The Guardian University League Table 2013 – Methodology

1. Summary

The methodology focuses on subject-level league tables, ranking institutions that provide each subject according to their relevant statistics. This ensures that all comparisons are as valid as possible – we ask each institution which of their students should be counted in which subject so that they will only be compared to students taking similar subjects at other universities.

Eight statistical measures are employed to approximate a university's performance in teaching each subject. Measures relate to both input, e.g. expenditure by the University on its students, and output, e.g. a graduate's probability of finding a graduate-level job. The measures are knitted together to get a Guardian score, against which institutions are ranked.

For those prospective undergraduates who do not know which subject they wish to study, but who still want to know where institutions rank in relation to one another, the Guardian scores have been averaged for each institution across all subjects to generate an institution-level table.

2. Changes Introduced for 2013

1. The methodology employed in the tables has generally remained very constant since 2008. There have only been three minor changes in methodology this year.

2. Firstly, HESA's standard definition for the average tariff on entry has altered in order to make use of the detailed QUALENT3 codes that students used to report the highest qualification on entry of students starting in 2010/11. In previous years, QUALENT2 codes were used to restrict the study population to those entering with a highest qualification of:

39	'A' level equivalent qualification not elsewhere specified
40	Any combinations of GCE 'A'/SQA 'Higher'/SQA 'Advanced Higher' & GNVQ/GSVQ or NVQ/SVQ at level 3
41	ONC or OND (including BTEC & SQA equivalents)
47	Baccalaureate

3. The QUALENT3 coding system provides more detailed information, which meant that the filter needed to cover more codes:

P41	Diploma at level 3
P42	Certificate at level 3
P46	Award at level 3
P47	AQA Baccalaureate (Bacc)
P50	A/AS level
P51	14-19 Advanced Diploma (level 3)

P53 Scottish Baccalaureate
P53 Scottish Baccalaureate
P62 International Baccalaureate (IB) Diploma
P63 International Baccalaureate (IB) Certificate
P64 Cambridge Pre-U Diploma
P65 Cambridge Pre-U Certificate
P68 Welsh Baccalaureate Advanced Diploma (level 3)
P80 Other qualification at level 3
P91 Level 3 qualifications of which some or all are subject to UCAS Tariff

4. Use of code P91 was inconsistent across the sector, with some institutions using it to describe the students that entered with a diverse mix of qualifications and others using it to describe students with a more traditional set of grades.

5. After application of these filters the usual system of calculating a total tariff was employed.

6. The definitions for the two Value Added scores were also changed to exclude integrated masters because the prevalence of unclassified awards was distorting the figures in the variant Value Added measure. In some departments this exclusion has had an undesired effect on value added scores because many students exit with a bachelors degree if their grades are inadequate to progress to masters level. Therefore we have identified all departments that offer integrated masters and have reverted to using 2009/10 data under circumstances where (a) the VA score has got worse in 2010/11 and (b) the population in the VA calculation has decreased.

7. The third change related to the mapping of NSS codes. Some students training to be teachers are reported under codes L2.42 and L3.108 (both Initial Teacher Training). These are not mapped to a unique JACS code in the official mappings and have therefore been erroneously excluded in previous years. By merging L2.42 with L2.39 and L3.108 with L3.103 we have ensured that all NSS data is used.

8. To provide more information to the institutions about how their data is used, we provide a ‘banding boundaries’ spreadsheet to show how the point scores for Value Added and expenditure per student relate are derived from the absolute statistical values. This year we are adding a lookup service that shows institutions which values have been regarded as non-credible and, for missing pieces of information, which assumption has been made in order to use an appropriate substitute (as per flow chart on page 6).

3. Indicators of Performance

a. National Student Survey – Teaching

During the 2011 National Student Survey, final year first degree students were asked the extent to which they agreed with four positive statements regarding their experience of teaching in their department. The summary of responses to all four questions can either be expressed as a percentage who 'definitely agree' or 'mostly agree' or be expressed as an average score between 1 and 5 where 5 relates to students who 'definitely agree' and 1 relates to students who 'definitely disagree'. The following table gives an example of how a department of 30 students might have its data represented in the tables.

		Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree	Not Applicable	Satisfaction Rate	Average Response
The teaching on my course		**5**	**4**	**3**	**2**	**1**			
1	Staff are good at explaining things.	10	8	6	4	2	0	60%	3.67
2	Staff have made the subject interesting.	0	10	8	6	4	2	36%	2.86
3	Staff are enthusiastic about what they are teaching.	2	0	10	8	6	4	8%	2.38
4	The course is intellectually stimulating.	4	2	0	10	8	6	25%	2.33
Subtotal		**16**	**20**	**24**	**28**	**20**	**12**	**33%**	**2.85**

b. National Student Survey – Assessment & Feedback

Students were also asked for their perception of five statements regarding the way in which their efforts were assessed and how helpful any feedback was.

		Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree	Not Applicable	Satisfaction Rate	Average Response
Assessment and feedback		**5**	**4**	**3**	**2**	**1**			
5	The criteria used in marking have been clear in advance.	5	5	5	5	5	5	40%	3.00
6	Assessment arrangements and marking have been fair.	10	8	6	4	2	0	60%	3.67
7	Feedback on my work has been prompt.	8	10	4	6	0	2	64%	3.71
8	I have received detailed comments on my work.	14	1	0	14	1	0	50%	3.43
9	Feedback on my work has helped me clarify things I did not understand.	1	14	0	1	14	0	50%	2.57
Subtotal		**38**	**38**	**15**	**30**	**22**	**7**	**53%**	**3.28**

The example data for questions 8 and 9 illustrates how the 'Average Response' statistic recognises differences in the distribution of responses whereas the 'Satisfaction Rate' statistic can be blind to them. This is the reason why Average Response is used to rank departments, even though the Satisfaction Rate is displayed in the tables.

c. National Student Survey – Overall Satisfaction

Students also answer a single question which encompasses all aspects of their courses.

		Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree	Not Applicable	Satisfaction Rate	Average Response
Overall Satisfaction									
22	Overall, I am satisfied with the quality of the course.	8	6	4	2	0	10	70%	4.00

Data relating to the NSS was not released at the JACS level of detail, and results had to be weighted in order to approximate Guardian Subject Groups. Level 3 data carries detail of 107 subjects, but results are suppressed where there are fewer than 23 respondents. Where this has happened, we substituted in results from level 2, which categorises students into 41 subjects. If any of these have fewer than 23 students, our first option is to use level 3 data from the 2010 NSS, otherwise level 2. The last resort is to use the broadest classification of subjects – level 1 – to get 2010 results for the 19 subject groups.

Caveat: Because the NSS surveys final year students it is subjective and dependent upon expectations. Students at a university that generally has a high reputation may be more demanding in the quality of teaching they expect. On the other hand, students in a department that has been lower in the rankings may receive teaching that exceeds their prior expectations and give marks higher than would be achieved in a more objective assessment of quality.

d. Value Added Scores

Based upon a sophisticated indexing methodology that tracks students from enrolment to graduation, qualifications upon entry are compared with the award that a student receives at the end of their studies. Each full time student is given a probability of achieving a 1st or 2:1, based on the qualifications that they enter with. If they manage to earn a good degree then they score points which reflect how difficult it was to do so (in fact, they score the reciprocal of the probability of getting a 1st or 2:1). Thus an institution that is adept at taking in students with low entry qualifications, which are generally more difficult to convert into a 1st or 2:1, will score highly in the value-added measure if the number of students getting a 1st or 2:1 exceeds expectations. At least 28 students must be in a subject for a meaningful Value Added score to be calculated using 2010/11 data alone. If there are more than 10 students in 2010/11 and the total number across 2009/10 and 2010/11 reaches 30, then a 2-year average is calculated.

A variant of the Value Added score is used in the three medical subjects – Medicine, Dentistry and Veterinary Science. This is because medical degrees are often unclassified. For this reason, unclassified degrees in medical subjects are regarded as positive but the scope of the study population is broadened to encompass students who failed to complete their degree and who would count negatively in the Value Added score.

e. Student-Staff Ratios

SSRs compare the number of staff teaching a subject with the number of students studying it, to get a ratio where a low SSR is treated positively in the

league tables. At least 28 students and 3 staff (both FTE) must be present in an SSR calculation using 2010/11 data alone. Smaller departments that had at least 7 student and 2 staff FTE in 2010/11, and at least 30 student FTE in total across 2009/10 and 2010/11, have a two-year average calculated. Year-on-year inconsistency and extreme values at either end of the spectrum cause several SSRs to be suppressed or spread over two years.

Caveat: This measure only includes staff who are contracted to spend a significant portion of their time teaching. It excludes those classed as 'research only' but includes researchers who also teach, even though at research-intensive universities research can take up a significant proportion of their time. It therefore follows that the simple ratio of the number of staff to students does not accurately reflect teaching intensity and also does not reveal who is performing the teaching. Is it the world renowned professor or a graduate teaching assistant?

f. Expenditure per Student

The amount of money that an institution spends providing a subject (not including the costs of academic staff, since these are already counted in the SSR) is divided by the volume of students learning the subject to derive this measure. Added to this figure is the amount of money the institution has spent on Academic Services – which includes library & computing facilities – over the past two years, divided by the total volume of students enrolled at the university in those years. Within each department, at least 30 (FTE) students have been enrolled in 2010/11 for the expenditure per student to be calculated. Smaller departments must have had 20 FTE in 2010/11 and at least 30 FTE in total across 2009/10 and 2010/11 in order for a two-year average to be calculated. Year-on-year inconsistency or extreme values can also cause suppression (or spreading) of results.

g. Entry Scores

Average Tariffs are determined by taking the total tariff points of 1st year 1st degree full time entrants to a subject and subtracting the tariffs ascribed to Key Skills, Core Skills and to 'SQA intermediate 2'. There must be more than 7 students in any meaningful average and only students entering year 1 of a course (not a foundation year) with certain types of qualification are included. This year students are only included in the calculation if their highest qualification on entry features in the list on pages 1-2. We did not resort to using the alternative tariff calculation for any departments.

Caveat: This measure seeks to approximate the aptitude of fellow students that a prospective student can anticipate. However, some institutions run access programmes that admit students on the basis that their potential aptitude is not represented by their lower tariff scores. Such institutions can expect to see lower average tariffs but higher value added scores

h. Career Prospects

The employability of graduates is assessed by looking at the proportion of graduates who find graduate-level employment, or study full time, within 6 months of graduation. Graduates who report that they are unable to work are excluded from the study population, which must have at least 25 respondents in order to generate results.

Subject Tables

Thresholds for Inclusion

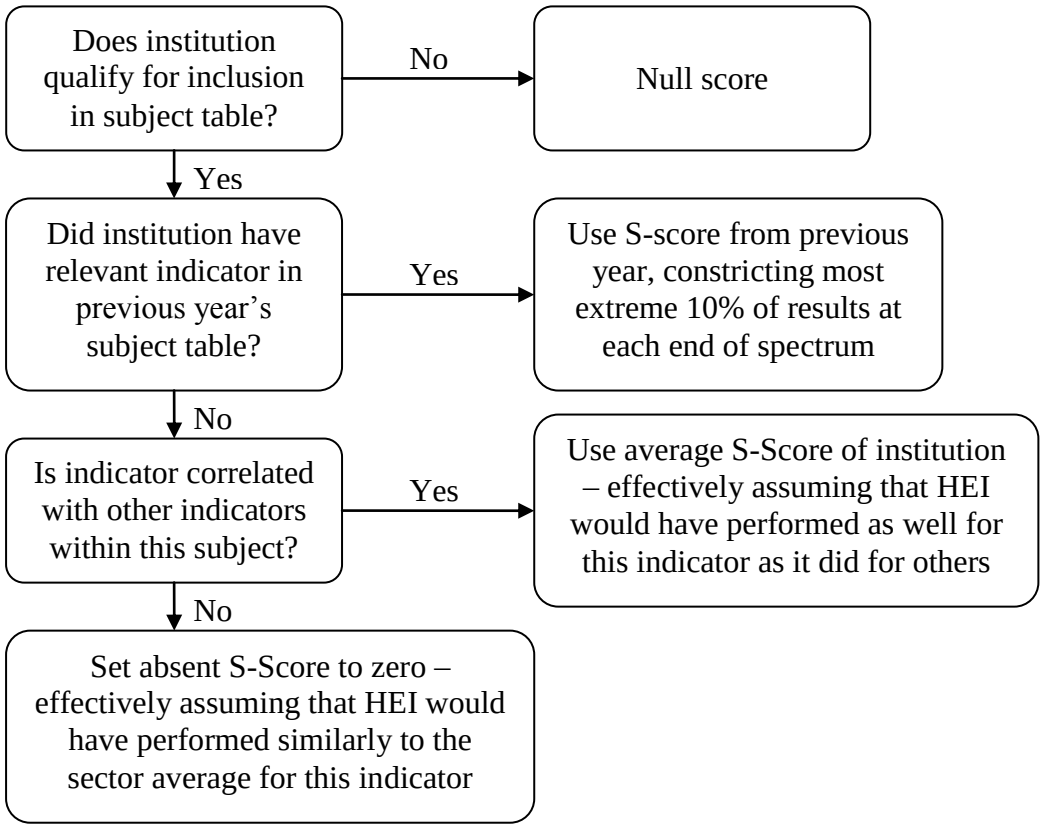
Each Subject table is driven by the eight indicators of performance. An institution can only be included in the table if no more than 2 of these indicators are missing, and if the institution's relevant department teaches at least 35 full time undergraduates. There must also be at least 25 students (FTE) in the relevant cost centre. Under certain circumstances an institution can be admitted into a subject table with only 4 indicators – if three of the missing indicators relate to the NSS or if the subject is Medicine, Dentistry or Veterinary Sciences.

Standardisation of Scores

For those institutions that qualify for inclusion in the subject table, each score is compared to the average score achieved by the other institutions that qualify, using standard deviations to gain a normal distribution of standardised scores (S-scores). The standardised score for Student Staff Ratios is negative, to reflect that low ratios are regarded as better. We cap certain S-scores – extremely high expenditure and SSR figures – at three standard deviations. This is to prevent a valid but extreme value from exerting an influence that far exceeds that of all other measures.

Missing Scores

Where an indicator of performance is absent, a process introduces substitute S-scores.



The Guardian University League Table 2013 – Methodology

Total S-Score and Ranking

The resulting S-Scores – including those that have been substituted in – are weighted according to the values in the following table and added together.

Indicator	Usual Weighting	Weighting in Medicine, Dentistry & Veterinary Sciences
NSS – Teaching	10%	14%
NSS – Assessment & Feedback	10%	14%
NSS – Overall Satisfaction	5%	7%
Value Added	15%	5%
Student-Staff Ratio	15%	20%
Expenditure per Student	15%	20%
Entry Scores	15%	20%
Career Prospects	15%	0%

The printed subject table

The resulting Total S-Scores drive both the subject rankings and the institutional table, but are not displayed in the printed subject table. Instead, the Total S-Scores are re-scaled so that the institution with the best S-Score receives 100 points and all others get a lower (but positive) point score. This statistic appears in the printed subject table even though it is not subsequently used in the institutional table.

In the printed subject table, three of the indicators – entry scores, career prospects and Student-Staff Ratios - are displayed in their pure form. The others, however, are not in a form that is inherently meaningful to readers.

Rather than showing the average NSS scores that contribute to an institution's ranking, the printed table displays the '% satisfied' statistic because it is easier to grasp. Value Added scores are even less inherently meaningful, so the printed table displays these as points out of 10, with the following table converting the expenditure S-Score into points:

S-Score Boundaries

10-point scale

from	to	points
1.8	inf	10
1.2	1.799	9
0.7	1.199	8
0.3	0.699	7
0	0.299	6
-0.3	-0.001	5
-0.7	-0.301	4
-1.2	-0.701	3
-1.8	-1.201	2
-100	-1.801	1

The same process is used to convert the Expenditure per student indicator into points. Under certain circumstances it is necessary to adjust the boundaries in order to ensure that each point score is possible to reach – otherwise it would be impossible to only score 1 / 10 in a situation where the average expenditure per student in the sector is less than 1.8 times the standard deviation of expenditure, because to do so would entail spending a negative amount per student.

4. Institutional Table

The Institutional Table ranks institutions according to their performance in the subject tables, but considers two other factors when calculating overall performance. Firstly, the number of students in a department influences the extent to which that department's Total S-score contributes to the institution's overall score and secondly, the number of institutions included in the subject table also determines the extent to which a department can affect the institutional table.

The number of full time undergraduates in each subject is expressed as a percentage of the total number of full time undergraduates counted in subjects for which the institution is included within the subject table. For each subject, the number of institutions included within the table is counted and the natural logarithm of this value is calculated. The total S-Score for each subject – which can be negative or positive – is multiplied by these two values, and the results are summed for all subjects to give an Overall S-score for each institution. Institutions are ranked according to this Overall S-score, though the value displayed in the printed table is a scaled version of this that gives the top university 100 points and all the others a smaller (but positive) points tally.

Each institution has overall versions of each of the indicators displayed next to its overall score out of 100, but these are crude institutional averages supplied by HESA (or the NSS) that are otherwise disconnected from the tables and give no consideration to subject mix. Therefore these institutional averages cannot be used to calculate the overall score or ranking position. In the case of the Student Staff Ratio, data that has failed credibility testing is removed from the institutional average. So is data that has been coded to non-academic cost centres.

The indicators of performance for value added and for expenditure per student are treated slightly differently, because they need to be converted into points out of 10 before being displayed. Therefore these indicators do read from the subject level tables, again using student numbers to create a weighted average.