

ATAR 2016

Preliminary report on the Scaling of the 2016 NSW Higher School Certificate



This preliminary report has been prepared to provide some information on the calculation of the Australian Tertiary Admission Rank (ATAR) in 2016 – a more detailed report will be released in 2017. Please see the booklet *All About Your ATAR* for more background.

There were no changes to the scaling procedures in 2016 for the various NSW HSC courses. The aggregate over the best 10 eligible units following the ATAR rules was calculated in the same way as in recent years.

1. Overview

In 2016 a total of 55,956 students received an ATAR, 220 more than in 2015. Of these, 53.3% were female, which is very similar to the gender balance in 2015.

16.5% of the students received an ATAR of 90.00 or above, 32.6% received an ATAR of at least 80.00, 48.0% at least 70.00, and 62.3% at least 60.00. The median ATAR was 68.65, slightly lower than in 2015. The median ATAR for females was 70.45 whereas the median ATAR for males was 66.55.

Of the 46 students who received the top ATAR of 99.95, there were 13 females and 33 males coming from a mix of government and non-government schools and studying a wide range of courses. The list of courses studied by candidates awarded an ATAR of 99.95 contained 40 different courses out of the 118 courses offered.

When reading the tables attached it must be remembered that the Board of Studies, Teaching and Educational Standards NSW's (the Board) HSC mark in a course indicates a standard reached in that course whereas a scaled mark indicates a student's position in the course candidature if all students had completed that course. Because HSC marks and scaled marks serve these two different purposes, comparing HSC and scaled marks can lead to misinterpretations that may affect student choices of courses to study.

Because of the different procedures used to calculate the Board's HSC marks and the scaled marks, scaled marks are generally lower than the Board's HSC marks, except near the top. Few students receive HSC marks less than 25 (on a one-unit basis) and the average HSC mark lies between 35 and 40 for most courses. In contrast, the average scaled mark for the total HSC candidature is close to 25, and relatively few scaled means are greater than 35.

2. Course candidatures – Table A1

Table A1 provides, for each course, the size of the candidature, the number of candidates who were awarded an HSC in 2016, the number of candidates who were awarded an ATAR in 2016, the percentage of female candidates and the maximum ATAR gained by a student enrolled in that course. In the majority of courses some students gained an ATAR in excess of 95.00.

3. Distributions of 2016 HSC marks by course – Table A2

Table A2 provides information on the distributions of the Board's HSC marks in 2016. Three VET Framework courses – Automotive Exam, Information and Digital Technology Exam, and Hospitality Exam – have examination arrangements in which each course is separated into two or more streams. While the streams have different course numbers, in each case the raw marks for

the various streams in the framework are on a common scale, and so each framework is treated as a single course for scaling purposes, and they are reported on a consolidated basis in these tables.

4. Distributions of scaled marks – Table A3

In general, for the larger courses, the patterns of scaled marks from the HSC 2016 were similar to those from the HSC 2015. Table A3 contains a summary of the distributions of scaled marks in each course, providing information on the number of students; the mean, standard deviation and maximum mark; and the 99th, 90th, 75th, 50th and 25th percentiles of both the Board's HSC marks and the scaled marks. Percentiles are not provided for courses with candidatures less than 40.

Marks are shown on a one-unit basis, so the range is 0 to 50. The percentiles in a course are based on all students completing that course irrespective of whether they were eligible for an ATAR or not.

Table A3 should not be used as a simple HSC to scaled mark conversion table.

The Board reports HSC marks rounded to the nearest integer whereas the scaled marks are calculated using the raw HSC marks based on the HSC examinations and moderated school assessments. The raw HSC marks are calculated to one decimal place. The Board aligns the raw marks to bands that best describe the standards that the students achieve. This can compress a range of raw marks to a smaller number of HSC marks. For example, all Band E4 performances in English Extension 1, say, are allocated one of the six integer grades 45.0 to 50.0. Thus after aligning and rounding, for each HSC mark there can be a range of corresponding raw marks and hence a range of scaled marks. In general there is no unique scaled mark for an HSC mark.

Table A3 gives the HSC mark at the specified percentile. Not all students with that HSC mark will be at that percentile when the raw marks are considered. For example, in Mathematics Extension 1 the maximum mark and the 99th percentile of the HSC distribution are both 50 whereas the scaled marks at the corresponding percentiles are 50 and 49.4.

This issue has been discussed in full on page 13 of the *Report on the Scaling of the 2015 NSW HSC*.

5. Variation in patterns of HSC and scaled marks – Tables A4, A5

A concern that is frequently raised is that the observed variation in the patterns of HSC marks across different courses (Table A2) affects scaling and the ranking calculation. Since it is the raw HSC marks that are scaled, not the HSC marks by which the Board reports student achievement, this observed variation does not affect the ranking calculation. A full discussion of this can be found in Section 3 of the *Report on the Scaling of the 2015 NSW HSC*.

It is to be expected that the patterns of HSC marks will change from year to year, reflecting differences in student achievement against the published standards in individual courses. In contrast, one would expect to see differences in the patterns of scaled marks of large candidature courses only if the overall academic quality of a course candidature changed, usually as a result of a substantial change in the size of the candidature. Table A4 shows the variation in the distributions of HSC marks from 2015 to 2016, for each course, while Table A5 provides the same information for scaled marks. The data show that while some distributions of HSC marks change from 2015 to 2016 the distributions of scaled marks are generally stable. The exceptions are for small courses where the candidature can change noticeably from year to year.

6. Courses that contribute towards the ATAR – Table A6

The ATAR information provided to students shows which units contribute to a student's ATAR. Some students are puzzled as to why one course is included and not another. The scaled mark a student receives for a course depends both on the scaled mean of the course and the student's position.

A frequently asked question is whether there are systematic differences between groups of courses. The concern is that some courses contribute towards the ATAR less than other courses. For each course Table A6 provides information on the percentage of students who counted all units of that course towards their ATAR. The data indicate that while there is some variability in the percentage of students who count the course towards their ATARs, there appears to be no evidence of systematic differences between different groups of courses. Table A6 also includes, for each course, the maximum ATAR for a candidate including all units of that course in their aggregate.

7. ATAR distribution – Tables A7 and A8

The data given in Table A7 show the number of students awarded a particular ATAR in 2016 for ATARs of 99.00 or more, and the frequencies associated with different ATAR classes from 99.00 to 30.00.

Table A8 gives the ATAR corresponding to selected percentiles of the ATAR cohort for 2012 to 2016.

8. The ATAR and the aggregate – Table A9

Table A9 shows the lowest aggregate of scaled marks out of 500 corresponding to each of the selected ATARs for 2012 to 2016.

9. General comparisons

Note that ATARs are, in general, lower than the average of the HSC marks reported to students. This is a consequence of the different ways student achievement is reported.

The Board reports against standards, with students being placed in bands that indicate the standards they have reached in their individual courses. An HSC mark indicates where a student is situated in a performance band and as there are few students in Performance Band 1, most HSC marks lie between 50 and 100. In contrast, a student's ATAR indicates their overall position in relation to their cohort.

As mentioned earlier, the median ATAR in 2016 was 68.65. A middle student will generally have HSC marks that lie between 70 and 80. Because of the large percentage of students placed in Performance Band 4, the ATARs of students with HSC marks around 80 will often be very different from the ATARs of students with HSC marks around 70. This is discussed in the *All About Your ATAR* booklet, available on UAC's website.

Dr Rod Yager
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Appendix

Comment

The following courses are not included in the tables as they have less than 10 students.

- Arabic Beginners
- Croatian
- Dutch
- Hungarian
- Heritage Indonesian
- Khmer
- Maltese
- Swedish
- Ukrainian.

Some other courses do not appear in all tables if they have less than the minimum number of candidates required for a particular table.

Table descriptions

Table A1	Course numbers – gender, ATAR eligibility and maximum ATAR by course Excludes courses with less than 10 students
Table A2	Distributions of 2016 HSC marks by course Excludes courses with less than 10 students
Table A3	Descriptive statistics and selected percentiles for HSC marks and scaled marks by course Excludes courses with less than 10 students or less than 4 ATAR-eligible students. No percentile data are given for courses with less than 40 students.
Table A4	Distributions of HSC marks by course: 2016–2015 Excludes courses with less than 40 students in either year
Table A5	Distributions of scaled marks by course: 2016–2015 Excludes courses with less than 40 students in either year
Table A6	Courses that contribute to the ATAR Excludes courses with less than 10 students
Table A7	ATAR distribution
Table A8	ATAR percentiles: 2012–2016
Table A9	Relationship between the ATAR and aggregates: 2012–2016