University of Liverpool Mathematics School (ULMS)
Headteacher

Applicant Information Pack

Hours of Work: Full Time
Tenure: Permanent
Salary: £60-75k per annum, negotiable depending on experience
Location: Site close to the University of Liverpool
Start Date: Flexible start. Between May - September 2019

Recruitment Dates

Application Closing Date: 5pm, Friday 15th March 2019
Shortlisting Date: w/c 18th March
Interviews Date: 26th March 2019
Proposed Start Date: May 2019 - September 2019

Application Process

Applicants should submit the following documents electronically to pvced@liverpool.ac.uk by 5pm Friday 15th March 2019:

- A completed Application Form
- A Supporting Statement of no longer than three sides of A4, addressing the personal specification and suitability to deliver the ambitions of the University of Liverpool Mathematics School set out below.
- A current Curriculum Vitae

Short-listed candidates will have the opportunity to visit the University of Liverpool and meet staff concerned with setting up the School prior to interview.

For informal enquiries regarding the post, please contact Prof Gavin Brown (Chair of the University of Liverpool Mathematics School Board of Trustees) on pvced@liverpool.ac.uk.

The Vision of the University of Liverpool Mathematics School

The vision for the University of Liverpool Mathematics School (ULMS), is focused on two principle strands:

- To create a centre of excellence for maths teaching as a hub for the region
- To increase the take-up, and improve the quality, of mathematics across all schools through outreach work in the Liverpool City Region and the North-West, particularly for vulnerable groups, female pupils and areas of low take-up and poor attainment

Set to open in September 2020, ULMS will be at the cutting-edge of pedagogy and technology and have a substantial impact on mathematical education in the Liverpool City Region (LCR). The school will educate 160 students when running at full capacity, building on the existing, successful models of the King's College London Mathematics School and Exeter Mathematics School.

For the most able students, the current post-16 curriculum lacks sufficient challenge. ULMS will create a demanding intellectual environment and A-level curriculum, which aims to develop the mathematical competency and thinking skills that will enable students to enter higher education with the best preparation for the study of mathematics and related degrees, and ultimately thrive in maths-related careers. This will follow and extend the current A-level examinations and include the ability to tackle the Sixth Term Examination Paper (STEP) and Advanced Extension Award (AEA) examinations by the end of Year 13.

ULMS Admissions

Admissions procedures for ULMS will select for ability, but with transparent selection criteria giving priority to students from disadvantaged backgrounds and those for whom local provision may be poor or altogether lacking. The priority is to identify a cohort of students who have a fascination for mathematics and a strong desire to pursue this interest far beyond A-level. Those students of the highest intellectual potential will be selected, irrespective of gender, economic background, racial and/or religious background.

In collaboration with the University of Liverpool's Department of Mathematics, ULMS will extend existing outreach programmes that are already well-established in the city to identify, develop and nurture promising students in years 10 and 11 (i.e. the GCSE years), as well as developing a substantial outreach programme itself from the outset. Academic programmes will be an essential component of bridging the gap between the current pre-A-level mathematics curriculum and the academic mathematics curriculum offered in ULMS and beyond. A key objective of ULMS is to help raise both attainment and interest in mathematics for the benefit of all students and schools across the LCR (see Outreach section below).

Curriculum

In addition to the core A level subjects of Maths and Further Maths, with Physics or Computer Science, talented young mathematicians will be offered a series of enrichment activities to help them develop ability and confidence in core skills, raise aspirations and prepare them for their future careers.

There will be a bespoke package of academic extension which will incorporate the Aspiring Mathematicians Programme (AMP), a traditional tutorial programme of PSHEE and additional enrichment activities.

Outreach

ULMS will have a major influence and impact on the study of mathematics within the Liverpool City Region (consisting of the boroughs of Halton, Knowsley, Liverpool, Sefton, St Helen's and the Wirral).

Liverpool has 134 Lower layer Super Output Areas (LSOAs) in the most deprived 10% nationally, representing 45% of the City's total. 7% of Liverpool's LSOAs are in the bottom 1% of IMD (Index of Multiple Deprivation) nationally. The average percentage of Free School Meals (FSM) across all LCR schools is 24%, with Knowsley the highest at 32% and St Helens the lowest at c.16%. HE progression rates in Liverpool are also among the lowest nationally.

Each of the local boroughs lags behind national averages in terms of progress to Level 3 courses and the Northwest has the highest proportion of underperforming schools in the country. Nationally, 60% of Year 11 school leavers go on to study Level 3 courses, but in Liverpool boroughs the combined proportion is only 40%, and in Knowsley, a borough in which there is no current STEM A-Level provision, it is 6%. Across the LCR's 57 secondary schools only three have had more than an average of ten students per year studying further maths at A level.

Widening participation and raising attainment for disadvantaged and under-privileged students in Merseyside are key aspects of the vision for ULMS. Specifically, this includes learners at schools with low value added despite high attainment on entry, and those from low participation neighbourhoods and low income backgrounds. In addition, a priority will be to raise the interest of girls in the study of mathematics, whose participation in mathematical sciences and STEM subjects generally is lower than that of boys. ULMS will work with the University of Liverpool's Widening Participation team make use of data from the POLAR database and other sources to prioritise schools with which to work and to target activity.

ULMS will establish an ambitious and substantial outreach programme from the outset. A key aim of the outreach programme will be to cater not only to prospective students, but to benefit both students of all abilities and teachers of mathematics across the whole region. We want to help raise both attainment and interest in mathematics for the benefit of all students and schools across the LCR. The School's Outreach Plan will prioritise student outreach initially and will target pupils in schools meeting one or more of the following criteria; a high proportion of pupils not meeting their full potential, poor uptake of A level mathematics, a high percentage of FSM eligibility, and those located in areas of high social deprivation. Key activities could include:

- Mathematics Masterclasses held at the University of Liverpool, currently for Years 8 and 9
- GCSE enrichment sessions for Years 9-10
- Mathematical Competitions for GCSE maths students
- Easter revision classes for Year 11 students aimed at increasing the number of students attaining the highest grades in mathematics
- Weekly mathematical problem-solving sessions and termly problem-solving conferences for Y12 / Y13 students.
- School visits by ULMS students assisted by staff from the School and University to promote high aspirations and develop a positive mathematical culture across the region
- University-based summer schools focussing on mathematics
- Subject specific CPD for teachers across the region, focussing on partner schools in key areas, making use of the expertise and learning experience at ULMS and the University

As Headteacher the successful appointee will have a key role to play in shaping the Outreach Strategy for the School.

The number of students that come from under-represented backgrounds is far greater than can be reached by any single agency. ULMS will take a leading role in forming an ambitious and transformative mathematics education strategy for the LCR with widening participation at its core. ULMS will act as a beacon of excellence, working with a consortium of partners including the

University of Liverpool's Department of Mathematics and Outreach Team, as well as local organisations such as Maths Hubs, Mathematical Education on Merseyside, the Liverpool Mathematical Society, the Merseyside Collaborative Outreach Programme, School Improvement Liverpool and Liverpool Counts.

Ultimately the success of ULMS will be measured by higher attainment at GCSE maths across the region, particularly in target schools, by increased take up of Level 3 maths courses and by recruitment and retention of effective maths teachers to the LCR. The School will act as a catalyst for an ambitious programme of regional activity that results in the Liverpool City Region becoming a national Centre of Excellence for the teaching and study of mathematics.

Staffing

The Headteacher will be an inspirational and motivational leader with personal credibility in the mathematical field who will have a teaching load. There will be a three Assistant Headteachers who will also have specific specialisms and will all be inspirational teachers.

At full capacity there are likely to be between eight to ten permanent members of ULMS staff, with extra capacity drawn from the University of Liverpool. In addition to core teaching personnel, arrangements will be made for members of the University staff, Postgraduates and Undergraduates to play a significant role in the activities of the school.

The sponsors and Trustees of the school will take an active and engaged role in the governance of the school in order to ensure that the School is well supported to deliver its ambitious outcomes.

Governance

ULMS has been incorporated as a Single Academy Trust.

In addition to a Board of Members, a Board of Trustees has been established which will be the main governing body of the school. The Board of Trustees is chaired by the University's Pro-Vice-Chancellor for Education.

Responsibilities of the Role

To accomplish our vision, we are seeking an outstanding candidate who can lead, innovation and deliver a new cutting-edge 16-19 experience.

In Pre-Opening Phase (now until 31 August 2020), to:

- Shape and develop all aspects of the ULMS.
- Promote and champion the school.
- Lead outreach to support the principle aims of ULMS.
- Recruit an exceptional workforce.

In Post-Opening Phase (September 2020 onwards), to ensure that:

- Maintain a teaching commitment to ensure active engagement with the student body and to lead by example.
- The needs of the students remain central to the decision-making process.
- ULMS delivers outstanding teaching, learning and assessment (TLA) which maximises outcomes. To have a well-planned schedule of walkthroughs, graded lesson observations, focus group and learner views to monitor the quality of TLA in the classroom.
- There is a substantial programme of targeted outreach to improve the recruitment to, and ultimately success of, students into 6th form mathematics/physics, with a particular focus on under-represented groups.
- There is a rigorous and transparent self-assessment process, which allows for a fair and accurate assessment of ULMS's strengths and weaknesses. To identify a clear pathway for any improvements that are identified and to ensure that any changes are implemented within an agreed timeframe.
- Well-designed tracking and monitoring processes are in place to regularly assess the progress of learners on all A-level courses measured against their minimum target grade (MTG). To engage subject tutors in this process with regular progress reviews throughout the academic year.
- Managers maintain a clear focus on developing learning across the School with a well-planned programme of staff development for all teaching staff. This process will be built around a Professional Development Review, which takes into account individual staff results, walkthrough feedback and learner views.
- Managers and staff have high expectations of learners in terms of attendance, attitude and achievement.
- There is a clear pathway allowing the proportion of learners who progress to higher levels of study in mathematics to be maximised.
- Learners are supported not only academically but holistically too, by recognising the importance of their personal and social development.
- The tutor programme and the scope of enrichment/enhancement opportunities fit the needs of the learners.
- ULMS stays in strong financial health and in a secure position to adapt to any changes in funding models.
- There is an appropriate level of investment in resources so that learning takes place in well-equipped accommodation with modern ICT facilities to enhance learning opportunities.

ULMS Headteacher: Personal Specification

	ESSENTIAL CRITERIA	DESIRABLE CRITERIA
(Identified from Application form, CV, Supporting Statement, Interview, References)		
	EXPERIENCE	
1.	Successful teaching experience including of 16-19 mathematics to at least Further Mathematics level.	Successful experience of teaching mathematics to STEP level.
2.	Successful management experience including conducting performance reviews, working to budgets, creating and maintaining systems etc.	Successful experience as a Head of Mathematics or Assistant Head.
3.	Experience of developing, delivering and evaluating effective outreach activities.	Experience of using innovative pedagogies, including ICT, group work, formative assessment, research projects etc.
4.		Experience of working with networks of schools.
5.		Involvement in CPD in mathematics education or management.
	EDUCATION, QUALIFICATIONS AND TRAINING	
1.	Good 1st degree in a STEM subject such as Mathematics, Physics, Engineering or Computer Science.	Postgraduate degree in mathematics, mathematics education or mathematics-related subject.
2.	Qualified Teacher Status	PGCE
	PERSONAL ATTRIBUTES AND CIRCUMSTANCES	
1.	Ability to relate to and inspire students to develop their talents.	
2.	A genuine passion for the teaching of mathematics at the very highest level to the most gifted youngsters.	
3.	Willingness to innovate.	

4.	Proven track record in leading and inspiring others.	
5.	Ability to communicate vision in an exciting way to potential students, parents, funders, universities etc.	
6.	The ability to build excellent and fruitful relationships with sponsors, partner organisations and external bodies.	
7.	Excellent oral and written skills with impeccable attention to detail.	
8.	Supreme optimism, resilience, reliability and integrity.	