HSC Results 2019

Presentation to P & C meeting by Dr K. A. Jaggar on February 17, 2020

School average ATAR history

2019 average ATAR was 92.78 with SD of 8.44

Since 2001 our average ATAR has been 92,67 with SD of 8.82 This is our second lowest result since 2012

Our segmented ATAR history: 2001-2007 91.59 2008-2014 93.41 2015 -2019 93.16 (5 years) **ATAR Predictor Results**

Year 7 enrolments	93.14
Later years enrolments	91.39
Overall result	92.78

Individual results 2@99.95

>= 99	43	80-84	11
95-98.95	80	75-79	8
90-94.95	40	70-74	9
85-89	15	<70	6

Tail < 90 49 10.85%

Second biggest tail since 2005

Students =/>90 163 78.74%

Second highest in four years

of the lowest 25 ATARS 18 enrolled in Year 7

Explanation of Terms

Standard deviation



Explanation of Terms cont...

- Standard deviation (σ) shows how much variation of scores or dispersion from the average (mean) exist in a population. 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 above or below one standard deviation above the mean, we expect our school's mean in two-unit courses only, to be at the level of at least 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 87, 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. Suppose 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. 90 ATAR is the minimum standard at High

NB The distribution of marks for ATAR purposes is curvilinear.

courses	 highly successful >/=1.
N=5,	Mean = 91.90 z= 1.30
N=8,	Mean = 85.23 z= 1.10
N=25,	Mean = 86.75 z= 1.06
N=113,	, Mean = 89.71 z= 1.05
N= 20,	Mean = 85.31 z= 1.02
N= 30,	Mean = 84.68 z= 1.01
N= 33,	Mean = 87.74 z= 1.01
	Courses N=5, N=8, N=25, <i>N=113</i> , N= 20, N= 30, N= 33,

Our expectations are that in 2-unit courses our course mean should be as close to one standard deviation above the state mean as possible. N=7 for 2019

'Z' Score Comparison of courses – successful 0.75-0.99

z= 0.99 Ancient History Mean= 87.0 N=5, Software Design N=11, Mean= 88.62 z= 0.98 Geography N=11, Mean= 87.71 z= 0.95 Mathematics Advanced *z*= 0.95 *N*=161, *Mean*= 90.75 *z*= 0.95 **Physics** *N*=125, *Mean*= 86.34 Music 1 z= 0.83 N=1. Mean =89.80 Legal Studies N=14, Mean= 85.57 z= 0.81 Studies of Religion-1 unit N=5, Mean= 42.32 z= 0.78

English Advanced Economics

N=212, Mean= 84.58 z= 0.47 N=69, Mean= 82.50 z= 0.43 Comparison of means of Extension courses – highly successful >/=0.5

 Music Extension
 N=3,
 Mean= 48.90
 z= 0.80

 Mathematics Extension 1
 N= 167,
 Mean= 91.53
 z= 0.70

 Mathematics Extension 2
 N= 123,
 Mean= 89.42
 z= 0.57

Given the high scores and means of Extension courses in the state, if our mean is half a standard deviation above the state mean, that is a very successful result.

- History extensionN=5,Mean=40.10z=0.18English extension 1N=33,Mean= 42.32z=0.13
- We had three negative z scores for extension courses

How did 2019's results compare to past HSC results at High?

The following tables describe the course and a statement comparing this year's result to that of previous years in that course at High, going back as far as 2001 when the new HSC began.

The z-score for the course is followed by two scores at the 90th percentile With similar pairs of scores for the 75th percentile and 50th percentile. The first score is the HSC mark at that percentile, followed by the ATAR scaled mark at that percentile.

The standard at High for a 2-unit mark, scaled for ATAR is 74.2 Scores highlighted in red fall below 74.2 at the 75th percentile HSC score

owest mean since than in 2016

-

bove long-term average z-score

iology	0.99	88	78	82	67.0	72.4	51.8	10
est result since 2016								
rd best result since 2001								
usiness Studies	1.06	89	77.4	83	65.6	72.6	48	10
owest z-score since 2012								
hemistry	1.04	92	85.2	87	78.6	75.8	62.8	76
lighest school mean since 2001								
bove long-term average z-score								
esign and Technology Sest result since 2016	1.28	91	74	86	60.8	78.4	44.8	4
bove long term z-score								

Course	Z-Score	90th	90 th	75 th	75 th	50 th	50 th	B6/E4
Economics	0.68	91	86	86	78.6	76.6	63.4	17
Below long-term average								
Lowest z-score since 2007								
Engineering Studies	1.01	89	77.6	82	66.4	74.8	51.6	7
Best result since 2017								
Lowest mean since 2007								
English Advanced	0.43	91	83.6	87	76	81.2	63.8	43
Higher than 2017								
Lowest mean since 2007								
English Extension 1	0.05	94	88.2	90	82.2	84.2	72.8	14
Lowest mean since 2006								
Lowest z-score since 2005								
English Extension 2	-0.40	94	90.2	90	83.4	79.6	72.4	2
Lowest mean since 2002								
Well below z-score average								

	Z-Score	90th	90 th	75 th	75 th	50 th	50 th	
Course								B6/E4
Geography	0.93	90	78.8	85	68	75.2	50.4	7
2 nd Lowest result since 2014								
Below long-term average z-score								
Legal Studies	0.74	91	78.6	85	68	74	50.4	7
2 nd lowest result since 2006								
Below long-term z-score average								
Mathematics Advanced	0.92	94	85.2	89	76.6	78.4	62.2	121
Highest mean since 2015								
2 nd highest z-score since 2007								
Mathematics Extension 1	0.69	96	92.4	92	88.2	80.6	78.2	126
Highest mean since 2017								
Highest z-score since 2017								
Mathematics Extension 2	0.55	95	94.6	92	91.8	82	85.8	78
Highest mean since 2015								
Above long term z-score								

Course	Z-Score	90th	90th	75 th 75	5 th 50 ^t	^h 50 ^t	^h B6	/E4
Modern History	0.90	89	79.6	84	68.4	73.8	51.2	19
Best school mean/ z-score since 2015								
3 rd best ever z-score								
History Extension	0.11	94	84	90	77.4	78.8	67.4	1
Lowest school mean since 2013								
Lowest z-score since 2007								
Music 1	0.83	93	72.2	89	58.6	82.2	42.4	1
Highest mean since 2014								
Below long-term average z-score								
Music 2	0.98	95	87.2	92	80	87.8	67.4	7
Lowest mean since 2016								
Lowest z-score since 2015								

Course	Z-Score	90th	90 th	75 th	75 th	50 th	50 th B	86/E4
Music Extension	0.79	100	96.4	98	87.8	91	70.6	3
Best result since 2017								
Second best z-score since 2014								
PDHPE	1.07	88	73.8	82	62	73	46	3
Highest z-score since 2016								
Above long-term z-score average								
Physics	0.95	91	84.6	84	76.4	73.6	61	60
Highest z-score since 2017								
Above long term mean								
French continuers	0.62	95	89.4	91	81.6	82.6	69.2	1
Highest z-score since 2016								
Above long term mean								

Course	Z-Score	90th	90 th	75 th	75 th	50 th	50 th	B6/E4
Software Design	0.97	91	78.6	86	68.4	75.6	51.4	7
Lowest z-score since 2005								
Lowest mean since 2014								
Studies of Religion I	0.74	90	78.6	84	69.2	77.2	55.8	3
Highest mean since 2015								
Best z-score since 2015								
Studies of Religion II	0.69	89	80.2	84	70.4	77	55.2	4
Highest mean since 2009								
Best z-score since 2009								
Visual Arts	0.34	91	76	88	61.8	81.2	44.6	0
Lowest ever z-score								
Lowest mean since 2003								

Course	Z-Score	90th	90 th	75 th	75 th	50 th	50 th B	6/E4
Chinese in Context	-0.50	95	86.8	93	76.4	88.6	60.8	1
Lowest z-score in 5 years of the course								
Third lowest mean in 5 years of the course								
Latin Continuers	-0.39	96	96.4	93	91.8	88.4	81.6	2
Mean below long term average								
Z-score below long-term average								
Latin Extension	-1.81	98	96.6	96	93.6	93	87.2	2
Worst result since new HSC began								
Well below long-term average								

Course	Z-Score	90th	90 th	75 th	75 th	50 th	50 th	B6/E4
French continuers	0.62	95	89.4	91	81.6	82.6	69.2	1
Highest z-score since 2016 Above long term mean								
German Continuers	-0.64	93	87.8	89	80.4	81.4	67.6	0
Lowest z-score since 2017								
Mean below long-term average								
German Extension	-0.24	94	91	92	887	86.6	79.6	0
Best mean since 2010								
Better than long term z-score								

How well did we perform compared to our statistically similar group?

How well did we perform against the state mean for the course?

How well did we perform against our own 5-year average?

The following tables comprise:

- The name of the course with 10 or more candidates from High
- The HSC mean for High in the course
- The mean for the statistically similar school group
- The mean in the course or the state
- The mean in the course for the last five years at High

NB Scores highlighted in red were below the SSSG score or the Average Mean of the last 5 years for High

Course	SBHS 2019	SSSG Average 2019	State Mean 2019	School Average 2014-2018
Biology	84.87	84.23	72.4	86.3
Business Studies	87.12	84.73	72.6	89.2
Chemistry	90.01	86.12	75.8	88.2
Economics	82.78	85.3	77.8	85.5
Engineering Studies	85.4	85.69	74.8	87.7
English (Advanced)	84.87	85.57	81.2	86.7
English Extension 1	85.45	87.1	84.2	89.9

Subject	School 2019	SSSG Average 2019	State Mean 2019	School Average 2014-2018
Geography	88.09	85.12	75.2	88
Legal Studies	86.86	87.12	74.0	87
Mathematics	91.2	87.12	78.4	90.8
Mathematics Extension 1	91.77	88.45	91.52	91.9
Mathematics Extension 2	89.71	88.07	82.0	89.5
Modern History	87.94	85.75	73.8	87.7
Physics	86.5	84.12	73.6	86.2
Studies of Religion II	84.21	82.1	77.0	81.7

Comparing ourselves to the state over time

- * The first column describes the course and its number of candidates in the state current highest lowest and mean since 2001.
- * In the second column, there is the history of the state mean in the course current highest lowest and mean since 2001.
- * In the third column, the ATAR unit value is recorded, where 25 is average.
- In the fourth column, the school ATAR value for the average student in the course nb the school standard is 37.1
 - nb Where high or low values occur they are coloured. Where school mean scaled unit values are below 37.1, they are coloured.

COMPARING OURSELVES AGAINST THE STATE

		STATE	ATAR UNIT	SCHOOL ATAR MEAN	ATAR
COURSE	NO.	MEAN	VALUE SCALED	UNIT VALUE SCALED	Z-SCORE
Ancient H	listory				
2019	7,233	36.5	23.9	34.90	1.00
High	12,144	37.5	25.1	37.60	1.27
Low	7,216	34.9	23.3	30.12	0.54
LTA	10,201	36.22	24.54	34.52	0.93
		STATE	ATAR UNIT	SCHOOL ATAR MEAN	
COURSE	NO.	MEAN	VALUE SCALED	UNIT VALUE SCALED	Z-SCORE
Biology					
2019	<mark>18,667</mark>	36.2	25.9	35.70	0.99
High	<mark>18,667</mark>	37.4	26.9	37.48	1.12
low	12 215			22.42	0.41
	12,215	35.8	25.9	33.13	0.41

COMPARING OURSELVES AGAINST THE STATE

		STATE	ATAR UNIT	SCHOOL ATAR MEAN	
COURSE	NO.	MEAN	VALUE SCALED	UNIT VALUE SCALED	Z-SCORE
Business	Studies				
2019	17,586	36.3	24	35.52	1.06
High	17,611	37.4	24.3	40.83	1.62
Low	14,721	34.7	23.6	32.05	0.82
LTA	16,208	36.48	23.9	36.20	1.17
		STATE	ATAR UNIT	SCHOOL ATAR MEAN	
COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE
COURSE Chemistry	NO. y	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE
COURSE Chemistry 2019	NO. y 10,277	STATE MEAN 37.9	ATAR UNIT VALUE SCALED 31.4	SCHOOL ATAR MEAN UNIT VALUE SCALED 41.67	Z-SCORE 1.04
COURSE Chemistry 2019 High	NO. y 10,277 11,173	STATE MEAN 37.9 38.3	ATAR UNIT VALUE SCALED 31.4 31.8	SCHOOL ATAR MEAN UNIT VALUE SCALED 41.67 42.43	Z-SCORE 1.04 1.13
COURSE Chemistry 2019 High Low	NO. y 10,277 11,173 8,887	STATE MEAN 37.9 38.3 34.6	ATAR UNIT VALUE SCALED 31.4 31.8 31.2	SCHOOL ATAR MEAN UNIT VALUE SCALED 41.67 42.43 38.20	Z-SCORE 1.04 1.13 0.67

COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE
Economi	cs				
2019	5,100	38.9	31.8	35.58	0.40
High	6,136	38.9	32.2	40.08	0.88
Low	5,131	36.9	30.6	35.16	0.40
LTA	5,416	38.12	31.35	37.97	0.68
Engineer	ing Stu	dies			
2019	<mark>2,257</mark>	37.4	25.8	35.59	1.01
High	<mark>2,257</mark>	38.2	26.0	38.63	1.39
Low	1,274	32.6	25.0	32.38	0.75
LTA	1,746	37.0	25.6	35.91	1.10

COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE
English Ao	dvanced				
2019	25,251	40.6	31.9	35.45	0.43
High	28,066	40.7	33.2	40.28	0.99
Low	20,123	38.5	31.2	34.47	0.21
LTA	26,107	39.9	31.8	37.13	0.64
English Ex	tension	1			
2019	3,490	42.1	36.4	36.72	0.05
High	6,282	42.5	38.4	41.92	0.92
Low	3,813	38.8	35.4	35.09	-0.31
LTA	5,054	40.6	36.4	38.81	0.37

COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE					
English Ex	English Extension 2									
2019	<mark>1,326</mark>	39.8	36.2	33.43	-0.40					
High	2,608	41.6	38.1	45.29	1.38					
Low	<mark>1,326</mark>	39.0	35.2	33.43	-0.46					
LTA	2,015	39.9	36.3	37.70	0.20					
Geograph	V									
2019	4,188	37.6	25.2	35.55	0.93					
High	6,210	38.6	26.0	39.15	1.31					
Low	4,109	35.9	24.8	32.84	0.75					
LTA	4,668	37.4	25.4	36.21	1.03					

COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE					
Legal Stud	.egal Studies									
2019	10,516	37.0	25.2	33.95	0.80					
High	10,797	38.2	25.7	38.62	1.31					
Low	7,523	33.1	25.1	29.82	0.44					
LTA	9,129	37.0	25.3	35.35	0.94					
Mathema	atics									
2019	17,311	39.2	31.1	39.94	0.92					
High	20,799	39.4	31.3	40.54	1.02					
Low	16,139	36.2	29.8	34.81	0.53					
LTA	17,803	38.1	30.6	38.52	0.82					

COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE
Mathema	tics Ext	ension 1			
2019	8,830	40.3	39.1	43.94	0.69
High	9 <i>,</i> 955	41.0	40.1	44.75	0.83
Low	6,240	36.6	37.6	41.34	0.41
LTA	8,831	39.7	39.4	43.39	0.58
Mathema	tics Ext	ension 2			
2019	3,134	41.0	42.9	45.39	0.55
High	3,512	41.9	44.7	46.71	0.70
Low	2,578	39.7	42.7	44.84	0.22
LTA	3,213	41.0	43.6	45.74	0.47

COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE				
Modern I	Modern History								
2019	<mark>11,329</mark>	36.9	25.6	36.88	1.03				
High	<mark>11,329</mark>	38.6	27.6	38.51	1.11				
Low	8,751	37.1	25.5	32.07	0.48				
LTA	10,084	37.7	26.9	36.01	0.85				
History E	xtensior	า							
2019	1,825	39.4	33.7	34.47	0.11				
High	2,397	42.7	35.2	40.83	0.96				
Low	1,524	34.6	33.6	33.02	-0.26				
LTA	2,041	38.2	34.2	37.37	0.49				

COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE
Music 1 (1	L score)				
2019	4,476	41.1	21.2	30.04	0.83
High	5,126	41.1	22.8	41.46	1.92
Low	3,555	37.2	21.1	26.07	0.37
LTA	4,519	39.8	21.9	33.03	1.09
Music 2 u	ınit				
2019	730	44.0	33.3	37.95	0.55
High	850	44.0	34.4	43.68	1.37
Low	539	40.9	32.1	31.93	-0.05
LTA	689	42.7	33.3	38.65	0.67

COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE
Music Ext	ension	(3 scores)			
2019	417	45.5	35.3	42.73	0.79
High	504	46.2	36.2	45.28	1.25
Low	332	41.7	33.9	31.85	-0.49
LTA	428	44.3	35.1	40.60	0.64
PDHPE (8	8 scores				
2019	15,545	36.5	23.0	34.06	1.07
High	15,986	37.7	23.7	38.74	1.50
Low	9,284	33.7	22.7	29.54	0.59
LTA	13,227	36.2	23.2	33.93	1.05

COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE
Physics					
2019	8,404	36.8	30.5	39.72	0.95
High	10,158	37.8	30.7	41.18	1.11
Low	8.900	34.5	30.1	36.94	0.70
LTA	9,311	36.9	30.4	39.02	0.89

		STATE	ATAR UNIT	SCHOOL ATAR MEAN					
COURSE	NO.	IVICAIN	VALUE SCALED	UNIT VALUE SCALED	Z-SCORE				
Software Design									
2019	1,796	37.8	25.7	36.11	0.97				
High	3,666	37.9	26.1	39.10	1.45				
Low	1,608	32.8	23.6	30.53	0.48				
LTA	2,089	36.6	24.7	36.20	1.14				
Studies of Religion 1 unit (5 scores)									
2019	8,475	38.6	27.9	34.52	0.74				
High	9,950	39.2	28.1	36.95	1.06				
Low	8,926	37.6	27.1	29.16	0.20				
LTA	9,195	38.5	27.6	31.58	0.45				

COURSE	NO.	STATE MEAN	ATAR UNIT VALUE SCALED	SCHOOL ATAR MEAN UNIT VALUE SCALED	Z-SCORE				
Studies of Religion 2 unit									
2019	6,046	38.5	27.6	34.43	0.69				
High	6,280	39.4	27.8	39.89	1.26				
Low	3,554	37.3	26.8	30.26	0.36				
LTA	5,237	38.2	27.3	33.37	0.61				
Visual Arts (2 scores)									
2018	8,526	40.6	22.3	26.04	0.98				
High	9.717	40.6	23.5	41.50	1.76				
Low	8,462	36.1	21.9	26.04	0.35				
LTA	9,050	39.6	22.8	32.89	0.94				

Universities They Go To

Course	2013	2014	2015	2016	2017	2018	2019
New South Wales	117	124	145	127	147	137	131
Sydney	47	41	25	38	27	38	44
UTS	13	10	3	13	7	11	12
Macquarie	6	10	6	6	8	6	10
Australian Catholic	0	3	4	1	1	6	5
ANU	3	8	7	5	4	5	3
Western Sydney	7	4	8	11	9	3	3
Wollongong	1	0	2	1	1	1	1
other	6	5	5	4	1	0	5
total	200	205	205	205	205	207	2014

University Courses They Do

Course	2013	2014	2015	2016	2017	2018	2019
Engineering	48	36	39	47	43	43	33
Commerce	50	65	64	54	50	56	50
Law	17	29	24	22	27	12	24
Arts	12	10	5	13	5	6	8
Science	18	12	11	18	10	36	32
Health Sciences	38	39	46	36	36	28	28
Design	3	2	0	4	6	7	6
Communication	0	0	3	4	1	0	0
International Studies	6	4	1	3	4	1	1
IT / Systems	5	1	6	3	16	15	28
Education	0	2	0	0	2	1	2