Ranking

Global [6]
Teaching [4]
Research [9]
Innovation & technological development [15]

U-Ranking Volume

Global [24]
Teaching [23]
Research [22]
Innovation & technological development [29]

■ Universities' average ● UPO

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●●● UPO

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

UNIVERSIDAD POLITÉCNICA DE CARTAGENA

Universidad Politécnica de Cartagena

Year of foundation: 1999

Type of ownership: Pública

Bachelor's degree students[1]: 4,228

Master's degree students[1]: 574

Faculty members[1]: 582

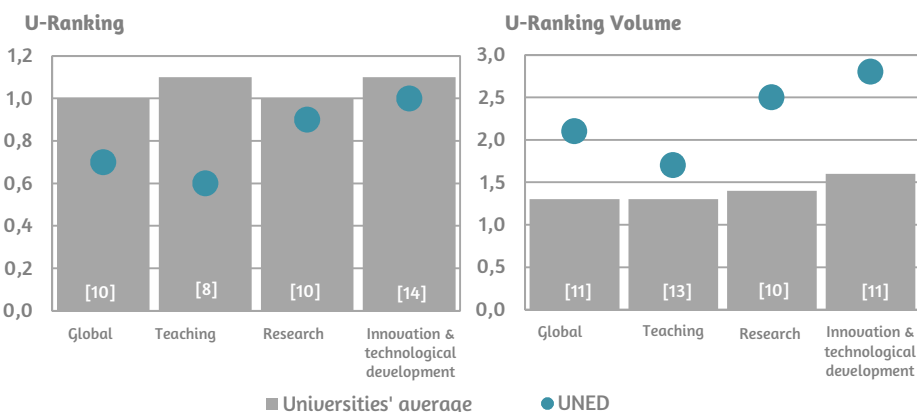Administration and service staff[1]: 365

Budget[2]: 55,256,753€

Bachelor's degrees[3]: 19

Master's degrees[3]: 25

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

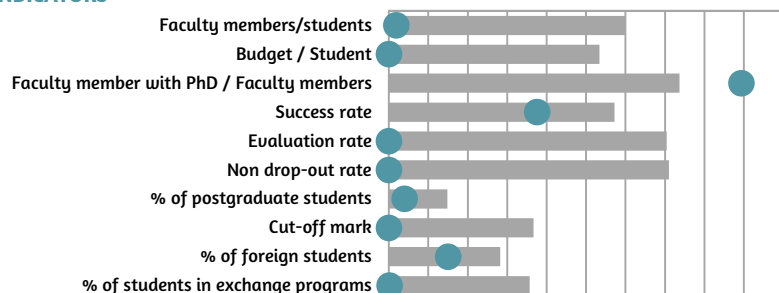## U-Ranking 2019 performance and volume indices
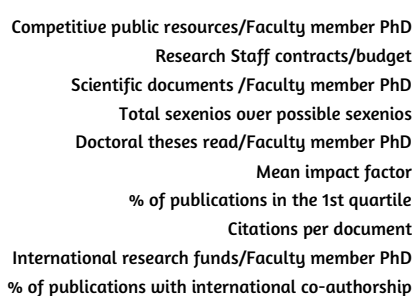
Index and postition in the ranking between brackets

U-Ranking

Global [7], Teaching [4], Research [9], Innovation & technological development [15]

U-Ranking Volume

Global [27], Teaching [26], Research [24], Innovation & technological development [31]

■ Universities' average   ● UPCT

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UPCT

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

U Ranking

UNIVERSIDAD POLITÉCNICA DE MADRID

POLITÉCNICA
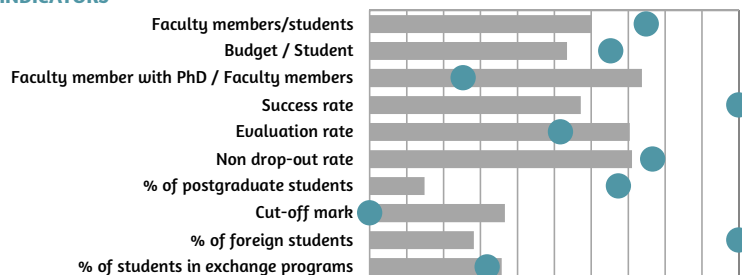
Year of foundation: 1971

Type of ownership: Pública

Bachelor's degree students[1]: 27,392

Master's degree students[1]: 5,390

Faculty members[1]: 2,836

Administration and service staff[1]: 1,879

Budget[2]: 358,704,434€

Bachelor's degrees[3]: 51

Master's degrees[3]: 84

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ Ranking

U-Ranking 2019 performance and volume indices
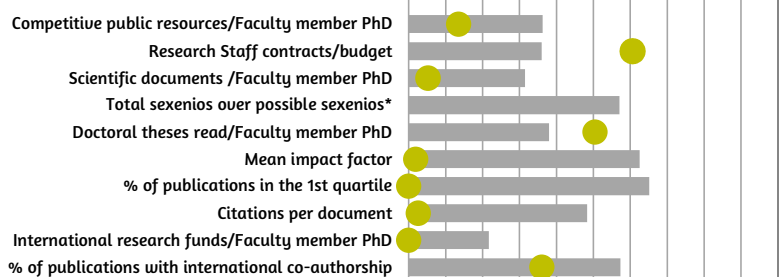
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UPM

U-Ranking 2019 indicators

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

TEACHING INDICATORS
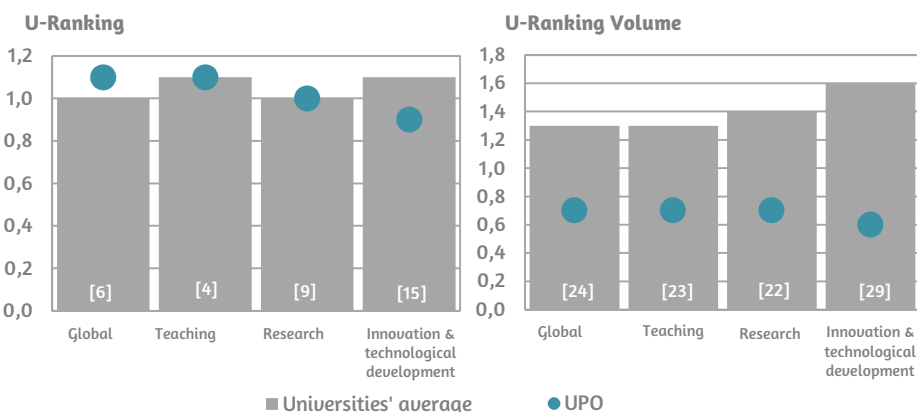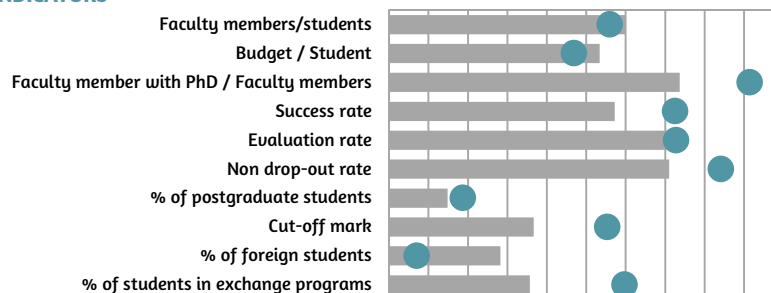
- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades   ●●● UPM

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

Fundación BBVA Ivie

UNIVERSIDAD PONTIFICIA COMILLAS

Year of foundation: 1935

Type of ownership: Privada

Bachelor's degree students[1]: 6,693

Master's degree students[1]: 2,465

Faculty members[1]: 1,484

Administration and service staff[1]: 336

Budget[2]: no disponible

Bachelor's degrees[3]: 22

Master's degrees[3]: 28

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

Ū Ranking

U-Ranking 2019 performance and volume indices
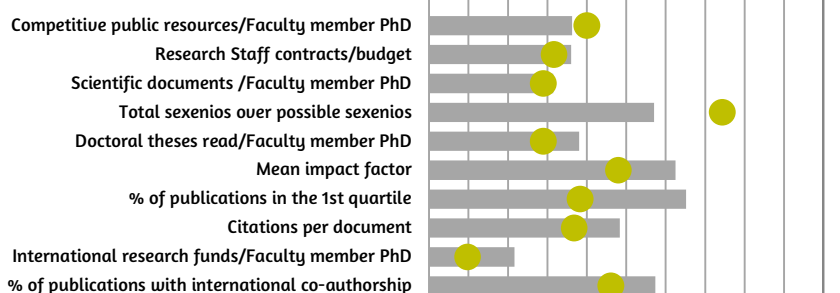
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

- Universities' average ● COMILLAS

U-Ranking 2019 indicators

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

TEACHING INDICATORS
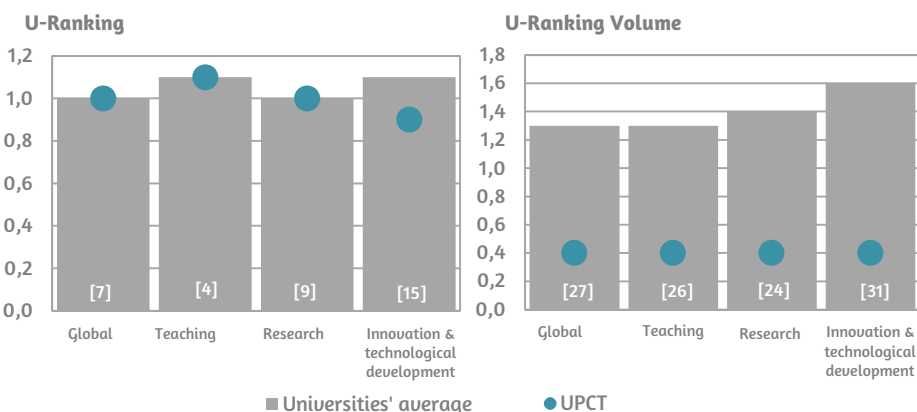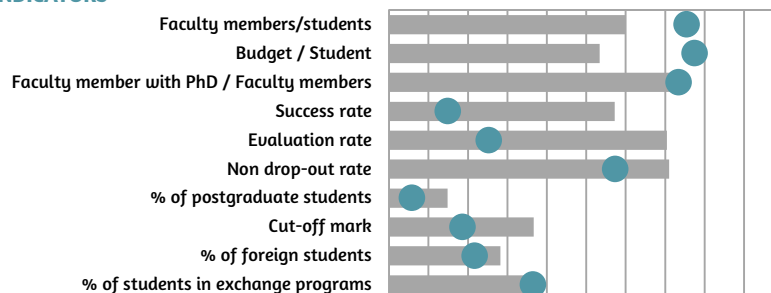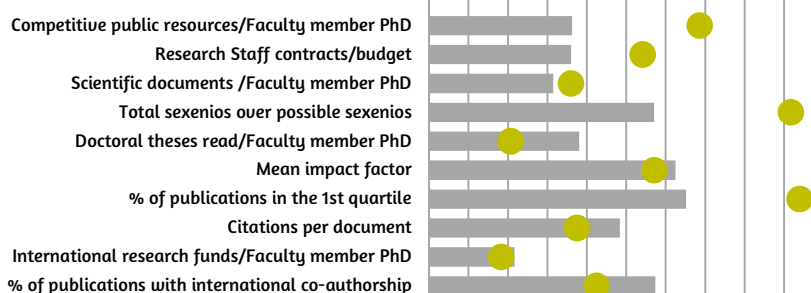

Faculty members/students
Budget / Student
Faculty member with PhD / Faculty members
Success rate
Evaluation rate
Non drop-out rate
% of postgraduate students
Cut-off mark
% of foreign students
% of students in exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios*
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades ● ● ● COMILLAS

*The "sexenios" indicator is not considered for private universities

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

UNIVERSIDAD PÚBLICA DE NAVARRA

upna
Universidad
Pública de Navarra
Nafarroako
Unibertsitate Publikoa

Year of foundation: 1987

Type of ownership: Pública

Bachelor's degree students[1]: 6,963

Master's degree students[1]: 744

Faculty members[1]: 901

Administration and service staff[1]: 469

Budget[2]: 73,330,220€

Bachelor's degrees[3]: 22

Master's degrees[3]: 29

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

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Ranking

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UPNA

U-Ranking 2019 indicators

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

TEACHING INDICATORS
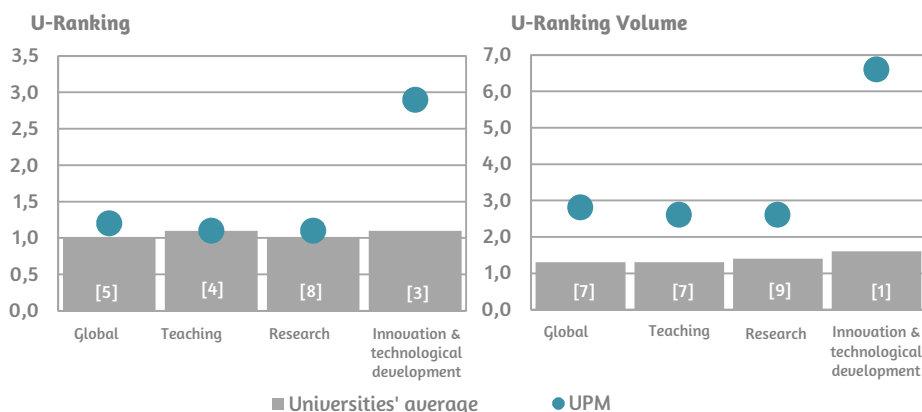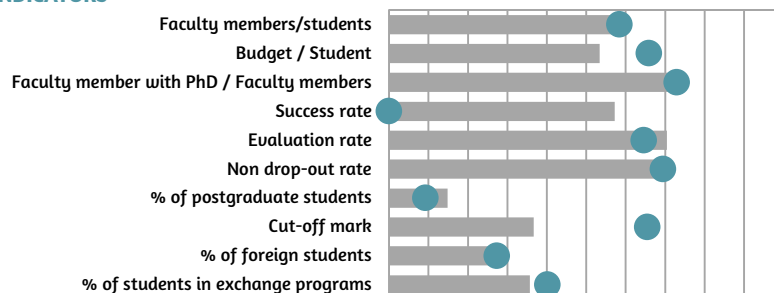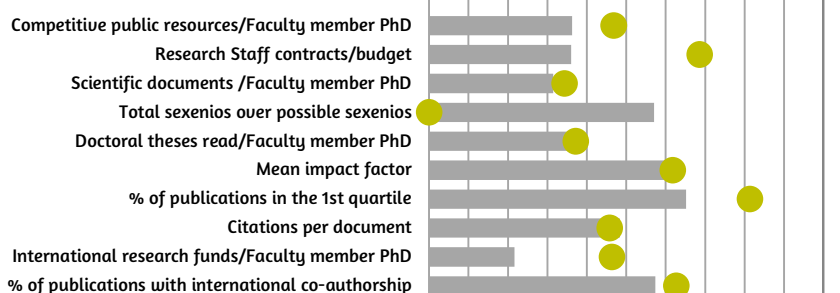

Faculty members/students
Budget / Student
Faculty member with PhD / Faculty members
Success rate
Evaluation rate
Non drop-out rate
% of postgraduate students
Cut-off mark
% of foreign students
% of students in exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UPNA

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

UNIVERSIDAD REY JUAN CARLOS

Universidad Rey Juan Carlos

Year of foundation: 1997

Type of ownership: Pública

Bachelor's degree students[1]: 39,075

Master's degree students[1]: 8,035

Faculty members[1]: 1,950

Administration and service staff[1]: 653

Budget[2]: 158,455,428€

Bachelor's degrees[3]: 66

Master's degrees[3]: 77

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
Position	[7]	[5]	[10]	[14]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
Position	[17]	[16]	[16]	[22]

■ Universities' average ● URJC

Ū Ranking

U-Ranking 2019 indicators

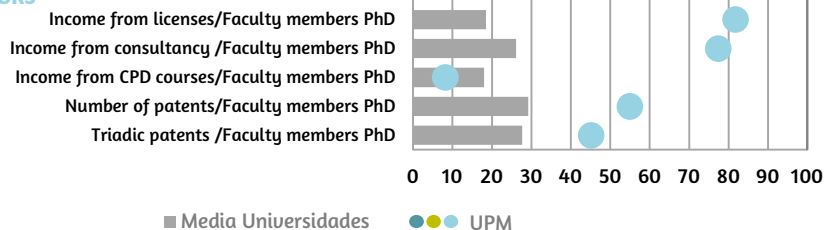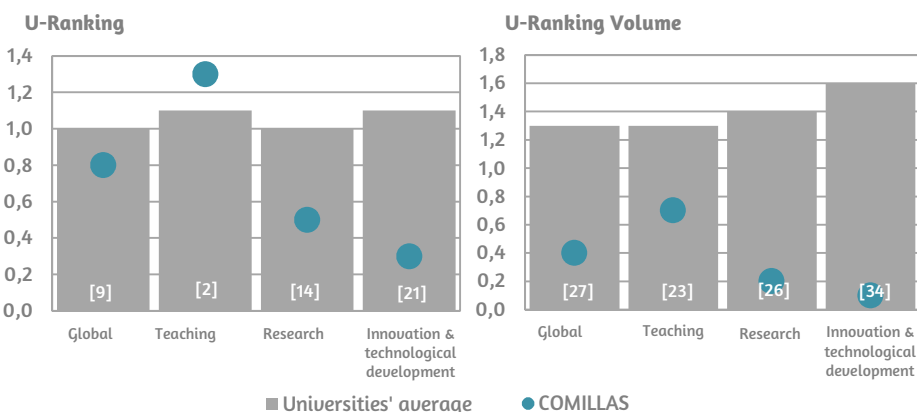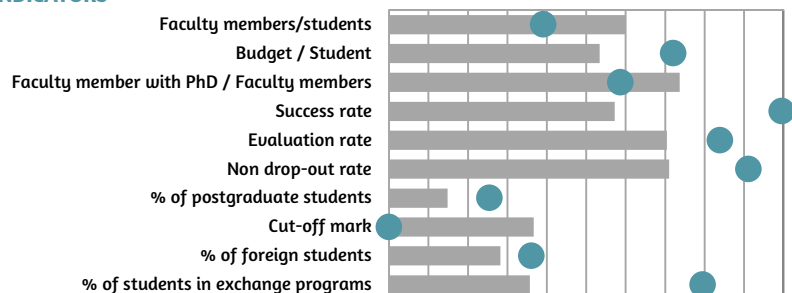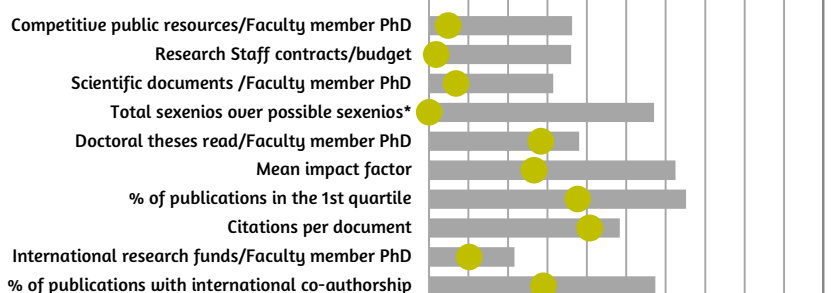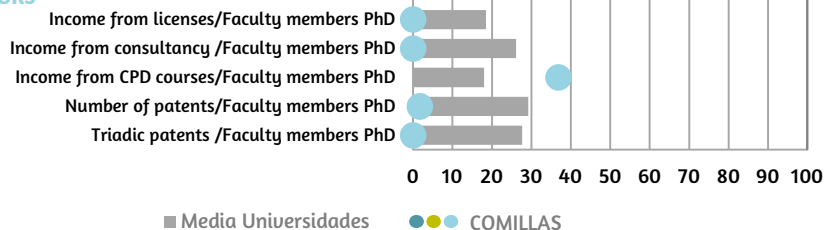*University with the minimum value=0; University with the maximum value=100*

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●●● URJC

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

UNIVERSIDAD SAN PABLO CEU

CEU
Universidad
San Pablo

Year of foundation: 1993

Type of ownership: Privada

Bachelor's degree students[1]: 6,884

Master's degree students[1]: 1,209

Faculty members[1]: 977

Administration and service staff[1]: 230
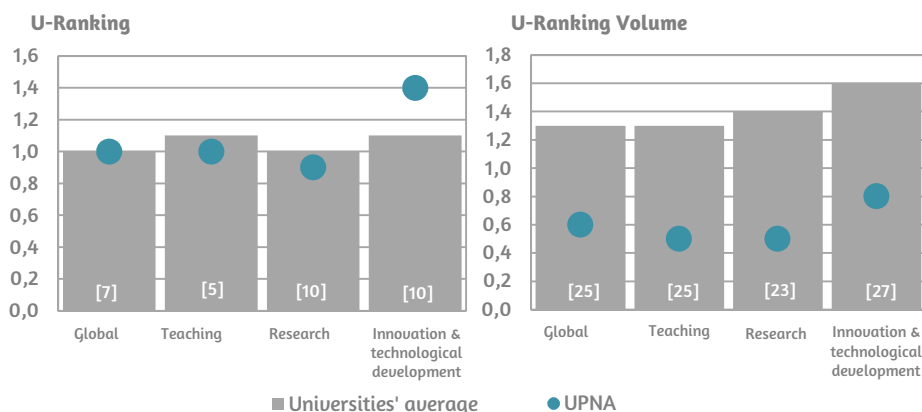
Budget[2]: no disponible

Bachelor's degrees[3]: 35

Master's degrees[3]: 32

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ
Ranking
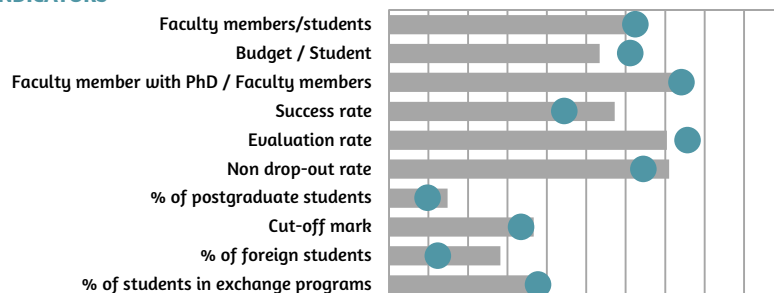
U-Ranking 2019 performance and volume indices

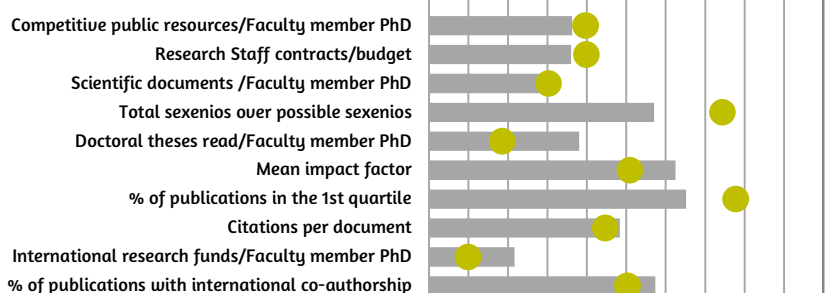*Index and postition in the ranking between brackets*

U-Ranking

	Global	Teaching	Research	Innovation & technological development
	[8]	[3]	[12]	[20]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
	[26]	[23]	[24]	[33]

■ Universities' average   ● UCEU

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios*
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UCEU
□□□ Indicator not available for this university
*The "sexenios" indicator is not considered for private universities

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

UNIVERSIDADE DA CORUÑA

UNIVERSIDADE DA CORUÑA

Year of foundation: 1989

Type of ownership: Pública

Bachelor's degree students[1]: 13,349

Master's degree students[1]: 1,838

Faculty members[1]: 1,423

Administration and service staff[1]: 790
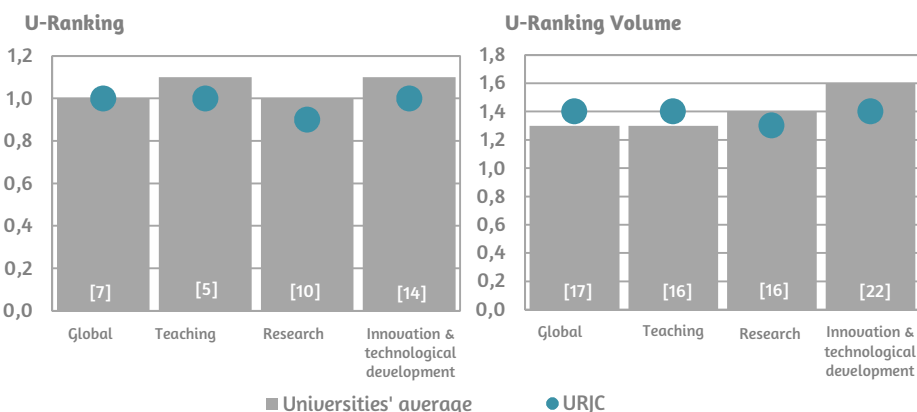
Budget[2]: 122,811,272€

Bachelor's degrees[3]: 41

Master's degrees[3]: 62

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

Ũ Ranking

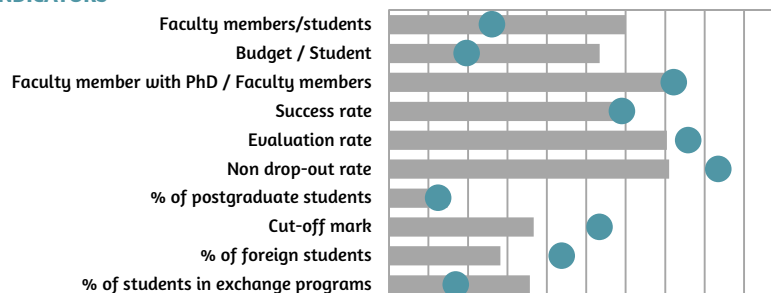## U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

Global [7], Teaching [5], Research [9], Innovation & technological development [15]

U-Ranking Volume

Global [21], Teaching [20], Research [19], Innovation & technological development [26]
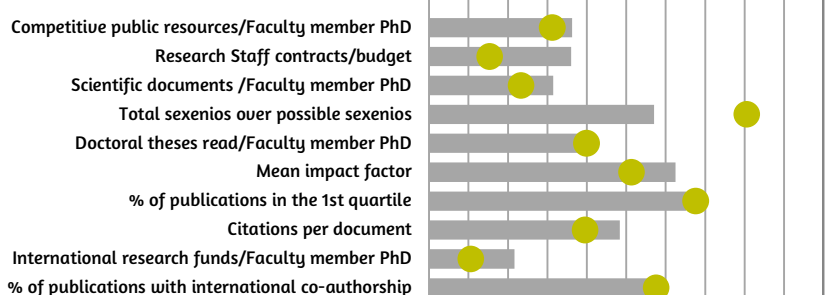
■ Universities' average ● UDC

U-Ranking 2019 indicators

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

TEACHING INDICATORS
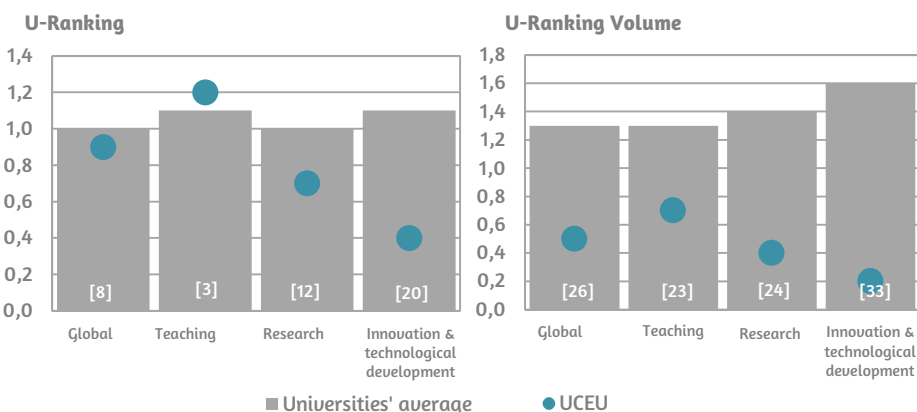
Faculty members/students
Budget / Student
Faculty member with PhD / Faculty members
Success rate
Evaluation rate
Non drop-out rate
% of postgraduate students
Cut-off mark
% of foreign students
% of students in exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●●● UDC

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

Fundación **BBVA** Ivie

UNIVERSIDADE DE SANTIAGO DE COMPOSTELA

USC
UNIVERSIDADE
DE SANTIAGO
DE COMPOSTELA

Year of foundation: 1495

Type of ownership: Public

Bachelor's degree students[1]: 19,333

Master's degree students[1]: 1,971

Faculty members[1]: 2,057

Administration and service staff[1]: 1,228

Budget[2]: 256,139,139€

Bachelor's degrees[3]: 46

Master's degrees[3]: 68

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

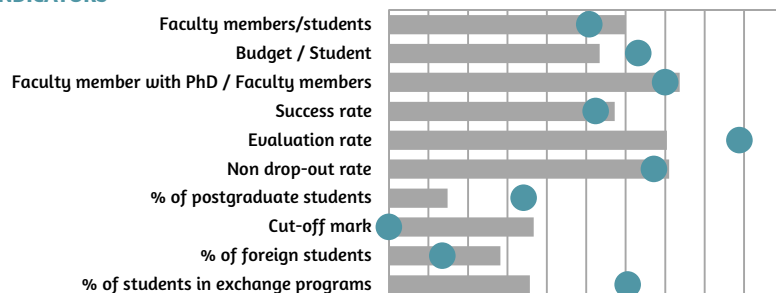**ũ Ranking**

U-Ranking 2019 performance and volume indices
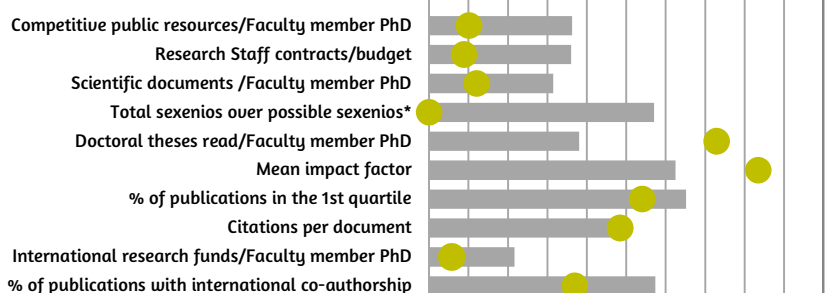
Index and postition in the ranking between brackets

U-Ranking

Global [5], Teaching [5], Research [6], Innovation & technological development [6]

U-Ranking Volume

Global [12], Teaching [13], Research [12], Innovation & technological development [8]

■ Universities' average   ● USC

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● USC

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

Fundación BBVA **Ivie**

UNIVERSIDADE DE VIGO

Universida_de_Vigo

Year of foundation: 1989

Type of ownership: Pública

Bachelor's degree students[1]: 14,957

Master's degree students[1]: 2,075

Faculty members[1]: 1,392

Administration and service staff[1]: 716
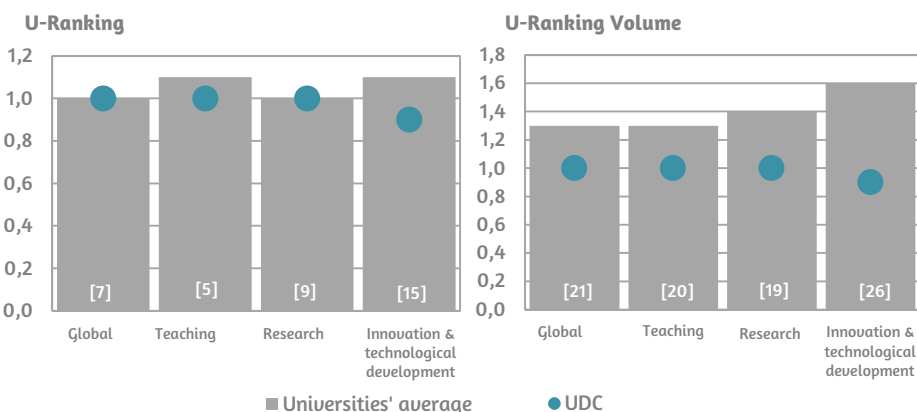
Budget[2]: 153,759,723€

Bachelor's degrees[3]: 41

Master's degrees[3]: 61

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)
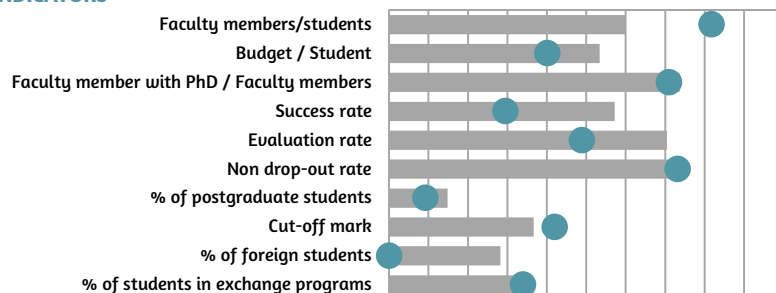
U-Ranking 2019 performance and volume indices

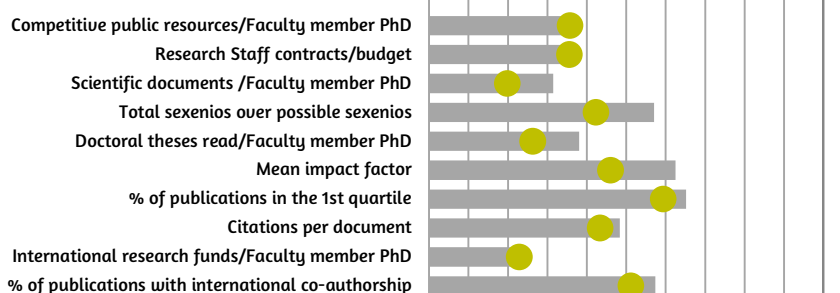*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average　● UVIGO

U-Ranking 2019 indicators

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

TEACHING INDICATORS
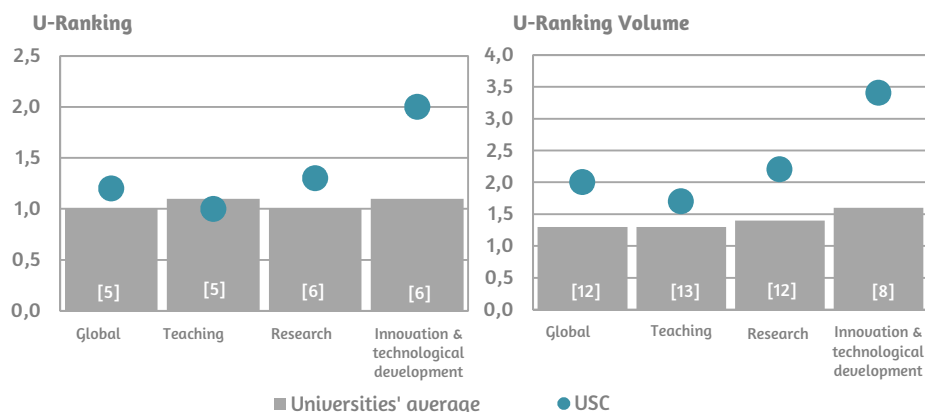
- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades　●●● UVIGO

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

Fundación **BBVA**　**Ivie**

UNIVERSITAT AUTÒNOMA DE BARCELONA

UAB
Universitat Autònoma
de Barcelona

Year of foundation: 1968

Type of ownership: Pública

Bachelor's degree students[1]: 25,795

Master's degree students[1]: 3,790

Faculty members[1]: 3,632

Administration and service staff[1]: 1,711

Budget[2]: 310,839,445€

Bachelor's degrees[3]: 73

Master's degrees[3]: 139

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ Ranking

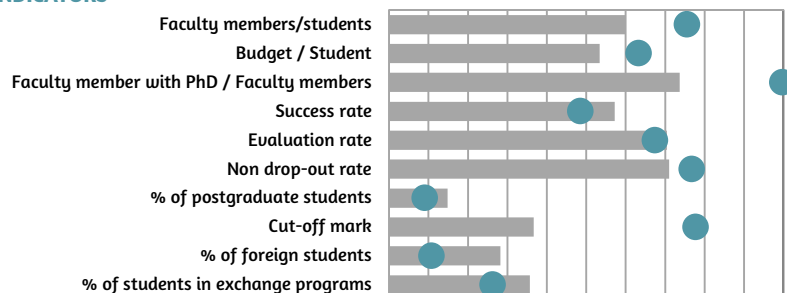## U-Ranking 2019 performance and volume indices
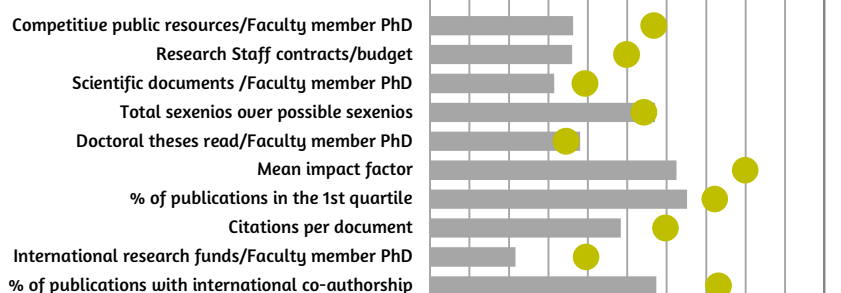
Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
Position	[4]	[4]	[2]	[10]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
Position	[7]	[9]	[3]	[10]

■ Universities' average   ● UAB

U-Ranking 2019 indicators

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

TEACHING INDICATORS
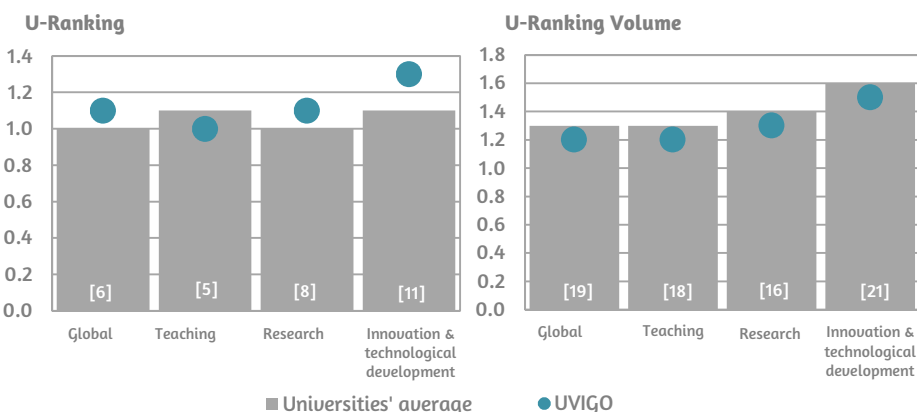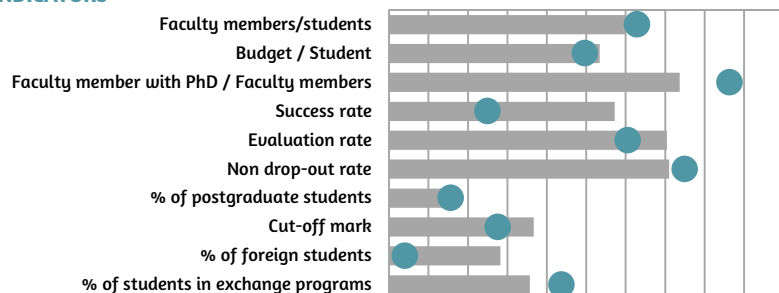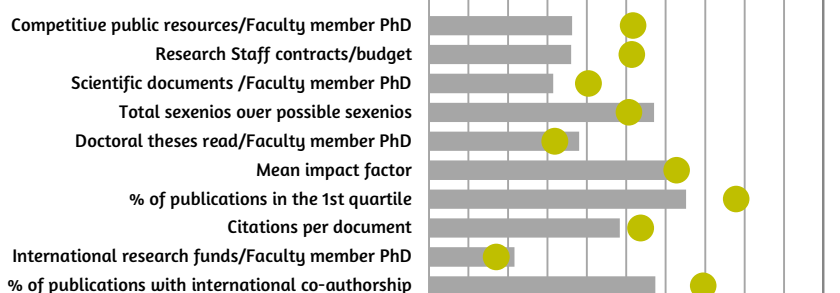
- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UAB

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

Fundación BBVA Ivie

UNIVERSITAT DE BARCELONA

UNIVERSITAT DE BARCELONA

Year of foundation: 1430

Type of ownership: Pública

Bachelor's degree students[1]: 39,231

Master's degree students[1]: 6,481

Faculty members[1]: 5,399

Administration and service staff[1]: 2,286

Budget[2]: 435,540,936€

Bachelor's degrees[3]: 62

Master's degrees[3]: 131

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ū Ranking

U-Ranking 2019 performance and volume indices

Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
	[4]	[3]	[5]	[9]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
	[2]	[2]	[2]	[4]

■ Universities' average ● UB

U-Ranking 2019 indicators

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

TEACHING INDICATORS
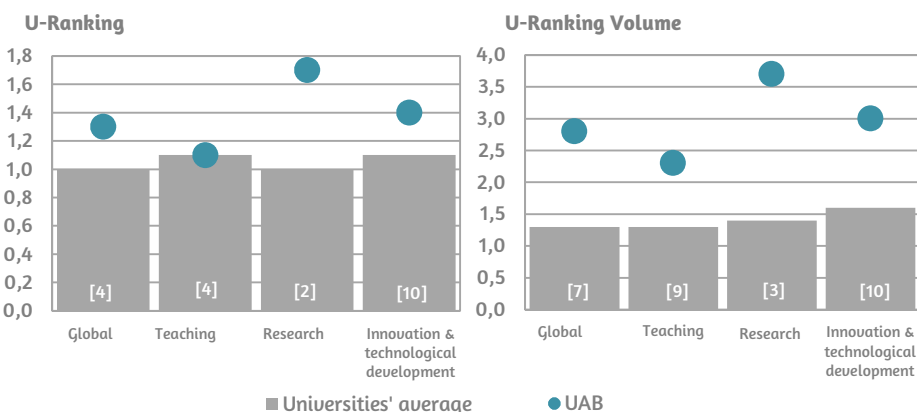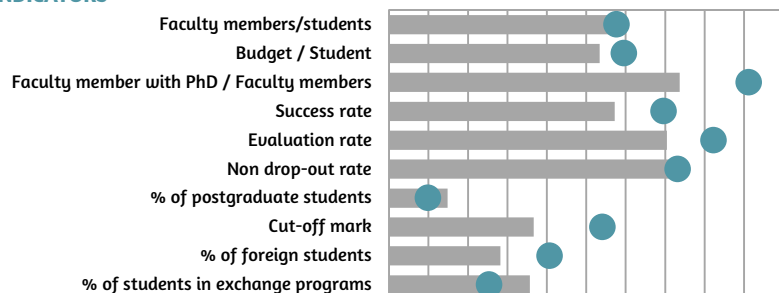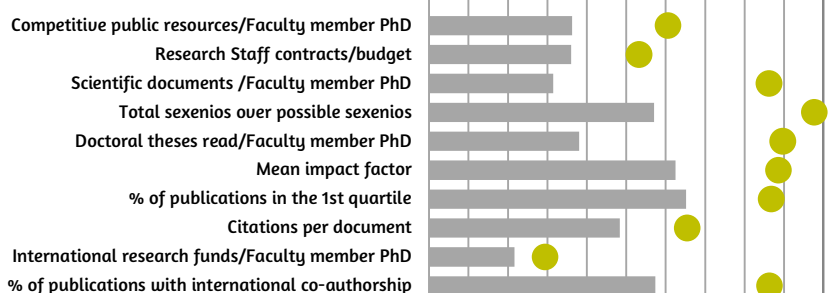

- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●●● UB

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

Fundación BBVA | Ivie

UNIVERSITAT DE GIRONA

Universitat de Girona

Year of foundation: 1992

Type of ownership: Pública

Bachelor's degree students[1]: 10,154

Master's degree students[1]: 839

Faculty members[1]: 1,193

Administration and service staff[1]: 572

Budget[2]: 101,536,838€

Bachelor's degrees[3]: 44

Master's degrees[3]: 33

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

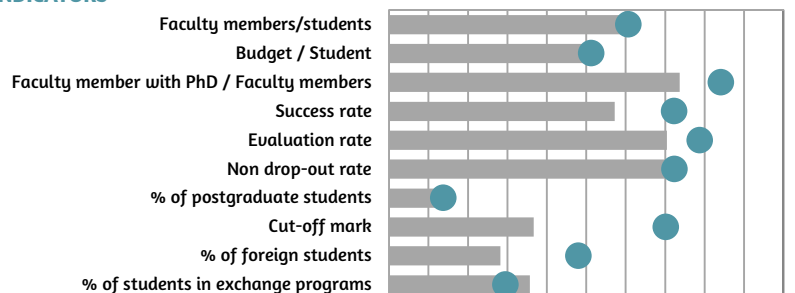## U-Ranking 2019 performance and volume indices
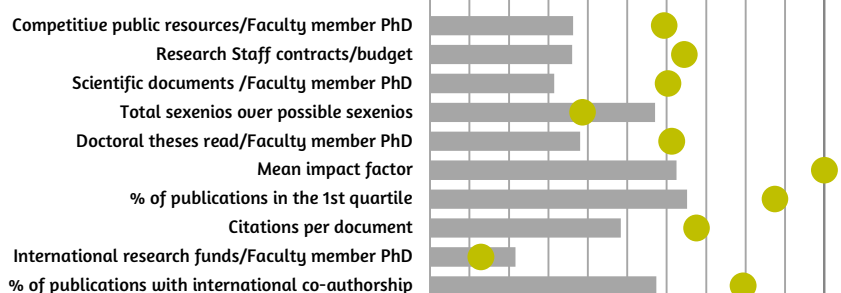
Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
Position	[6]	[5]	[7]	[17]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
Position	[24]	[23]	[20]	[30]

■ Universities' average   ● UDG

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades   ●●● UDG

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

Fundación **BBVA** Ivie

UNIVERSITAT DE LES ILLES BALEARS

Universitat de les Illes Balears

Year of foundation: 1978

Type of ownership: Pública

Bachelor's degree students¹: 11,016

Master's degree students¹: 1,311

Faculty members¹: 1,388

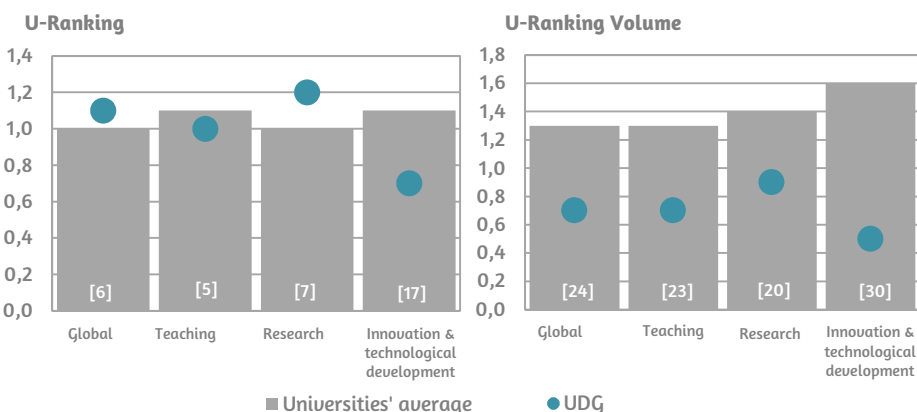**Administration and service staff¹:** 558

Budget²: 109,210,702€

Bachelor's degrees³: 31

Master's degrees³: 34

¹Course 2017-18; ²2016; ³Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

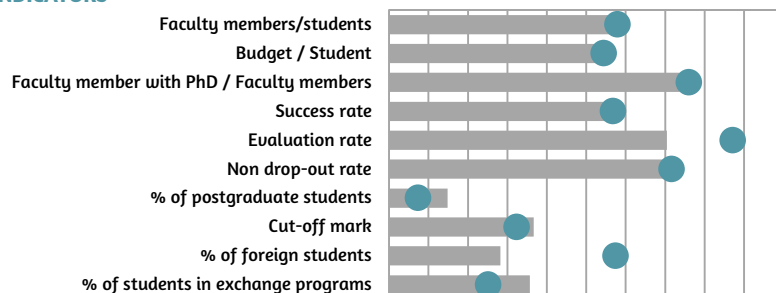## U-Ranking 2019 performance and volume indices

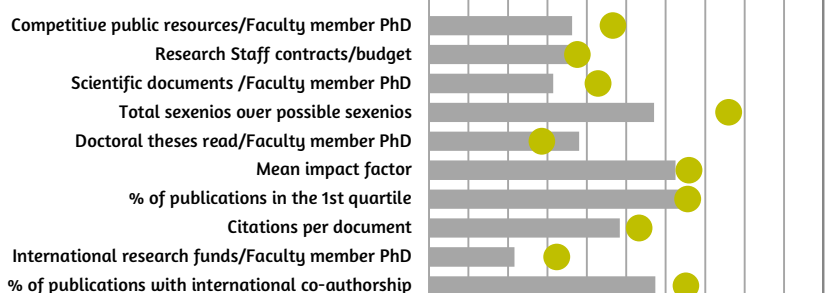*Index and postition in the ranking between brackets*

U-Ranking

	Global	Teaching	Research	Innovation & technological development
	[6]	[5]	[6]	[10]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
	[23]	[23]	[20]	[25]

■ Universities' average   ● UIB

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ● ● ● UIB

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

UNIVERSITAT DE LLEIDA

Universitat de Lleida

Year of foundation: 1992

Type of ownership: Pública

Bachelor's degree students[1]: 7,789

Master's degree students[1]: 1,061

Faculty members[1]: 1,150

Administration and service staff[1]: 530
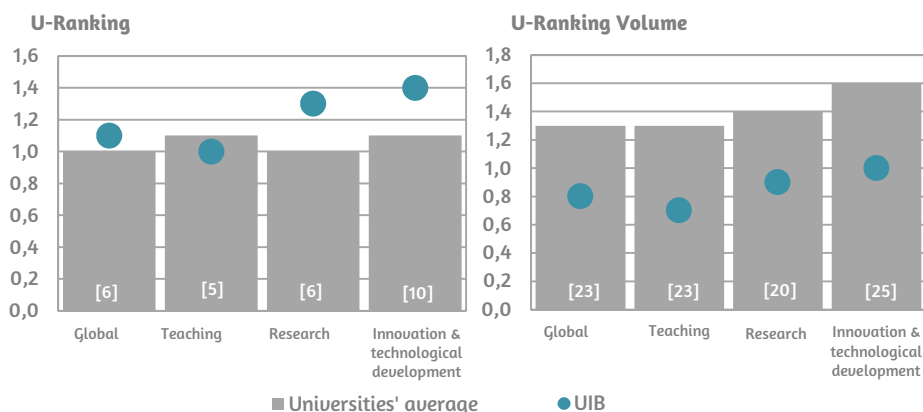
Budget[2]: 81,864,871€

Bachelor's degrees[3]: 38

Master's degrees[3]: 42

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

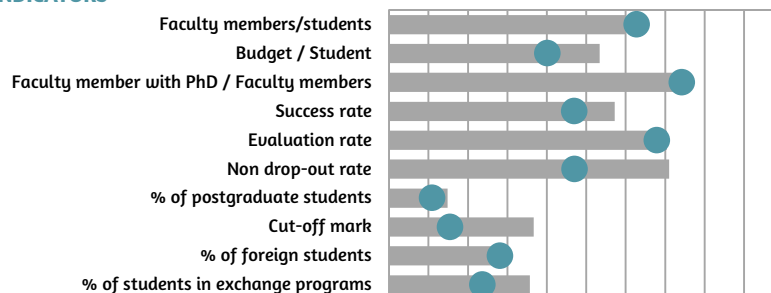## U-Ranking 2019 performance and volume indices
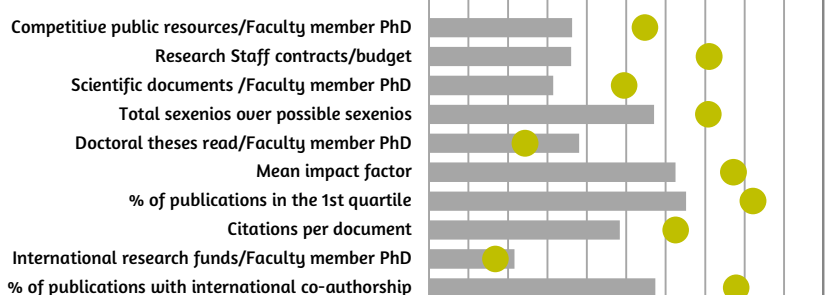
Index and postition in the ranking between brackets

U-Ranking

	Global	Teaching	Research	Innovation & technological development
Position	[5]	[4]	[7]	[13]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
Position	[24]	[24]	[22]	[29]

■ Universities' average   ● UDL

U-Ranking 2019 indicators

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

TEACHING INDICATORS
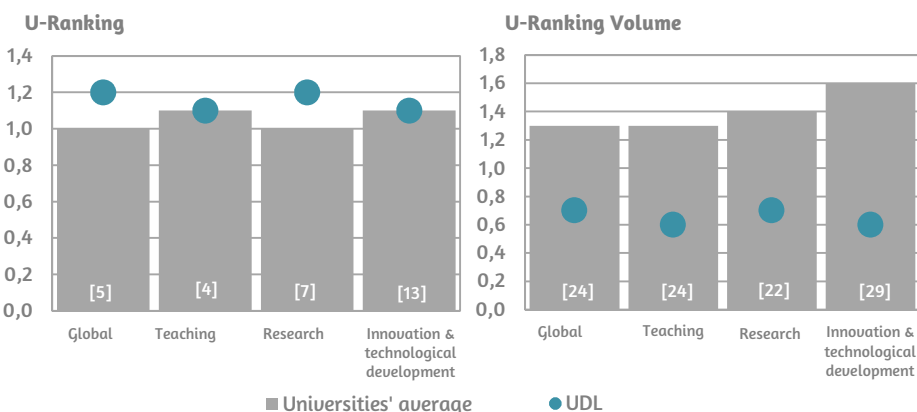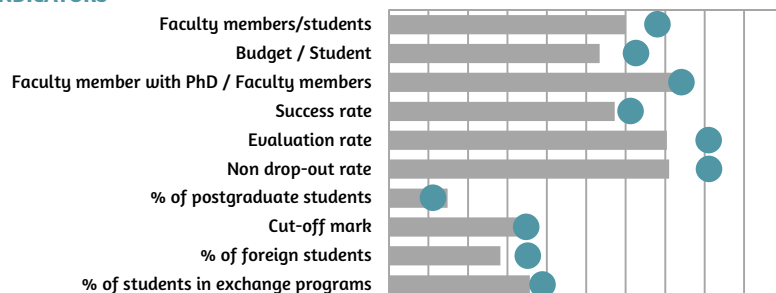
- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● UDL
□□□ Indicator not available for this university

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

Fundación BBVA Ivie

UNIVERSITAT DE VALÈNCIA

VNIVERSITAT ID VALÈNCIA

Year of foundation: 1500

Type of ownership: Pública

Bachelor's degree students[1]: 37,044

Master's degree students[1]: 6,044

Faculty members[1]: 4,234

Administration and service staff[1]: 1,935

Budget[2]: 379,894,988€

Bachelor's degrees[3]: 55

Master's degrees[3]: 117

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

U-Ranking 2019 performance and volume indices

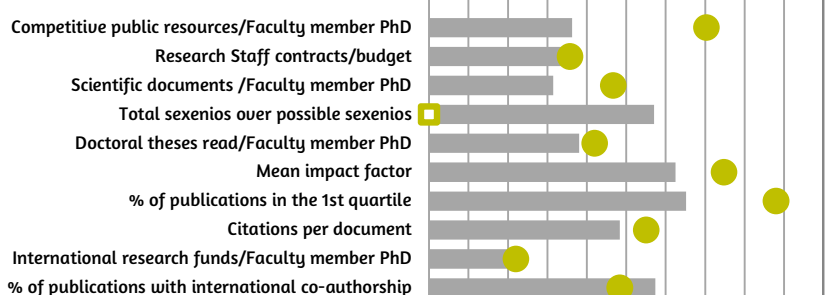*Index and postition in the ranking between brackets*

U-Ranking

Global [5] · Teaching [4] · Research [7] · Innovation & technological development [10]

U-Ranking Volume

Global [3] · Teaching [3] · Research [5] · Innovation & technological development [6]

■ Universities' average ● UV

Ũ Ranking

U-Ranking 2019 indicators

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

TEACHING INDICATORS

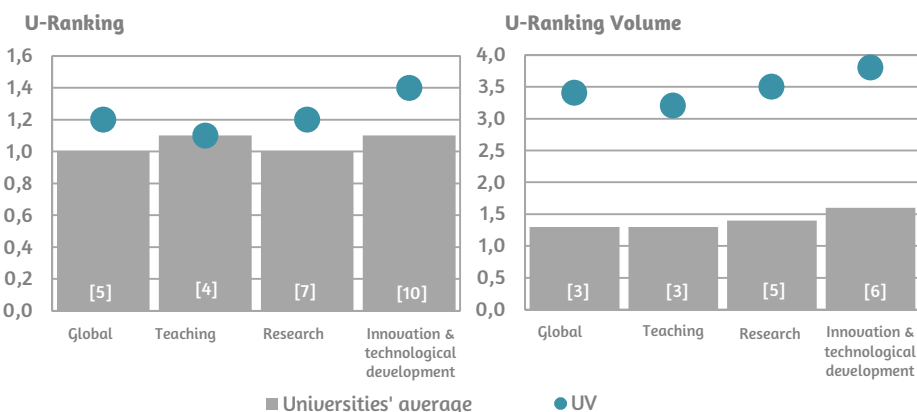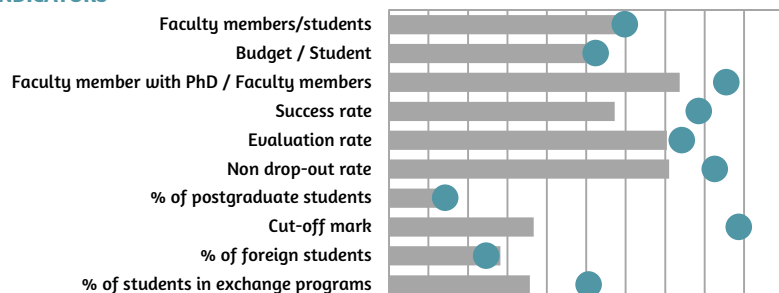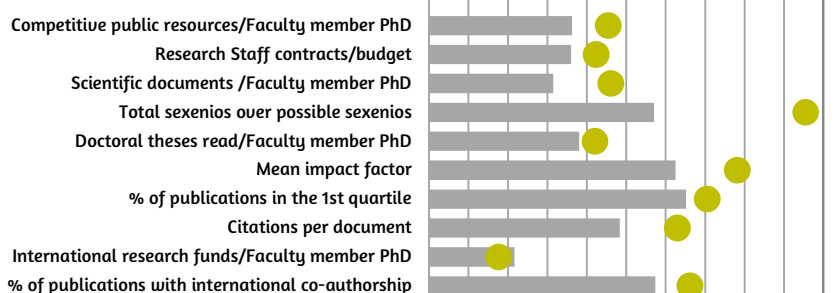- Faculty members/students
- Budget / Student
- Faculty member with PhD / Faculty members
- Success rate
- Evaluation rate
- Non drop-out rate
- % of postgraduate students
- Cut-off mark
- % of foreign students
- % of students in exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●●● UV

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

Fundación **BBVA** Ivie

UNIVERSITAT DE VIC - U. CENTRAL DE CATALUNYA

UVIC
UNIVERSITAT DE VIC
UNIVERSITAT CENTRAL
DE CATALUNYA

Year of foundation:

Type of ownership: Pública

Bachelor's degree students[1]:

Master's degree students[1]:

Faculty members[1]:

Administration and service staff[1]:
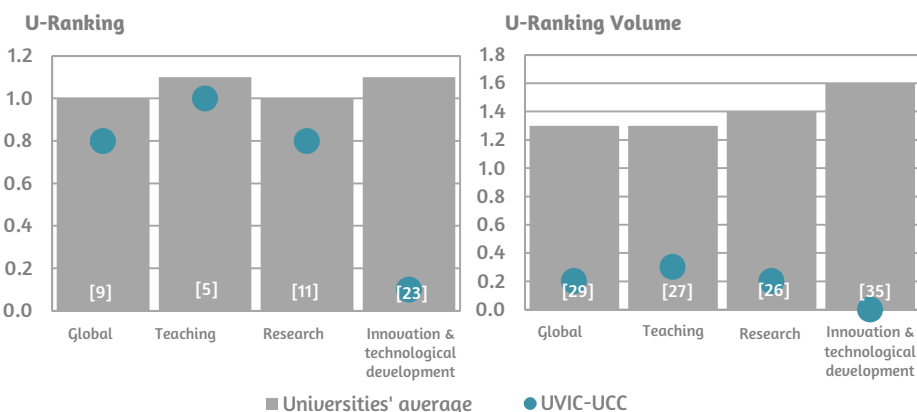
Budget[2]: no disponible

Bachelor's degrees[3]:

Master's degrees[3]:

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)
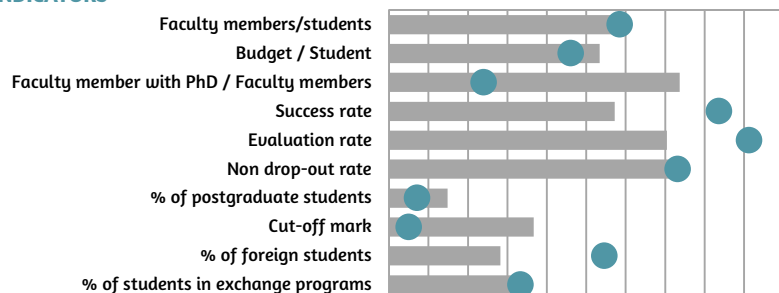
U-Ranking 2019 performance and volume indices

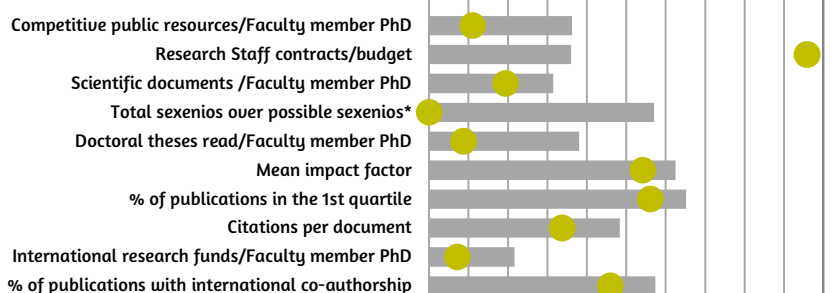*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average ● UVIC-UCC

Ũ Ranking

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios*
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades ●●● UVIC-UCC

*The "sexenios" indicator is not considered for private universities

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

Fundación BBVA Ivie

UNIVERSITAT INTERNACIONAL DE CATALUNYA
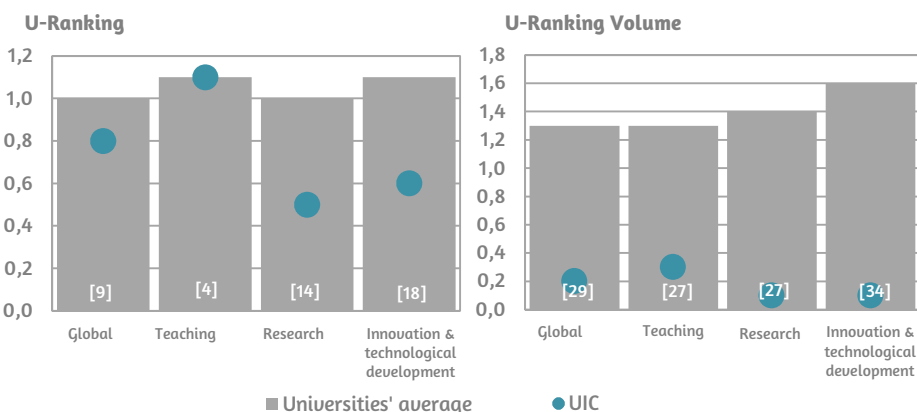
uicbarcelona

Year of foundation: 1997

Type of ownership: Privada

Bachelor's degree students[1]: 3,342

Master's degree students[1]: 340

Faculty members[1]: 490

Administration and service staff[1]: 305

Budget[2]: no disponible

Bachelor's degrees[3]: 16

Master's degrees[3]: 18

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

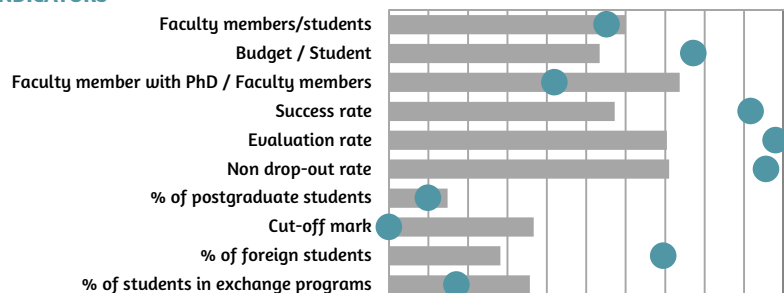## U-Ranking 2019 performance and volume indices

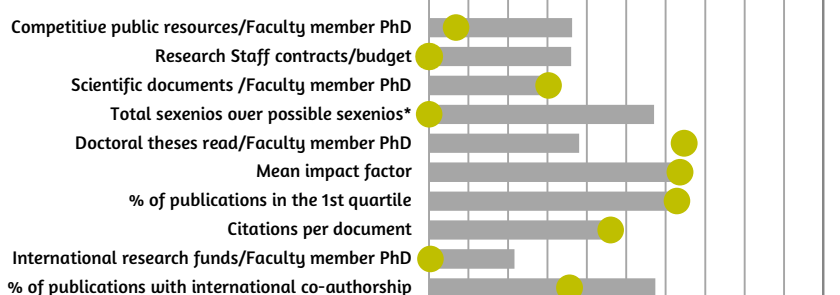*Index and postition in the ranking between brackets*

U-Ranking

	Global	Teaching	Research	Innovation & technological development
Position	[9]	[4]	[14]	[18]

U-Ranking Volume

	Global	Teaching	Research	Innovation & technological development
Position	[29]	[27]	[27]	[34]

■ Universities' average ● UIC

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios*
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●● UIC

*The "sexenios" indicator is not considered for private universities

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

Fundación **BBVA** Ivie

UNIVERSITAT JAUME I
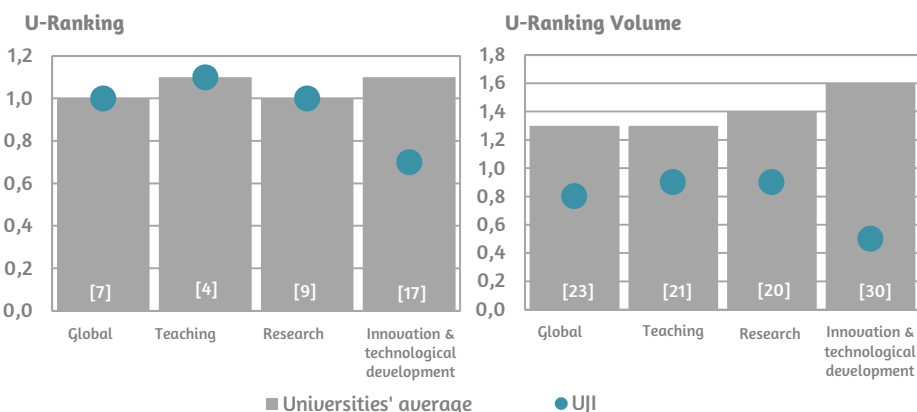
UNIVERSITAT JAUME·I

Year of foundation: 1991

Type of ownership: Pública

Bachelor's degree students[1]: 11,620

Master's degree students[1]: 1,593

Faculty members[1]: 1,299

Administration and service staff[1]: 640

Budget[2]: 108,797,769€

Bachelor's degrees[3]: 31

Master's degrees[3]: 46

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ Ranking

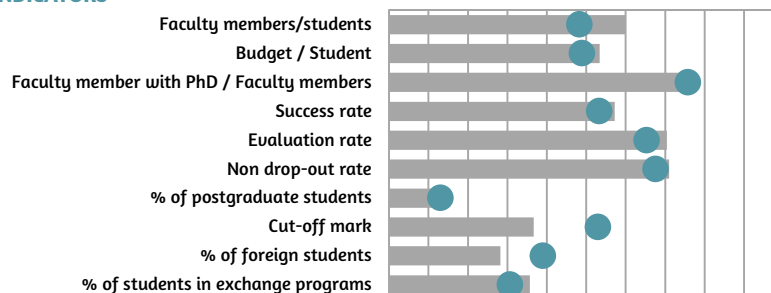## U-Ranking 2019 performance and volume indices
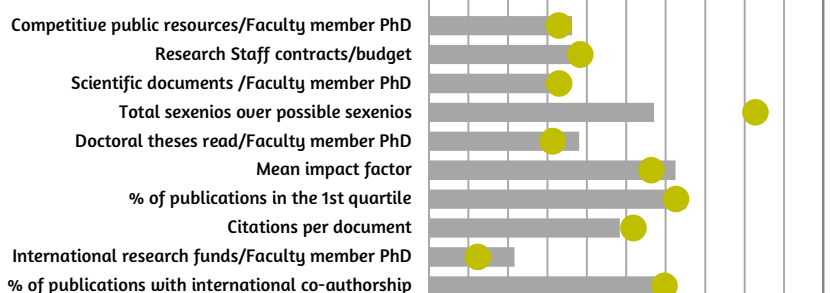
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average ● UJI

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades ●●● UJI

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

Fundación BBVA | **Ivie**

UNIVERSITAT OBERTA DE CATALUNYA

UOC
Universitat Oberta de Catalunya

Year of foundation: 1995

Type of ownership: Privada

Bachelor's degree students[1]: 32,717

Master's degree students[1]: 13,226

Faculty members[1]: 290

Administration and service staff[1]: 557
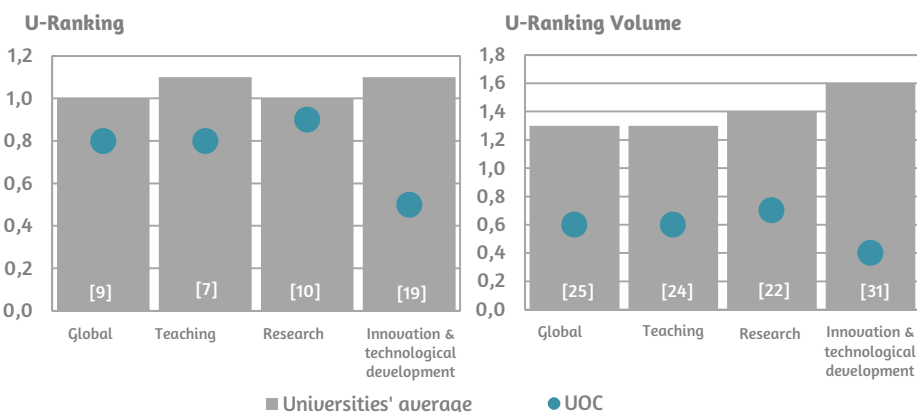
Budget[2]: no disponible

Bachelor's degrees[3]: 24

Master's degrees[3]: 43

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

ũ
Ranking

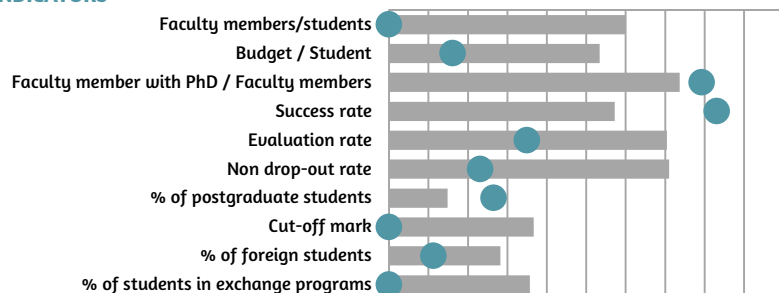## U-Ranking 2019 performance and volume indices
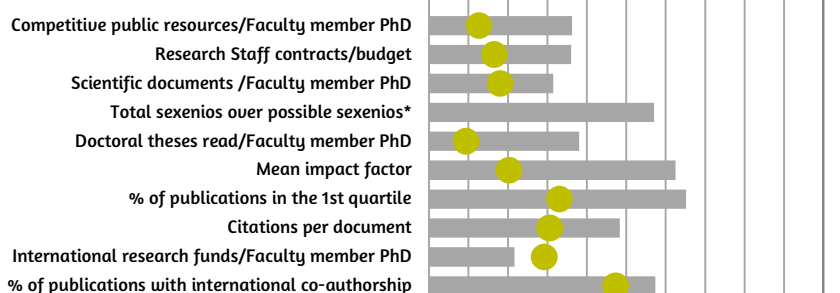
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UOC

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios*
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD
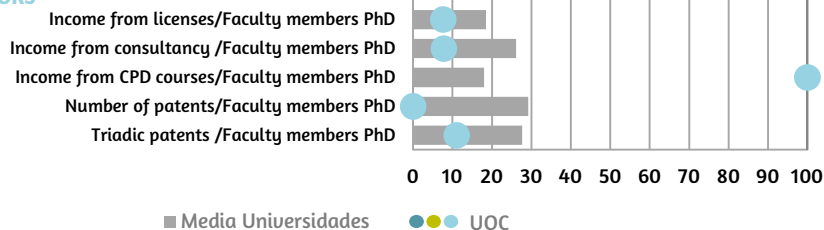
■ Media Universidades   ●●● UOC

*The "sexenios" indicator is not considered for private universities

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

Fundación **BBVA** Ivie

UNIVERSITAT POLITÈCNICA DE CATALUNYA

UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

Year of foundation: 1971

Type of ownership: Pública

Bachelor's degree students[1]: 20,681

Master's degree students[1]: 5,291

Faculty members[1]: 2,664

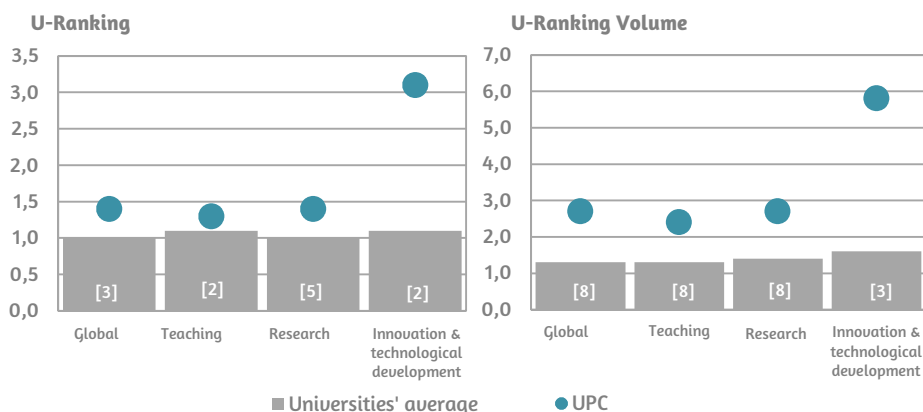Administration and service staff[1]: 1,496

Budget[2]: 314,404,068€

Bachelor's degrees[3]: 39

Master's degrees[3]: 77

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

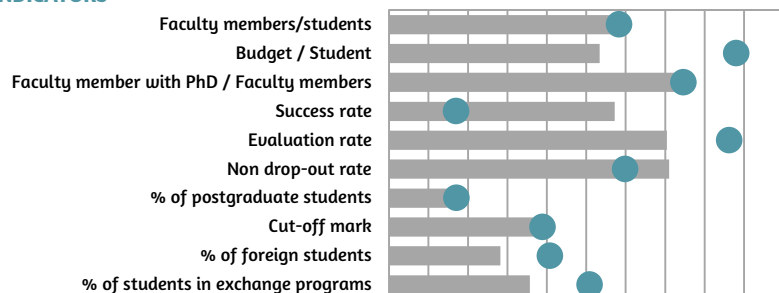## U-Ranking 2019 performance and volume indices

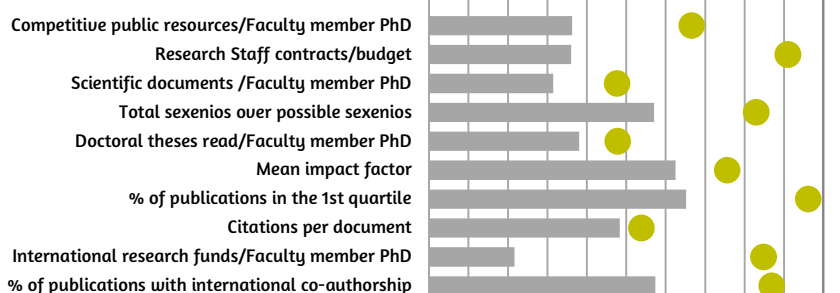*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average ● UPC

ū Ranking

U-Ranking 2019 indicators

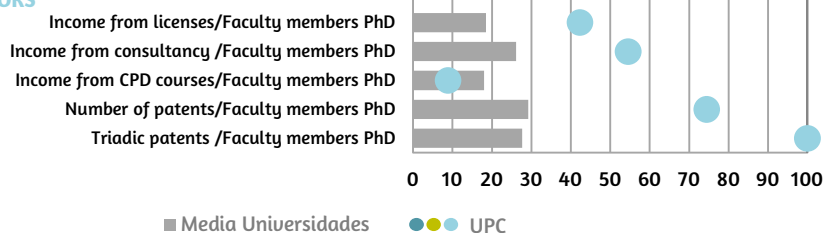*University with the minimum value=0; University with the maximum value=100*

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades ●●● UPC

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

Fundación **BBVA** | Ivie

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

Year of foundation: 1971

Type of ownership: Pública

Bachelor's degree students[1]: 19,673

Master's degree students[1]: 4,978

Faculty members[1]: 2,637

Administration and service staff[1]: 1,425
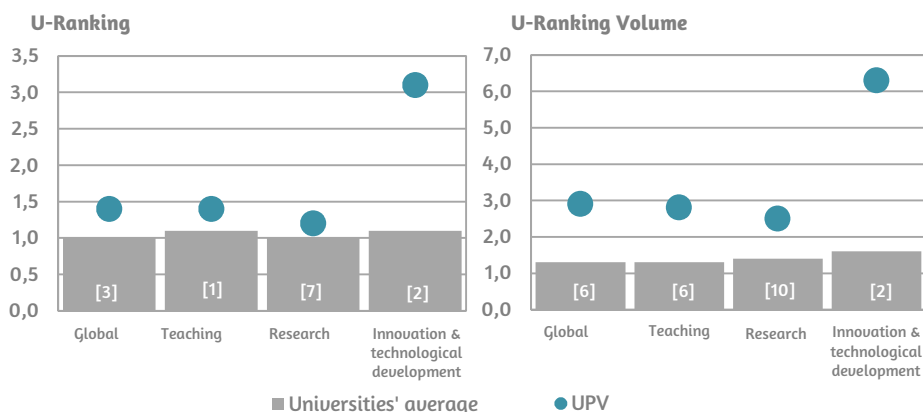
Budget[2]: 317,717,114€

Bachelor's degrees[3]: 33

Master's degrees[3]: 80

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

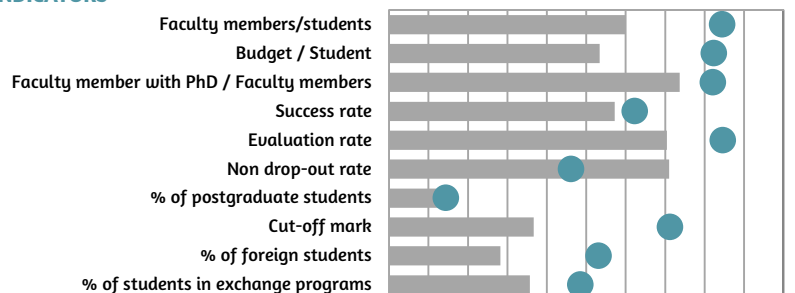## U-Ranking 2019 performance and volume indices
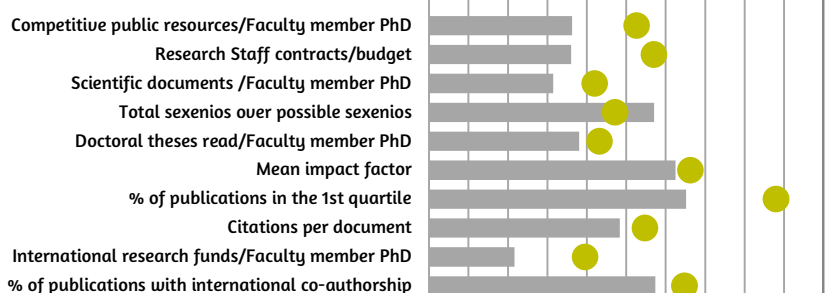
Index and postition in the ranking between brackets

U-Ranking

Global	Teaching	Research	Innovation & technological development
[3]	[1]	[7]	[2]

U-Ranking Volume

Global	Teaching	Research	Innovation & technological development
[6]	[6]	[10]	[2]

■ Universities' average ● UPV

![U Ranking logo]

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades ●●● UPV

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

Fundación **BBVA** Ivie

UNIVERSITAT POMPEU FABRA

Universitat Pompeu Fabra Barcelona

Year of foundation: 1990

Type of ownership: Pública

Bachelor's degree students[1]: 10,284

Master's degree students[1]: 3,276

Faculty members[1]: 937

Administration and service staff[1]: 692
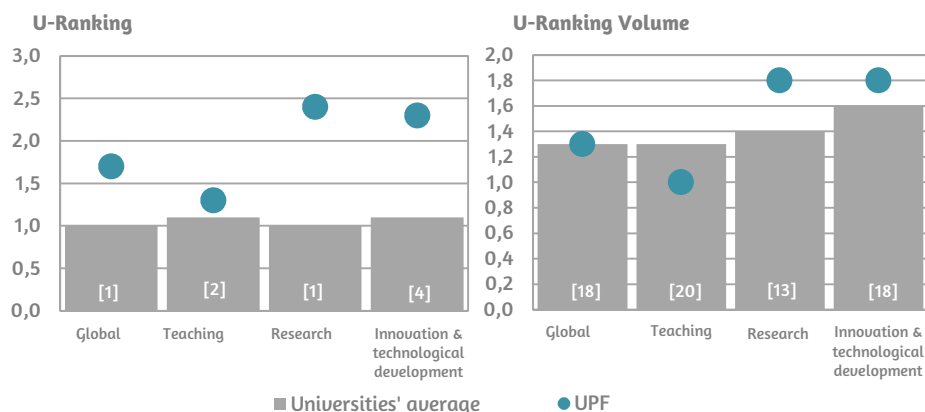
Budget[2]: 131,936,276€

Bachelor's degrees[3]: 28

Master's degrees[3]: 65

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

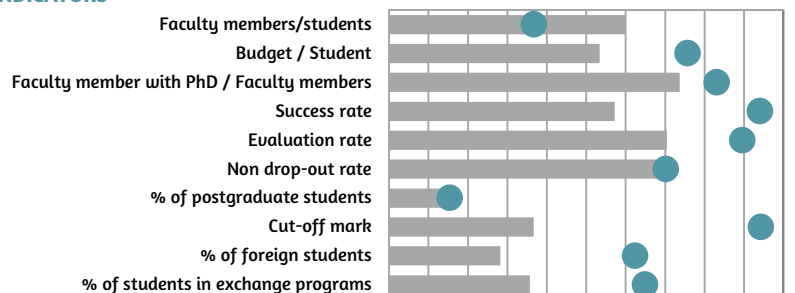Ũ Ranking

U-Ranking 2019 performance and volume indices
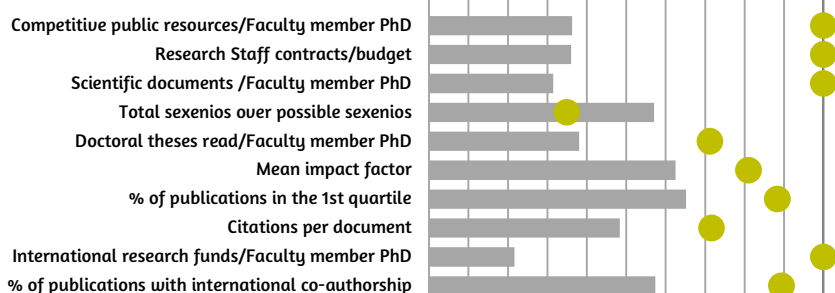
Index and postition in the ranking between brackets

U-Ranking

U-Ranking Volume

■ Universities' average   ● UPF

U-Ranking 2019 indicators

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

TEACHING INDICATORS

- Faculty members/students
- Budget / 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 exchange programs

RESEARCH INDICATORS

- Competitive public resources/Faculty member PhD
- Research Staff contracts/budget
- Scientific documents /Faculty member PhD
- Total sexenios over possible sexenios
- Doctoral theses read/Faculty member PhD
- Mean impact factor
- % of publications in the 1st quartile
- Citations per document
- International research funds/Faculty member PhD
- % of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

- Income from licenses/Faculty members PhD
- Income from consultancy /Faculty members PhD
- Income from CPD courses/Faculty members PhD
- Number of patents/Faculty members PhD
- Triadic patents /Faculty members PhD

■ Media Universidades   ●●● UPF

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

UNIVERSITAT RAMON LLULL

UNIVERSITAT RAMON LLULL

Year of foundation: 1991

Type of ownership: Privada

Bachelor's degree students[1]: 12,015

Master's degree students[1]: 3,052

Faculty members[1]: 1,172

Administration and service staff[1]: 759
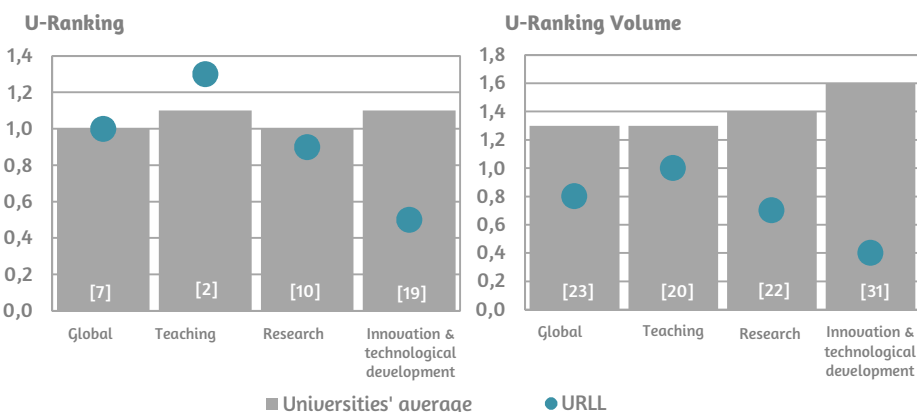
Budget[2]: no disponible

Bachelor's degrees[3]: 47

Master's degrees[3]: 72

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

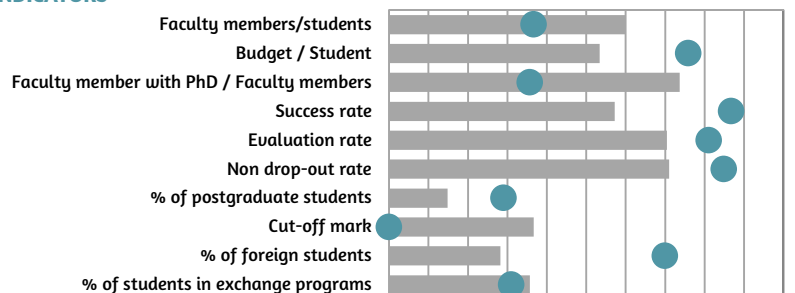## U-Ranking 2019 performance and volume indices

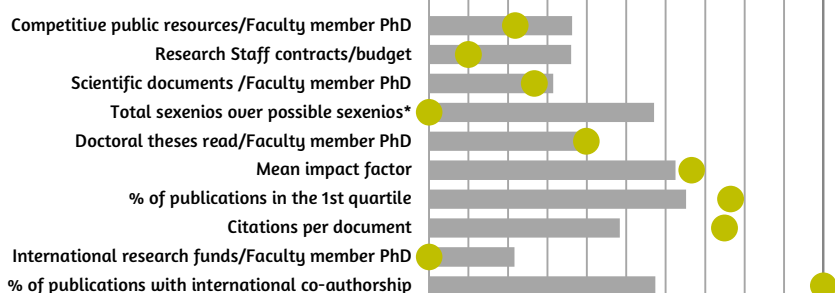*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average   ● URLL

ū Ranking

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios*
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

0 10 20 30 40 50 60 70 80 90 100

■ Media Universidades   ●●● URLL

*The "sexenios" indicator is not considered for private universities

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

Fundación **BBVA** Ivie

UNIVERSITAT ROVIRA I VIRGILI

UNIVERSITAT
ROVIRA I VIRGILI

Year of foundation: 1992

Type of ownership: Pública

Bachelor's degree students[1]: 11,121

Master's degree students[1]: 1,356

Faculty members[1]: 1,735

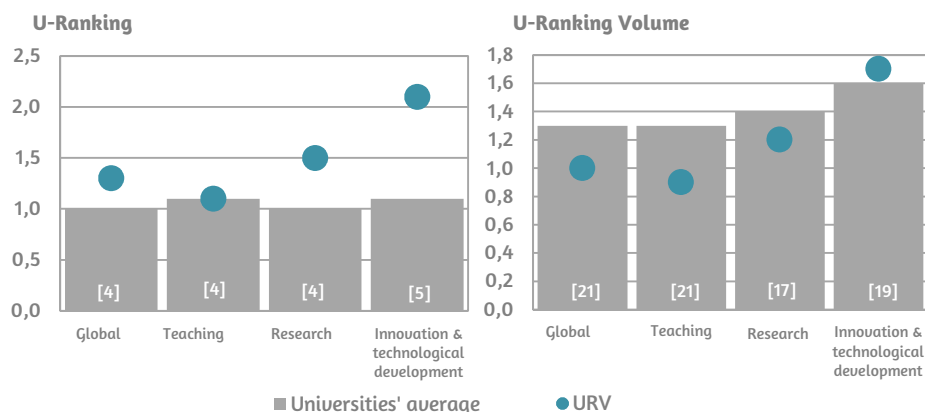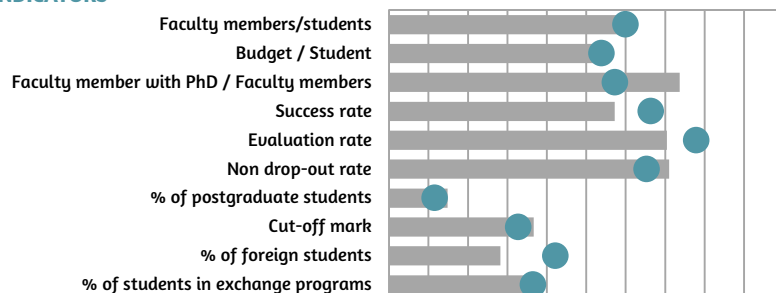Administration and service staff[1]: 729

Budget[2]: 111,089,555€

Bachelor's degrees[3]: 46

Master's degrees[3]: 46

[1]Course 2017-18; [2]2016; [3]Course 2018-19. Data referes only to centers belonging to the University. Master's degree data includes all centers.
Source: Ministry of Education, Culture and Sport (University Statistics)

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Ranking

U-Ranking 2019 performance and volume indices

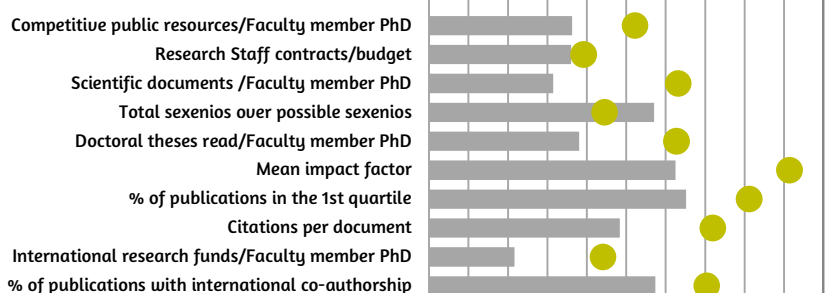*Index and postition in the ranking between brackets*

U-Ranking

U-Ranking Volume

■ Universities' average   ● URV

U-Ranking 2019 indicators

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

TEACHING INDICATORS

Faculty members/students
Budget / 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 exchange programs

RESEARCH INDICATORS

Competitive public resources/Faculty member PhD
Research Staff contracts/budget
Scientific documents /Faculty member PhD
Total sexenios over possible sexenios
Doctoral theses read/Faculty member PhD
Mean impact factor
% of publications in the 1st quartile
Citations per document
International research funds/Faculty member PhD
% of publications with international co-authorship

INNOVATION & TECHNOLOGICAL DEVELOPMENT INDICATORS

Income from licenses/Faculty members PhD
Income from consultancy /Faculty members PhD
Income from CPD courses/Faculty members PhD
Number of patents/Faculty members PhD
Triadic patents /Faculty members PhD

■ Media Universidades   ●●● URV
□□□ Indicator not available for this university

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

Fundación **BBVA** Ivie

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