

# UAI 2007

## Preliminary report



### 1. Overview

In New South Wales student achievement in Stage 6 (Years 11 and 12) is reported in two ways: through the Higher School Certificate Record of Achievement and through the Universities Admission Index (UAI).

A student's Higher School Certificate Record of Achievement presents a profile of their achievement in the courses they have completed, both academic and vocational. Their achievement is reported in terms of the standards they have reached in the courses they have completed.

In contrast, the Universities Admission Index (UAI) is a numerical measure of a student's overall academic achievement in the HSC in relation to that of other students. This measure allows the comparison of students who have completed different combinations of HSC courses. The UAI is calculated solely for use by universities, either on its own or in conjunction with other selection criteria, to rank and select school leavers for admission to university.

A brief description of how the UAI is calculated can be found in the publication *You and Your UAI*, which has been distributed to every HSC student and which is available on the UAC website.

Calculation of the UAI is the responsibility of the Technical Committee on Scaling on behalf of the NSW Vice-Chancellors Committee. The NSW Board of Studies provides the HSC data from which the UAIs are calculated and the Universities Admissions Centre (UAC) advises individual students of their UAIs. Because of confidentiality provisions specified in Government legislation, UAIs cannot be provided to the Board of Studies, to schools or to other agencies.

Because of the interest in the UAI this preliminary report has been prepared to provide some information for teachers, students and parents on the scaling of the 2007 HSC, which will be followed by a more detailed report early in 2008.

### 2. Overall results

A total of 51 036 students were eligible for a UAI in 2007, representing 83.6% of the students who were awarded an HSC. This total was slightly more than the corresponding figure, 50 744, in 2006. The gender balance was similar to that of previous years, with 53.5% of the UAI eligible students being female.

The distribution of UAIs was also similar to that of previous years, with 1.7% of students receiving a UAI of 99.00 or above, 16.5% a UAI of 90.00 or above, 32.4% a UAI of 80.00 or above and 47.3% a UAI of 70.00 or above. The median UAI for 2007 was 67.

Of the 21 students who received a UAI of 100.00 in 2007, 12 were male and 9 female. This was different from the pattern in previous years where approximately equal numbers of males and females were placed in this top category. Females were, however, again over-represented in the higher UAI bands. For example, in 2007, of those students achieving a UAI of 95.00 or above

56.1% were female and of the students who receive a UAI of 90.00 or above 57.2% were female.

### **3. Distributions of HSC marks – Table A2**

Table A2 shows the distribution of HSC marks in 2007. For each course the percentage of students in Bands 2 to 6 are given, together with the median HSC mark and the Band in which the median lies. Data are not provided for courses with less than 10 students.

Since the introduction of standards referenced reporting in 2001, marks reported to students have not been constrained to a set distribution. Students demonstrating the highest level of achievement in a 2 unit course are placed in Band 6 and receive HSC marks of 90 and above. The data show clearly that patterns of HSC marks vary across courses. Few students are placed in Band 1 approximately 40% of the candidature of each course lies in Band 4, and for most 2 unit courses the course medians lie in Band 4.

### **4. Distributions of scaled marks – Table A3**

Table A3 presents, for each course, descriptive statistics and the 99<sup>th</sup>, 90<sup>th</sup>, 75<sup>th</sup>, 50<sup>th</sup> and 25<sup>th</sup> percentiles for HSC and scaled marks. Data are not provided for courses with less than 10 students and percentiles are not included for courses with less than 40 students. In the table, 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 in 2007 irrespective of whether they were eligible for a UAI or not.

Although HSC marks are not used as the basis for scaling they are shown in Table A3 because raw HSC marks are not released to students or teachers and hence cannot be presented in this report. Scaled marks are generally lower than HSC marks: few students receive HSC marks less than 25 (on a one-unit basis) and the average HSC mark for most courses lies between 35 and 40, whereas the average scaled mark for the total HSC candidature is approximately 25.

*When reading the table it must be remembered that an HSC mark indicates a standard reached 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 different purposes, comparing HSC and scaled marks is of little value, and can lead to misinterpretations that may affect student choices of courses to study.*

The Board reports HSC marks rounded to the nearest integer whereas raw marks and scaled marks are calculated to one decimal place. Because of the rounding, for each HSC mark there will be a range of raw marks, and hence a range of scaled marks. Therefore there is no unique scaled mark for each HSC mark: the scaled marks reported in Table A3 are the scaled marks at the specified percentiles.

*The primary purpose of Table A3 is to show the relativities between courses, not differences between HSC marks and scaled marks. Comparisons should therefore be limited between patterns of scaled marks of different courses.*

### **5. Variation in patterns of HSC marks – Tables A4 and A5**

A concern frequently raised in the media, and by parents and students, is that the observed variation in the patterns of HSC marks across different courses affects scaling and the UAI calculation. HSC marks that the Board uses to report student achievement are not used in the

scaling process so any variation in the distribution of these marks does not affect the UAI calculation at all.

A related question is whether changes in the pattern of HSC marks from one year to the next affects the pattern of scaled marks and hence the pattern of UAIs. For the reason given above, the answer is no. 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 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.

Tables A4 and A5 in the Appendix show the distributions of HSC and scaled marks, respectively, in 2007 and 2006. The marks are on a per-unit basis (0-50) and courses with less than 40 students are not included. Table A4 shows the percentages of each course candidature with an HSC mark less than 45, 40, 35, 30 and 25 for 2007 and 2006. Table A5 provides similar information for scaled marks.

The data show clearly that while the distributions of HSC marks change for some courses, the distributions of scaled marks are generally the same exceptions for some small courses.

## 6. Courses that contribute to the UAI - Table A6

There are three related questions regarding which courses contribute towards the UAI. The first two are at an individual level:

- “Which courses will contribute to my UAI?”, which is normally asked in either Year 10 or Year 11 when students are choosing courses to study.
- “Why has this course contributed towards my UAI rather than this other course?” which is asked when students receive their UAI Advice Notices.
- “Do some groups of courses contribute to the UAI less often than other groups of courses?”

The first two questions are addressed in the *You and Your UAI* booklet. The third question, whether some courses or groups of courses contribute towards the UAI less often than other courses, is often asked by teachers. This is not an easy question to answer, because not all students complete the same number of units. If students complete only 10 units all courses *must* be counted, whereas if students complete more than 10 units at least one unit *will* be omitted.

Table A6 provides some information about students who completed *more than 10 units*. Data are not provided for courses with less than 10 students.

For each course:

- The first column shows the total number of students who received a UAI in 2007.
- The second column shows the number of students who completed more than 10 units.
- The third column expresses this number as a percentage. This percentage varies across courses with a figure of 36% for Dance, 74% for English Extension 1, and 39% for Society and Culture.
- The final column gives the percentage of students who counted *all* units of that course towards their UAI - the percentage is based on the number of students who had completed more than 10 units.

Of the 99 courses listed in Table A6, 73.7% have 70% or more of their students counting the course. The data also show that, while there are differences in the percentages of students who count a particular course towards their UAIs, there is no evidence of systematic differences across Key Learning Areas.

A further analysis has been completed of students who completed only 10 units of UAI courses. For these students all their courses must contribute towards their UAIs so for each course, the percentage of students for whom the scaled mark in that course was their best scaled mark was calculated. The proportions of students for whom their scaled mark in that course was their second best, third best, fourth best and fifth best scaled mark were also calculated. The patterns of percentages were compared across individual courses and groups of courses, and while there were differences between individual courses there was no evidence of systematic differences across Key Learning Areas.

## **7. UAI and number of units completed – Table A7**

A question that is often posed concerns the relationship between the number of units studied and the UAI: “*Do students gain a better UAI if they study more units?*” The data in Table A7 show that students with high UAIs tend to have studied more than 10 units, but determining causality is difficult. It is likely that the more academically able students complete more units, so it is not surprising that they gain higher UAIs. On the other hand, if students only study 10 units of UAI courses and do badly in one course, their UAIs will be depressed.

To address this question, HSC students were grouped according to their achievement in the School Certificate Examination. What the data show is that the better students did, indeed, tend to study more units and within each group there was a tendency for students who studied more units to obtain higher UAIs.

This does not, however, completely answer the question of causality. The relationship between number of units studied and UAI within each group might result from personal attributes including interest, motivation, effort and time management. One cannot assume that simply by studying more units one’s UAI will be increased!

## **8. Relationship between UAI and aggregate – Table A8**

A further question that is frequently raised concerns the relationship between the UAI and the aggregate of scaled marks from which it is derived. Table A8 shows, for the years 2003 to 2007, both the aggregate and percentile corresponding to selected UAIs. The *percentile* in this table is the percentage of the UAI cohort whose UAIs are *less than or equal* to the particular UAI: a UAI of 99.00 in 2007 corresponds to a percentile of 98.4, which means that 1.6% of the UAI cohort received a UAI *above* 99.00. Each UAI corresponds to a range of aggregates and the figure provided in the table is the minimum aggregate corresponding to the UAI.

The data in Table A8 show that while the relationship between UAI, aggregate and percentile has been reasonably stable over time. The minor differences reflect fluctuations in the overall quality of the Year 12 cohort.

## 9. Misconceptions

There were relatively few enquiries and little media attention following release of the UAIs in 2006. Most of the enquiries from students received by the UAI Enquiry Centre at UAC concerned the relationship between their HSC marks and their UAIs, and the reason why one course contributed to their UAI and not another.

The first concern is that the UAIs students receive are generally lower than their HSC marks which they received from the Board of Studies. This concern reflects a common misconception that the UAI is a mark rather than a rank; a number which indicates a student's position in relation to other students rather than a mark which indicates a student's achievement in a course.

Whether a course contributes to a student's UAI or not depends on the student's scaled mark for that course. The scaled mark depends on the student's position in that course as well as the scaled mean of that course.

These misconceptions, and other frequently asked questions, have been addressed in the *You and Your UAI* booklet.

## 10. Conclusion

Overall, there were few surprises in the calculation of the UAI in 2007. The patterns of scaled means and resultant distributions of UAIs were similar to those from previous years.

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December 2007