

# Predicting A level grades using AS level grades

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The Cambridge Assessment 'Predicting A level grades using AS level grades' statistics report (Hopkin, 2011) aimed to explore the possibility of using AS level grades as an alternative to referee predicted grades in the UCAS application process. Specifically, the report aimed to identify how accurately AS level grades were able to predict A level grades for candidates in England in the 2010 examination year. The report identified that 2009 AS level grades were a reasonable predictor of 2010 A level grades, with 54% of A level grades equal to matched AS level grades, and 93% of A level grades within one grade of matched AS level grades. However, the report also identified that AS level grades were a very slightly disproportionate predictor for some subgroups of candidates: AS level grades were more successful at predicting A level grades for candidates who attained high AS level grades, female candidates, candidates from areas of low or medium deprivation, and candidates from independent or grammar schools.

In addition to AS level grades, another potential alternative to predicted grades in the UCAS application process could be awarding body forecast grades. Forecast grades are predictions of candidate attainment made by a referee, for submission to awarding bodies. The function of these grades is to assist awarding bodies in the examinations awarding system. The submission deadline for forecast grades is May of the final examination year, four months later than the January submission deadline for predicted grades.

A recent Cambridge Assessment statistics report investigated how accurately forecast grades were able to predict A level grades for OCR candidates in England in the 2009 examination year (Gill and Rushton, 2011). In addition, a 2005 UCAS report investigated how accurately predicted grades were able to predict A level grades for all UCAS applicants in the 2004 examination year (Hayward, Sturdy and James, 2005). The results of these studies allow comparison of the predictive ability of AS level grades against that of forecast grades and of predicted grades, albeit within the limitation of different samples and time periods. Table C1 presents the proportion of A level grades that were equal to, higher than, or lower than matched predictors within each of the three studies: AS level grades, forecast grades and predicted grades.

Table C1: A level grade equal to, higher than, or lower than predictor (AS level grade, OCR referee forecast grade or referee predicted grade)

A level grade:	Predictor (column %)		
	AS level grade (2010 prediction) <sup>1</sup>	Forecast grade (2009 prediction) <sup>2</sup>	Predicted grade (2004 prediction) <sup>3</sup>
<u>Equal</u> to predictor	54.5	54.7	44.7
<u>Higher</u> than predictor	22.9	12.2	8.7
<u>Lower</u> than predictor	22.7	33.1	46.7
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

Sources: <sup>1</sup>Hopkin (2011); <sup>2</sup>Gill and Rushton (2011); <sup>3</sup>Hayward, Sturdy and James (2005).

Overall, AS level grades and forecast grades were the most accurate predictors of A level grades (54% and 55%, respectively, equal to predictor), while predicted grades were the least accurate predictor (45% equal to predictor) by a substantial margin. In considering this difference, however, it is important to recall the very different time period investigated in the UCAS predicted grades study. An ongoing UCAS longitudinal study exploring the accuracy of predicted grades from 2008 to 2012 will help to resolve this time period difference, providing predicted grade accuracy data for corresponding 2009 and 2010 examination years (CERUK, 2011); this study is due to report in 2013.

Where the predictions were inaccurate, AS level grades were equally likely to be optimistic (A level lower than matched AS level) as they were to be pessimistic (A level higher than matched AS level). In contrast, forecast grades and predicted grades were substantially more likely to be optimistic than pessimistic. The balance of optimism relative to pessimism was different for predicted grades and forecast grades: predicted grades were 38 percentage points more likely to be optimistic than pessimistic, while forecast grades were 21 percentage points more likely to be optimistic than pessimistic. In the UCAS application process, these varied balances of optimism relative to pessimism could have different consequences for both the candidates and the institutions (universities and colleges) involved:

*Optimistic predictions*

Consider a candidate who was optimistically predicted three B grades in their A levels, and consequently accepted a three B grade offer at their first choice institution. If this candidate actually attained one B grade and two C grades then they would lose their place at the institution and be left in the position of

having to find a place at another institution, an increasingly difficulty challenge for candidates in the current admissions climate. From the institution's perspective, several optimistic predictions could mean a low rate of attainment of places and, consequently, substantially increased administration. Optimistic predictions could also mean a missed opportunity for the institution to offer their unattained places to candidates who would have met their offers.

#### *Pessimistic predictions*

Now consider a candidate who was pessimistically predicted three B grades in their A levels, and consequently accepted a three B grade offer at their first choice institution. If this candidate actually attained one B grade and two A grades then they would meet their offer and attain their place at the institution. However, this candidate's pessimistic predicted grades may have caused them to miss out on offers for better courses at better institutions, that they actually would have been able to meet. From the institution's perspective, several pessimistic predictions like these could mean a high rate of attainment of places and, consequently, reduced administration. However, pessimistic predictions could also mean a missed opportunity for other institutions to offer places to candidates who would have met their offers.

There appears to be no definitive answer to the question of what balance of optimism relative to pessimism is more desirable.

The forecast grade and predicted grade studies also investigated how accurately A level grades could be predicted for different subgroups of candidates. Forecast grades were identified as more successful at predicting A level grades for candidates who attained high A level grades, and candidates from independent or grammar schools (gender and level of deprivation were not investigated). Predicted grades were identified as more successful at predicting A level grades for candidates who were predicted A grades, female candidates, candidates of high socio-economic status, candidates of White, Chinese or Mixed ethnicity, and candidates from independent or grammar schools. These patterns are very similar to those identified in the AS level grades study, and highlight that AS level grades, forecast grades and predicted grades are all slightly disproportionate predictors for some subgroups of candidates.

Overall, the outcomes of the additional forecast and predicted grades studies offer a very useful comparison for evaluating the potential use of AS level grades as an alternative to referee predicted grades in the UCAS application process. Compared with predicted grades, AS level grades appear to be a more accurate predictor of A level grades (within the time period limitations of the data available). Compared with forecast grades, AS level grades appear to be approximately an equally accurate predictor of A level grades. Both forecast grades and AS level grades could therefore be considered as potentially better alternatives to referee predicted grades. Even for the AS level and forecast grade predictors, however, prediction of A level grades could only be described as 'reasonable'. The key question for consideration is therefore whether any of the three potential predictors are sufficiently accurate for use in the UCAS application process.

Finally, in addition to possible improvements in the accuracy of predictions, the use of AS level predictors in the UCAS application process may offer other advantages:

- Candidates may be motivated to work harder to achieve their best possible grades in AS level examinations.
- Centres may be encouraged to enter candidates for AS levels in a more timely way, when the candidates are ready to sit the examinations.
- Teaching and learning practices for AS levels may be improved.

Where accuracy data is inconclusive, additional factors such as these may also be worthy of consideration.

## References

- Gill, T. & Rushton, N. (2011). The accuracy of forecast grades for OCR A levels. *Cambridge Assessment Statistics Report Series, No.26*. Retrieved April, 2011, from [http://www.cambridgeassessment.org.uk/ca/digitalAssets/190552\\_The\\_accuracy\\_of\\_forecast\\_grades\\_for\\_OCR\\_A\\_levels.pdf](http://www.cambridgeassessment.org.uk/ca/digitalAssets/190552_The_accuracy_of_forecast_grades_for_OCR_A_levels.pdf)
- Hayward, G., Sturdy, S. & James, S. (2005). *Estimating the reliability of predicted grades: UCAS report*. Retrieved April, 2011, from [http://www.ucasresearch.com/documents/Predicted\\_Grades\\_2005.pdf](http://www.ucasresearch.com/documents/Predicted_Grades_2005.pdf)
- Hopkin, R. (2011). Predicting A level grades using AS level grades. *Cambridge Assessment Statistics Report Series, No.29*. Retrieved May, 2011, from [http://www.cambridgeassessment.org.uk/ca/Our\\_Services/Research/Statistical\\_Reports](http://www.cambridgeassessment.org.uk/ca/Our_Services/Research/Statistical_Reports)
- CERUK (2011). *Predictability of A level grades: Project information*. Retrieved April, 2011, from <http://195.194.2.38/starweb/ceruk/servlet.starweb>