

PIONEERING APPROACH TO SCIENCE TUITION DELIVERS STEP CHANGE

Oxford, 30 September. Critical skills shortages in science teaching which threaten the UK's ambitions to lead global innovation could be eased with alternative tuition approaches for young people interested in science and technology. Over 90% of GCSE and A Level students completing a pioneering programme led by Oxford University Physics improved their ability and performance.

The Department of Physics has invited GCSE and A level students from every secondary school in the UK to improve their understanding and capabilities in maths and physics, with one-to-one coaching by physics tutors, students and graduates from Oxford and other top universities. Applications close later this week for the 2024-5 programme which starts this month.

This coincides with the first release of results by the Comprehensive Oxford Mathematics and Physics Online School ([COMPOS](#)) since its launch four years ago. These show that:

- Over 90% of students completing COMPOS say their ability was improved and went on to gain A or A* grades in A level maths/physics.
- Over 90% of students report greater confidence in science and around 85% say they are likely to study it at university.
- For the COMPOS students who completed A Levels in 2023, 100% went on to do a STEM degree, with 96% going to Russell Group universities and 50% to Oxbridge.
- The average COMPOS student outperforms at A Level by 55% maths and 48% physics, while the top performing COMPOS students, with an average GCSE score of 9, achieve 100% A* in physics, 93% A* in maths.
- At GCSE level, 86% of students achieved A* in maths compared to 31% of similarly matched students nationally (matched by GCSE average score), 69% achieved A* for physics compared to 21% nationally.
- 98% of students said they would recommend the programme to a friend and 97% enjoyed the course.

The distinctive feature of COMPOS is that it puts students together individually with university students and graduates who help them with assignments based on the national curriculum, and is designed to extend their thinking and capabilities beyond it. It also favours students from disadvantaged backgrounds, whose applications are prioritised.

These students receive free tuition through COMPOS. The proportion of socially disadvantaged students has doubled to 20% in three years, even though only around 7% of A level students in physics qualify for free school meals. The programme actively seeks to open science to a wider community of talent, with 30% of students being female.

Professor Alex Lvovsky, who founded and leads COMPOS from Oxford University Physics said: 'After three years, the number of young people transforming their capability in science through this programme has grown five-fold, and we now have far higher demand than we can satisfy. Our data clearly shows that, while students begin this programme at a lower level than the top A Level students in physics, by the end of it they exceed the top performers.'

This comes amid a continuing teacher recruitment crisis. The UK government's introduction of the International Relocation Payment (IRP) for physics and modern foreign language teachers highlights the critical shortage of physics teachers. Just 487 physics Initial Teacher Training (ITT) teachers were recruited in 2023 – 17% of the 2,820 target – despite physics being a core component of the UK science curriculum.

Politicians are focused on the crisis in education and, particularly, science teaching at party conferences currently underway. The new Labour government has previously pledged to put recruiting 6,500 extra teachers as one of its six 'first steps for change' in government.

Professor Ian Shipsey, Head of Oxford University Physics and a world-renowned particle physicist said: 'Programmes like COMPOS are vital in nurturing scientific talent regardless of background, and the success of the programme shows that our approach really works.'

'As someone who grew up in a working-class family in East London, attended a comprehensive school without a trained A-level physics teacher, and was the first in my family to attend university, I understand firsthand that programmes like this provide the support and encouragement that can transform a passing interest in science into a lifelong passion and career.'

'If the UK wants to maintain its position as a global leader in scientific innovation, we must invest in diverse talent through programs like COMPOS. We're not just shaping individual careers; we're securing the UK's future at the forefront of scientific discovery.'

Demand from students outstrips places on the programme based on current funding. This year the programme is on course for around 3,000 applications, a five-fold increase on 2022. This number is roughly 10% of the total number who took physics A Level last year.

'We would like to continue to grow COMPOS to meet rising demand from schools and students, because we believe this could help to transform science learning across the UK,' Professor Alex Lvovsky of Oxford University Physics, who founded and leads COMPOS, said. 'To keep tuition free for those without means and pay a modest amount to university students working as tutors, we rely on private donors – which limits our ambition to expand.'

'However, the success of this programme both benefits individual students and helps to building a stronger, more diverse pipeline of future physicists and STEM professionals to keep the UK at the fore of scientific discovery and innovation.'

The course follows the school syllabus and sets students assignments which encourage them to think and draw on material at a higher level, focusing on developing crucial problem-solving skills. This approach not only supplements standard school education but also provides students with a deeper understanding of physics. Student testimonials and personal experiences on the programme [here](#).

ENDS

Further information, interviews and enquiries:

PR & Media Contact:
Tessa Curtis, Department of Physics
E: media@physics.ox.ac.uk
M: +44 7767 654122

About COMPOS

The Comprehensive Oxford Mathematics and Physics Online School is part of an award-winning programme of engagement activities delivered by the Oxford University Physics Department, encompassing initiatives that support potential applicants to Oxford from underrepresented backgrounds, as well as local projects that engage residents from areas of Oxford, which are among the 20% most deprived wards in the UK. [More here](#)

About Oxford University Physics

Oxford University Physics is one of the largest physics departments in the world, top-ranked in the UK and among the lead research universities globally in all key areas of physics (number 3 in the QS World Rankings 2024). Its mission is to apply the transformative power of physics to the foremost scientific problems and educate the next generation of physicists as well as to promote innovation and public engagement with physics.

Oxford University Physics leads ground-breaking scientific research across a wide spectrum of challenges: from quantum computing, quantum materials and quantum matter to space missions and observation; from climate science to the development of next-generation technologies for renewable energy; and from designing experiments to understand the nature of existence to revolutionising medicine and healthcare through biophysics. It has spun out 18 companies since launching the University's first commercial venture in 1959 and works with enterprises across most areas of its leading scientific research. [More here](#)

About Oxford University

Oxford University has been placed number 1 in the Times Higher Education World University Rankings for the eighth year running, and number 3 in the QS World Rankings 2024. At the heart of this success are the twin pillars of our ground-breaking research and innovation and our distinctive educational offer.

Oxford is world-famous for research and teaching excellence and is home to some of the most talented people from across the globe. Our work helps the lives of millions, solving real-world problems through a huge network of partnerships and collaborations. The breadth and interdisciplinary nature of our research alongside our personalised approach to teaching sparks imaginative and inventive insights and solutions.

Through its research commercialisation arm, Oxford University Innovation, Oxford is the highest university patent filer in the UK and is ranked first in the UK for university spinouts, having created more than 300 new companies since 1988. Over a third of these companies have been created in the past five years. The university is a catalyst for prosperity in Oxfordshire and the United Kingdom, contributing £15.7 billion to the UK economy in 2018/19, and supports more than 28,000 full-time jobs. [More here](#)