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UNIVERSITY OF OXFORD

From the Physics Admissions Coordinator

Report on the Physics Admissions Exercise 2022

In 2022, Oxford Physics received a total of 1633 applicants for places in Physics or Physics and Philosophy, a decrease of 152 (8.5%) on the 2021 figures. Of these, 1605 applicants were contesting the 191 places available for 2023 admission places, or approximately 8.4 applicants per place, with 28 applicants seeking deferred places. Compared to 2021, there was a slight decrease in the number of available places, reflecting capacity pressures in colleges following the Covid years.

Of all 1633 applicants, 1033 (63.3%) were classified as "UK" applicants (69.1% in 2021), 120 (7.3%) were classified as EU but not UK (7.3 % in 2021), and 480 (29.4%) were classified as non-EU (23.6% in 2021).

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) 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.

Contextual data[1] is additional information about the background of an applicant, which helps decision-making for all UK-domiciled applicants educated in the UK secondary system, using available information from the government and is disseminated to colleges and departments. The contextual data and flagging policy uses a range of socio-economic and school measures to place individual applicants on a spectrum of disadvantage for more effective identification of under-represented and disadvantaged students.

In recent years, a contextualised GCSE[2] (cGCSE) score produced by the University has also been used as part of the shortlisting. The cGCSE score was based on the ability to compare GCSE results between applicants from schools that are contextually 'similar'. However, the circumstances of GCSE grades in summer 2021 (where they were, as in summer 2020, awarded by teacher assessment rather than external exams) made such comparisons less reliable as levels of grade inflation differed significantly between schools. We hope to be able to return to including some form of cGCSE score in the December 2023 admissions round.

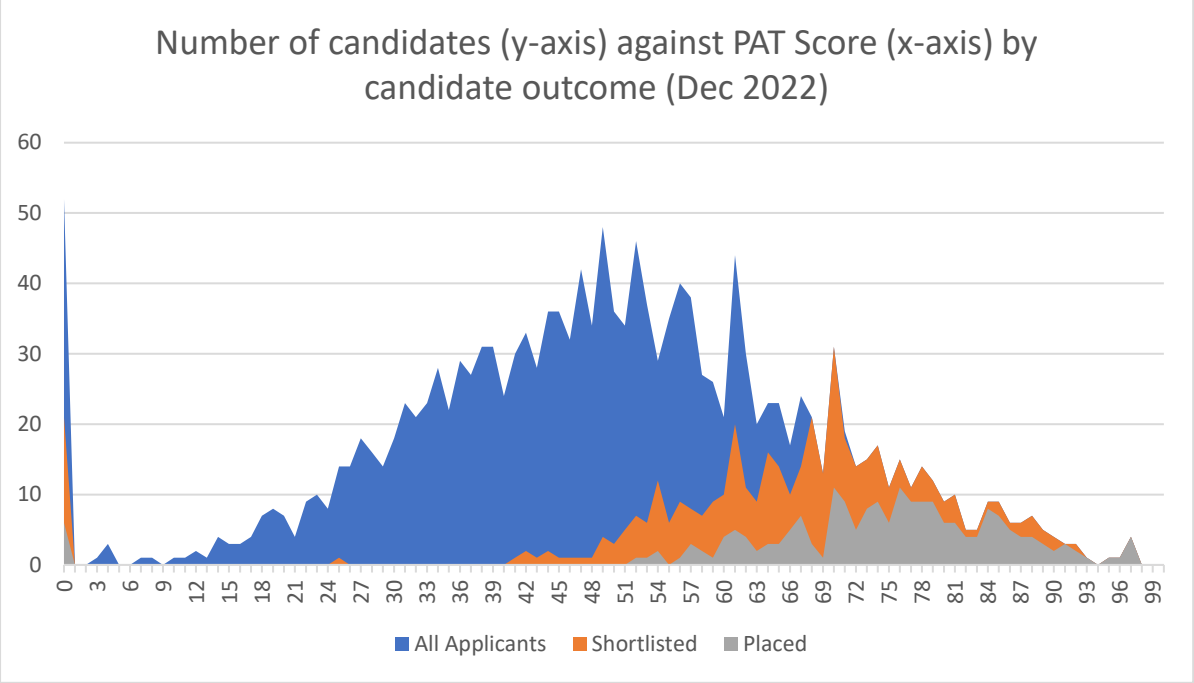
The PAT has been run for many years, and it is a consistent predictor of future performance at Oxford. The test is set to a defined syllabus and both the content and draft questions are checked by school teachers to ensure that the level is appropriate. Maths and physics elements are mixed together into a single two-hour paper. Each question is separately double blind-marked (markers focus on individual questions to ensure consistency of approach).

[1] https://www.ox.ac.uk/admissions/undergraduate/applying-to-oxford/decisions/contextual-data

[2] The cGCSE score was expressed as the number of standard deviations the applicant is away from their 'expected' number of A*/9/8 grades and was typically be in the range −3 to +3, expressed to 2 decimal places. Overseas applicants, or others lacking GCSE information, were assigned a neutral cGCSE score of zero.

Further details, including the admissions criteria and sample papers, can be found on the Oxford Physics Admissions website at: https://www.physics.ox.ac.uk/study/undergraduates/how-apply/admissions-procedures-physics-courses .

When the PAT is written, it is intended to be at a broadly similar difficulty level from year to year, although the actual difficulty of a paper is never known until the PAT paper has been taken. The 2022 PAT ended up a bit easier than the 2021 one, reflected in an improved mean of 51.2% (compare with 43.1% in 2021). However, this may also reflect a return to more normal school conditions compared to those during the pandemic.



We are extremely grateful to all schools and test centres for hosting candidates for the PAT test. 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.

One significant disruption to the sitting of the PAT this year was a typhoon that led to the cancellation of all admissions tests (including the PAT) in Hong Kong. Along with a small number of UK students forced to miss the PAT due to circumstances beyond their control, all such students were interviewed and given an additional back-up PAT paper during the period. All such applicants were over-quota in terms of interview numbers to ensure they did not displace anyone who had sat the original PAT test.

There were a significant number of declared special circumstances, medical certificates or letters drawing attention to adversities in applicants' personal lives that may have affected performance or ability to participate in the test. These were taken into account in making shortlisting and offer decisions.

The marks achieved by applicants who sat the main PAT test ranged from 3% to 97%, with a mean mark of 51.2% (43.1% in 2021 and 49.5% in 2020) and a standard deviation of 16.9% (17.7% in 2021, 15.9% in 2020). More details are shown in the graph above (this only includes marks on the main PAT test). The spike at '0' includes applicants who withdrew, applicants who did not register for the PAT test, applicants who were unable to sit the main PAT test (including all affected by the Hong Kong typhoon), and applicants who have to do two years compulsory military service for whom acceptance has been carried over from a previous admissions round.

One notable trend with the PAT continued this year: of the top 100 applicants by PAT mark, only around a quarter of these had all their secondary schooling within the UK educational system (either state or independent sectors).

As with December 2021, the principal determinant for shortlisting this year was the C-score. Pre-interview this is identical to the PAT:

C-score pre-interview = PAT mark.

We hope to be able to return to the R-score, last used in December 2020 as it incorporates a cGCSE component, for the December 2023 admissions round.

Although the pandemic has now eased, this applying cohort had still been the subject of substantial disruption to their education during the pandemic period. For UK applicants, this involved school closures in summer term 2020 and the spring term of 2021 and, even when schools were open, frequent closures of year groups or classes due to self-isolation requirements.

Our aim in the admissions process is to take the applicants we judge to have the most ability and potential to benefit from our course and teaching, and to make this decision based on the intrinsic strengths of applicants rather than on temporary effects of school closures. Likewise, in the admissions process we are aiming to project applicants forward to their performance on-course, not just comparing the levels attained at age 17 or 18.

As with last year it was therefore decided to set a relatively high automatic shortlisting threshold, to allow for a higher fraction of shortlisted applicants with PAT scores below the automatic threshold but where application forms showed other evidence of excellence or mitigating circumstances. This year, the automatic threshold was set at 68%.

The 281 applicants with PAT scores equal or higher than 68% were automatically shortlisted for interview, with a further 26 applicants with slightly lower scores also automatically shortlisted after the inclusion of contextual data, giving a total of 307 automatically shortlisted applicants (298 in 2021 and 400 in 2020). Reflecting the disruptions to normal educational patterns since March 2020, a further 164 applicants (compared to 202 in 2021 and 83 in 2020) were also shortlisted, who were below the automatic thresholds but whose application forms showed other evidence of excellence or mitigating circumstances.

An additional 21 applicants unable to take the PAT for good cause (the vast majority from Hong Kong) were interviewed and given a back-up PAT test at the same time of the interviews.

This represents a total of 492 applicants 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 applicants are transferred from first-choice colleges with a large ratio of applicants per place, to colleges with a smaller ratio of applicants 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 77 applicants were reallocated to a different first choice college at the time of shortlisting. Reallocation has been practised by the University for many years, assuring that all strong applicants have the same chance of obtaining places at Oxford, although possibly not at their first-choice college. It is not an indicator of the strength or weakness of an applicant; applicants can be reallocated with very high PAT scores.

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 broadly corresponds to ‘acceptable’; 7 corresponds to ‘good’; and an average interview mark of 8 or higher will almost certainly result in an offer. Approximately 1% of interviews are scored as ‘10’.

Applicants are assessed based on the totality of information about the applicant with no one interview, by itself, decisive. While the majority of accepted applicants have three good interviews (at least as viewed by the interviewers), 62 accepted applicants had one interview which scored less than a 7, while 14 accepted applicants had one interview which scored below 6. It is very hard for applicants to assess their own interview performance and we know from conversations with accepted students that it is extremely common for applicants to think that interviews which have actually gone well – even very well – have gone badly.

For applicants offered a place, the average interview mark this year was 7.98 (7.95 in 2021). We would like to express our particular gratitude this year for the hard work of both applicants’ parents (for applicants interviewing from home) and teachers and IT staff of applicants’ schools (for those interviewing from school) for their work in facilitating the interviews and making appropriate spaces available.

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 C-score:

$$\text{Post-Interview C-score} = (\text{PAT mark out of 100}) + 2 \times (\text{Interviews out of 100})$$

This ranking is for guidance only; all applicants are assessed individually based on their C-scores, PAT scores, interview results, and all information on the UCAS form, including contextual information, and then compared centrally against all applicants applying to Oxford Physics.

To ensure that the strongest applicants obtain places, all colleges have access to information on all applicants through a central database, and colleges are actively encouraged to flag up strong applicants they will be unable to offer a place to themselves. As a result, 17 applicants 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 2023. These include 9 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 applicants who are made an offer and subsequently either decline the offer or fail to make the offer conditions. The offers include 15 offers made for Physics and Philosophy. A further 5 deferred offers were made for entry into Physics in 2024.

Every year, there are applicants who are excellent physicists who underperform on the PAT and so we do not get a chance to see their excellence at interview. There are also applicants whom we interview and we would have liked to have offered places to, but are unable to do so because of the finite capacity of the course. We know that every year we turn down applicants who, in the end, turn out to be stronger physicists than some of the applicants we do offer places to. We wish all applicants enjoyment and understanding in their future pursuits of physics.