



Report on the Physics Admissions Exercise 2020

In 2020 Oxford Physics received a total of 1805 applicants for places in Physics or Physics and Philosophy, a decrease of 23 (1.3%) on the 2019 figures. Of these, 1795 applicants were contesting the 200 offers available for 2021 admission places, or approximately 9.0 applicants per offer.

Of all applicants, 1199 (66.4%) were classified as “UK” applicants (up from 58.4% in 2019); 159 (8.8%) were classified as EU but not UK (down from 18.4 % in 2019), and 447 (24.8%) were classified as non EU (up from 23.1% in 2019). Overall, the numbers reflect both the change this year in fees status for EU students as well as a continued growth in the number of home and overseas applicants.

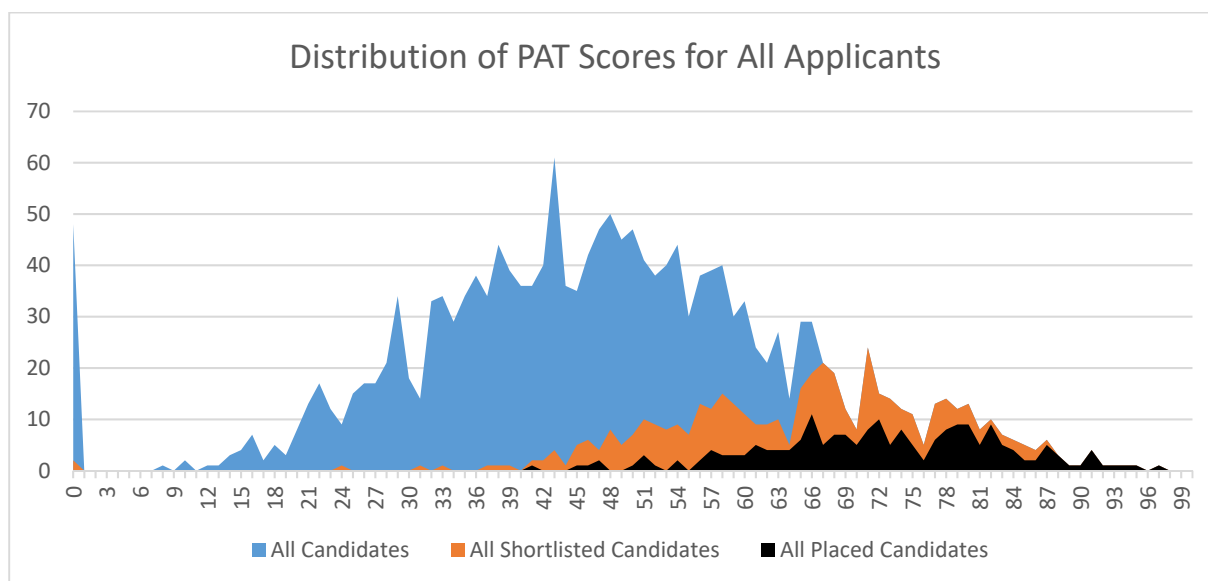
Across the collegiate university, Physics aims to interview around 2.5 applicants per place. For this short-listing, we used the results of the Physics Aptitude Test (PAT), the contextualised GCSE¹ (cGCSE) score as well as all other contextual information described at <http://www.ox.ac.uk/admissions/undergraduate/applying-to-oxford/decisions/contextual-data> to reduce the number of applicants to around 2.5 per place.

The PAT has been run for many years, and it is a consistent predictor of future performance at Oxford. The test is set to a defined syllabus and the content is checked by schoolteachers to ensure that the level is appropriate. Maths and physics elements are mixed together into a single two-hour paper. Each question is separately double blind-marked (markers focus on individual questions to ensure consistency of approach). Further details, including the admissions criteria and sample papers, can be found on the Oxford Physics Admissions website at: www2.physics.ox.ac.uk/admissions/.

The PAT is crucial to our shortlisting procedures. This year saw two major advance concerns – first, that Covid might prevent applicants sitting the PAT, and secondly, that the substantial Covid-induced disruption to applicants’ education would compromise our ability to use the PAT to shortlist candidates with the most ability and potential to benefit from our course.

Significant efforts were made to ensure that all applicants who registered for the PAT could sit it. 1685 candidates were able to sit the PAT broadly as normal, either at their school or a registered test centre. However, in some cases national lockdowns closed test centres or candidates were obliged to miss their booked PAT test due to Covid-induced self-isolation. A total of 46 candidates who knew in advance they would be unable to attend a test centre sat the original PAT at home via remote invigilation from Oxford, while a further 25 candidates who had to miss the original PAT due to last-minute self-isolation or government lockdowns sat a second back-up PAT paper by remote invigilation two weeks later. In total there were 1731 marks for the original PAT (mean = 49.1%, SD = 15.9%) and 25 marks for the back-up PAT (mean=53.3%, SD=17.2%)

¹ The cGCSE score is expressed as the number of standard deviations the applicant is away from their ‘expected’ number of A*/9/8 grades. It will typically be in the range -3 to +3, expressed to 2 decimal places. Overseas applicants, or others lacking GCSE information, are assigned a neutral cGCSE score of zero.



We are extremely grateful, even more so this year, to all schools and test centres for hosting candidates. This year saw a significant increase in the number of declared special circumstances, medical certificates or letters drawing attention to adversities in applicants' personal lives that may have affected their performance or ability to participate in the test. These were taken into account in making shortlisting and offer decisions.

We are also grateful for the yearly advice we receive from schools and teachers on adapting the PAT to changes in school syllabi, and we also expect to continue to make further changes reflecting such advice in subsequent years.

The total marks achieved on the main PAT test ranged from 8% to 97% , with a mean mark of 49.1% (41.5 % in 2019) and a standard deviation of 15.9% (16.8 % in 2019). More details are shown in the graph, where the y-axis shows the number of candidates achieving the PAT score marked on the x-axis. The spike at '0' is almost entirely due to candidates who either withdrew or did not register for the PAT test.

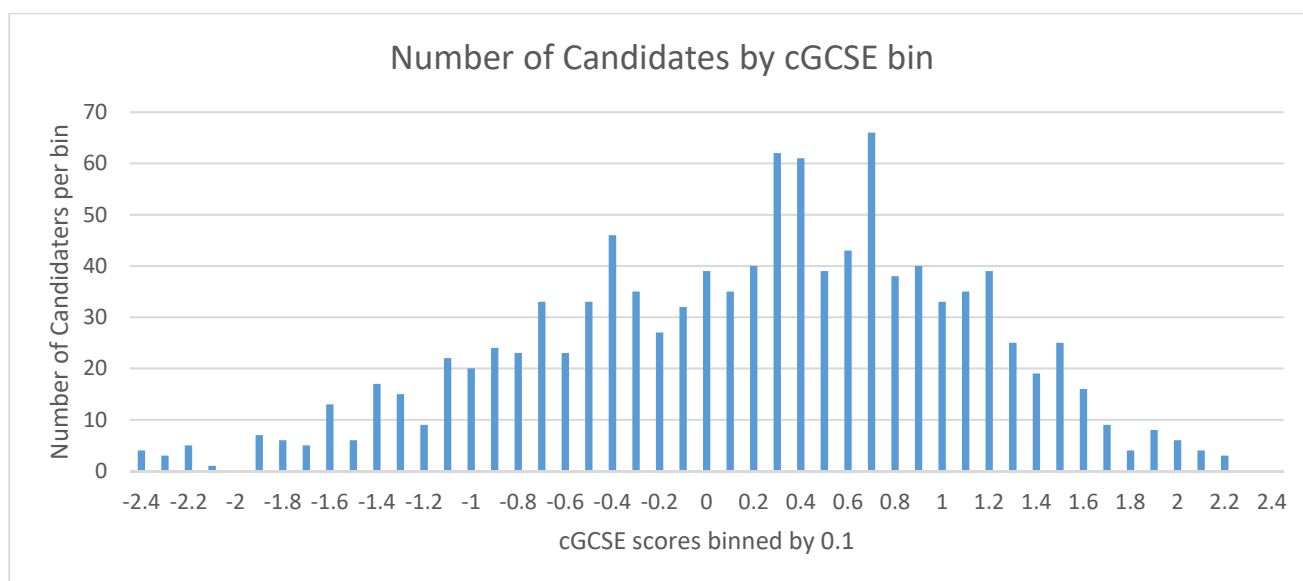
A major concern was that applicants with the ability and potential to do well on the Oxford course would be unfairly disadvantaged by extra differences in educational provision that arose during the national lockdowns starting from March 2020. To this end, following the PAT marking both the central University Admissions Office and the Physics department performed statistical analyses of the PAT marks by demographic to quantify any such effects, comparing results of the 2020 PAT to the average of the 2017 - 2019 PAT marks.

These analyses found that compared to previous years there was **a small but statistically significant change** between relative PAT results from applicants from the UK independent and state sectors (an average PAT differential of 10.0 marks in 2020 compared to 6.9 marks in 2017-19) but **no significant change** in relative results from applicants from contextually 'least disadvantaged' and 'more disadvantaged' backgrounds (an average PAT differential of 9.0 marks in 2020 compared to 8.0 marks in 2017-19). These results were shared with college tutors to inform their shortlisting and offer decisions.

The principal determinant for shortlisting is the R-score, which combines the cGCSE with the PAT mark as follows:

$$\text{R-score} = \text{PAT mark} + 10 \times \text{cGCSE}.$$

For 2020 applicants, their GCSEs were taken pre-Covid and were unaffected by the pandemic. The figure below shows the cGCSE distribution for the 1098 Oxford physics applicants with a cGCSE score (excluding non-UK applicants or others without GCSE information, who are all assigned a cGCSE score of 0)



The 341 candidates with R-scores higher than 66.9 were all automatically shortlisted for interview, with a further 59 candidates with slightly lower R-scores also automatically shortlisted after the inclusion of contextual data, giving a total of 400 automatically shortlisted candidates (457 in 2019). Reflecting the unique Covid-induced circumstances of this last year, a further 83 applicants (compared to 40 in 2019) were also shortlisted, who were below the automatic thresholds but whose application forms showed other evidence of excellence or mitigating circumstances.

A total of 483 candidates were shortlisted and invited for (remote) interview this year. A key goal of the Oxford admissions process is that the probability of admission should not depend on the applicant's choice of college. Short-listing is therefore followed by a reallocation process, in which candidates are transferred from first-choice colleges with a large ratio of candidates per place to first-choice colleges with a smaller ratio of candidates per place. This aims to ensure that, for each college, the ratio of interviewed first-choice applicants to places is as close as possible to 2.5 to 1. This year 82 candidates were reallocated. Reallocation has been practised by the University for many years, assuring that all strong candidates have the same chance of obtaining places at Oxford, although possibly not at their first-choice colleges. Reallocation is not an indicator of the strength or weakness of a candidate – this year reallocated candidates had R-scores varying from 51.9 to 88.0.

Every short-listed candidate has two interviews given by a first-choice college and one given by a randomly allocated second-choice college. Each interview is marked out of 10 based on the



academic judgement of the interviewing tutors. The scale is such that a mark of 6 corresponds to 'acceptable'; an average interview mark of 8 or higher will almost certainly result in an offer, while approximately 1% of interviews are scored as '10'. For candidates offered a place, the average interview mark this year was 7.92. We would like to express our particular gratitude this year for the hard work of the teachers and IT staff of applicants' schools for their work in facilitating the interviews and making appropriate spaces available to them for their interviews.

After the interviews, the three interview marks are combined into a single score (out of 100). To guide admitting tutors, an overall ranking was produced based on the post-interview R-score:

Post-Interview R-score = (PAT mark out of 100) + 10 x cGCSE + 2 x (Interviews out of 100)

This ranking is for guidance only; all applicants are assessed individually based on their R-scores, PAT scores, interview results, and information on the UCAS form, including contextual information, and then compared centrally against all candidates applying to Oxford Physics. To ensure that the strongest candidates obtain places, all colleges have access to information on all candidates through a central database, and colleges are actively encouraged to flag up strong candidates they will be unable to offer a place to themselves. As a result, 15 candidates were offered a place at a college that had not interviewed them at all, either as first or second college.

Ultimately, 200 offers were made for entry in 2021. These include 7 open offers, in which a college is not specified at the time of the offer. These are designed to cover the anticipated withdrawal rate of candidates who are made an offer and subsequently decline it. The offers include 15 offers made for Physics and Philosophy. A further 4 deferred offers were made for entry into Physics in 2022.