

A Level Analysis 2019

Blood Pressure Alert for English and Mathematics

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Key points

We look at A level participation as a share of entries (rather than raw numbers of entries) to get a better picture of what is or is not changing

The headlines about boys and girls in science subjects are distorted by the significantly larger number of girls who take A levels overall

Despite slightly higher numbers of entries to the three sciences from girls, there is still a significantly higher share of entries for boys

Girls are outperforming boys on higher grades

English share of entries has declined by a quarter since 2015

Mathematics share of entries has declined slightly after several years of annual growth

Most of the decline in MFL is tracking the fall in the population of 18-year olds

EPQ growth grinds to a halt

(All data are from JCQ A level results for the UK)

Introduction

This analysis of the UK A level entries and outcomes is designed to get under the skin of trends for A level subjects and to challenge some of the findings of the JCQ, the body that releases the results data on behalf of the main A level awarding bodies. We repeat our call from last year for JCQ to release the data in readable files to aid analysis, and we urge them to learn the difference between 'per cent' and 'percentage points' – it makes a difference. It would also help if they used better data from which to understand population changes. Using a more careful analysis of age data related to school year gives an 18-year old population fall in 2019 of 2%' rather than the 2.9% quoted by JCQ. (Their website being crashed for most of Thursday morning didn't help either).

The big picture – and the stubborn male/female gap

There was a fall of 10,775 (around 1%) in the total number of A level entries. Although we don't have data at a candidate level (or retake information), this probably indicates a very slight overall increase in participation in A levels, given the population decrease of 2% in the 18 year old population this year.

While the overall pass rate remained stable, there was a slight decrease in the proportion of entries earning an A*-C grade – from 77% in 2018 to 75.8% in 2019. Taking the small decreases in A*-C grades each year since 2016 produces a total fall in this grade segment of less than 2 ppts, although this year's decrease was larger than in previous years. This is difficult to interpret given Ofqual's 'comparable outcomes' policy and the staggered changes to A level assessment over that period. However, now that all the A levels have been

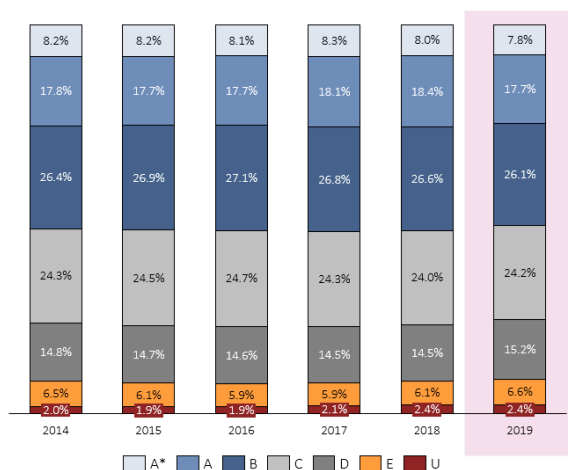
reformed to the linear model, it will be interesting to watch whether the decline continues – how comparable with their previous cousins in the A2/AS years does Ofqual want the new ‘tougher’ A levels to be?

This year, girls overtook the boys in the A*-A grades. Taking the A*-C grade profile, girls are nearly 4ppts ahead of boys.

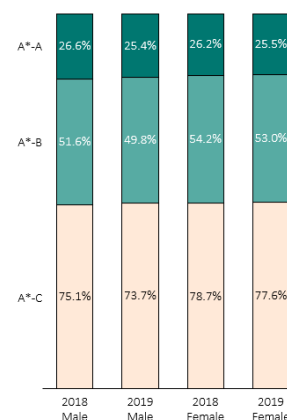
GRADE DISTRIBUTION

Overall grade distribution has remained relatively stable over the past 6 years. Grade performance has slightly decreased from both the male and female population

Grade distribution, All Subjects, 2014-2019



Grade performance Male vs Female, 2018-2019



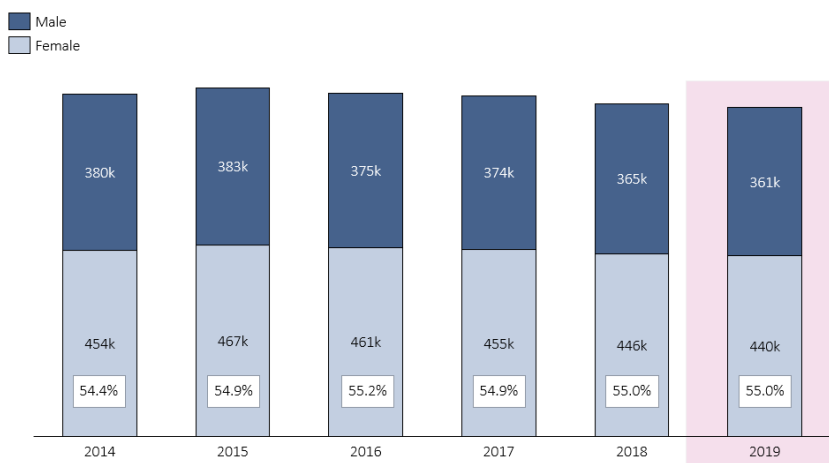
Source: JCQ Results 2014-2019

Girls continue to command 55% of the total A level entries, a gap that has changed little in recent years. This means that there were nearly 80,000 fewer male A level entries than female and translates over to the UCAS A level results day ‘placed’ data showing 27,410 fewer 18-year-old men placed in higher education than 18-year-old women.

MALE VS. FEMALE

Girls have a much larger share of all A level entries

Total number of A-level entries by gender and proportion of total entries



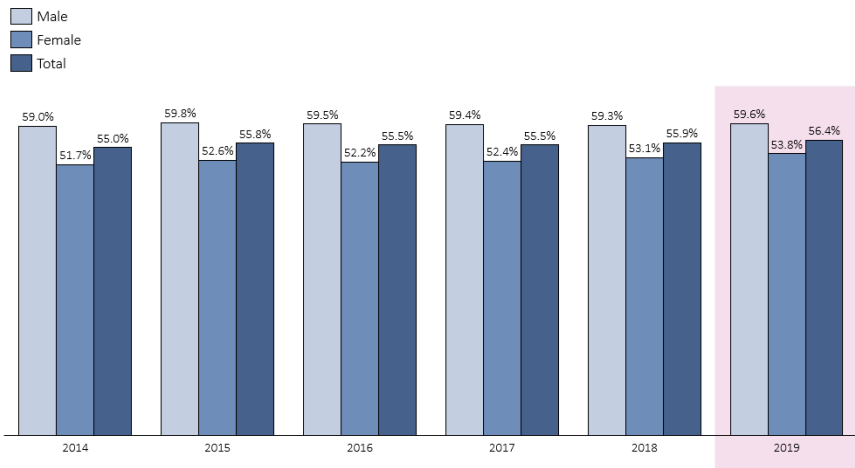
Source: JCQ Results 2014-2019

The Russell Group’s facilitating subjects continue to make up well over half of all entries and nearly 60% for boys. With the close reflection of facilitating subjects in the EBacc at GCSE, it remains to be seen whether the Russell Group’s new [Informed Choices](#) approach starts to change their dominance.

FACILITATING SUBJECTS

The proportion of students taking facilitating subjects has been stable over time

Facilitating subjects¹ entries as a % of total entries, 2014-2019



Source: JCQ Results 2014-2019

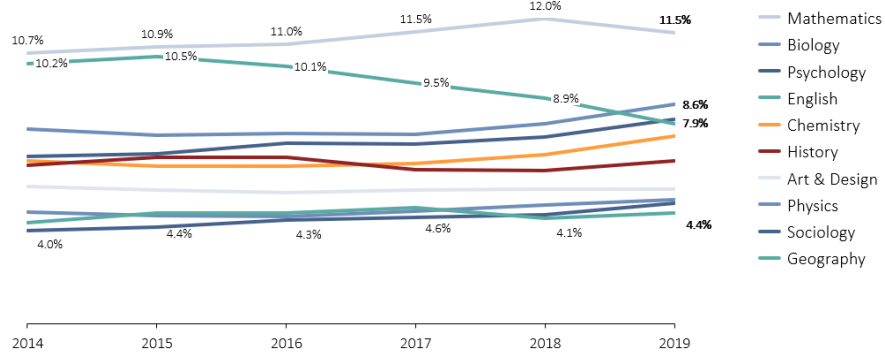
¹ Facilitating subjects include Biology, Chemistry, English (all subjects), French, Geography, German, History, Mathematics, Mathematics (Further), Physics, Spanish, and Other Modern languages. This differs from the JCQ definition, which only includes English Literature

The top 10 subjects at A level have remained relatively stable with mathematics still out in front (although see more on mathematics below). English (also more below) has dropped to fourth place, overtaken for the first time by Biology and Psychology.

SUBJECT POPULARITY

The top 10 subjects by proportion of entries has barely changed in the last 6 years. However, English has strongly declined, mathematics has dipped for the first time since 2014, and Biology and Psychology have become more popular

Number of entries as % of total entries, top 10 subjects, 2014-2019



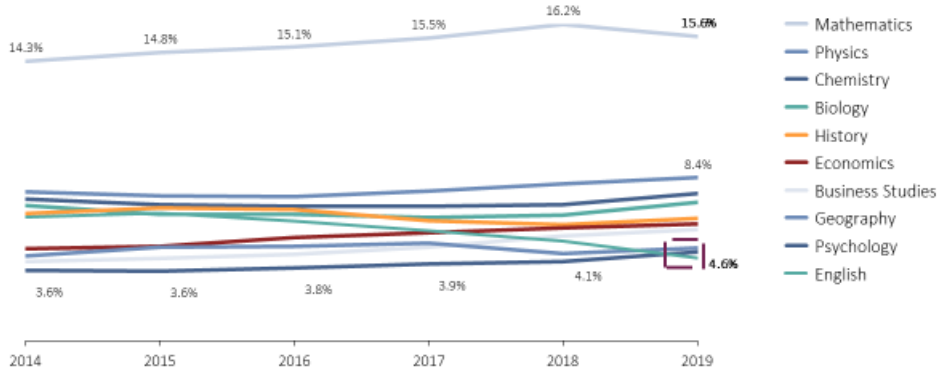
Source: JCQ Results 2014-2019

There are, however, quite different subject popularity profiles for boys and for girls. Mathematics is in front by a large margin for boys while girls' subjects are more evenly distributed.

SUBJECT POPULARITY

The top 10 subjects by proportion of entries for males has changed only slightly in the last 6 years. This year, Geography and Psychology have surpassed English

Number of male entries as % of total male entries, top 10 subjects, 2014-2019

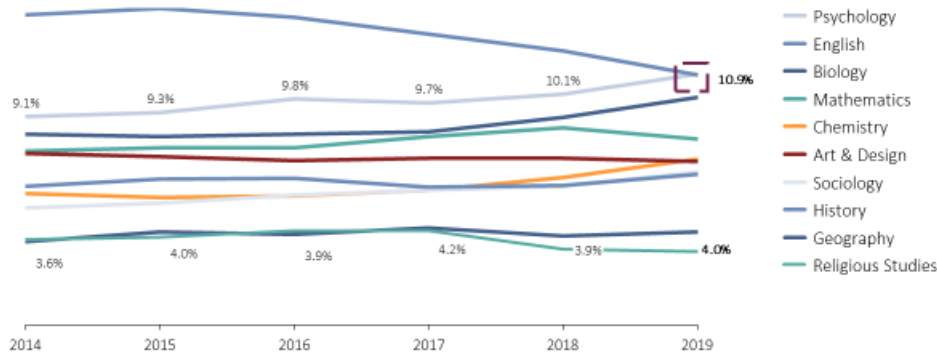


Source: JQJ Results 2014-2019

SUBJECT POPULARITY

The top 10 subjects by proportion of entries for females has changed in the last 6 years. This year, Psychology has surpassed English as the top subject. Biology and chemistry have also increased

Number of female entries as % of total female entries, top 10 subjects, 2014-2019



Source: JQJ Results 2014-2019

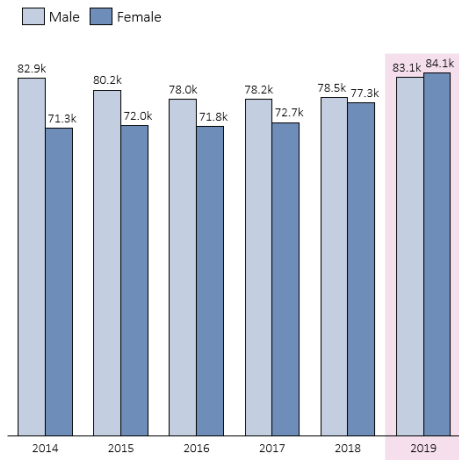
Science (Physics, Chemistry and Biology) and STEM

The JQJ press release this year makes much of female science entries: “This year female entries [in science] have overtaken male entries, reaching 50.3% for the first time”, the press release chirrup. But this was the female share of *total* science entries and well below the 55% female dominance of entries to all subjects. Male entries to the sciences as a share of total male entries at 23.1% are still well ahead of female entries (19.1%) with the gap between the two closing only marginally (0.2pts). So, boys are still significantly more likely to choose science A levels than girls.

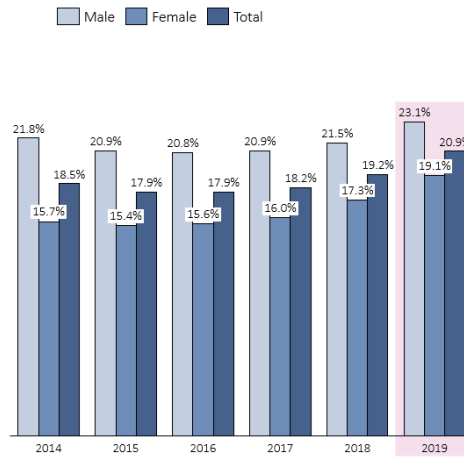
MALE VS FEMALE

Sciences- There have been more female than male entries in Science subjects in 2019 with strong increases among both genders. However, proportion of entries remains higher among boys compared to girls

Sciences¹ entries 2014-2019 for male vs female



Sciences¹ entries 2014-2019 as proportion of total entries by male vs female



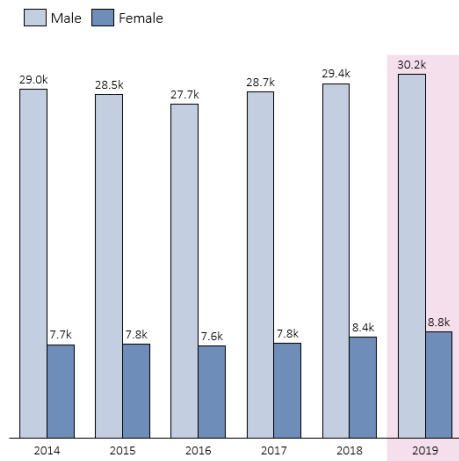
1. Sciences include Biology, Chemistry, Physics
Source: JCQ Results 2014-2019

Physics has the biggest male/female gap of the three (6.4ppts) and this has marginally increased since 2018 by 0.2ppts – so too early to celebrate the 4.9% increase in female physics entries although it is nearly twice the growth rate of physics entries for males.

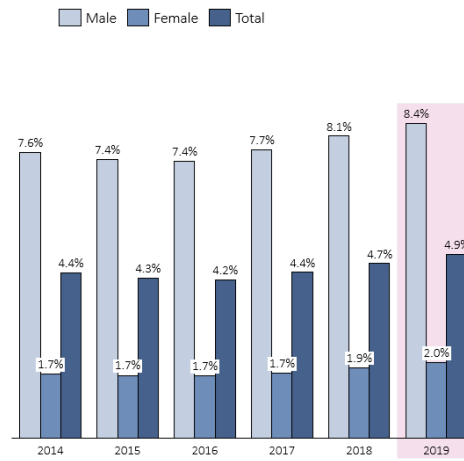
MALE VS FEMALE

Physics- There has been a growing trend in the proportion of males and females taking physics since 2017

Physics entries 2014-2019 for male vs female



Physics entries 2014-2019 as proportion of total entries by male vs female



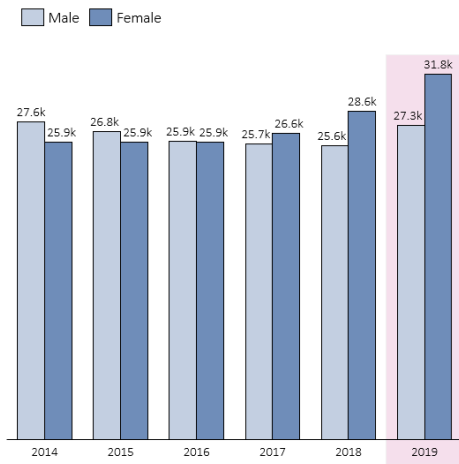
Source: JCQ Results 2014-2019

There's a similar story with Chemistry where female entries have grown strongly again (up by over 3000) and are now at their highest level in the six years we record. But while there are over 4000 more female than male entries to Chemistry, the share of entries for males is still marginally higher. Here, though, the gap is closing fast. The 2014 gap in favour of males for Chemistry A level of 1.5ppts has reduced to just 0.4ppts today.

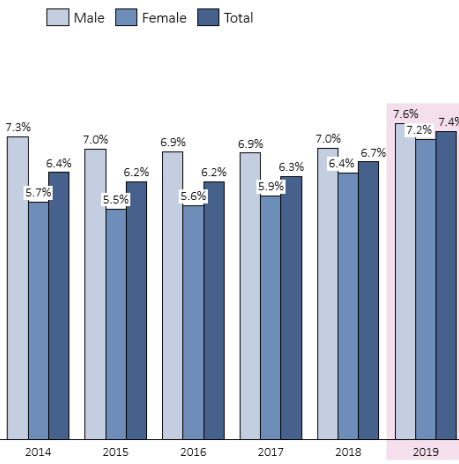
MALE VS FEMALE

Chemistry- Female entries increased by nearly 10% but still have a lower proportion of entries than males

Chemistry entries 2014-2019 for male vs female



Chemistry entries 2014-2019 as proportion of total entries by male vs female



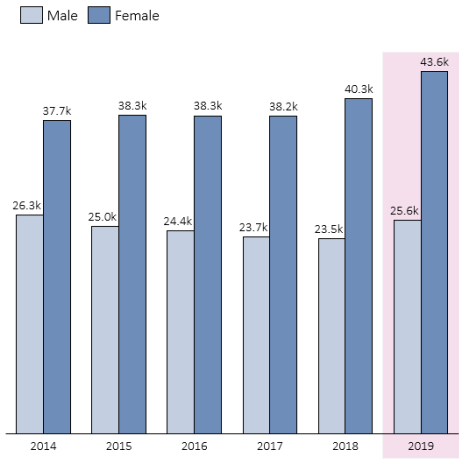
Source: JCQ Results 2014-2019

Biology has long been a female dominated subject although entries and entry shares have grown this year for both males and females. However, the gap in favour of women in terms of entry share has widened again marginally.

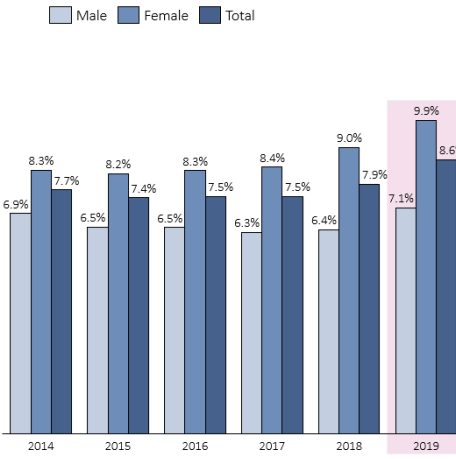
MALE VS FEMALE

Biology- The total entries and proportion of individuals taking Biology continued the trend, increasing again in 2019

Biology entries 2014-2019 for male vs female



Biology entries 2014-2019 as proportion of total entries by male vs female

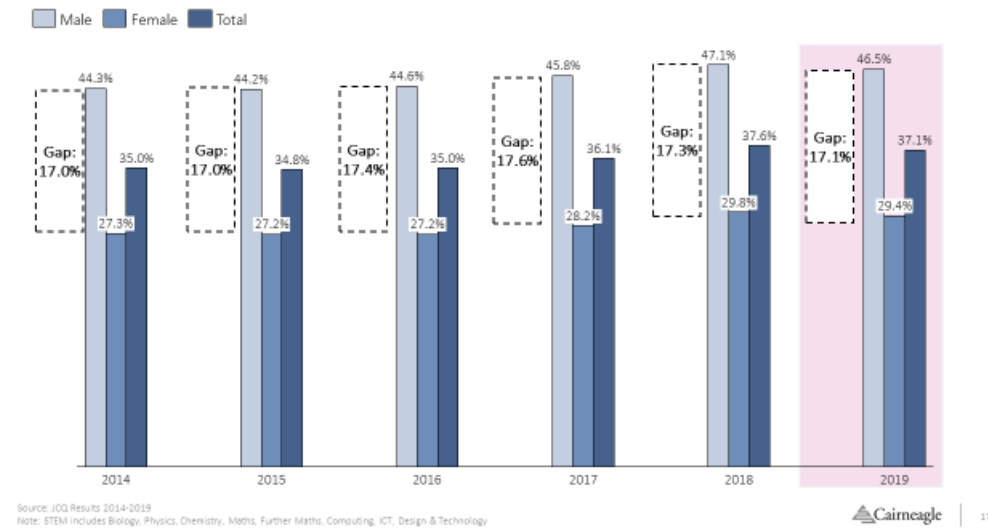


Source: JCQ Results 2014-2019

The popularity of the broader 'STEM' subjects group continues for boys but with a slightly lower share of entries this year at 46.5%. STEM subjects' share of entries for girls lags behind at 29.4% and the gap between the two remains stubbornly over 17pts.

STEM share of subjects has dropped marginally for both boys and girls – and the gender gap persists

STEM entries as a share of total entries, 2014-2019



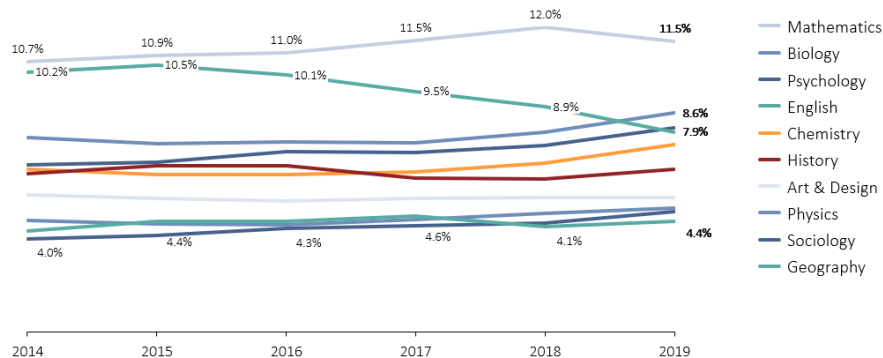
English and Mathematics – blood pressure alert

In the top ten subjects, only mathematics and English are showing notable downward trends in market share and this is a concern as these are definitely high blood-pressure subjects amongst educators.

SUBJECT POPULARITY

The top 10 subjects by proportion of entries has barely changed in the last 6 years. However, English has strongly declined, mathematics has dipped for the first time since 2014, and Biology and Psychology have become more popular

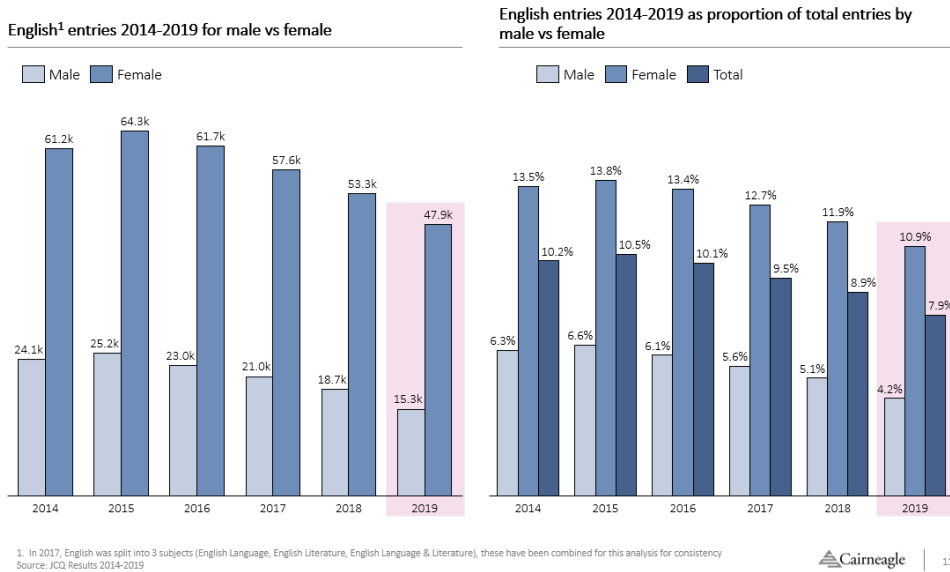
Number of entries as % of total entries, top 10 subjects, 2014-2019



Source: JCQ Results 2014-2019

Much has been made in the [press](#) and on social media channels recently about the decline in popularity of English as a subject, both at A level and for university study and this is borne out by the stark trends seen below:

English – there a been a significant decrease in English entries both from for males and females



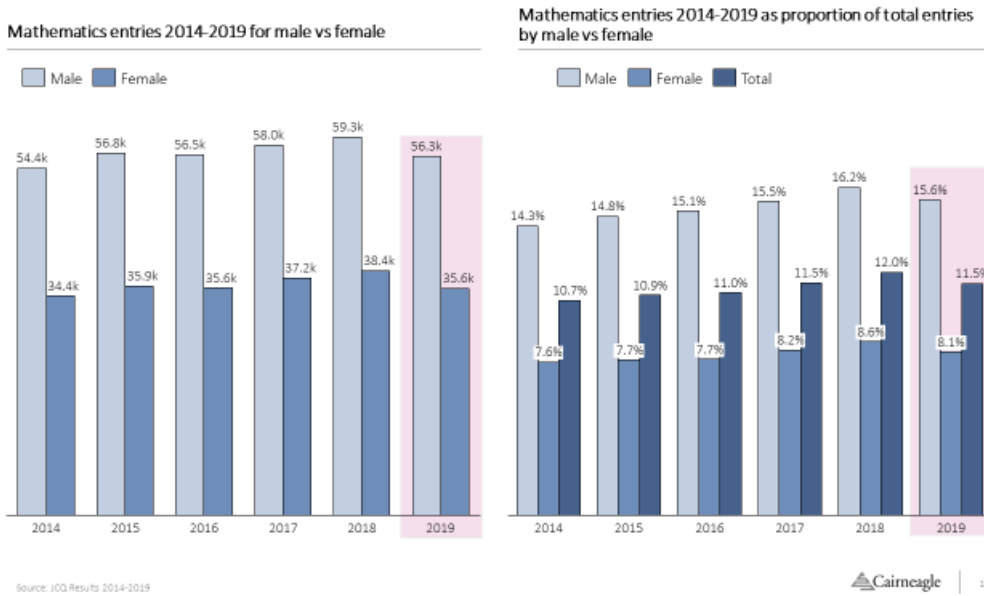
This trend does seem to be specific to English as a subject (incorporating English, Literature and Language) as other top ten arts and humanities subjects are either growing or stable. Some have attributed this trend to the new GCSE being clunky and off-putting. But the reformed English GCSEs were first awarded in 2017, therefore flowing through to A levels only this year, while the decline in A level entries started in 2016 (don't forget we're using 'share of entries' which measures something like subject preference in the cohort and will largely remove the effects of population declines which underlie this whole period). Others think the mood music that constantly reinforces the value of STEM subjects and devalues arts and humanities is at play. But other arts and humanities subjects haven't been so affected and the increase in STEM subjects doesn't match the decline in English.

Between 2016 and 2019, STEM share of entries has increased from 35.0% to 37.1% - a proportional increase of 6.0%. Over the same period, share of entries for the English A level subjects has declined from 10.1% to 7.9%, a proportional decline of 22%, so that just doesn't compute. (Even counting psychology as a STEM subject - it's more commonly thought of as a social science - the increase in STEM share of entries is still only 7.9%.)

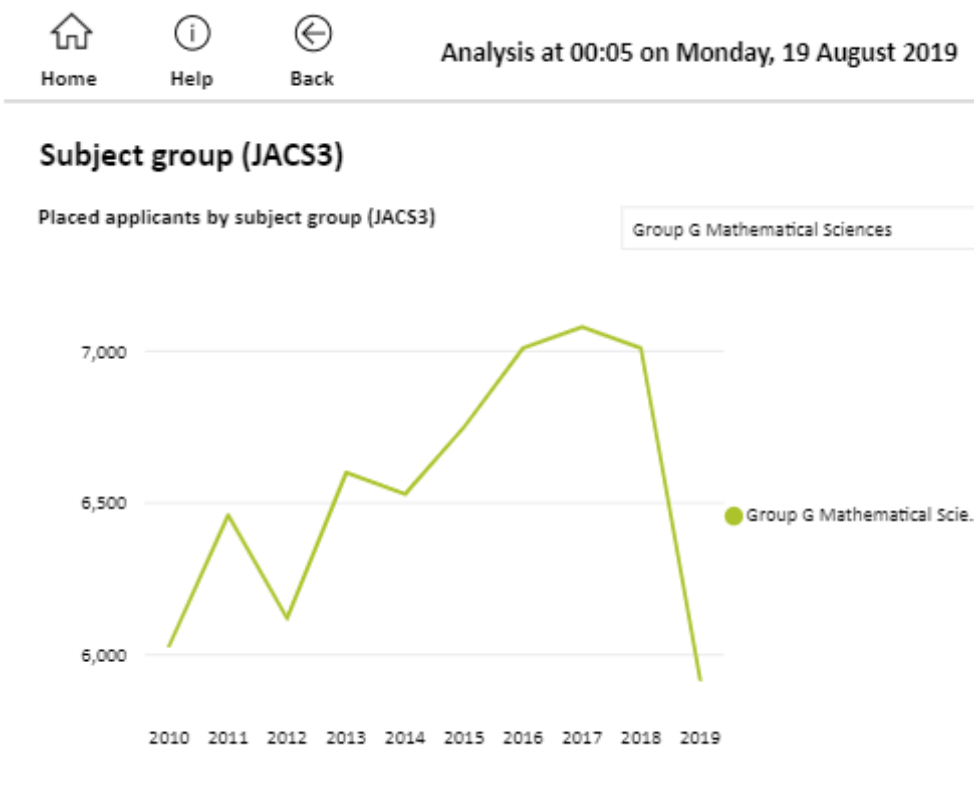
Blood pressure will also be rising at the first decline in mathematics A level entries and share of entries for several years.

MALE VS FEMALE

Mathematics – entries for both male and female as proportion of total entries have decreased in 2019 following several years of annual growth



Leaving aside the raw numbers (a decline of 5733 entries or 6%), the share of entries decline for mathematics is from 12% to 11.5%, a proportional decline of about 4%. This decline is exactly coterminous with the introduction of the new GCSE (first examined in 2017) and the new A level, first examined this year. Although, as Ofqual explained in this [blog](#), a few thousand students took their A level after just one’s year’s study which could make up the difference, the decline in mathematics A level has translated through to a matching drop of about 15% (as of Day 4 after A level results) in UK acceptances to mathematics degree courses this year, so something’s going on – see below from UCAS’s data explorer.



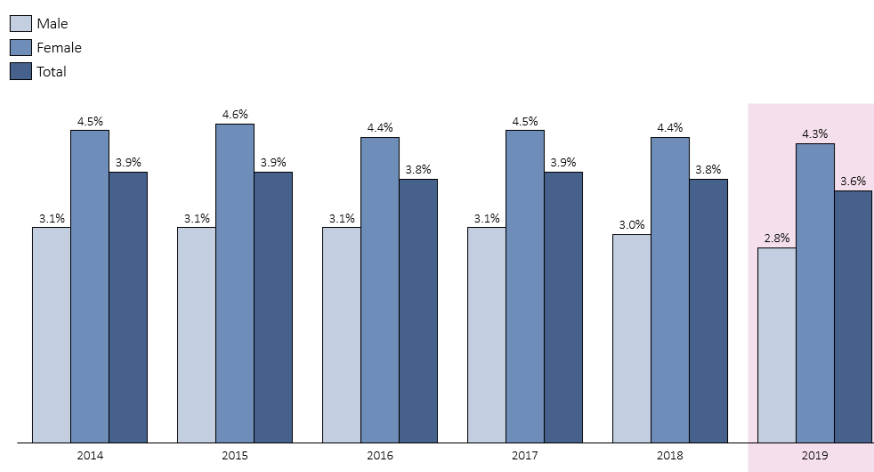
Modern Foreign Languages (MFL)

MFL's share of entries has declined by about 5% proportionately (from 3.8% to 3.6%) but the picture is more stable than you might believe from the headlines.

MFL

MFL as share of total entries has remained fairly constant over six years

MFL entries as a % of total entries, 2014-2019



Source: JCQ Results 2014-2018
Note: MFL includes French, German, Irish, Other Modern Languages, Welsh, Spanish

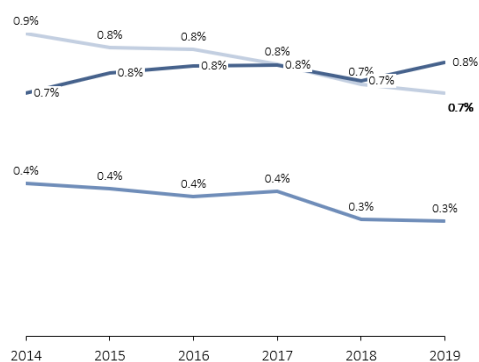
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As JCQ noted, Spanish has overtaken French this year although only for male entries – for girls it's now matching market share with French.

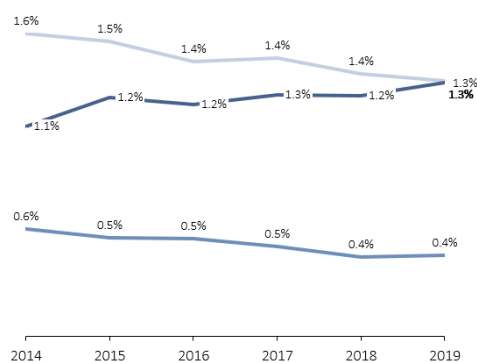
FRENCH, SPANISH, GERMAN

Overall, the proportion of entries into French, Spanish and German remain higher among females compared to males. There has been a strong increase in Spanish entries in 2019 among boys

Number of Male entries as % of total entries, French/Spanish/German, 2014-2019



Number of Female entries as % of total entries, French/Spanish/German, 2014-2019



— French — German — Spanish

Source: JCQ Results 2014-2019

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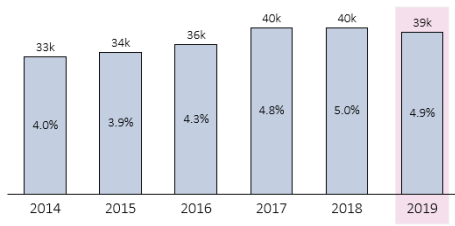
Extended Project Qualification (EPQ)

The promising rise of the EPQ, providing curriculum breadth in a now narrower A level curriculum since the demise of AS levels, appears to have ground to a halt.

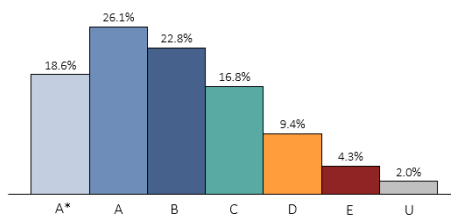
EPQ

Numbers for EPQ did not continue to rise in 2019. The grade distribution barely changed from 2018 to 2019 and is still skewed towards A grades

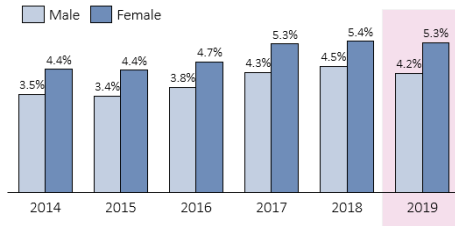
EPQ entries, as % of total A-Level entries and absolute, and with gender split over time



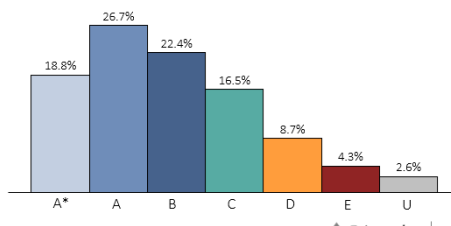
EPQ average grade distribution, 2018



EPQ entries as a share of total entries, male vs female



EPQ average grade distribution, 2019



Source: JCQ Results 2014-2019

A full set of A level analysis slides is available on the Cairneagle Associates website [here](#).

With thanks to Christoffer Fogtdal, Strategy Consultant at Cairneagle Associates for analysis/slides.

ⁱ Source Mark Corver, DataHE