HSC Results 2016

Dr Kim Jaggar
March 2017

HSC Participation

Year	HSC Total	HSC Completed	At Least one HSC Course
2016	76199	67924	8275
2015	76461	68015	8446
2014	75767	68004	7763
2013	74277	66841	7436
2012	72473	66590	5883

HSC Results Analysis

Total Number of Band 6/E4s

Year	School Band 6	State Band 6	Students Awarded Band 6	State Percent Band 6 v all Bands	State Band 6 per B6 Student	School Band 6 Per SBHS Student
2016	621	37781	17244	10.9	2.19	2.97
2015	709	35975	16568	10.5	2.17	3.39
2014	641	35982	16485	10.5	2.18	3.13
2013	585	34684	15949	10.1	2.17	2.93
2012	592	35055	15940	10.2	2.19	2.87
2011	690	36135	16412	10.5	2.2	3.33

Band 6 Movements

Year	State Band 6 Growth %	School Band 6 Growth %
2016	+0.05	-12.41
2015	-0.001	+10.61
2014	+3.7	+9.6
2013	-1.05	-1.8
2012	-3	-14.2

Mean Score of SBHS Students in HSC Courses With Ten or More Students

Course	School 2016	School Average 2012-2015	Selective Schools 2016	State 2016
Ancient history	86*	84.38	84.6	68.2
Biology	87.3*	83.6	86.5	72.2
Business Studies	88.6	90.28	85.7	70.3
Chemistry	87.6	88.78	84.7	75.1
Economics	85.2	84.73	84.1	76.3
Engineering Studies	88.8	88.48	85.8	75.2
English (Advanced)	86.4	87.35	86.3	80.1

Mean Score of Students in HSC Courses With Ten or More Students (cont.)

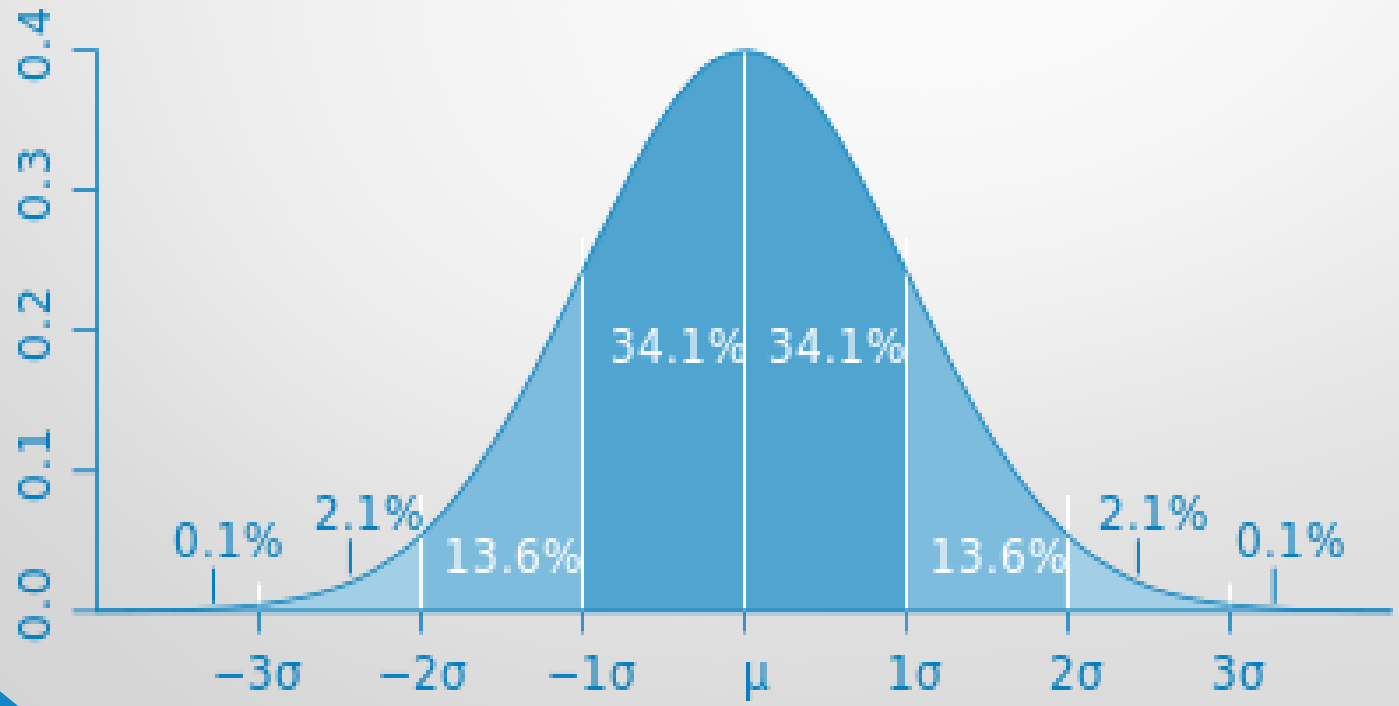
Course	School 2016	School Average 2012-2105	2016 Selective Schools	State 2016
English Extension 1	88.6	89.78	87.4	84
Geography	89.9*	88.33	84.6	70.6
Legal Studies	86.7	89.23	86.8	72
Mathematics	91.2	89.78	88.3	76.7
Mathematics Extension 1	90.1	90.05	88.2	81
Mathematics Extension 2	87.7	89.35	86.8	81.8
Modern History	86.5	88.38	86.2	71.3
History extension	82.3	83.1	85.2	77.2
Music 2	90.6	91.78	89.7	87

Mean Score of Students in HSC Courses With Ten or More Students (cont.)

Course	School 2016	School Average 2012-2105	Selective Schools 2016	State 2016
Physics	85.4	86.58	83.1	72
Software Design and Development	89.7	87.95	87.4	73.5
Studies of Religion 1 unit	79.3	82.78	86.2	83
Studies of Religion II	83.9*	81.4	84.9	68.8
Senior Science	86.75	87.75	81.8	71.5

Explanation of Terms

Standard deviation



Explanation of Terms cont…

- Standard deviation (σ) shows how much variation or dispersion from the average (mean) exists. Each band has a width of one standard deviation.
- The mean (μ) is the sum of all the numbers in the set (candidates scores in an HSC course), divided by the amount of numbers in the set (number of candidates).
- School standard. As 68.2% of scores fall inside one standard deviation above the mean, we expect our school's mean **in two unit courses only**, to be at the level of one standard deviation above the mean.
- Due to the scaling effects, as demonstrated later in the presentation, a target HSC mark for a two-unit course is 88, because any lower and the scaled score per unit x by 10 units would not amount to 371 or 90 ATAR.

Explanation of Terms (cont.)

Z score:

A z score for an HSC course is the school mean minus the state mean divided by the state standard deviation.

Assume a normal curve distribution. Let's say the state HSC mean for a course is 74 and its standard deviation is 12. At High the course mean is 86. The calculated z-score is (86-74)/12=1.

There are 15.9% of candidates left after the first standard deviation above the mean. As it happens, about 16.3% of students who apply are awarded an ATAR of 90 or more.

NB The distribution for TES purposes is not normal but steeply curvilinear.

Top 20 Z Scores

Design & Technology 2 unit	1.594	Physics 2 unit	0.967
Drama	1.33	Mathematics 2 unit	0.898
Personal Development	1.327	Legal studies	
0.875			
Software Design/Devel.	1.308	Modern History 2 unit	0.87
Geography 2 unit	1.227	French Continuers 2 unit	0.753
Business Studies	1.222	Economics	0.719
Engineering Studies 2 unit	1.172	Mathematics Extension 1	0.707
Biology 2 unit	1.114	Studies of Religion 2 unit	0.642
Ancient History 2 unit	1.025	English Advanced	0.626
Chemistry 2 unit	1.019	Visual Arts 2 unit	0.609

Explanation of Terms (cont.)

The school ATAR mean per unit value:

The school ATAR mean per unit value is calculated as the school per unit HSC mean, minus the state per unit HSC mean, divided by the state per unit HSC standard deviation, multiplied by the ATAR per unit standard deviation; the result being added to the state ATAR mean per unit scaled value.

English Advanced HSC mean per unit value was 43.08. The HSC state mean was 40.5 with a standard deviation of 4.2. The ATAR SD was 8.3 and the scaled mean 31.7 per unit. (43.08-40.5)/4.2x8.3)+31.7 = 36.80.

At High the English Advanced mean unit scaled value was 36.80. Target 37.1.

The Z-score was - (36.80-31.7)/ 8.3 = 0.61 [n=209].

What Does ATAR Unit Value Mean?

The ATAR unit value is the score the average SBHS student received in a course as a calculation towards an ATAR. The best ten scaled units (including 2 English) are aggregated to arrive at a TES and ATAR.

99.95	= 10 units	@	47.7
99.5	= 10 units	@	45.6
99.0	= 10 units	@	44.6
98.0	= 10 units	@	43.2
97.0	= 10 units	@	42.3
96.0	= 10 units	@	41.1
95.0	= 10 units	@	40.4
94.0	= 10 units	@	39.5
93.0	= 10 units	@	38.7
92.0	= 10 units	@	38.06
91.0	= 10 units	@	37.58
90.0	= 10 units	@	37.1

Targets for HSC 2016

- Earn 675 band 6 /E4 awards (achieved 621)
- Have >165 boys @ ≥90 (achieved 160)
- More than 50 @ 99 or above (achieved 46);

  77 (95-98.95) achieved 69; 40 (90-94.95) (45)
- Reach ATAR average of >=94 (achieved 93.12)
- Produce 80% of ATARs @ 90 (achieved 76.6%)
- Reduce ATARs <80 to 6.5% (achieved 8.6 %)

Reported or Calculated ATARs

Year	Year 12	Average ATAR	Standard Deviation
2011	207	94.57	6.84
2012	206	92.65	9.33
2013	200	93.17	7.39
2014	204	93.72	8.16
2015	207	94.29	7.48
2016	209	93.16	7.81

5 Year ATAR History

Year	Yr. 12	99+	95-98	90-94+	> =90	85-89	80-84	<80
2012	206	49	70	37	75.73	22	9	19
2013	200	37	74	45	78.39	15	13	16
2014	204	55	74	36	80.88	13	10	16
2015	207	54	79	39	83.09	14	9	12
2016	209	46	69	45	76.56	19	11	18

ATAR Value Per Course N>10

Course	Candidature No. in top1%	HSC Mark	90th % Mark	ATAR Mean/ Unit Value
Mathematics ext 2	32	49	47	46.15
Mathematics ext 1	86	50	48	44.36
Chemistry	105	47.5	44.5	41.29
Mathematics	161	49	47	39.93
Physics	91	47.5	44.5	39.76
Geography	43	47	44.5	38.94
Music 2	7	49.5	47	38.89
English extension 1	43	48	47	38.80
Economics	52	47.5	45.5	38.62
Software Design	18	48.5	45	37.56

ATAR Value Per Course N>=10

Course	Candidature No. in top 1%	+ Mark	90th % Mark	ATAR Mean/ Unit Value
Biology	177	47	44.5	37.48
Business Studies	171	47	44.5	37.17
		37.10 = 90 ATAR		
Engineering studies	20	47.5	45	37.03
English Advanced	260	47.5	45.5	36.80
Modern History	107	47	44.5	36.08
Ancient history	99	47.5	44.5	35.02
Legal Studies	103	47.5	45	34.62
Studies of Religion 2	62	47	44.5	33.28
Senior Science	66	46.5	44	30.53
Studies of religion 1	89	48	45	28.76

Target Mean v Achieved Mean: n=>100 2016

Advanced English	[n=209]	87.7	86.15
Maths Extension 1	[n=164]	91.5	89.91
Mathematics	[n= 166]	90.14	89.5
Maths Extension 2	[n= 121]	91	87.7
Physics	[n= 115]	87	85.16
Chemistry	[n= 106]	88.8	87.33

Targets Against Results n=10-99

Course	Target Mean	Mean Achieved
Ancient History	90	85.67
Biology	85	87.17
Business Studies	90	88.35
Economics	85	84.96
Engineering Studies	87.5	88.41
English Extension	90.25	87.88
Geography	87	89.62
Legal Studies	88.5	86.48
Modern History	88.5	86.33
Music 2	90	90.38

Targets Against Results n>=10-99 2016

Course	Target Mean	Mean Achieved
Senior Science	88	86.58
Software Design / Development	89	89.27
Studies of Religion 2	82	83.68
Studies of Religion 1	82	78.56

Targets Against Results 2016

Course	Target % B6/E4	Achieved % B6/E4
Ancient History	55	27.27
Biology	20	48.14
Business Studies	80	53.57
Chemistry	52	44.33
Economics	27.5	42.37
Engineering Studies	45	57.14
English Advanced	50	35.4
English Extension	75	54.54
Geography	47	63.93
Legal Studies	55	32.14

Targets Against Results 2016

Course	Target % B6/E4	Achieved % B6/E4
Mathematics 2U	73	72.72
Mathematics Extension 1	80	66.46
Mathematics Extension 2	73	56.19
Modern History	62	33.3
Music 2	45	72.72
Physics	46	36.52
Senior Science	48	33.33
Software Design	75	50
Studies of Religion -2U	20	16.66
Studies of Religion -1u	20	0

Targets Against Results <10 2016

Courses <10 students. Mean target = 87

Courses achieving that target :

Design and technology, Drama, French.

Courses *not* achieving that target:

Visual Arts, Chinese Heritage, Latin, German.

Targets Against Results <10 2016

Extension Courses <10 students. Mean target = 43.5

< Courses achieving that target :

Latin extension, English extension 2, Music extension

Courses *not* achieving that target:

History extension

All courses : equalled or exceeded targets for means 14/32

All courses: equalled or exceeded targets for Band 6/E4 %

12/32

Where our Students Go

205 boys were offered university places.

Destinations	2012	2013	2014	2015	2016
UNSW	124	117	124	145	127
Sydney	42	47	41	25	38
UTS	7	13	10	3	13
Macquarie	8	6	10	6	6
ANU	9	3	8	7	5
UWS	8	8	4	8	11
Newcastle	1	2	2	0	2
Other	7	4	6	9	3

University Courses They Do

Course	2012	2013	2014	2015	2016
Engineering	34	48	36	39	47
Commerce	49	50	65	64	54
Law	27	17	29	24	22
Arts	13	12	10	5	13
Science	28	18	12	11	18
Health Sciences	41	38	39	46	36
Design	3	3	2	0	4
Communication	6	0	0	3	4
International Studies	1	6	4	1	3
IT / Systems	1	5	1	6	3
Education	2	0	2	0	0


S·H·S
VERITATE
ET
VIRTUTE